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Book Reviews

Aileen Fyfe
Science and Salvation
Chicago: University of Chicago Press, 2004. 325pp. pb. $25.00. ISBN 0-226-27647-1

The book's subject is made manifest by its subtitle, *Evangelical Popular Science Publishing in Victorian Britain*. This fine book is based on a Cambridge Ph.D. supervised by Jim Secord and is an excellent account of how evangelicals dealt with science in popular publications, especially the work of the evangelical *Religious Tract Society*.

In one sense this is a specialist study appealing far more to academic historians of science and is a typical and good example of many such studies made at the present. It is based on thorough and sympathetic research on popular evangelical science in the 19th century and is thus highly detailed and not the lightest of reads.

The author focuses on the scientific publications of the Religious Tract Society (founded 1799) during the mid nineteenth century. She puts the RTS publications in social and religious context, emphasising the explosion of popular publishing in that period, some of which was infidel. The first chapter is entitled *The threat of popular science*, where the threat was not science, and definitely not geology with all its implications for Genesis, but popular science used by atheists to undermine Christianity. The aim of the RTS was not to challenge science, but to stress that it was in no way contrary to faith. Though their publications were a little circumspect on the age of the earth, not one publication argued for a young earth. This is highly significant as it implicitly demonstrates that 'young earth' positions were very marginal at that time. There was none of the fence sitting we find today among evangelical publishers, whether IVP or more popular presses. At that time there were no popular 'young earth' books or tracts with long print-runs like the RTS books and pamphlets. How times have changed!

The actual science of RTS works varied from that of the competent amateur to that of the minor professional (though such demarcation is not true to that era). They did not always make a direct connection between science and the Bible, but sought to present science 'with a Christian tone'. Most of the authors were clergymen while some were journalists and scientists. They included Thomas Dick, who inspired David Livingstone, and William Scoresby, the Arctic explorer turned evangelical clergyman. The RTS covered a vast range of subjects in their publications and were far from publishing only tracts written for conversion. Topics included most branches of science as well as history, church history, poetry and geography to name some. In all these they sought to give a 'Christian tone' and thus neutralise the influence of atheists.

I found it difficult to read this book without thinking of contemporary issues. Why were popular evangelicals not overconcerned by geology and the so-called challenge to a literal Genesis in the mid-19th century? Why are most popular evangelical science books today so young earth in orientation? Why is there the belief or assumption, held by so many, whether scientists or church historians in particular, that Evangelicals HAD to be literalist in that period? In this book Aileen Fyfe puts nails into several coffins like the persistent warfare scenario and the alleged and non-existent battle of geology and Genesis, and the 'young earth' insistence that old earth views are a compromise with the infidel Enlightenment.

I recommend this book for serious study by any who take the history of science and evangelicals seriously, and for a quick dip for most readers of this journal to give

them a wider historical perspective.

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

Mikael Stenmark

How to relate science and religion: a multidimensional model

Grand Rapids, Michigan: William B Eerdmans Publishing Company, 2004. 287pp. Pb. £18.99. ISBN 0-8028-2823-X

The attempts to relate science and religion are legion and made more difficult by a variety of misunderstandings that arise from the imprecise definitions of terms used by participants in the debate. In this book Mikael Stenmark tries to develop a more systematic approach to the issue. His starting point is the view that both science and religion are social practices and as such their relationship is not static, but changes through time. To try to capture this changing relationship he proposes a multidimensional model, comprised of four aspects: social (practices), teleological (goals), epistemological (methodology), theoretical (beliefs, stories, theories). The book is essentially a, somewhat uneven, exploration of these four dimensions.

After brief chapters on the social and teleological dimensions there are three chapters each on the epistemological and theoretical ones. One of the more interesting parts of the book is Stenmark's advocacy of presumptionism as the appropriate epistemological stance in religion, while seeing evidentialism as more appropriate in the academic disciplines of science and theology. Presumptionism means that we should continue to believe what we believe unless there is some good reason to change our beliefs. Being finite creatures with limited cognitive resources and time it is not feasible to continually question all that we believe (be that scientific, religious or everyday beliefs). This is part of Stenmark's extensive discussion of rationality. He adduces additional principles that could enable people to approach changes in belief rationally. For example, his 'cautious principle of belief revision' suggests we change our beliefs in such a way that they remain as close as possible to our original stance. However, this is problematic when faced with the issue of conversion – usually not a cautious revision of belief but a major change in thinking! He further suggests ('strength of belief' principle) that if we encounter many others whose beliefs differ from ours then we should hold our beliefs in such a way that admits there may be a real chance that we are wrong. It is doubtful that adoption of this principle would have served the early Christians well as they, a very small minority, swam against the tide of the Graeco-Roman belief system! While presumptionism may be a rational approach to religious belief, and to everyday life, I am less convinced by the associated principles of belief revision that he advocates.

An interesting conclusion drawn by Stenmark, from his exploration of the relationship between science and religion, is that scientists need to be educated to understand the role that dominant ideologies and religions have in influencing the questions that science asks, the way data are gathered and theories formulated and assessed. For example, in academia today the most prevalent underlying assumptions are naturalism or secular humanism, with most scientists probably unaware that these beliefs influence their work. These issues have to do with the history, sociology, ethics and philosophy of science, areas that most scientists tend to steer clear of as being a distraction from the real work of discovery. Nevertheless they are important to the relationship between science and religion, or between science and ideologies such as socialism or feminism, and perhaps should be taken greater note of by the scientific community.

Having started the book with his key question, 'How should we relate science and religion?' Stenmark ends by admitting that he does not know how to develop an adequate typology of science and religion in an elegant and illuminating way, based on his multidimensional approach. Despite this, the book raises and examines in an interesting way many questions regarding the relationship between science and religion and therefore is a thought-provoking and worthwhile read.

Meric Srokosz is an oceanographer at the National Oceanography Centre, Southampton, UK.

Malcolm Jeeves, (ed.)

From Cells to Souls – and Beyond: Changing portraits of human nature

Grand Rapids, Michigan: Wm B Eerdmans Publishing Co, 2004. 252 pp. pb. ISBN 0 8028 0985 5

This is an excellent book. The Editor, Malcolm Jeeves, is a neuropsychiatrist at St Andrews University. His extensive interests in brain research and his knowledge of associated matters provided the credentials to bring together this distinguished group of specialists. He acknowledges this was made possible through the generosity of the John Templeton Foundation.

The book has a Contents page, an Introduction by the Editor, a main section of collected essays with illustrations and footnotes, a summary, details about the contributors but no Index. The contributors write about the advancing field of the neurosciences in relation to the Christian faith. Throughout the book the motif is that human beings are bodies and as agents perform actions and cause events, complex integrated wholes, a Hebrew view of a *living being*.

Therefore the theme of the book will perhaps be more effectively shown by selecting several articles. Gareth Jones, a medical neurobiologist and ethicist elucidates the question, 'When do we become persons?' Because the Scriptures view humans as complex integrated persons who are bodies there is no immaterial, elusive disembodied soul that can be considered separate from the biological nature of a human. He presents justification for accepting this evidence from the sciences as they assist in the interpretation of untenable meanings of the Scriptures. The Christian hope is for bodily resurrection. Jones describes personhood at the extremes of life, that is, in relation to the embryo and the persistent vegetative state seen in the terminal stages of some patients dying of Alzheimer's dementia. Jones provides a valuable insight into where our human uniqueness lies.

Glen Weaver presents his views in another very good paper. He describes embodied spirituality and the complexity of memory. A specialist in Alzheimer's dementia, Weaver tells how memory may eventually be erased in this condition, cutting the individual off from the past and robbing their memory of any new experiences. He says that because the lower brain levels are resistant to damage in Alzheimer's disease self-identity tends to be retained and therefore dignity, but finally even this feature of personhood is disrupted. Here the chief symptom of dementia is memory loss. He gives an excellent detailed description of the pathology of this condition. In Weaver's view an intact brain is necessary for full spiritual life.

Warren Brown, in an informative essay, discusses dualism, a view that a person is a physical body inhabited by a non-material *soul*. Research however is demonstrating that the attributes associated with the *soul* are dependent on neurophysiological processes of the brain. Consequently a human is a body with a brain.

Other writers grapple with other issues, genetics, the theology of human nature and the loss of personhood accompanying the destruction of the cerebral hemispheres. They emphasise that the human being is a person and hence dependent on brain function. A dualistic concept of a *body/soul* is excluded and a search for the *soul* of the developing embryo would seem to be doomed. Some of these writers say that monism offers an alternative to *body/soul* dualism, that humans are only one substance, a physical body. They agree that thinking, deciding and experiencing emerge from the brain and these modalities are associated with personhood. Some imply that the *soul* could be considered an aspect of human existence but not an additional immaterial essence so little is lost by abandoning the *body/soul* dualism.

Other essays discuss fetal personhood explaining that this appears to be acquired over time and is associated with self-awareness. At the other end of life the irreversible loss of brain function equates with a loss of personhood. It is self, this subjective awareness of oneself as a person, that is associated with autonomy.

These authors demonstrate in these essays that the neurosciences have elucidated the present understanding of the person including the theology of human nature. Concepts are clearly defined. Physicalism means the biological nature of humans. Personhood involves moral, spiritual and personal qualities. It is persons who relate to God. *Relatedness* may be a primary issue of personhood, lacking in both the embryo with no relational abilities and also the severely demented patient in a persistent vegetative state.

The Editor achieves his aim. This is an outstanding book that explains what it means to be a person. Jeeves has brought together these writers who provide insights on the scientific and theological particulars that help explain what makes us human. This book will be a valuable addition to the library of any reader of this review who may be interested in the neurosciences, especially scientists, theologians. The non-specialist will feel at home reading it.

Ken Mickleson is a retired paediatrician with a theological qualification.

Bruce A. Schumm

Deep Down Things: the breathtaking beauty of particle physics.

Baltimore: John Hopkins University Press, 2004. 378 pp. hb. £15.48
ISBN 0-8018-7971-X.

Bruce Schumm is a young experimental particle physicist from the University of Southern California at Santa Cruz. His book title originates, of course, from G. M. Hopkins' poem 'God's Grandeur'. He writes to convey understanding of quantum field theory (QFT) and the mathematical basis of elementary particles, electro-weak and strong forces. This topic is akin to the Eiger *Nordwand*, looming mysteriously and threateningly in the mists, of which most mortals are oblivious and embodying difficulties only really apparent to those who attempt the ascent. But the view from the summit is magnificent! Readers of *Science and Christian Belief* are fortunate through acquaintance with some expert guides to this territory, notably John Polkinghorne. There are also classic introductions out there, such as R. P. Feynman's *QED*.

Gaining appreciation of QFT and particle physics is an essential prerequisite to detailed scientific understanding of cosmology and issues such as fine-tuning and the anthropic principles. Also, these theories embody profound symmetry principles. It is in this that their striking mathematical beauty largely consists – a 'fit topic for a Sabbath afternoon'!

This book is beautifully written and is a didactic masterpiece. Although largely free of technical algebraic mathematics,

it makes free use of complex-plane diagrams, geometric illustrations of the eight-fold way, spin, isospin, and U(1), SU(2) and SU(3) Lie symmetry groups, together with numerous Feynman diagrams, and explains the central importance of Emmy Noether's theorem relating symmetry and conservation laws. All of these are gently but decisively introduced. However, both Lagrangian and Path Integral formalisms are avoided. The specific goal is to explain the nature of *gauge theories*. To this end, all the necessary ingredients are introduced in progressive chapters and then unfolded in elegant dénouement. On the way, some concepts are directly derived from specific formulae in an accessible and satisfying manner. One gem, on pp.74f, is the explanation – from time-dependent solutions of the Schrödinger equation – of why antiparticles (such as the positron) are equivalent to normal particles travelling backwards in time.

Final chapters are concerned with the current paradigm of the 'standard model' incorporating concepts of hidden symmetry, violations of parity (mirror symmetry), and the Higgs boson, along with impending prospects for detection of the latter at the European Organisation for Nuclear Research (CERN).

This volume is of considerable interest to theists even though the author is non-committal on theism. His portrayal of these 'deep down things' prompts several theistic reflections. Firstly, in Eugene Wigner's words, there is the 'unreasonable effectiveness of mathematics' – except on the theistic view of the *imago dei*. Secondly, no matter how deeply one goes into nature, or back in time to – beyond? – the Big Bang, all scientific theories of cosmic origins necessarily *presuppose* an underlying substructure of mathematical regularity. So who breathes fire into these equations? These remain constant features of reality in our human experience, relating to what we *know* – in part – rather than to *gaps* in our scientific world-picture. Surely, it is on these positive lines of Christian natural theology that we should major?

David Watts is Professor of Biomaterials Science at the University of Manchester in the Photon Science Institute and the School of Dentistry.

Alister McGrath

Dawkins' God: Genes, Memes, and the Meaning of Life

Oxford: Blackwell, 2005. 202pp, pb, £9.99. ISBN 1-4051-2538-1

The author, Professor of Historical Theology at Oxford University, is well placed to write this book. He has doctorates in both biophysics and theology. For a while he was a materialistic atheist, convinced that science provided all that one needed to understand the deepest questions about reality and the meaning of life. While an undergraduate at Oxford he came to realise that atheism, like Christianity, is a belief system rather than self-evident truth. As he examined its foundations he found them less robust intellectually than those of Christianity, and that he had been rejecting a stereotyped version of Christianity. This personal background means that he can understand and empathise with Dawkins in a way that many Christians cannot.

McGrath makes clear what his book is not. It is not a critique of Dawkins' evolutionary biology. Nor is it a religious rebuttal of Dawkins. It is about, 'how Dawkins proceeds from a Darwinian theory of evolution to a confident atheistic world-view, which he preaches with messianic zeal and unassailable certainty' (10). McGrath's concern is, 'supremely the critically important and immensely problematic transition from *bio*logy to *the*ology' (11).

In the opening chapter McGrath outlines the development of evolutionary

biology since Darwin. In the process of doing this he explains Dawkins' characteristic concept of the 'selfish gene'. In the following chapter McGrath deals with one of Dawkins' most important books, *The Blind Watchmaker*. In it Dawkins claims that the ideas of design and purpose are redundant. McGrath shows that Dawkins' claim that Darwinism inevitably leads to atheism depends on a series of unstated assumptions and on setting up a falsely limited set of alternatives: Lamarkism, Darwinism or special creation by God. He ably exposes and rebuts the unstated assumptions, and shows that atheism, agnosticism and Christianity are all intellectually tenable responses to Darwinism. An important point made in this discussion is that there were Christians who were unhappy with Paley's 'watchmaker argument' for theological reasons before Darwin published his work.

Dawkins frequently asserts that faith 'means blind trust, in the absence of evidence, even in the teeth of evidence' (84). This leads McGrath to devote chapter three to the place of proof, evidence and faith in science and religion. He points out that Dawkins' definition of faith is his own and, 'It cannot be defended from any official declaration of faith from any Christian denomination' (85). The one major Christian writer Dawkins quotes in support of his definition is Tertullian, and McGrath shows that he misunderstands and misuses this quotation. Dawkins works with a false dichotomy between 'blind trust' and 'overwhelming evidence'. In reality, in both science and religion, people come to conclusions on the basis of 'probability' which falls short of 100 per cent. This is as true of atheism as it is of belief in God. Dawkins' atheism follows from inferences drawn from observational evidence, and does not rest on absolute certainties. In passing, McGrath also explodes Dawkins' claim that religion is bad for you, by quoting evidence-based studies that show the contrary.

In the fourth chapter McGrath critiques Dawkins' idea that belief in God is a 'meme', a piece of 'self-replicating information' that 'leaps infectiously from mind to mind' (120). He shows that there are a number of difficulties with this concept: there is no reason to suppose that cultural evolution is Darwinian; there is no direct evidence for the existence of the 'meme'; the case for its existence rests on a questionable analogy with the gene; it is an unnecessary concept since the observational data about the development of culture and ideas can be accounted for perfectly well by other models and mechanisms.

Finally, after briefly disposing of the 'conflict thesis' about science and religion, McGrath turns to Dawkins' complaint that, 'The universe presented by organized religions is a poky little medieval universe, and extremely limited' (146). He points out that much religious writing from about 1550 onwards expresses a sense of scientific investigation of the grandeur and glory of the universe leading to an enhanced appreciation of the glory of God. In fact, the desire to enhance God's glory was often a motivation for further scientific work. McGrath helpfully shows how Dawkins wrongly confuses theological talk about 'mystery' with 'irrationality'. Indeed there is something in common between the theological concept of mystery and what quantum physicists are getting at when they talk about the 'counter-intuitive' nature of quantum concepts. As McGrath says,

> A perfectly good definition of Christian theology is 'taking rational trouble over a mystery' – recognizing that there may be limits to what can be achieved, but believing that this intellectual grappling is both worthwhile and necessary. It just means being confronted with something so great that we cannot fully comprehend it, and so must do the best we can with the analytical and descriptive tools at our disposal. Come to

think of it, that's what natural sciences aim to do as well' (158).

This is a well-written, very readable book. Christians will benefit from the clarity it will bring to their own thinking about the relationship between their faith and science. It will also provide useful material for entering into intelligent discussion about Dawkins' views, as he often gets opportunity to express them on the media. Also, it is a good one to lend to non-Christian friends and colleagues who are attracted by his views.

Ernest Lucas, a former research biochemist, is Vice-Principal and Tutor in Biblical Studies at Bristol Baptist College.

Peter E. Hodgson

Theology and Modern Physics

Aldershot: Ashgate, 2005. 282pp. pb £16.99 ISBN 0-7546-3623-2. hb £55 ISBN 0-7546-3622-4.

Physics holds centre stage in this book by the nuclear scientist Peter Hodgson. As many as a quarter of its pages are devoted to a discussion of the author's views about quantum mechanics. Hodgson is a determined opponent of the generally received understanding (which may broadly be termed the neo-Copenhagen interpretation) that sees quantum theory as intrinsically indeterministic. Instead, he believes that contemporary quantum theory is incomplete and that its probabilistic character is simply a statistical effect due to ignorance of certain causally significant details (hidden variables). While this is definitely a minority opinion, it has had some distinguished supporters, most notably Albert Einstein. The most widely discussed deterministic version of quantum mechanics is that due to David Bohm which, though certainly instructive, seems to many to have an air of undue contrivance about its clever scheme. Hodgson, in fact, prefers a different approach, stochastic electrodynamics, though he admits to its being far from fully worked out and that it has not yet been shown to explain such typical quantum effects as the two-slit diffraction of particles.

There are certainly unresolved problems about the interpretation of quantum physics. Approaches to the subject require taking a metaphysical position in addition to a scientific one, as the equal empirical adequacy of indeterminate (Bohr) and determinate (Bohm) interpretations makes clear. Hodgson is philosophically committed to a deterministic view of nature, though with unexplained exceptions for human free will and divine providence. He describes the Copenhagen position as if it were simply a positivist concern with what can be measured. Although Niels Bohr seemed sometimes to talk in this fashion, the book takes no account of subsequent more sophisticated and nuanced views, such as Bernard d'Espagnat's 'veiled reality'. It is important to recognise that the essence of realism is to speak about entities according to their actual natures, and it is not to be confused with a demand for an unproblematic objectivity, if that proves not to be the way things are.

Theology has a more minor role in the book. One of Hodgson's intellectual heroes is Stanley Jaki and he unhesitatingly affirms Jaki's thesis that the Judaeo-Christian concept of a rational but contingent creation was the apt ideological matrix that brought modern science to birth, even going on to question whether science can truly flourish in the long term in a society that lacks that theological conviction. As is often the case with Roman Catholic authors, emphasis is laid on the role of the High Middle Ages in fostering the right approach, with the work on impetus by people like Jean Buridan and Nicholas Oresme being seen as an important preparation for the later insights of Galileo and Newton. This chapter is one of the most interesting in the book. Another rarely

addressed but significant topic is discussed in a chapter surveying the rise and decline of Islamic science, in which the assistance of the Iranian physicist Mehdi Golshani is acknowledged.

This book is very much devoted to its author's point of view. Extensive references are given to writers whose views coincide with his own, and comparatively little attention paid to those who differ. Hodgson makes free use of mathematical formulations of physical theories and there are quite long technical passages that will be heavy going for the general reader. All in all, it is a somewhat idiosyncratic contribution to the science and religion literature.

John Polkinghorne was formerly President of Queens' College, Cambridge.

Ian Hore-Lacy

Responsible dominion – A Christian approach to sustainable development

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

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

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

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

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

It is encouraging that increasing numbers of Christians and churches show signs of putting their toe into the turbulent waters of sustainable development. The subject is wide-ranging and this book provides helpful insights and pointers for further study. It is less strong on governmental work and socio-political arguments that seek to raise awareness about the challenges we all face and the policies and regulations that will be required to turn stewardship beyond

words and into action.

Sir Brian Heap is executive editor of Philosophical Transactions of the Royal Society Series B, and formerly Master of St Edmund's College, Cambridge and Vice-President of the Royal Society.

Nancey Murphy

Bodies and Souls, or Spirited Bodies?

Cambridge: Cambridge University Press, 2006. 164 pp. Pb £12.99 ISBN 0-521-67676-2

In this book from the *Current Issues in Theology* series, Murphy argues for nonreductive physicalism: human beings are purely physical, but rationality, morality and relationship with God are nevertheless real. Murphy admits that this has not been the dominant view of most of the Christian tradition but outlines a case that the Bible really has no clear teaching on the nature of body, soul and spirit. She cites some studies in support of this, but offers relatively little discussion of problematic texts. She thinks that the main theological implication of accepting physicalism would be the need to reinterpret or give up traditional views of an intermediate state between death and final resurrection. Positively, physicalism leads more naturally to concern for the public, physical world than does a dualistic emphasis on an immortal soul.

Murphy identifies three ways in which science has created problems for belief in a distinct soul. In the modified Aristotelian view of Thomas Aquinas the body was composed of matter and form, with the soul being the form of the body. The atomic theory of matter superseded this view of physical objects and raised the problem of how the soul could interact with the body. (There is a striking parallel here to the problem of how God interacts with the material world. Murphy later claims that God is able to interact at the quantum level without breaking physical laws. I would have liked more discussion of why a similar strategy could not be adopted to allow for soul-brain interaction). Next, evolutionary theory stressed the continuity of human beings with other animals, making Christian understandings of human distinctiveness in terms of the soul problematic. Finally, neuroscience shows that all the capacities ascribed by Aquinas to the soul are in fact (largely) functions of the brain. There is little discussion of how phenomenal consciousness could be explained in physical terms.

Murphy then tackles the question of free will. If humans are purely physical then are their thoughts and behaviour physically determined? Murphy offers helpful perspectives on why our thoughts and behaviour need not be determined simply by our genes or emotions. We are able to respond to our situation critically, influenced by reason and morality. However, she refuses to engage the worrying questions of whether our actions trace back to factors ultimately beyond our control and of whether we were really able to choose the right thing when we actually chose the wrong. It is also unclear how her position relates to the free will defence. Could God make us such that we always freely choose rightly?

In justifying physicalism, Murphy argues that intuitions about what is possible are too unreliable and culturally conditioned to support dualism. Citing discussions in earlier works, she claims that physicalism is adequately supported by the success of the scientific research programme that presupposes it, whereas dualist research has not generated much scientific progress. It would be helpful to know how she would respond to a parallel argument that her own belief in special divine action has been scientifically fruitless and ought to be abandoned because of more fruitful, naturalistic research programmes.

Murphy suggests that human distinctiveness arises from our greater neural capacity, conceptual morality, cultural complexity and relationship with God. She does not discuss how this applies to infants and the mentally disabled.

In dealing with the problem of how a resurrected person is the same person as the original who died, Murphy suggests that personal identity depends on identity of memory, moral character and relationships, especially relationship with God. If such elements are preserved then one can be the same person while not being the same body. There is little discussion of worries that creating a new body would produce a mere *replica* of the original person, not the person herself.

Overall this is a stimulating book, sketching the beginnings of a promising theological response to scientific progress. However, if bodies are all we have, many will want more flesh put on the bones.

Patrick Richmond is Chaplain and Fellow of St Catharine's College, Cambridge.

Arthur Peacocke

The Palace of Glory: God's World and Science

Adelaide: ATF Press, 2005. 122pp. pb. £14.95. ISBN 1-92069-128-6

Arthur Peacocke is well known for his many books and lectures on the relationship between science and religion and was justly awarded the Templeton prize in 2001. This book is based on a series of lectures given by him in Taiwan in December 2003. Religion in Taiwan is a complex phenomenon: folk traditions reach deep into people's lives, but the Christian church is active and influential, even though Christians account for only four per cent of the population and Dr Peacocke is sensitive to this variety of traditions in what he says.

Several familiar themes can be clearly seen. First is his critical realism. 'Both scientists and people of religious faith share the presumption that they are talking about something real', although 'they recognize that their knowledge is partial' (x). As he robustly says 'Scientists would leave their laboratories and believers their churches, or mosques, or synagogues, for good if they did not think they were dealing with the realities of nature or of God, respectively' (2). Secondly, although a physical biochemist by training, he is well aware of the complexity of living organisms and human persons: they 'are not just the sum of their physical parts' (xi), as some maintain today. Thirdly, he has a robust conception of God and God's relation to the cosmos. 'God is one, a being of unfathomable richness that includes and penetrates all that there is, but is not exhausted by it' (xi). Fourthly, he argues for a truly critical theology and in seeking to restore theology to a respectable place as an academic discipline, he is prepared to accept that all our theological knowledge is provisional, and that all we can do is form 'the best possible explanation based on limited data' (xi). Here he gives more ground than many readers of this journal would concede. He expresses the hope that the understanding of the world 'discovered by the *sciences*' will lead 'to a radically revised [Christian] theology. To these will very soon have to be added the perceptions and traditions of the other *Abrahamic and world religions*, leading perhaps, one day, to a global theology' (5). This leads him to be very cautious about the idea of miracles which he terms 'incoherent' (8) and he goes on to say: 'If we are going to postulate them, [i.e. miracles] we must have overwhelming historical evidence, which is rarely forthcoming' (8).

Having said this, he has a splendidly high view of God's wisdom and power in creation and he expresses well a theme that touches all our hearts, quoting St

Augustine: 'You have made us for yourself and our heart is restless till it rests in you' (58) and he continues 'Augustine's Maker is ours too and no one who has asked has not had it given and no one who has sought has not found. So let *us* knock and it *will* be opened to us' (58).

I enjoyed reading this book, though it is not always easy reading – I found the chapter titled 'Emergence, Mind and Divine Action: The Hierarchy of the Sciences in relation to the Human Mind-Brain-Body' serious and worthwhile but hard going, and I was greatly stimulated by reading it. He does not walk away from difficult theological problems, and it is also a splendid summary of the many contributions he has made over the years, and apart from its other merits, that is reason alone for it to retain a permanent place on my bookshelves.

Derek Burke is a former Vice Chancellor of the University of East Anglia and a former President of Christians in Science.

Egbert Schuurman
Faith and Hope in Technology
Clements Publishing Toronto, Canada
2003 230pp.pb. ISBN1-894667-28-X

Ethical coffee and fairtrade versus free trade, massive deficits in the NHS, the dominance of multinationals in the economy, cheap airline fares, global warming, genetic engineering in agriculture and in humans; what is the common factor?

In the twenty-first century we are moving, at an ever-increasing rate, into a lifestyle dominated by science and technology, and many books and specialist papers are available which highlight the problems being generated by our technical developments.

This book by Egbert Schuurman goes behind the technical issues and offers a detailed critique of the philosophical assumptions that form the values and drive the thinking in our Western culture today. Schuurman is a professor in Reformational Philosophy at the Technical University of Delft and Eindhoven, and has other books and research papers in related fields of study. His philosophical position assumes God`s rule over cosmic reality as given, and that his cosmic law is the boundary between God the Creator and his Creation. So human beings, and especially scientists, must accept that they can never rise above that law, they must always remain subject to it in their thinking. This principle Schuurman sees as especially important in the development of the life sciences today, but also in the economic modelling that we use to order our everyday living.

This book, as the title suggests, is about the conflict between Christian faith and faith in technology. It is not about the historical conflicts over Genesis 1, neither does it discuss the details of the evolution versus creationism debate. Schuurman is addressing a much more fundamental issue. His thesis is that faith in scientific method and its technical applications, what he calls scientism and technicism, has pervaded the whole of our culture to the extent that the common belief is that the whole of reality can be mastered by science and by rational thinking. In this culture, human beings are masters of their destiny and anything that is possible should be attempted. There are no barriers set by a cosmic law.

This process is illustrated, for example, by our understanding of the theory of evolution, which has metamorphosed from the best scientific model we have into evolutionism as a world-view. This influences even our spiritual thinking so that God's revelation and Christ's life and purpose are now widely seen as evolving developments, and not as eternal truth.

Schuurman's position in this situation is to emphasise the 'boundaries of thought' (39). That is, the limitations on

philosophical and scientific thinking which, in our culture, are scarcely recognised to exist. Thus, when we attempt to answer such questions as what is time, what is eternity, what is space, what is life, our answers do not achieve clarity; every definition raises new questions. The problem is inherent in our reliance on rational thinking and the knowledge derived from that. To cross these boundaries of thought, we need 'faith knowledge', which comes from revelation. Schuurman is arguing for an integration of faith knowledge and rational knowledge, so that 'the logical rationality of science is subject to revelation, and may not hold sway over it.' (58).

I am reminded of a quotation, attributed, I believe, to Donald Mackay, that 'our scientific knowledge should never to used to attempt to prove or disprove the Bible; rather it should be used to enhance our understanding of it.'

The author goes on to see how these precepts, this creative tension of admitting that there are things human beings cannot know, would challenge our thinking and our practice in areas of life such as our view of creation and re-creation post resurrection, our definition of life, embryo research and medical practice, our social engineering and our economic planning. There are no easy answers and no attempt to work out specific answers to particular problems, but a warning flag has been raised to challenge the predominant world-view.

This is a complex book ranging over all the big issues of our way of life today, and showing the interconnectedness of all the big problems that we face. What Schuurman is campaigning for is nothing less than a total re-orientation of our philosophical thinking and the adoption of biblical values as the basis of all our decision-making. He argues that we need to move away from our technical, rationalistic model of reality as a Lego block structure that we can manipulate at will and instead to view reality as a garden that is self-sustaining, diverse, interdependent and subject to natural law (168). Technology and economics are not excluded from it, but they must be ethically incorporated in a very different way from current practice.

This of course, involves challenging the short-term thinking of politics and the expansionist doctrines of capitalist economics, doing battle with the power of the multinationals, and redirecting the selfish aspirations of most of us individually. Hardly a modest objective! But a very challenging read.

There is an extensive bibliography of which about one half is in English, but unfortunately no index.

Alan Jiggins is now retired but was formally principal lecturer in Nuclear Science at the Polytechnic of the South Bank and a Fellow of the Institute of Physics.

Gareth Jones

Designers of the Future – Who Should Make the Decisions?

Oxford, UK: Monarch Books, 2005 256 pp; pb £8.99 ISBN: 1 85424 708 5

There is no stop button in the race for human re-engineering was the arresting headline of an article by Madeleine Bunting in a UK newspaper, *The Guardian*, on 30 January 2006.[1] In it she looked thirty years into the future when her now-young daughter and as yet unknown son-in-law start a family (and yes, she did envisage their getting married, rather against the trend of 20/30s!). The article presents an array of choices available for the prospective parents (provided they have the means to pay). Embryos 'conceived' *in vitro* are to be tested for a range of genetic defects as also envisaged in Andrew Niccol's 1997

1 http://education.guardian.co.uk/higher/comment/story/0,,1698065,00.html

film *Gattaca*. Gene therapy will be offered for some conditions while others will lead to rejection of the embryo. Genetic enhancement for some traits may be available while further improvements may be achieved *via* computer chip implants. Further, the search for perfection, or at least for a competitive edge over the child's peers, will continue with the use of pharmaceuticals and dietary supplements that may improve attention span or enhance memory. It is too easy to dismiss all this as the output of an overactive imagination but we would be unwise to do so. The techniques that Bunting envisages are either available now or are under development. Over 900 genetic tests are already in clinical use somewhere in the world, with a further 300 likely to come on-stream in the next five years. Somatic cell gene therapy, although still very much an experimental treatment, has been applied to a limited number of conditions for several years; germ-line (i.e. heritable) gene therapy just awaits the solution of some technical difficulties. Genetic 'bar-coding' of all new-borns has been considered actively by the UK Department of Health. There are enthusiasts for direct human-computer interfaces, while in the USA, some parents whose children do not suffer from attention deficient hyperactivity disorder (ADHD) are nevertheless giving them Ritalin™ in the hope that it will improve their academic performance. The scenarios presented in Bunting's article may well be just around the corner.

This sets the scene for discussion of Gareth Jones's book *Designers of the Future – Who Should Make the Decisions?* Essentially his view is that the application of a range of techniques which will affect the lives, health and abilities of humans is inevitable. These techniques include genetic selection, genetic modification, new reproductive technologies, cloning, cybernetics and aspects of neuroscience. His approach to all these topics is to look at the current scientific position (and likely near-future developments), to present applications of the science in medicine and to show how these developments compare with previous and current practice. But how should such activities be regulated; is there a particular Christian view? Should we oppose or support these developments?

In formulating answers to these questions, the author presents several themes that are apparent throughout the text. First, there is the tendency of some Christians to try to arrive at 'black and white' answers to the complex questions that arise from modern biomedical technology. Someone wiser than me has said that to every complex and difficult question there is an easy answer – and it is usually wrong! That such answers are indeed often inadequate is amply illustrated by the frequent examples, thought experiments and case studies presented by the author. Secondly, Professor Jones notes, perhaps with a degree of exasperation, that some ways of thinking about these issues have almost become regarded as Christian orthodoxy, especially amongst both Roman Catholics and evangelical protestants. His particular *bête noire* is the view that the early human embryo should be regarded as possessing full human personhood, a view based, in his opinion (and in indeed, in the opinion of the present reviewer), on the misapplication of a very limited number of Old Testament verses. Many readers of this journal will be familiar with the lines of arguments that Jones marshals in support of his case in his scholarly articles. Those same arguments are set out in *Designers of the Future* but presented in a way that, even if a little laboured in places, is more suitable for a general readership. Having said all this, I will also say that, both in his scholarly articles and in this book, I find Jones's argument that the moral status of an embryo is affected by its situation rather contrived, mainly because in *in vitro* manipulations of the embryo, it is human agency that decides what that situation may be. Thus, on this argument, it is individual adult humans who may decide on the moral status of a particular embryo.

The third general theme is that we do not need to be afraid of developments in neuroscience or in genetics, developments that throw light on how we work as living organisms. This knowledge is entirely compatible with the idea that we are not just the output of our genes or of a collection of neurones. Rather, we are whole people made in the image of God and it is consideration of the outworkings of that image that leads on the fourth theme. This will include appropriate use of God's gifts, including the gifts of creative and scientific ability. In general, Jones's view is that, accepting that advances in biomedical technology are inevitable, we should work to ensure that they are used for good purposes. Again generalising, good purposes are those which are congruent with our (Christian) mandate to heal, to reduce suffering and to restore wholeness. The possible use in good medical practice then becomes the main criterion for supporting or opposing a particular technique. Having said all that I should also say that the author does not answer in detail the question in the second half of his title; perhaps we are supposed to assume that it will be members of the medical profession who take on the roles of decision-makers.

Because of his very positive stance on the actual or possible application of recent developments in medicine he suggests that Christians, with some notable exceptions, have been too negative about them. While I am broadly in agreement with this suggestion I also think that Professor Jones may be a shade too optimistic. There are possible applications of all these technologies that should cause us concern. Further, there are individuals, some of whom are influential as opinion-formers, who are entirely happy to see market forces as the primary determinant of what is or is not done. Further, I think the author ignores or plays down the possible negative aspects of those technologies that we have already come to accept, such as those portrayed in Jodi Picoult's wonderful novel, *My Sister's Keeper*. However, although I believe that it would have been right to paint a slightly less rosy picture, it is nevertheless refreshing to find an evangelical Christian author who does not instantly take a negative stance on these issues.

As indicated already, the book is intended for a much more general audience than are the author's journal articles. The style is accessible although the order in which the material is treated makes it a little repetitive. Anyone who is not yet familiar in detail with current developments will find this an informative text, the value of which is enhanced by the useful glossary and by the comprehensive list of biblical and literature references. Finally, all readers, whether or not they regard themselves as experts will surely be stimulated to thought and possibly to action, by the book's final chapter, *Being human in a scientific world*.

John Bryant is Professor Emeritus of Cell and Molecular Biology at Exeter University, Co-Chair of the Higher Education Academy's Special Interest Group on *Teaching Ethics to Bioscience Students*, Visiting Professor of Molecular Biology at West Virginia State University and Chair of Christians in Science.

Sarah Tillett, (ed.)

Caring for Creation: Biblical and Theological Perspectives

Oxford: A Rocha, 2005. 141 pp. pb. £8.99.
ISBN 1-84101-439-7

Of the problems faced by our modern society, environmental ones are among the most complex. Environmental problems are exacerbated by ignorance, greed, injustice and social unrest. Moral, legal and technical issues are interwoven. As the authors of *Caring for Creation* show, there are even spiritual questions as humanity's self-understanding of its relationship to the rest of the world is

brought into play. Sadly, to these questions Christians and the church have been slow and inept in their attempts to reply.

This book was intended to lessen the gap between secular environmental discourse and the church's responses to it. Unfortunately, it mostly fails. There is a need for sustained and serious 'Biblical and Theological Perspectives', but much of what is offered here, as elsewhere, is gratuitous or trite. We know that we are faced with a 'crisis of climate change' (13). The question is whether or not Christians have anything specially to contribute to its resolution. It is a disappointment that so many devout Christians have so little that is smart and incisive to say. These are serious issues. Frivolous reflections about how 'the wheel of the course of nature keeps turning around' (71) and vague environmental moralisms extorted from the story of Jesus on the road to Emmaus (76) are no substitute for serious theological reflection or biblical instruction. This is not a time for hand-wringing or pietistic platitudes.

We need a truly inspiring vision for Christian environmentalism. In the feebleness of this book, the question presents itself: Do Christians have *anything* special to contribute to environmental discourse? Do Christian tradition and Scripture offer *any* unique understanding of nature?

I think the answer is yes, but we have not found it yet. We have not found it because not enough Christian scholars and not enough Christian scientists (and not nearly enough Christian environmentalists!) have taken up these questions. One who does is James Houston. His essay in this book 'Creation and Incarnation' is not the end of debate, but it is a juncture in a stream of Christian reflection with many lines – many yet to be followed to their ends. The main line in is the road from Jürgen Moltmann, particularly in *God in Creation* (SCM Press, London, 1985). But, as Houston points out, Moltmann's speculative approach is not enough to sustain a robust theology of nature. Certainly it is not enough for an evangelical. What is required is a turn to the exegetical, historical and even confessional theologies of scholars like Rowan Williams, T.F. Torrance and Colin Gunton. These are the lines out, as newer theologians like Alister McGrath are now discovering.

Indeed, an exegetical approach to the topic of creation is exactly what this book should have been. In my view, there is a Bible reader's obligation to take the task of reading the Bible seriously. There is also a writer's obligation to the reader to ensure seriousness in content. How much more when the questions at hand are so urgent, the need for grave discussion and practical solution so great, and the implied authority nothing less than Scripture and Christian tradition?

Dr John Drake is an ecologist at the National Center for Ecological Analysis and Synthesis, Santa Barbara, California.

Daniel C. Dennett

Breaking the Spell – Religion as a Natural Phenomenon

London: Allen Lane, 2006. 448pp. hb. £25.00. ISBN 978-0-713-99789-7

This is a verbose and tedious book. One of the reasons is that the author spends the first one-third of the text trying to persuade the reader that science can be used to study religion, and by that Dennett means in particular the evolution of religious belief. The stereotypical reader that the author envisages in his account is a timorous religious believer, fearful of what science might reveal if its cold, rational scalpel is used to dissect apart the inner workings of religion. Dennett, the kindly but firm philosopher, will come and open Pandora's Box (the title of this first long-winded section) to help the poor benighted believer 'to understand

the phenomena of religion through the eyes of contemporary science' (31). Yes, the tone really is that patronising, but do Dennett's stereotypically envisaged readers actually exist? I have never met any, so one must wonder who this book is really for, and the folksy, jokey style, peppered with analogies and examples drawn from American popular culture, will not endear this book to an academic audience. It seems unlikely that Dennett's target audience will ever read this kind of book, whereas scientists coming to the book expecting to find rigorous science will go away disappointed.

This is a pity, for the academic study of religion, and of the roots of religious beliefs, is an important one, and the twentieth century witnessed a huge growth in such studies. It therefore seems odd that Dennett should claim so persistently that only now is the serious 'scientific investigation' of religion really beginning, perceiving his book to be in the vanguard of such studies. The author claims that '… the absence of information about religion is what I want to draw to everyone's attention. We have neglected to gather a wealth of information about something of great import to us' (31). Really? The Society for the Scientific Study of Religion has been active since its founding in 1949 and its Journal has been published since 1961. A plethora of university departments, professional societies, journals and books have been devoted to the topic for more than a century, facts surely well known to the author, so the claim of novelty lacks plausibility.

In Part 2 of *Breaking the Spell* Dennett aims to 'try to tell the best current version of the story science can tell about how religions have become what they are' (103), covering territory familiar to anyone who has read a little in the social anthropological literature: evolution of the brain leads to the disposition to attribute agency to complicated things like gods; only the 'best, most mind-friendly variants' of religion propagate by meeting deep psychological and physical needs; religion begins with folk religion and shamans, and so forth. But the author always remains the armchair philosopher, peering over the shoulder of anthropologists to select the occasional example or speculation, without presenting any systematic treatment of the anthropological data, a task carried out far more effectively by writers such as Robin Dunbar and Steven Mithen. In fact what we have in the end is not really a scientific study of religion at all, but the author's attempt to justify his own belief that religious beliefs represent 'nothing but' utilitarian functions that can be attributed to human needs and aspirations.

In this context it is interesting to note how Dennett tackles the threat to his position that comes from rational choice theorists such as Stark and Finke, who base their sociological analysis of religious believers on an investment/reward analysis in which the rewards are rationally deemed to be worth the effort of personal 'belief investment'. Of course, the sociological analysis of the rational choice theorists makes no judgment about whether the beliefs in question are well justified. But Dennett seems unable to decide whether these are fellow-travellers to be welcomed on the broad naturalistic highway, or whether their understanding of religious beliefs as rational choices might not instead be the thin end of the wedge which ultimately subverts his own claim (made repeatedly in this book) that the actual content of religious beliefs is unfailingly irrational.

Throughout *Breaking the Spell* the author switches confusingly between evolution as Darwinian biology, evolution as Lamarckian inheritance of 'units' of cultural information, evolution as metaphor or, on occasion, evolution as merely a rhetorical device. This confusion is nowhere more apparent than in Dennett's enthusiasm for 'memes' which are discussed in wearisome detail. 'Memes' are supposed to be 'units' of belief or cul-

tural practice that are 'inherited' by a Lamarckian process, such as a hummable tune, or an alarm-call in animals or 'wearing your baseball cap backwards'. There is even an Appendix on 'memes' (Appendix A: 'The New Replicators'). 'Meme' has the advantage that it sounds like the word 'gene', but there the similarity ends: generation of a scientific argument requires more than the import of a metaphor that sounds like a word used in science. The huge role that metaphors play in scientific language rests on the fact that successful metaphors do real work in the process of scientific thinking and practice. The term 'black hole', with its metaphorical overtones, refers to a real entity that has properties that can be described. Useful metaphors in science require no defence because they are taken up quickly into the language of the laboratory and into the discourse of the scientific literature. The fact that so many pages of *Breaking the Spell* are devoted to the defence of 'memetics' simply reflects the failure of the metaphor to be taken up as useful by the scientific community. The reasons are simple: the term 'meme' refers to nothing because memes do not exist; the concept does no 'extra work' in any significant piece of science, so results in no useful extra publications that would not have happened anyway without it. We already have adequate descriptions for hummable tunes, the warning cries of animals and wearing baseball caps backwards, and calling these behaviours (and hundreds of others) 'memes' adds nothing to them that we did not know before. This is yet another context in which we can be thankful for Occam's razor.

Bereft of memes, Dennett's claim throughout the remainder of *Breaking the Spell* – that religious beliefs evolve through populations by a type of automatic process devoid of rational thought – looks increasingly fragile. One also cannot help thinking that 'memetics' sounds very like medieval demonology: mysterious entities that secretly enter brains without the rational awareness of the recipient, especially at night when the window is left open… One of the interesting biographical insights that Dennett lets slip in this book is that his early years were spent in Beirut where his father was working as an American spy (234). Could there have been some early influence upon the young author, stimulating his interest in the manipulative world of secretive pieces of information?

The other odd property of Dennett's 'memes' is that they never seem to apply, in this book at least, to other types of metaphysical belief, like atheism for example. Given that the author seems very worried about the dangers to society that the possession of the 'wrong memes' might engender, it does seem curious that 'memes' such as state-sponsored atheism receive no attention, 'memes' which, in this case, contributed to the deaths of 70 million people under Chairman Mao, at least 20 million under Stalin and 50 million more who died in the war started by the man who once reminded his dinner guests that 'Christianity is a rebellion against natural law, a protest against nature'.

Overall this book is not really about the scientific investigation of religious belief at all, least of all a discussion about the rational basis for belief, but instead an attempt to investigate the process whereby beliefs are acquired ('Belief in Belief', the title of Chapter 8). But a problem, of course, with all such psychological explanations for the acquisition of beliefs is that they inevitably act as two-edged swords, and in the process all types of belief of whatever hue are sucked into the same philosophical black hole. For in the final analysis all beliefs have to be justified by rational discourse, and by the objective and judicious assessment of data, and in that important task this book unfortunately fails.

Denis Alexander is Director of the Faraday Institute for Science and Religion, Cambridge, and Articles Editor of *Science & Christian Belief*.

Philip Clayton and Jeffrey Schloss, (eds.)
Evolution and Ethics. Human Morality in Biological & Religious Perspective
Grand Rapids, Mich: Wm B Eerdmans Publ, 2004. 339 pp. pb. ISBN 0 8028 2695 4

The editors have brought together a group of scholars expressing their views about human behaviour in relation to the ideas emerging in neo-Darwinism. Funding from the John Templeton Foundation is acknowledged. The advantages of writers spending time in residence allowing for interaction and discussion is reflected in their writing. The theme of the book concerns altruism, morality and personhood and their theological implications in relation to evolution.

The writers are in broad agreement on the assumptions of evolution and consider that these do not preclude the emergence of a values system such as morality. When this matter is approached from a cultural and biological aspect it is seen that human behaviour can be explained by its animal nature, although the writers in the main accept that humans are unique whatever traits other animals may show.

The apostle Paul said that God's moral law is evident in his creation and therefore is knowable to humans. Darwin also believed that our moral sense lay rooted in human nature and that a conscience distinguished us from other animals.

There is a wealth of useful knowledge embedded in these essays. Made in the image of God, humans partake of the goodness and beauty of the divine. Sinfulness remains a legacy of our past. Some essays reflect on the contributions that are made by our genes to personality traits.

Thomas Oord explores the topic of humans and their relationships with living things in nature. The concept of altruism is explored from a number of viewpoints, an approach reflected in some other essays. Michael Ruse says that what God has produced through evolution is good. He points out that progress in culture paralleled that in the study of biology in the eighteenth century. Ruse implies a clash between science and religion. This possibly reflects the fact that most of his references do not represent recent studies in this field. His is a concept of materialists and not a viewpoint of the many Christians scholars familiar with these issues.

The evolutionary origin of morality is discussed in these writings. Many of the writers argue that evolutionary psychological explanations are compatible with teleological interpretations of the same event. John Hare considers that evolution provides the basis of human morality.

The book reflects on an issue upon which there is as yet no consensus. Evolution does not solve all problems of morality or justice. It is acknowledged by some writers that Western morality has its roots in Christian doctrine but that evolutionary concepts and Christian faith can coexist. In other words a neo-Darwinian view of moral sense is compatible with biblical religion. Humans do have the capacity to adjudicate between competing desires.

The reader will gain a deeper insight and understanding of the many matters raised in these essays, coming to an understanding that Darwinian science does not dictate atheism but rather affirms the natural truth of biblical religion. A practical morality should be a lifelong quest. This book will help some towards the goal of Aquinas that good be pursued and evil avoided.

Ken Mickleson is a retired paediatrician with a theological qualification.