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## NOTES ON CONTRIBUTORS

**Rachel Addison** is a Doctoral student at the University of Exeter researching into parental decision making within the context of prenatal genetic testing. Her particular focus is on the contribution to the debate of the philosopher Henry Sidgwick.

**Peter Colyer** is a Research Fellow at the Centre for Christianity and Culture, Regent's Park College, Oxford, and a former Secretary of the Science and Religion Forum.

**Michael N. Marsh** holds a professorial position at Wolfson College, Oxford. His thesis on out-of-body experiences is published in the Oxford Theology Monograph Series (OUP, 2010).

**Gary Slater** is a DPhil candidate at the University of Oxford. His research concerns the implications of the work of C.S Peirce for an historiographical method that incorporates theological understandings, particularly as regards the writings of Robert C. Neville and Peter Ochs.

**Neil Spurway** is Emeritus Professor of Exercise Physiology, University of Glasgow, immediate past Chair of SRF, and former Conference Vice-President of ESSSAT.

## EDITORIAL

As I write this editorial the London Olympic Games are nearly upon us. I'm sure that readers, if not looking forward to the events themselves, must at least be enjoying the dry humour in the satirical press inspired by talk of roof rockets and Olympic-sized airport queues. When considering the Ancient Greek Olympics however, one thing often overlooked (particularly by the popular press) is the religious importance of the games. Sporting events were held alongside the ritual offering of sacrifices, and these sacrifices played an important role in expressing reciprocity to the gods. The physical and the religious for the Ancient Greeks were one and the same, engendering a holistic attitude to human personhood. As I learned on a recent visit to the sleepy Shropshire village of Much Wenlock, this appreciation for the embodied nature of human existence was not lost, at least initially, in the modern revival of the Olympics. Aside from its delicious cream teas, the village quite rightfully boasts about its most famous son, William Penny Brookes. Notable for his achievements in botany and medicine, Brookes' revival of the ancient games was motivated by his belief that mental and physical fitness is inseparable, both of them crucial for the pursuit of knowledge, ethics and also, he thought, social reform. He campaigned throughout his life for the inclusion of physical education in the school curriculum and the Wenlock Olympian Games, organised by Brookes, were open to the working class poor (for which they received a barrage of criticism).

Our material embodiedness and its implications for our understanding of human identity is explored in depth in this edition by our Article Review and by Peter Colyer's review of McGilchrist's Royal Society Book Prize-nominated *The Master and his Emissary*. Rachel Addison's Article Review discusses Nancey Murphy and Christopher Knight's important new edited volume, *Human Identity at the Intersection of Science, Technology and Religion*: a book that makes a notable contribution to the discussion of emergence and its role in relating theology to the sciences. Addison's review also touches on socio-political and ethical concerns. The holistic nature of human life (as William Penny Brookes draws our attention too) means that such concerns are vital to the science-theology conversation and they are central to the new publications, reviewed in this edition, by Charles Camosy and Brian Brock.

In this Olympic year, it is perhaps apt that this edition begins with a contribution to our *Book that Made a Difference* series by Neil Spurway, Emeritus Professor of Exercise Physiology. Neil has a lifelong interest in the science-religion dialogue and so I am very pleased that he is contributing to this series. Before hurrying straight to his review, however, I would like to encourage all readers who are involved with the teaching of science and religion (or who know anyone who is) to enthuse students to enter our 2012 Peacocke essay prize. The closing date is July 31<sup>st</sup> 2012 and further details are available on the Forum website ([www.srforum.org](http://www.srforum.org)).



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*Professor Adrian Bowman, Department of Statistics, University of Glasgow, UK*

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## A BOOK THAT MADE A DIFFERENCE

**Arthur Stanley Eddington**, *The Nature of the Physical World*. Cambridge: Cambridge University Press, 1928; London: J. M. Dent (Everyman's Library, 1935).

REVIEWED BY NEIL SPURWAY

Invited to contribute to this series by our new Editor, I face with some reluctance the realisation that I am now fairly senior, *even among the members of this Forum!* So my choice of possible books is huge. Should I simply go back to a volume from my student days? Charles Coulson's *Science and Christian Belief* (1954), John Robinson's *Honest to God* (1963) and Ian Barbour's *Issues in Science and Religion* (1966) are all from this period and still widely acknowledged, but Charles Raven's *Natural Religion and Christian Theology* (1953), the essay-collection *Soundings* edited by Alec Vidler (1962) and John Habgood's *Religion and Science* (1964) are much less often recalled. Each of these contributed significantly to my young-adult thought, and each remains splendid, in my judgement, 50-odd years on. But younger contributors than I may write about any of them. Instead I'm going to hark back to Gifford lectures from 'between the wars', several of which I earnestly pursued as a schoolboy in the early 1950s. Three made special impact. They were, from 1940, Charles Sherrington's *Man on His Nature*, in which the greatest-ever neurophysiologist struggles to confront "the 'how' of mind's influence on matter"; from 1937, Macneile Dixon's *The Human Situation*, a humanely civilised canter through the history of ideas, and an

unforgettable demonstration of how to integrate imaginative literature with other scholarship; and, from 1928, Arthur Eddington's *The Nature of the Physical World*. It is for this last, published eight years before I was born, that I have ultimately opted. Now I shall tell you why.

Sir Arthur Eddington was a mathematical astronomer, who spanned what would now be the separate disciplines of cosmology and astrophysics, and was equally at home in theory and observation. Importantly also he was a Quaker. I read this book in my middle teens – all too often lying abed when I should have been getting up for school – and have remembered it sustainedly for its demonstration of the compatibility of the scientific and religious casts of mind. Among its hallmarks is its superb lucidity, which can only be demonstrated by direct quotation. Yet every excerpt is dissatisfyingly short. So in what follows I shall give page-references to both the original Cambridge (C) and the follow-up Everyman's Library (E) editions, hoping that if you can find one or other you may be persuaded to read a little further than each of my stingy quotes.

About three quarters of the book is an exposition of the great developments in physics of the preceding 30 years – the relativity and quantum theories, and what preceded and surrounded them. The seminal papers on quantum theory were in fact still appearing as the book was being written (Heisenberg's first key paper appeared in the autumn of 1925, and his decisive enunciation of the Indeterminacy Principle in the summer of 1927), so that Eddington is much more confident of the mature position



as he writes up for publication than he was when delivering the lectures in Edinburgh a year previously. Yet his grasp is such that he can allow himself, even at this point, one of his many flashes of humour: comparing the approaches of Born & Jordan, Dirac and Schrödinger, he writes (C 210-11, E 209): “Schrödinger’s theory is now enjoying the full tide of popularity, partly because of its intrinsic merit, but also, I suspect, because it is the only one of the three that is simple enough to be misunderstood.”

Interspersed within these treatments of relativistic and quantum physics there is also a percipient discussion of the direction of time, which in both of those early-20th C edifices could just as well run backwards as forwards. It is not in them, but in 19<sup>th</sup> C thermodynamics, that we find “time’s arrow” and a conception of “becoming”. So wherever he takes us the waters are deep, but our guide through them is surely as comprehensible and illuminating as anyone has ever been. Yet this is only one of two great merits. The other is that, by occasional short passages in the expository part of the book, and extensively in its last quarter, he moves from the apparently material and underlyingly mathematical to the subjective, the mental and the mystical.

To indicate how he approaches this, I go back to the opening sentences of his *Introduction*. Though it is too-nearly 60 years since I read them in my attic bedroom, the image they present has never left me. Eddington writes (C xi-xii, E 5-6): “I have settled down to the task of writing these lectures, and have drawn up my chairs to

my two tables. ... One of them ... has extension; it is comparatively permanent; it is coloured; above all it is *substantial*. ... Table No. 2 is my scientific table. .. [It] is mostly emptiness. Sparsely scattered in that emptiness are numerous electric charges rushing about with great speed; but their combined bulk amounts to less than a billionth of that of the table itself. Notwithstanding its strange construction it turns out to be an entirely efficient table. It supports my writing paper on it as satisfactorily as table No. 1; for .. the little electric particles keep on hitting the underside, so that paper is maintained in shuttlecock fashion at a nearly steady level. If I lean upon this table I shall not go through; or, to be strictly accurate, the chance of my scientific elbow going through my scientific table is so excessively small that it can be neglected in practical life. ..."

Thus, in the first two pages of his *Introduction*, Eddington has indicated his basic subject-matter: it is not so much the nature of the physical world as the nature of the world described by physics. Yes, he can write about it brilliantly, but his purpose is to point out the catch (C 290-1, E 280-1): "We see the atoms with their girdles of circulating electrons darting hither and thither, colliding and rebounding. Free electrons torn from the girdles hurry away a hundred times faster, curving sharply round the atoms with side-slips and hair-breadth escapes. The truants are caught and attached to the girdles and the escaping energy shakes the aether into vibrations. ... [But] the description of the processes must be taken with pinch of salt. ... *Something unknown is doing*

*we don't know what* – that is what our theory amounts to. ... I have read something like it elsewhere:

*The slithy toves  
Did gyre and gimble in the wabe.*

There is the same suggestion of activity. There is the same indefiniteness as to the nature of the activity and of what it is that is acting. And yet from so unpromising a beginning we really do get somewhere. We bring into order a host of apparently unrelated phenomena; we make predictions, and our predictions come off. The reason – the sole reason – for this progress is that our description is not limited to unknown agents executing unknown activities, but *numbers* are scattered freely in the description. .... By admitting a few numbers, even ‘Jabberwocky’ may become scientific.”

When push comes to shove, particulate electrons, near-solid nuclei, are only pictures. Mathematically, they are probability waves, but that is only a picture too, albeit of a very different kind. All the physicist really knows are pointer readings. Eddington was an ‘operationalist’ or ‘instrumentalist’; for him, the data of physics are obtained by the operation of reading instruments, and the interpretative structures built upon those readings are merely props to our thinking. “[F]or scientific purposes ... a thing must be defined according to the way it is in practice recognized and not according to some ulterior significance that we imagine it to possess” (C 286, E 276). The extreme operationalist stance is less commonly

adopted nowadays: in particular, it has serious shortcomings in biology, from behavioural studies to evolutionary theory. Nevertheless, the mathematical edifice of relativistic physics is built upon the readings of clocks and measuring rods, and it is reasonable to contend that an electron simply *is* that which leaves a certain form of track in a cloud chamber, or excites the screen of a cathode ray tube. So, the physics which concerned Eddington, the physics of the extremely unfamiliar, leant itself well to the operational viewpoint.

And he turned it to good account. If you see the world of physical science as consisting solely in the edifice of its interlinking observations, it is particularly easy to contend that the boundaries of physical science are not the boundaries of reality. Far on in the book there is another passage which I have vividly remembered over all the years since my teen-age reading. In it (C 316-7, E 304-5), Eddington compares two ways of describing waves on the surface of water. One way is by the equations in Lamb's *Hydrodynamics*, the other is by lines from Rupert Brooke's *The Dead*:

*There are waters blown by changing winds to laughter  
And lit by the rich skies all day. And after,  
Frost, with a gesture, stays the waves that dance  
And wandering loveliness. He leaves a white  
Unbroken glory. a gathered radiance,  
A width, a shining peace, under the night.*

Most writers who acknowledged the two descriptions treated the scientific one as solid, incontrovertible,

primary and the poetic one as a delectable epiphenomenon. They were unsure what to make of the epiphenomenon, and radically unable to suggest how a physical brain could produce it. Eddington turned this round. Vividly aware that the world-stuff and hence the brain-stuff describable by physics was the opposite of solid, riddled through with uncertainty, analysable only in terms of probabilities and, far from being primary, was a remote derivation from the mind-functions which produced it, he noted (C 259-60, E 251-2): "We have dismissed all preconception as to the background of our pointer readings, and for the most part we can discover nothing as to its nature. But in one case – namely for the pointer-readings of my own brain – I have an insight which is not limited to the evidence of the pointer readings. That insight shows that they are attached to a background of consciousness. "... If we must embed our schedule of indicator readings in some kind of background ... let us accept the only hint we have received as to the significance of the background – namely, that it has a nature capable of manifesting itself as mental activity." Thus Eddington, the physicist, had less difficulty than Sherrington, the neurophysiologist, would have a decade or so later, in contemplating the possibility of mind-brain interaction. And if, as a Quaker, he was disinclined to be expressly theological, he was warmly at ease with mysticism.

In teenage idealism I wanted to believe that the pursuit of science could be – perhaps even should be – a spiritual quest. Happily it is an outlook which I have not

entirely lost, and *The Nature of the Physical World* was implicitly but unmistakably permeated by it. It provided a powerful counterpoint to my exam-directed studies. And that made *quite* a difference!

**REVIEW ARTICLE**

**Nancey Murphy and Christopher Knight (eds.), *Human Identity at the Intersection of Science, Technology and Religion*.** Farnham, Surrey: Ashgate, 2010; pp. 254, £55, Hbk, ISBN 978-1409410508.

REVIEWED BY RACHEL ADDISON.

The pursuit of a definition of human identity – that is, determining what constitutes our enigmatic mixture of biology, society and spirituality – has been a continual quest. Given the obvious complexity of human beings the fact that there are many disciplines – biology, neurology, psychology and theology to name those specific to this volume – all claiming to provide answers would seem sensible and indeed necessary. The importance of the contributions made by all these positions cannot be denied, but it is in not the number of viewpoints that the problem lies. Rather it is in the inclusion in that list of theology; rarely, if at all, are science and religion conjoined so innocuously. It is this traditional contention between science and religion that this volume's comprehensive discussion of human identity seeks to address.

There is already plenty of literature on the uniting of science and religion, but the aim here is not simply to establish some kind of co-existence. Whereas there has been a movement on the part of much of the Christian tradition towards a position more accepting of scientific explanations, this is perhaps best understood as a being a lessening of adherence to scriptural literalism rather than

the development of a more explicit understanding of how the natural sciences might actively contribute to theological anthropology. As such, the fundamental points of conflict largely remain. The purpose of this volume is rather than to explore the way in which the two types of approach may, instead of competing for superiority, actually collaborate.

In terms of the modern day, the real locus of the problem is theorised by the editors to lie in the increasing trend towards scientific reductionism. Rather, the volume aims to counter the trend of reductionism via a very detailed form of emergence, in which the very demise of dualism might be thoroughly understood and confirmed. Excellently arranged to reflect the progression of this very approach itself, the selection of material within the volume is built upon the editors' belief that each discipline is not only able to contribute vital aspects of understanding to the question of human identity, but may in fact actively inform and reinforce each other to the extent to which they are able to expand their own individual positions. Ultimately, the intention is to develop a framework in which the emergent network of connections between disciplines may be more practically furthered and drawn upon. The volume continually emanates the sense that no account of human identity can be fully complete without substantial weight being given to the value of Judaeo-Christian theological considerations.

Part I of the volume creates a foundational basis for the rest of the content by addressing the traditional



understandings of science and religion, along with their respective limitations. Part II adopts a more formulaic approach which focuses upon the particulars of how to define the human creature. It is throughout this section that the concept of emergence is explored and applied, in order that Part III might take account of the rapid changes taking place in modern human life within that framework of emergence that the volume deems most appropriate for the task.

With the introduction having established a type of 'blank canvass', Knight's opening chapter, which investigates the amalgamation of theology and science in general terms and the importance of avoiding the usual recourse to reductionism, provides a more focused engagement with the volumes' central themes. Having utilised the concept of cultural relativism for his key point that religion is universal to humankind, Knight is anxious to avoid his own pluralism itself succumbing to reductionism. This, he argues, requires a form of structural reality common to both fields which can act as a sort of middle ground upon which useful dialogue can take place – the sort of middle ground required as a platform for the volume itself. In terms of its own independent value, Knight's argument that relativism reveals the differences between faiths to be mere illusion carries with it an obvious theism, but his model is undeniably effective not least for the fact that it does not depend on one faith in particular.

F. LeRon Shults continues the relativism theme, albeit in a slightly different direction, via a particular branch of

semiotics through which he develops the capacity of signs for furthering engagement in and with the world not only within religion but across a variety of disciplines. The volume's editors evidently consider Shults' epistemological exercise in grounding 'theological discourse in the pragmatic concerns of real life' to be a possible version of Knight's structural realism, the language of pragmatism implying actuality, reality and applicability, all of which are qualities the volume is anxious to attribute to religious symbolism in order to afford it the same types of advantage as those of science. Furthermore, Shults provides the preliminaries necessary for understanding the method of the forthcoming emergence argument; Shults' connection between the immaterial and the material depends on a rejection of both dualism *and* monism in favour of an understanding of reality in which everything is interconnected in a complex system of freedom and constraint. Specifically for theologians, Shults' message is that they must acknowledge the 'context of their own formulations'.

Presumably, this must in turn require a rejection of certain fundamentalist attitudes to which the volume now indeed turns its attention in Ellis's rather forthright chapter on that topic. Defining fundamentalism as 'strict literalist adherence to any dogmatically stated position, what is of most value in Ellis' chapter is actually his refuting of *scientific* fundamentalism, which of course would prove as nonconductive to the volume's purpose as its religious counterpart. Ellis' questioning of science's ability to deal adequately with every aspect of human

identity should not be considered to be necessarily reflective of a bias, although his slightly subjective claim that 'it is the same transcendent or underlying reality they [both science and religion] are trying to represent' does run the risk of excluding an audience which believes to no extent in any hidden reality. But it is a risk the volume must take if it is to achieve its intended place in the literature – indeed, the volume's critique of reductionism in Part II, and the subsequent development of emergence, relies wholly upon it.

It is Murphy who introduces the particulars of the framework's methodology, providing a thorough critique of reductionism along with an assessment of the current status of emergentism. This pivotal stage of the book requires close attention. Murphy's purpose is to demonstrate that reductionism is in fact losing some of its previous weight; although the explanation of the four types of reductionism through which she does this is helpful, it could be argued that emergence theory itself could have benefited from the same level of attention. According to Murphy it is often considered to be the mere converse of reductionism, which leads to a situation in which much understanding of emergence today is of a negative nature, dependant on an initial understanding of reductionism. This interpretation of emergence may in some ways not be entirely inaccurate, but it is absolutely crucial to note that it does not amount to a proper and thorough understanding of its mechanisms; Murphy is anxious to make the point that understanding emergentism in such a way would simply require

explaining how properties give rise to other properties, whereas the biggest question actually facing emergentism is how such emergent properties can *themselves* be directly causal. As the success of this volume's stated purpose depends entirely upon the plausibility of this aspect of emergentism, it must be asked whether this question is effectively answered by Murphy. The material is frequently complicated, and the explanations sometimes rather circular, yet Murphy's effective utilising of resources does establish the essential character of emergentism to be a complex and dynamic system of reciprocal non-linear relations between components. The answer to the question therefore is that for the purposes of the volume it is answered enough; in terms of the understanding of human identity to which the authors wish to apply the theory, the 'relational properties' between parts and the 'constraints that pertain to an object's connection within a larger system' map obviously onto the aim of marrying together with appropriate equality the vital components of humanity that arise from both physical and theological sources.

Warren Brown provides a welcome transferral of non-reductionism into the context of rather more every-day questions, seeking more directly than the volume has done previously to identify a sole crucial aspect that makes human beings human. This he does through a comparison between humans and their closest primate relatives. It is the distinctiveness vs. uniqueness demarcation upon which Brown bases his exploration that is the most helpful step in the volume's progress

towards understanding the complex balance between the physical and the non-physical.

However, it is from this chapter that the sense begins to arise that the volume could perhaps have benefitted from further expansion on some aspects of the material. This is most significant in Brown's chapter during the discussion of 'social scaffolding', a phrase he uses to introduce the fundamentally important concept that human uniqueness arises mainly from the nature of its interpersonal relationships. A similar theory is also used by Noreen Herzfeld in order to distinguish human intelligence from artificial. The point in both arguments is that that which truly defines humans is an emergent and *interactive* property. Their position admittedly has a certain level of empiricism. But, crucially, it would seem as though it could also prove to be a highly contentious claim for any area in which the *level* or extent of personhood is vague or disputed. Herzfeld goes as far as to state that without the ability to generate emotional commitments we are not acting in a wholly human way. It would seem at this stage therefore that the emergent-personhood argument is hardly able to avoid the sort of problems that already exist in the human-identity debate.

It appears reasonable to wonder at this advanced stage of the book whereabouts the issue of morality is going to feature. The apparent lateness of Haag's chapter is explained however when the number of concepts preceding him in the volume that he effectively draws together are realised; Haag immediately dismisses reductionism as a means of understanding morality,

utilising the specific terminology of ‘emergent dynamics’ with which to accommodate the evolutionary advantages of morality while still emphasising the importance, yet relative independence, of the symbolic. Haag proposes ‘intersubjectivity’ is used as an inclusive term with which to understand the ways in which one’s experiences entangle with the experiences of other, drawing individuals into a social context necessary for the emergence of morality. It is this discussion that leads to the simple yet powerfully effective phrase ‘by which mattering arises from matter’ which as well as summarising the entirety of the volume also draws attention to the significance of embodiment.

With Brown having already noted that there appears to be little about humans that doesn’t seem ‘inextricably attached to bodily functions’, Part III engages with human embodiment with the purpose of tackling the dramatic changes likely to take place in human self-understanding as a result of the major advances being made in genetics and technology. It is Martinez Hewlett’s introduction of the *imago dei* in particular that indicates the end of any sense of neutral exploration in the volume. It is also for this reason however that the volume appears to suffer once again to some extent for lack of expansion in a vital area. The *imago dei* is an essential aspect of theological understandings, yet this section of Hewlett’s chapter seems strangely lacking in strong academic grounding, assuming human beings to consider themselves to be made in the image of God without having either paid detailed sociological attention to

whether or not this is actually the case, or given a normative account of why this should be so.

This aside however, this chapter begins to demonstrate the fact that the model the book has aimed to develop does indeed work. Hewlett's drawing attention to the discovery that human beings have significantly fewer genes than previously enthusiastically imagined (a fact about which the scientific community have been rather quiet), not only provides a stark reminder of the insufficiency of narrow approaches to human identity, but also demonstrates that according to this volume's understanding of human identity discoveries of that nature need not be of any real consequence. So effective is the model in fact that Wesley Wildman's exploration of the microbial world, in itself a lovely little excursion into previously highly neglected territory, can take the liberty of examining the biological human identity in the minutest detail without beginning from, or succumbing to, reductionism. Furthermore, explaining the 'distributive identity' of his title to represent his view that humanity is situated within a complex network of neurological, biological, social, ecological cultural and axiological systems, Wildman is able to promote that concept above that of its alternative 'concentrated identity', which is the traditional religious viewpoint. Resulting in an almost Thomistic natural theology, capable of eradicating the Christian concern that biological death and decay are to be equated with punishment and sin, Wildman's chapter represents a truly broad expansion of the topic.

Noah Efron provides the preliminaries for the topic of enhancement with his exploration of what he perceives to be the recent blurring of the boundaries between the natural and the artificial; using sport, medicine, education, technology etc as his empirical examples, Efron is easily able to point out that nature is no longer considered to be inviolable, if indeed it ever truly was in the first place. Rather more disturbing however is his argument that the effects of the creation of the posthuman upon *society* cannot be known, given that most consequences of this project are thought of from the point of view of individuals. This might not be an entirely accurate position; the benefits to the individual brought about by posthumanism are either thought to derive directly from or contribute directly to the human race as a whole. But it is an important point that the moral universe is built upon a world that assumed much of nature to be inviolable. A permeating sense of emergentism is fully in operation here, demonstrating clearly and now without need for explicit reference that every aspect of human existence is inextricably linked within a reciprocal network. In Efron's chapter this is applied to the grandest scale possible; altering individuals must necessarily mean affecting society, and vice versa.

While Efron does not focus specifically on the *imago dei*, his discussion serves to contextualise that idea by raising a final question in which the volume's quest has ultimately culminated. This is whether or not the radical possibilities now available to humanity require it to



reconsider its most basic values. Brent Waters and Ted Peters usefully offer two different approaches in their respective contributions to answering that question.

Brent Waters explores the concept of modernity's 'technology ontology', arguing that it conflicts with Christian creation ontology for the reason that posthumanism appears to posit *will* as being that which defines human essence. Necessarily egotistical, such emphasis on autonomous human will requires that both biological finitude and natality are rejected – yet these are, Waters argues, inherently important to our identity as beings created with a telos that ties them to their Creator, and therefore for any true understanding of the Incarnation. Maintaining the theme of intersubjectivity, Waters also continues Efron's socio-political concerns by pointing out the likelihood of the posthumanist attitude to have major consequences for the levels of concern we might have both for religion and for the importance of human community in general. It would be possible to derive here some sense of communitarianism from Waters in this warning against total individual autonomy. Admittedly, emphasising this aspect would have taken the volume in a political direction which it probably wished to avoid, but certainly it suggests future possibilities in that area.

Waters' argument is evidently a strong one for those already of a religious persuasion, his position accounting for some of the most vociferous objections in the enhancement debate. But the success of the volume cannot finally be found to stand on what could be

considered mere ideals; Christian creation ontology offers little to those who do not agree with the posthumanist vision yet who are not Christians. If the volume wishes to have the weight it presumes it can do, while incorporating religious viewpoints and avoiding the pitfalls to which many previous attempts to do so have succumbed, then it must maintain as far as possible an awareness of the plurality of religious and secular anthropologies. It is to the volume's credit therefore that it concludes with something amounting to a balance in the form of Peters' chapter.

Peters is also of a Christian background, yet his discussion of enhancement vs. therapy and the possible responsibilities entailed within the *imago dei* represents a somewhat more inclusive approach. Peters does not immediately dismiss enhancement or transhumanism; his beginning from a series of questions regarding the future of humanity indicates that this is in fact a final exploration into the reality of the present day situation in which humanity's greatest questions regarding itself have once again arisen. Coupled with the specific consequences for Christian human reflection, this chapter provides the perfect culmination of the journey, and the aim, of the whole volume.

What, then, might the reader want to know at the close of this journey? What as humans – whose identity has been shown to be a result of a dynamic amalgamation of biology, community and relationship with God, are we to do with the situation in which we now find ourselves? For his answer Peters draws extensively upon the Vatican

statement on *Communion and Stewardship* (CS) (which incidentally also specifically rejects mind-body dualism) as a resource through which to understand what is 'at stake' in understanding the human race as created in God's image. Crucially, both for Peters and for the volume's overall theme, the CS allows for a future for humanity that differs to past interpretations and for one in which humanity itself may be more of an active agent. But, Peters asks, do these factors amount to a legitimisation of artificial enhancement? And if indeed humanity does choose to pursue that route, does it fundamentally alter that image bequeathed to it by God, or – braver still – even improve upon it?

Peters' discussion of what is realistic and what is not is possibly slightly superfluous – it has already been indicated at several points throughout the third stage of the book that many of the scenarios under scrutiny here are far off in terms of actual achievability. But on reflection it would seem as though this is hardly the point. Transhumanism's driving force is humanity's *latent* potential, and Peters' chapter tackles directly the varying levels of propriety involved in humanity's intentions regarding that potential. Despite the obvious challenges to the traditional Christian understanding of the human being, such questions simply must be asked if the volume is to be fully comprehensive. Furthermore, Peters' chapter is an opportunity for the reader to assess whether there is any reason why the dynamic emergence model developed by the volume should not be as relevant or as effective even in the face of such extremity.

Of course, however, the volume does itself have an answer to the ultimate question of whether humanity should attempt to exceed those boundaries by which it is currently defined, and that answer is no. Total control over its physical and non-physical destiny does not, for either Peters or the other authors of this volume, amount to humanity achieving something closer to godlikeness; the *imago dei* is not simply one isolated component of humanity's unique identity, but rather consists in the relationship in which it stands with God. Whereas Peters himself does admit that many of the current advances are marvellous achievements which would indeed appear to offer valuable improvements to many aspects of human life the only legitimate way in which such goods may be utilised, *including* those goods which could be defined as purely medical, is after consideration as to whether or not they accord with God's own creation by expanding those relational aspects – namely, fellowship and love. Given that it would be probably be impossible to accelerate these characteristics through technology in such a way that they retain any genuine worth, the volume concludes on a cautious note. But the prognosis for humanity's future within this world of rapid and drastic change is not an entirely negative one. It is a mark of the success of the book that it is able to accept the possibilities of the future of human identity, while having armed it with the considerations of its particular role in creation that it would always do well to remember.

In terms of possible answers to the questions given at its premise it is important not to overstate the volume's

intention. The aim is specifically *not* to provide concrete answers. Instead the volume deals effectively with the complexity of the subject matter precisely by developing and exemplifying the very framework it claims to be necessary for an adequate understanding. The book's aim of marrying hard science with a necessary recourse to religion arises from the pages in its own form of dynamic emergence, along with the type of human being the authors envisage this to produce, leaving only a trace of the subjective nature of this approach. As such, the book provides a tool with which humanity past and present can be better understood, and its future identity made more stable even as it encounters rapid and inevitable alterations within its world.

Returning once more to the fact that human beings are endlessly complex and eternally changing, emergence does in fact appear to be the only sensible method through which not only their physical identity but their passions, relationships, reactions and aspirations can be fully embraced. As Brown states in a phrase which could hardly more effectively, or indeed beautifully, summarise the volume's ultimate message 'molecular biology could read the score, but couldn't hear the music'.

## REVIEWS

**Iain McGilchrist**, *The Master and his Emissary: The Divided Brain and the Making of the Western World*. Yale: Yale University Press, 2010; pp. 448, \$25, Pbk, ISBN 978-0-300-16892-1.

REVIEWED BY PETER COLYER

This book was “longlisted for the Royal Society Book Prize 2010”. For that reason alone it should be of interest to the members of the Science and Religion Forum.

Iain McGilchrist is a psychiatrist and neurophysiologist, but his learning and reading extend impressively into many other fields, including philosophy (especially German and other Continental European writers), linguistics, poetry, the arts and cultural anthropology. He is able to draw on all these fields in his analysis of the relationship between the human brain and the historical development of human affairs.

The striking title of the book derives from a fable in Nietzsche of a wise Master who entrusted his Emissary with the conduct of his business in the more distant parts of his domain. The Emissary was hardworking and successful, and began to see himself as the master and took upon himself the leading responsibility. For McGilchrist, the two hemispheres of the human brain are represented by these two characters in the fable, and in his interpretation the right hemisphere is or should be the

true master. Human individuals and societies function at their best when the two hemispheres observe their proper roles and cooperate together, but at several points in human history, including the present or “modern” age, the left hemisphere has usurped the leadership with, in McGilchrist’s view, disastrous results.

The book is in two extensive parts. The first part, over two hundred pages of small type, assembles the biological and neurological findings relating to the distinct functions of the two hemispheres. The second part, almost two hundred further pages, is an interpretation of (mainly Western) history from the perspective of the distinct functions of the two hemispheres that McGilchrist has established.

The neurological/biological analysis in Part 1 draws from extensive studies of patients who have suffered from one-sided strokes or brain injuries, of those suffering from schizophrenia; and of experimental imaging of the brain’s response to stimuli. For those unfamiliar with these fields, the book includes some remarkable examples of the attitudes of brain-damaged patients towards, for example, parts of their own bodies or towards other people. On the basis of this wide-ranging review, McGilchrist summarises the main differences between the two hemispheres. He is at pains to point out that the separations are not absolute: we should not conclude rigidly that “the left does this, the right does that”, but nevertheless there are large and significant distinctions.

The left hemisphere is the location of language. The left hemisphere is analytical and purpose-driven. It likes to classify and to identify causes and processes. It works according to known procedures and does not respond well to novelty. It disaggregates issues into separate parts and focuses on details. The right hemisphere, however, takes a broad view and is integrative. It does not demonstrate a sense of purpose, but is the centre of care, concern and humour. Although the left hemisphere is the location of language, it is the right that understands metaphor and more subtle meanings. The right hemisphere appreciates the whole rather than the parts.

These characteristics are of course based on the accumulated research addressed by McGilchrist in Part 1. This reviewer is not able to judge the accuracy or completeness of this analysis. The views of other neurobiological experts would be valuable here.

In Part 2 McGilchrist engages in an assessment of the cultural history of the Western world from the particular perspective of the distinct functions of the left and right hemispheres. Given that McGilchrist sees the left hemisphere as analytical, rational and disintegrative (it would be wrong to say “scientific” but the drift of his analysis is in this direction) and the right hemisphere as taking the broad view, less rigorous and purposeful (again, not quite “humanistic” but that is the implication), it is not surprising to discover that he sees the Scientific Revolution, the Enlightenment, the Industrial Revolution and the modern/postmodern period of technological change as periods dominated by



left hemisphere thinking, while the Renaissance and Romanticism display the opposite. Perhaps more surprisingly, McGilchrist sees the Reformation as dominated by the left hemisphere, as he regards it as a time of fundamentalist rationality, placing emphasis on words and their meaning rather than the mystery, beauty and imagery of the religion it displaced.

How convincing is McGilchrist's argument? I have to admit that the further I entered into the book, especially in Part 2, the less convinced I became. This was due particularly to his sweeping treatment of historical periods. Is it inherently likely that a phenomenon such as "The Renaissance" or "The Industrial Revolution", which are themselves subject to intense debate among historians as to whether there is any substantive reality behind these convenient titles, could have been dominated over a long period by a particular orientation of the brain? And whose brain? A few leaders of these long-drawn out movements, or the brains of everyone alive at the time? In his analysis of these periods McGilchrist does of course support his case by quotations from the works of a few individuals, but he leaves readers to assume that these were representative. There is no recognition that people's motivations for participating in (or refusing to participate in), for example, "The Enlightenment" or "Romanticism" must have been enormously varied – not to mention the large numbers of contemporary people whose lives were completely untouched by these movements given names by later generations.

A similar sweeping approach to his sources is displayed in McGilchrist's comparison of "Western" and "East Asian" (specifically Japanese) psychology. He sees the Japanese as more broadly perceptive and socially aware compared with the individually motivated and analytical (mostly American) counterparts in his data sets, and attributes this difference to the dominance of the right hemisphere in the Japanese and the left hemisphere in the Americans. The mental attitudes of the Japanese thus become for McGilchrist a model to aim for before the West becomes hopelessly dominated by the left hemisphere. This analysis fails to take account of the technological and industrial brilliance of the Japanese which, in McGilchrist's own terms, is the result of left hemisphere dominance.

In addition to this tendency to historical oversimplification, I would also criticise his extended personification of the two hemispheres, to the point of representing them as agents in a status of near-war with each other. McGilchrist takes a gentle sideswipe at Dawkins for describing genes in anthropomorphic terms as "selfish" but McGilchrist himself extends the same process much further.

Although he presses the case for the restoration of the right hemisphere as "master", McGilchrist of course recognises that both hemispheres are needed in a proper cooperative relationship. In summary terms, he sees this as the right hemisphere acting as the initial perceiver of reality; the right hemisphere passes the information to

the left for a more detailed assessment; and the left then returns the result to the right for decision and action.

A question not answered in the book is “Why did these historical changes occur?” If different phases of human history were dominated by one or other of the hemispheres, what were the reasons for these oscillations? Perhaps whole complexes of non-neurological reasons were behind movements towards, or away from, learning, artistic styles, Protestantism, industry, Romanticism or materialism. The brain hemispheres were themselves responding to other pressures. In this case, we are dealing not with a master and his emissary, but with two emissaries.

**Alister E. McGrath, *Science and Religion: A New Introduction*.** Oxford: Blackwell, 2010; pp. 252, £20.99, Pbk, ISBN 978-1-4051-8791-6.

REVIEWED BY GARY SLATER

Considering the enormous range of meanings currently associated with the terms “science” and “religion,” it is important that any introduction to science-and-religion studies should present as many of the field’s approaches, controversies, and key thinkers as possible. It is also important that the contents of such a work be so structured as to acknowledge diversity without implying a sense of irremediable separation among the concepts at hand. Alister E. McGrath’s *Science & Religion: A New Introduction* succeeds on both fronts,

coherently providing uninitiated readers with a large amount of information, and doing so in an accessible style that encourages further reading. McGrath (born 1953), who has earned doctorates in both biophysics and divinity from the University of Oxford, has long been renowned within the field, and he presents the book's contents with an evenhandedness that reflects extensive reading on religious as well as scientific topics. For readers familiar with this work's predecessor, *Science and Religion: An Introduction*, from 1998, it bears mentioning that McGrath's new volume improves on the structure of the original. For while the former work was divided into no less than nine parts, the sequel has been simplified into four, a more direct approach that better speaks to the intertwined nature of the material.

*A New Introduction's* four parts divide into a total of thirty-four chapters, each of which concludes with suggestions for further reading. Part one covers historical issues, which McGrath describes in terms of debates brought about by the following three discoveries: the Copernican-Galilean heliocentric model, the mechanical philosophy of Isaac Newton, and the Darwinian theory of evolution. Understanding these debates, which McGrath primarily attributes to conflicts among institutions or modes of biblical interpretation, assists in confounding the widely held view that religion and science are necessarily in conflict. For example, when one sees Galileo's condemnation by the Catholic Church in the context of the Protestant Reformation, whose allegorical interpretations of Scripture entrenched

Catholicism to a literalist hermeneutic, it becomes more difficult to understand science and religion according to a simple narrative of “rational science against superstitious religion.”

Part two covers the general themes that comprise contemporary science-and-religion studies. This section—by far the book’s largest—discusses, among other issues, understandings of explanatory models, metaphysical beliefs, methods of verification, divine creation and action, and how to deal with theoretical anomalies. This section also offers a cursory look at how other faiths beyond Christianity have historically interacted with scientific research. While McGrath explicates the various perspectives on each topic with convincing critical detachment, he does not refrain from arguing on behalf of the positions he favours. For example, in discussing Ian Barbour’s well-known typology of relations for science and religion—conflict, independence, dialogue, and integration—he extols the dialogue model as the most fruitful option, as dialogue allows scientific and religious inquiry to speak to each other’s concerns without conflating them. McGrath also makes a strong case for a natural theology undergirded by a metaphysic of critical realism, in which observations of nature can attest to the plausibility of theological doctrines without serving as those doctrines’ foundations.

Part three covers some of the field’s contemporary debates. As one might expect, prominent “new atheists” such as Richard Dawkins and Daniel Dennett receive

considerable treatment, but McGrath also highlights less well-known issues such as astrophysics' "anthropic principle." Regarding Dawkins, McGrath points out that when Dawkins argues that Darwinian evolution has definitely displaced faith, he is referring to a very specific form of faith, namely that of William Paley's conception of God as "watchmaker" of a static universe. Regarding Dennett's notion of "evolutionary psychology," which holds that our moral beliefs have evolved according to Darwinian natural selection, McGrath points out that Dennett's theory locates the origins of morality in a primordial era that lies at the limits of empirical research. Finally, regarding the "anthropic principle," which implies that the remarkable consistency observable in such physical phenomena as the electron-to-proton mass ratio in atoms is best explained with reference to divine will, McGrath is careful to point out that such observations are merely *consistent* with a theistic worldview, rather than *proving* such a worldview to be true.

Part four covers ten case studies in science and religion, offering brief profiles of ten prominent twentieth and twenty-first-century thinkers. This section is perhaps the book's most instructive, as the diversity of approaches among such figures as Pierre Teilhard de Chardin (1881-1955), Arthur Peacocke (1924-2006), John Polkinghorne (born 1930), or Philip Clayton (born 1956) provides a sense of the parameters of contemporary understandings of science and religion. Of particular interest is the chapter on Thomas F. Torrance (1913-2007),

whose work appears to have strongly influenced McGrath's own. Without denying the priority of God's self-revelation, Torrance held that theology and science constitute complementary forms of *a posteriori* reflection, with each mode of inquiry determined by the distinct reality of its object. The implications of Torrance's work appear to be those that motivate McGrath in his authorship of *A New Introduction*, for the notion that science and religion might benefit from each other's insights renders such a book as this all the more useful.

For a work that manages to cover so much ground, it is perhaps unfair to criticize it for not including more material. Nonetheless, *A New Introduction* would have benefited from greater attention to two general areas: intellectual history and non-Western perspectives. It bears mentioning, for example, that scholastic thinkers of the thirteenth and fourteenth centuries would have balked at the notion that natural science and theology constitute separate, much less competing modes of inquiry. There is an argument to be made that our current tendency to think of them as such is a product of the taxonomic impulse in intellectual life brought on by the Enlightenment, an argument that would have benefited McGrath, considering his aim to introduce science-and-religion as a distinct field of study. For a further discussion of history, Peter Harrison's *The Bible, Protestantism, and the Rise of Natural Science* offers much insight.] Regarding non-Western approaches to science and religion, as well, readers can consult John Hedley Brook and Ronald Numbers' *Science and Religion Around*

*the World*. Both would make good companion pieces to McGrath's book, which, omissions notwithstanding, is an excellent introduction to science-and-religion studies, and would be a useful resource for undergraduate courses on science and religion as well as a general readership wishing to learn more about issues of considerable contemporary importance.

**Charles C. Camosy, *Too Expensive to Treat? Finitude, Tragedy, and the Neonatal ICU*.** Grand Rapids, MI: William B. Eerdmans, 2010; pp. 242, £11.99, Pbk, ISBN 978-080286598.

REVIEWED BY MICHAEL N. MARSH.

Do not treat disabled babies, or those of extremely low birth weight (ELBW).

This is the stark message of a new book, written by Roman Catholic author and ethicist Charles C. Camosy at Fordham. His programme is blunt and assertive, but it is not a pro-Singerian manifesto encouraging the nations to promote, or engage in, infanticide. On the contrary, this is a clarion call primarily to the citizenry of America, where financial health provision for the poor, the unemployed, the elderly and infirm, and non-white minorities of that society (this impoverished group probably exceeding the UK population of ~65 million people) is funded, where possible, by Medicaid. ["Medicaid" for the poor: "Medicare" for the retired]. The '*moral tragedy*' (p. 1) is



that demands are high, funding is extremely scarce, thus demanding a more equitably-based approach to the distribution of governmental health care aid: that is the case being articulated. How, then, could change be effected and how should the available cash be honourably apportioned? Europeans, in reading this book, may also begin to feel the chilling winds of rationed health-care provision starting to blow within their own backyards.

He briefly sets out his stall in the Introduction (pp. 1-13). The moral tragedy is that there simply aren't enough pennies to fund every treatment we want. But, as Camosy rightly warns, does every treatment that we (doctors, or parents) institute represent the most prudent way to behave, and how should we balance those medically-imposed needs against the societal brake which would act to ration certain provided options and judge them to be inappropriate and unnecessary? In other words, what are the ethical dictates which ought to determine the optimal outcomes for cash spent in respect of the dignity and relational characteristics of every individual caught up in this "lottery"? Hence this book which attempts, at least, to define these issues and to offer a way forward.

In the first chapter (pp. 15-62), consideration is given to the moral status of the damaged and ELBW ("imperilled") neonates. Without that pre-determined status, the equitable distribution of resources could not be effectively evaluated. In parallel with Catholic Social Teaching (CST), every human individual is to be

reckoned as valued and therefore deserving of full moral status. That is my own position derived from other considerations (*"On Being Morally Considerable: The Case of the Human Embryo-Foetus"*: Cambridge: Grove Publications (Ethics), 2012) in which I also abhor abstract philosophical definitions (Singer/Tooley/Harris) which plague our rightful valuation of all human beings. But the affirmation of the moral status of imperilled neonates should not now become a 'conversation stopper' (p. 8): indeed, the recognition of that moral status incorporates within itself the *social relationality* fundamental to all individuality. Because infants, especially the imperilled, cannot speak for their own interests (see GJ Warnock, *"The End of Morality"*, 1957), a careful 'proxy' decision is solemnly required, but importantly, respectful of the needs of all affected others. That is the implicit meaning of relational sociality and how it influences decisions on costs – not only of treatment, but on the subsequent burdens placed on carers and families at the time and throughout later years.

Chapter 2 (pp. 63-100) analyses whether we could 'triage' needy, imperilled infants when due regard for relational sociality is taken on board. Here, Camosy becomes a little impatient with those who either dismiss that important social factor in insisting that the doctor-patient relationship (or "covenant") is absolute, supreme (Ramsey) or who take a similar theoretical viewpoint, but fail to endorse the practical outcome in the equitable distribution of available resources (McCormick/Paris). In addition, given the moral status of imperilled newborns,

surely personal dignity cannot either be reduced, nor tainted, by the intrusion of 'social utility' since Codes and Conventions, like Nuremburg, Helsinki, Geneva and many other professional stances, affirm the priority – in all cases – between the patient and the medical attendant. But, parenthetically, doesn't society have a vital interest in the doctor-patient relationship? If not, how could we ever apprehend the murderous Dr. Shipmans of this world? And so this is where Camosy parts company with these invested declarations of patient priority. Indeed, he dismisses this "strong" form of quality of life issue, since an imperilled baby either gets nothing if its moral status is disregarded (Singer), or is winner-takes-all when its medical condition is regarded paramount (Ramsey) without due regard for relationality, and the needs of affected others.

His appeal comes through CST, but also on the ordinary/extraordinary means philosophy underpinning traditional Catholic moral teaching. That is, one is not required to act beyond the patient's stipulations, or in pursuing impossible treatments against all odds. One major source of support is Thomistic: in balancing one's duty to sustain life, the sustaining of that life – being a temporal good – is *not* absolute. That proviso was further strengthened by Pius XII who pronounced that it was the whole man, holistically perceived to comprise physical, psychological and spiritual domains which determined whether to treat, or whether not to treat (see RC Sparks, *"To Treat or Not to Treat: Bioethics & the Handicapped Newborn"*, Paulist 1988). Social factors, alas, cannot be

avoided in assessing medical need, since they 'define and delimit' personal dignity. Comasy argues that inclusion of social factors in achieving distributive justice in resource allocation would not result, for example, in a slippery slope towards infanticide and must be taken seriously since society's ability to pick up every tab, regardless, is simply not possible, while the 'absolute overwhelming injustice and need' (pp. 83-6) concerning medical-financed resource is not being met with honour and fairness. Indeed if everyone were to be treated needlessly, the burden would fall on everyone, and thus *discriminate* against the most needy – not in terms of their illness – but in the overall costs and burdens to families involved and society.

Having found the "stronger" social approach both theoretically and practically flawed in its failure to offer sufficient dignity to the imperilled, Camosy turns to "weaker" approaches in Chapter 3 (pp. 101-139), where some sympathy for the social factor is part of people's thinking. These approaches fail because the imperilled infant's needs still come to occupy centre stage, again representing a skewed use of limited resources to the disadvantage of affected others. More generally, they infringe everyone's right to a share of universal goods, and take scant regard for the principle of our interdependence on others which requires all of us to "wait" (= service towards, & time spent awaiting others to act: WH Vanstone *"The Stature of Waiting"*, DLT 1982): the analogy with Triunal inter-dependence and relationality also intrudes here. We have a duty to try to

overcome the vast unfairness in the distribution of world resources and not to violate, disproportionately, that duty of care and responsibility.

How can that be achieved? In Chapter 4 (pp. 141-202), Camosy puts forward his own ameliorating proposals. In doing so, he notes that despite the gross inequalities in US healthcare provision and in view of the vast number of citizens who literally go begging, public opinion has not, apparently, been swayed by this ongoing moral tragedy within their borders. He has therefore singled out the “case” of the imperilled newborn. Why? Because Camosy notes that neonatal intensive care units (NICUs) have burgeoned over the last twenty years, are extremely profitable and sources of enormous income for their respective institutions (p. 156), exude professional pride in a ‘see-what-we-can-do’ macho profile, are influenced by the legal Baby Doe enactment, are driven by determined (pp. 150-1) parental ‘want-everything-done’ demands, and hence have become icons of success at the expense of many others. Such babies represent a very tiny proportion of inpatient populations but absorb ‘a shockingly disproportionate share of medical resources’ (p. 161) – sucked in from Medicaid or private insurance schemes. NICUs represent a culture of overtreatment and are uniquely exemplary of John Paul’s notion of corporate sin (Camosy, p. 162).

Thus, by drawing attention to this unbalanced use of money for such a relatively small problem, Camosy’s call for *not treating unnecessarily* thinks this should strike a chord in his nation’s conscience, which would give rise to

some leverage in getting things changed politically since it would be political will, energised by a fierce public upswell, which could effect change. Meanwhile, voluntary help and contributions to ecclesial-funded hospitals would also begin to improve the lot of those (?) millions who, at present, get no financial reprieve whatsoever, in their agony. And that giving of time and money, Camosy asserts, should be sacrificially painful, in the true historic and traditional Christian spirit of love.

Readers of this review might also ponder on ways in which this book reflects, in a novel and fresh manner, the 'confrontation' between science, here represented (in microcosm) by the biomedical expertise burgeoning into new ways of treating the imperilled, and the religious dimension, in its call to respect the inter-connectedness of every morally-reckonable human individual in the nexus of family love and societal well-being but as articulated in its concern for spreading available goods equitably towards the option for the poor and destitute throughout society. In that regard, we should take note of the grave problems facing the mentally handicapped in every country of the world, and the disgraceful manner in which so many are abandoned resulting from dismissive attitudes towards them, and their resulting markedly reduced life-expectancy worldwide.

Get a copy of this book, read it, ponder its stark message, and think about ways in which you can improve the option towards the poor and destitute.

**Brian Brock**, *Christian Ethics in a Technological Age*. Grand Rapids, Mich.: William B. Eerdmans, 2010; pp. x+408, £22.99, Pbk, ISBN 9780802865175.

REVIEWED BY LOUISE HICKMAN.

Technology is all around us: hardly a controversial claim. Brock, however, makes a convincing case for a more complex understanding of ourselves: *we* are technological. What should a Christian ethical response to this reality be? Influenced primarily by Augustine, Bonhoeffer and Barth, Brock is concerned not so much with answering this question as reframing it: rather than asking what the limits of our use of technology should be, he suggests we should move away from a dilemma-based ethic and instead re-imagine our technology-infused form of life in terms of a Christian theology of work and worship, centred around a doctrine of creation. The result is a complex but stimulating and rewarding read. The book is divided into two parts: Part 1 identifies some failings of the standard model of assessing technology and Part 2 proposes his theological re-imagined Christian ethic for a technological age. Although Brock presents both parts as one coherent argument, with the first laying the groundwork for the second, there is some notable dissonance between them and one can easily accept some of the astute insights of the first without having to embrace the theology of the second.

Part 1 draws on the thought of Heidegger, Foucault and George Grant in order to disrupt the dominant

liberal paradigm that tends to perceive technology as neutral in itself and which assesses its application instrumentally in terms of utilitarian calculations about harms, while assuming that any resulting harms can be mitigated by even better technology (16, 163). Brock uses Heidegger's insights to form a powerful argument that technology is not the non-natural objects we make or the tools we use but the way we live; 'technology is a human mode of thought that, in rejecting any role for divine action, comes to approach all things and relationships as susceptible to human ordering and management' (26). Technology is not imposed on the 'natural'; rather the technological is the paradigm in which we live. The 'embedded' nature of technology gives rise to an inextricable link between politics and economics. Populations (the electorate) become 'biopower', or a 'natural resource' (157), and humanity is reduced to a standing reserve to be 'developed and deployed in the struggle of nation against nation and corporation against corporation' (104).

Following on from this, inspired by Foucault, Brock makes some valuable observations about the political power of technology. We are so often swept away by the persuasion of the spectacle that we all too often neglect to ask about the aims of a project: 'The technological sublime is the motor the power/technical elite offer to the public to sustain their support' (140) as seen so often in the promise to eradicate disease or give even more (and safe) power over nature, or control the economy. There is an important warning here that our politics and



economics tends to be shaped by the pageantry through which our technological achievements are presented, and Brock's attempt to draw our attention to the inherent political force of our current conception of technology must be welcomed. In assessing most given 'dilemmas', we rely on a consideration of economic factors or on opinion polls. Brock wants us to ask instead, 'what is truly good for people?' (167). Deliberation about proposed technologies should question why people would *desire* to use the new technology, or why would its producers want to *develop and sell* it, or the government *promote* it? (158).

So what should a distinctively Christian response to our technological form of life be? Part 2 does not try to give 'pronouncements' about action but 'aims to increase our sense of gratitude for God's care in the context of a range of technological practices' (186). Barth's influence is profound here: Brock searches for an ethic that relies on listening to 'divine speaking' (175) which in turn enables us to 'discover our place in the divine-human relationship' (176). Work and worship are crucial for Brock's theology. Work should be seen as service, rather than production (314), and for it to be creaturely (and not Promethean) it must remain attuned, reflective and playful (303). What this means in practice is that the Christian community must become attuned, through listening, to the needs of the neighbour. Human making, ruling, tending, harvesting, and procreating (and the use of technology therein) are therefore good when orientated to the love of God and when attending to the

service of our neighbour (230). Worship is conceived (borrowing primarily from Barth and Bernd Wannewetsch) not as a rest from work but as the orienting moment of all human good works (300). Worship, Brock argues, should be less about habit formation than about listening and attention, and it includes asking critical questions of the new technologies. A Christian approach, he says, should not be against all technology, but should be continuously wary of our own modes of power, 'Christians can only and must always ask, how does this technology embody love for others?' (235).

This theology, however, sits rather uneasily with Brock's doctrine of creation. What exactly is it that we should we listen to? It transpires that for Brock it is not so much our neighbour as what is, he thinks, 'ontologically given' in creation (97). Good work is attentive to the *order* of creation for the sake of the neighbour, and this order (the 'given') is associated with dimorphism. He claims that Oliver O'Donovan's critique of sex-change surgery remains pertinent today, and he argues that to acknowledge creation as good *entails* the acknowledgement that biological dimorphism is not an artifact of the fall but is, in itself, good (331). This means for Brock (despite stating elsewhere that 'material order can make no direct moral claims' (324)), marriage (only between a man and a woman) 'reveals the moral meaning of material order' (331). He affords hermaphrodites the dubious honour of being a 'hermeneutic' difficulty (332) but those who seek gender-

reassignment are portrayed in terms of asserting their wayward will against the created good. Those with 'gender-identity disorder' he thinks have come to see themselves in this way because of the cultural forces (including technological advances) shaping their self-conception (332). Even assuming, however, that there is some sort of given 'order', disentangling what is ontologically given from what is a culturally and socially constructed is surely a much harder task than Brock allows. Can we really be so sure what the unconstructed 'given, material reality of ...women' is (153), or about what it might mean to assert our will against this 'reality'? To argue that any modification to dimorphism must be wrong because it is ordained in Genesis pre-Fall must also rest on a somewhat literal interpretation of Genesis: if it is only the creation ordinance that is 'real' then morally normative creation is equated with a prelapsarian idea of the 'given'. This leaves creation as a somewhat static ideal with little room for an evolutionary informed theology.

Another difficulty arises from the tendency of dimorphism to become hierarchical. The dimorphic marriage union becomes the image of Christ and his bride, the church (332, 337) (presumably, the male would represent Christ and/or God and the female the dependent church?). Together with dimorphism comes 'the divine setting apart of humanity from animals' (336) spoken of (but not articulated) in terms of 'dominion' (337). With no reference to the insights raised by ecofeminists on this topic, he says he wants to re-

appropriate (what he sees as purely positive) patristic insights about how attitudes toward marriage are diagnostic of human attitudes toward all creation (327). Drawing on the patristics, he claims that 'the institution of marriage was given to protect human society' (361). Sexual energy must be 'attended to with care' or if it's discharged in a 'disorderly' way (i.e. not in the 'proper context of marriage' – which can only be between a man and woman) it can be 'destructive' (361), not just for the individual but for the community: 'commitment to one's spouse is simultaneously the form taken by one's commitment to the upholding of all society' (363). Brock's implication that any gay couple living in a lifelong loving partnership (and presumably those seeking to leave the commitment of marriage, even on grounds of violence and abuse?) are threatening society and undermining our relations with our neighbours is hard to accept. One might ask of Brock (and perhaps the patristics) the questions he himself raises of others: *who* is deliberating about the question, *why* do they deliberate, in what *context* they do so, and what are the *theory and practice* within which the asking is being generated (349)? There is much to recommend a theology that insists on the importance of our embodied nature but Brock is just not convincing when he insists that dimorphism is the *only* way to make our materiality matter (337). If, as he says, technology assessment can be distinguished from a Christian theological approach because technology has only one inviolable prohibition – 'Though shalt not undermine the survival of the institution' (378) – while

the Christian community's commandment is 'thou shalt love God and love your neighbour as yourself (379), Brock's argument shows just how complex it is to determine the difference: attending to love of God and neighbour in discerning the just application of technological practices is shown to be an ongoing and difficult task for Christian ethics.

Brock's proposals for agriculture in relation to environmental ethics are more enlightening. Agriculture, he says, can refuse the Promethean project by expressing a faith that is aware of the uniqueness and irreplaceability of the earth, and it should aim to learn to relate to the earth with respect, humility and skill (343). For agriculture, as for the political life, the task is one of discernment, which means judging the proper measure of agricultural performance in terms of health rather than productivity (347-8). In discussing modern chicken battery farming he quite rightly complains that humans 'have not yet taken chickens seriously as God's creatures when viewing them as raw material' and asserts that they 'are only attended to as bearers of a divine claim when recognizing their particular form of creatureliness in a sympathetic attempt to grapple with and respect it' (353). We cannot know a chicken *is* Brock asserts (as presumably we cannot know what chickeness was pre-Fall) but Genesis points to chickens as fellow creatures partaking with humanity in creation, which requires accepting their creatureliness and attending to it.

Brock's discussion of agriculture, and his critique of instrumental assessments of technology, contain a great

deal of value. If, however, human sexual orientation and identity were afforded the same 'given' form as chickenness, the book would be able to apply even more profoundly its important claim that human life should be received as a gift (370) and that a Christian ethic should attend itself first and foremost to caring for those who have been given (371).

**REVIEWS REPRODUCED FROM ELSEWHERE**

**Conor Cunningham**, *Darwin's Pious Idea: What the ultra-Darwinists and the Creationists both get wrong*. Grand Rapids, MI: William B. Eerdmans, 2010; pp. 563, £22.99, Hbk. ISBN 978-0802848383.

REVIEWED BY NEIL SPURWAY.

REPRODUCED WITH KIND PERMISSION FROM ESSSAT NEWS.

This book comes bedecked with accolades. Many people whose opinions I greatly respect have praised it to the heavens. It is therefore with trepidation that I now write much more critically.

The book is very complex. If only this review could take up the whole issue of *ESSSAT News*! It starts with two chapters on Darwinism. These are not for readers who don't know the basics, but those who do will find a highly perceptive personal appraisal, full of metaphysical and even some scientific insights. Conor Cunningham is a philosophical theologian who has read up the science, for the most part impressively well. His presentation is not error-free: several biochemical names are mis-spelled, one graph (p. 56) plots a term it doesn't define, another (140) isn't referred to in the text ..., but overall the grasp is impressive. Chapters 3-6 modulate toward more and more intensive criticism of various aspects of thinking derived from Darwinism. Much of this, too, is good, but I shall take strenuous issue with three of Cunningham's themes below. The last chapter is a radically

Christocentric account of the world, at once mystical, patristic, and passionate. It is almost nothing whatsoever to do with Darwin (though ultra-Darwinists and creationists make one last appearance in the final paragraph) and furthest from my own thinking, yet I found it the best chapter of all.

Before looking further at the ideas, let's consider the way the book is composed. Extraordinarily wide-read, Cunningham treats us to about 1500 quotations – too many! And his own text is verbose and repetitious. Overall, the book would be a lot better if it were at least 30% shorter. There are also 100 pages of small-print endnotes; interpolated among the very many references are significant blocks of important material which the author hasn't taken the time to incorporate in the text – a lazy arrogance, treating the reader's time as less important than his own. Again, all but the first citation of any source is highly condensed, yet there is no follow-up Bibliography. So, if any but the first reference to a prior author catches one's interest, one has painstakingly to work back through many pages of notes to locate the essential details.

Another annoying trait is staccato categorization of forms of scientific thinking in philosophical terms – Darwin, for instance, is a 'nominalist' (which, to Cunningham, is a term of abuse) – without any explanatory comment. Words like 'nomothetic' and 'essentialist' will keep sending many readers to a dictionary, when a little more care could have made the text elucidate itself.



Perhaps the most annoying feature of all, however, is that the topic of the title (the theme of much British, American and German writing in the 19<sup>th</sup> C, and of excellent recent books by such as Francis Collins, John Haught, Kenneth Miller, Holmes Rolston and Michael Ruse) is directly addressed by Cunningham only on two pages (284-5). Even here, Darwin's great idea isn't actually described as 'pious', but that it promotes atheism is listed among a series of secular myths which are to be rejected.

The subtitle fairs better: ultra-Darwinists and Creationists are lumped together by frequent assertion, though the rationale that they reinforce one another in countless naïve literalisms is more implicit than explicit. However, scriptural literalism in the broad is very thoroughly rejected, from a variety of standpoints, making the subtitle much more the subject of the book than the title.

Two other general features stand out. Firstly, substantial sections contain a lot of humour. I found much of this rather schoolboy – Cunningham hasn't the dry subtlety of a Bertrand Russell – but other reviewers seem to have liked it. Secondly, Cunningham loves paradoxical statements. Here are four samples: "[N]atural selection is a purely statistical phenomenon, not a cause" (105); "[U]ltra-Darwinism is intrinsically anti-evolutionary" (109); "Naturalism is the liquidation of existence itself" (268); "All falls are unnatural, while all religion is atheist" (410). To my mind, none of these assertions is correct, but they keep one awake.

Now to my substantive dissents! Cunningham has it that Natural Selection had itself to be a product of evolution (111), and that there can be no substrate-free biology (114). Likewise he is sustainedly dismissive of 'Universal Darwinism'. In every case I disagree. Wherever, and in whatever system, two forms are in competition, the better-adapted one will become dominant: In a longer review I would expand on the term 'better adapted'. But the point is simple: *Natural Selection cannot not occur!*

Chapter 5 starts superbly: "[J]ust because we have an animal nature does not mean we must abandon the notion of our *imago dei*, for to do so is to remain trapped by a false picture, inherently gnostic and theologically heterodox. So ... we embrace our biological nature ... never thinking to disparage that which ... comes from the womb of time and soil." (180) Also, "The modernist division between culture and nature must be closed." (181).

But ten pages on comes a section which I cannot forgive. It is an attack on the idea that rationality is a product of evolution – an attack displaying utter ignorance of the field. The field is that of Evolutionary Epistemology, but Cunningham has read none of its mainstream exponents: there is nothing of William James, Konrad Lorenz, Gerhard Vollmer or Karl Popper, and no pertinent Donald Campbell or Peter Munz. The people who are quoted extensively are Thomas Nagel and Jerry Fodor. Thus: "Darwin isn't in the epistemology business, and evolution doesn't care whether most of our beliefs

are true.” (Fodor). And “[I]f ... we came to believe that our capacity for objective theory were the product of natural selection, that would warrant serious scepticism about its results ....” (Nagel) “By this he means that such intelligence would ... be reliable only in its original environment – namely, the savannah, dealing with predators, hunting and gathering, etc. As a result we would have to doubt its veracity with regard to mathematics in particular, and science generally” (Cunningham, 212-3). In fact, Darwin’s *Notebooks* indicate that he was very much into the epistemology business, and evolution ‘cares’ intently about beliefs which have direct survival-value – spatial judgements in our arboreal ancestors are the classic example. And the case that science and mathematics are logical extrapolations from these origins has been widely and convincingly made. Cunningham’s ignorance is reinforced by his reference to the savannah: evolutionary *psychology* is content to look back that far, but evolutionary *epistemology* goes many times further – “from the amoeba to Einstein”, in Popper’s approach.

Chapter 6, *Naturalizing Naturalism*, is (if possible) even worse. It utterly belies its title. It is a 100-page rant against what Cunningham beligerently calls Naturalism, despite a passing acknowledgement that this word has many connotations – possibly as many as there are users of it. He wilfully ignores, both here and in many other pages scattered through the book, any but the most extremely physicalist of the usages. This is exactly what Dawkins does to theology – picking out the most extreme

position, in order to knock, and knock, and knock it down. Has Cunningham never heard of Wim Drees? Has he never actually read Ursula Goodenough, though he quotes her once in a different context? Worst, has he been purblind to the whole message of Denis Noble's *Music of Life*, despite quoting him nine times in Chapter 2?

Finally, and most radically, I come to our underlying difference. In the spirit of Nagel, Cunningham asserts that "[T]he materialist must admit that his description ... tacitly invokes something that transcends ... the merely physical" (266). I highlight 'thing' because to me this is the basic philosophical error of the book: the Platonic assumption that there must be some ultimate *entity* behind every property – including mathematical properties, and rationality itself. In fact, there is no entity, 'Truth', there are statements which are true. There is no such 'thing' as 'Consciousness'; we, when awake, are conscious. "Are qualia something over and above a purely physical-cum-chemical description?" (366). Of course they are! Except that qualia aren't a 'thing' at all – they're a viewpoint, not an entity. Cunningham persists in the error of the essentialist philosopher, in being trapped by words into imagining that properties, functions, consequences of action are *things* – and that to deny this is to deny all that red-blooded human beings value. Scientific thinking has grave weaknesses, but it doesn't make as radical a mistake as that.

Dr Cunningham's heart is in the right place, but his philosophical presuppositions don't help him to display it.

## SHORT REVIEWS BY THE EDITORS

**John Polkinghorne and Nicholas Beale, *Questions of Truth: Fifty-one Answers to Questions about God, Science and Belief*.** Louisville, Kentucky: Westminster John Knox Press, 2009. pp. xiv+180, £11.99, Pbk. ISBN 9780664233518.

This book is a compilation of various questions submitted to John Polkinghorne's website and their answers composed by Polkinghorne and/or Nicholas Beale (who runs the website). For those already familiar with Polkinghorne's work, the book offers nothing new as this book acts as a summary for ideas articulated in more depth elsewhere. The purpose of the book is introductory, however, and those teaching undergraduates may find it a useful starting point for discussion. The question-and-answer format is successful: non-specialists will be able to dip in and out without being overwhelmed by terminology (there are three appendices dealing with anthropic fine-tuning, consciousness and evolution in greater technical depth) and each individual question is answered succinctly in two or three pages, which distinguishes this book from many other introductory volumes in the field. Suggestions for further reading are included, as is a helpful glossary. Opportunities to provoke deeper theological thinking are sometimes missed: for example, in discussing evil and suffering, there is no mention of many of the recent theological challenges to theodicy or the work that has been done on non-human animal

suffering but the book has value as an introductory text for all inquiring minds who are new to the study of science and religion. LH

**Philip Clayton and Steven Knapp, *The Predicament of Belief: Science, Philosophy, Faith*.** (New York: Oxford University Press, 2011). Pp. x+184. £16.99 Hbk. ISBN 978-0-19-969527-0.

This is an important study in philosophical theology. The ‘predicament’ is the range of reasons for doubt about traditional belief – especially: the power of science to explain the world, the corrosive effect of ubiquitous suffering on any belief that the ‘ultimate reality’ is a being that cares about our welfare, the multiplicity of religious claims – casting doubt on whether any one claim could be true – and (specifically in relation to Christian claims) the ambiguity of the historical accounts. This analysis leads to a proposal for a minimalist Christian theism that the authors think remains sustainable. Strikingly in respect of divine action, this leads them to propose that God could not morally act ‘even once’ to give specific guidance to a human (for example about impending disaster). “Providence” must therefore be confined to a generalized lure towards virtue. This has interesting implications especially for their (very challenging) handling of resurrection. CS

**BOOKS RECEIVED FOR REVIEW**

**Rob Boddice**, *Anthropocentrism*. Leiden: Brill, 2011.

**Sjoerd Bonting**, *Is There Life After Death? A Novel View*. Guildford: White Crow Books, 2012.

**R Scott Smith**, *Naturalism and our Knowledge of Reality*. Aldershot: Ashgate, 2012.

**Ian J. Thompson**, *Starting Science From God*. Pleasanton, Calif: Eagle Pearl Press, 2011.

**Cornel W. du Toit**, *Homo transcendentalis? Transcendence in science and religion: Interdisciplinary Perspectives (South African Science and Religion Forum)*. Pretoria: University of South Africa, 2010.

The Editor welcomes offers to review these publications. Please contact her on [L.Hickman@newman.ac.uk](mailto:L.Hickman@newman.ac.uk)

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

**PUBLICATIONS BY MEMBERS OF THE FORUM**

**Robin Attfield**, *Ethics: An Overview*. London: Continuum, 2012.

**Rebekah Humphreys and Sophie Vlacos (eds)**, *Creation, Environment and Ethics*. Newcastle-upon-Tyne: Cambridge Scholars Press, 2010. This volume is a Festschrift of the work of Robin Attfield and includes contributions from some of the Forum's members, together with Robin's replies.

**Sjoerd Bonting**, *Is There Life After Death? A Novel View*. Guildford: White Crow Books, 2012.