

Book Reviews

**K. Helmut Reich, Fritz K. Oser
and W. George Scarlett**
*Psychological Studies on Spiritual and
Religious Development*
Being Human: The Case of Religion,
Vol.2

Lengerich, Germany: Pabst Science
Publishers, 1999, pb. 183 pp.
ISBN 3-933151-96-1

Understanding spiritual and religious development is clearly extremely important. The editors, active researchers in the area, maintain that spiritual phenomena are as open to scientific study as any. They adopt a broad view of spirituality as having a natural root in humanness and as developing differently in interaction with various religious traditions. Socha, for example, regards spirituality as a way of coping with the uniquely human experience of knowing that we are mortal and will never be perfect.

Nye discusses her extensive research into the spirituality of children in the light of *theory of mind*, a concept now popular in mainstream psychology. Theory of mind is concerned with how children develop awareness that they, and other people, have minds, and what exactly these can do. This distinctively human kind of consciousness takes us beyond the immediacy of the physical world, and beyond understanding based on observable behaviour.

In two of the studies reported Oser's five-stage description of the development of religious judgement was used. At stage 1, an Ultimate Being is all influential; at stage 2 God can be influenced by prayers; stage 3 the individual assumes responsibility for his/her own life, the Ultimate Being is apart. At stage 4 the individual comes to recognise that freedom and life stem from an Ultimate Being and at

stage 5 God appears in every human commitment, yet transcends it. Transcendence and immanence interact completely, making possible universal solidarity with all human beings.

Smoliak studied developing thoughts of God in 114 children aged 6 to 16 from a Christian school. Each child was asked to tell a story about God and then to answer questions about the story of Jesus calming the sea. Most of the responses were at stages 1 and 2, far fewer were at stage 3. Beile interviewed 43 German adolescents in a study of how feelings are related to religious judgement. Transitions from stage 2 to stage 3 were primarily cognitive, while those from stage 3 to stage 4 were emotion based. Eleven participants reported specific religious feelings of closeness to God.

In a pilot study concerned with post-modern religiousness, Rollett and Kager had 38 religiously oriented persons respond to a battery of tests including a 'Religious Dilemma', a 'Community Dilemma', a scale of Religious Self-Efficacy, the Freiburg Personality Inventory, and 'Pictures representing four types of emotional interaction'. The authors' main conclusion indicated that fulfilment of spiritual needs results from a person striving towards an emotional relation with the Absolute modelled on a co-operative partnership and a personal, responsible interpretation of obligation towards one's own religious community. Thus affective dimensions are not a prerogative of the so-called new religions, but are rather a fundamental aspect of religious involvement per se.

The papers also include a life-span study of the spiritual development of Abraham Lincoln; a study which sought to probe the inconsistencies of the human mind which enable miracles to be

believed; and one on wise acts (those which require a prior change of perspective).

These papers provide a taste of some studies in this very important area. Interviewing is a time-consuming method of collecting data; the results reported need to be verified and their scope extended. Hopefully some readers may feel inspired to undertake such research.

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Roger Forster and Paul Marston
Reason, Science & Faith

Crowborough: Monarch Books, 1999.
479 pp., pb. £8.99. ISBN 1-85424-441-8

Roger Forster and Paul Marston are no strangers to the 'Science and Faith' debate and this book is a thorough update and expansion of their previous book *Reason and Faith* (1989 also published by Monarch). As Conservative Evangelicals they believe that the Bible has a unique authority, but they also are convinced that its proper interpretation is consistent with modern science. They hold firmly to the view expressed by Sir Francis Bacon in the seventeenth century that the 'Book of God's Word', the Bible, teaches us theology whilst the 'Book of God's Works', Nature, teaches us science. Properly understood there will be no conflict between them. However, they argue forcefully that such a proper understanding does not require a literal interpretation. Indeed, they demonstrate convincingly that the traditional understanding of the first chapters of Genesis, recognized by theologians (including those of an 'evangelical' persuasion) from the very birth of the Christian Church, is an allegorical, rather than a literal one. They are at pains to point out that this

did not arise in response to scientific advance, as some would maintain. Rather, it is the emergence of the literal interpretation of Genesis in the last century that is the anomaly. With this has come the baggage of 'Creationist Science' which the authors spend a considerable time demolishing as both bad science and bad theology. They present us with a wealth of evidence to illustrate the inconsistencies, inaccuracies and confusion displayed by the anti-evolutionary young-earth creationist thinking of Christian literalists like H. M. Morris. The authors recognize that Christians who hold such views may well be sincere and well meaning, but they are actually doing the Christian Faith a disservice as illustrated by a quotation from the fifth century theological giant, Augustine of Hippo. 'Usually even a non-Christian knows something about the earth, the heavens, and the other elements of this world... and this knowledge he holds to as being certain from reason and experience. Now, it is a disgraceful and dangerous thing for an unbeliever to hear a Christian, presumably giving the meaning of Holy Scripture, talking nonsense on these topics, and we should take all means to prevent such an embarrassing situation, in which people show up vast ignorance in a Christian and laugh it to scorn'. Such quotations from a wide range of sources right back to the first century are a feature of the book which readers will find both fascinating and illuminating.

It is not only creation scientists and literalists that receive a telling critique from Forster and Marston; so too do those "scientific atheists" such as Peter Atkins and Richard Dawkins whose militant atheism drives them to ridicule the Christian faith and its adherents at every opportunity. The authors note that much of what these popular science writers have to say is more metaphysics and speculation than real science, and when they comment on matters of philosophy, religion and the history of science they display a remarkable degree of ignorance.

Reason, Science & Faith is much more than just a consideration of the creation/evolution debate. It covers all the major issues relating to science and faith and it does so with intellectual rigor and extensive reference to the literature, both past and present. There are chapters on how God works in the world, on the general relationship between science and God and between reason and faith, including a major section on “the argument from design”. The philosophical and historical confrontations between science and religion are considered in depth as are questions of personal identity and freewill. Other chapters consider the nature of miracles and how God communicates with us both through the historical Jesus and through the Bible. As noted above, there is a particular emphasis on the authority of Scripture and our interpretation of the early chapters of Genesis in the light of current scientific views of the origins of the universe and life as we know it.

Overall, this is a very impressive book that will reward the reader with a wealth of helpful quotations and historical insights into how the relationship between science and faith has developed down the centuries. There will be areas with which readers will wish to disagree, and there may be issues that could have been covered better. How to reconcile modern science and Scripture in relation to disease, suffering and the Fall would be a case in point. Nevertheless, few readers will fail to benefit from reading this book, and for those of us who are sometimes called upon to speak on such subjects it will prove an invaluable reference. However, it is not a book to be read casually, and I must confess that I found it hard going at times. Am I right to suspect that some of the book is a reworking of material used in a lecture course? It certainly doesn't read with the fluency and light touch of a book designed for the average reader. There was also a considerable amount of repetition that came about as the same topic was approached from a different angle in separate chap-

ters. Perhaps this is an inevitable consequence of dual authorship. Another minor irritation was that the style of writing frequently became over-personal for a book of this nature and at times seemed patronizing towards those who held other views. There were also an exceptionally large number of “typos” for a published book.

Despite these minor criticisms, for those who want a more in depth look at the major issues relating to science and faith, this book is a must; but don't expect it to be a quick and easy read! Before you rush out and buy it, you can always take a look at the full text by visiting the website that is being developed around the book at www.reason-science-and-faith.com. The idea is that this site will provide additional information, updates and a forum for debate. But to end with, another useful quote from Thomas Aquinas that Forster and Marston bring to our attention. “Two rules are to be observed, as Augustine teaches. The first is, to hold the truth of Scripture without wavering. The second is that since Holy Scripture can be explained in a multiplicity of senses, one should not adhere to a particular explanation, only in such measure as to be ready to abandon it if it be proved with certainty to be false; lest Holy Scripture be exposed to the ridicule of unbelievers, and obstacles be placed to their believing’.

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K.E. Greene-McCreight

Ad Litteram: How Augustine, Calvin and Barth Read the “Plain Sense” of Genesis 1-3

Bern and New York: Peter Lang, 1999. xi + 274 pp., hb. £32. ISBN 0-8204-3992-4.

This book is a study of what the concept of the ‘plain sense’ of the Bible has meant to Christian scholars down the ages. In

the opening chapter the author points out that the concept has never been a straightforward one. The 'plain sense' of the Old Testament became problematic for the early Christians in the second century A.D. This was because some of it seemed irrelevant to them (*e.g.* the laws on clean and unclean food) and some of it was repugnant (*e.g.* the immoral behaviour of some of the 'heroes of the faith'). This highlights the fact that behind the concern about the 'plain sense' of the Bible is the belief that it is the authoritative word of God. How can it have this function if some of it seems irrelevant and part of it describes behaviour that is contrary to God's moral standards? One response was to look for a 'deeper' or 'spiritual' meaning by means of allegorising the text. However, this raised the danger of people reading whatever they liked into the text. To counter this it was insisted that interpretations which go beyond the 'plain sense' should be constrained by the 'rule of faith' (*i.e.* the doctrinal boundaries set in the ecumenical creeds). But what is the 'plain sense'? Jews and Christians differed over whether or not certain texts were 'plainly' messianic in their meaning, so raising the question of the original author's intended meaning, and whether and how it is legitimate to go beyond this.

In her study the author explores what the concept of the 'plain sense' meant to three influential Christian theologians by studying how they interpreted Genesis 1-3. She says she has chosen these chapters because the interpretation of the Old Testament has always been a key issue with regard to the 'plain sense' (for the reasons outlined above), and because these chapters tell of 'pivotal' episodes that launch the Biblical story' (20). The book is a theological study. It is part of a series entitled 'Issues in Systematic Theology'. The author warns that it is not about 'what the Bible really says' in these chapters. For some this might seem to make it of only marginal interest to those concerned with the relationship between scientific understanding of the world and

the teaching of the Bible. However, they perhaps are just the people who should read it to have their eyes opened to just how simplistically the Bible is often treated in that area of debate. That the 'plain sense' of Genesis 1-3 is not all that obvious becomes clear as one observes Augustine, Calvin and Barth wrestling with the text in the light of their particular concerns and presuppositions.

For Augustine the 'plain sense' of Gen. 2:4 was that God created everything simultaneously ('in one day'). He therefore read the account in Gen. 1 figuratively, as a narrative intended to help us understand God's creative activity, and not as an historical account of it. In this he was influenced by his understanding of the relationship between God, time and eternity. Calvin understood the days of Gen. 1 as periods of 24 hours. However, he insisted that the account of creation had been expressed in a way that 'accommodated' it to the capacity of the readers to understand it. One aspect of this is that it described things as they appear to be, not as they really are. So, Calvin found no problem in the apparent 'plain sense' of Gen. 1:6&7 that the sky is a solid dome, or of Gen. 1:16 that the Moon is bigger than Saturn. For Barth the genre and purpose of Gen. 1-3 indicate that they are to be read theologically, which for him meant Christologically, and so he thought it inappropriate to discuss scientific issues in relation to these chapters.

The book is written in a clear, readily readable style. Although intended primarily for theologians, it should be understandable by others who are prepared to put some effort into their reading of it.

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Denis Alexander

Rebuilding the Matrix: Science and Faith in the 21st Century

Oxford: Lion Publishing, 2001. 510pp.
pb. £12.99. ISBN 0 7459 5116 3

The matrix of the title refers to the overall framework within which a person sets their understanding of reality. All of us, tacitly or explicitly, embrace some form of metaphysics, just as we all speak prose. Denis Alexander writes to defend the thesis that theism provides the best matrix within which to justify the validity of science and to encourage the flourishing of human values.

After a survey of how it is that such overviews come to be formed, there follow four chapters charting the historical course of the relationship between science and religion. Alexander has read extensively in the secondary literature and he is able to make excellent use of apt quotations relating to all sides of the issues being discussed. Persuasive arguments are presented for rejecting a thesis of inevitable conflict, and the claim that science necessarily drives secularisation is subjected to careful criticism. An important and recurrent theme in this part of the book is that many people's matrix is influenced by items that 'everyone knows', but which are, in fact, false. It was not at all the case that everyone in the Middle Ages believed that the Earth was flat. In a discussion of how the Reformers reacted to heliocentric claims, Alexander makes it plain that the celebrated quotation so frequently attributed to John Calvin, 'who will venture to place the authority of Copernicus above that of the Holy Spirit', is a pure fabrication. Many of the conclusions reached are not novel, but the detail of the discussion makes these chapters an extremely useful part of the book.

They are followed by chapters that concentrate on issues arising from debates over the significance of evolutionary biology for matters of faith. As one would expect from an immunologist, Alexander

is stout in the defence of the scientific value of evolutionary insight and rejects the extremes of both 'creation science' and an imperialist naturalism. There is a particularly helpful chapter (11) that gives a measured critique of sociobiological claims to give an adequate explanation of, and basis for, ethics.

In fact, Alexander believes that evolutionary biology is essentially neutral as far as religious implications are concerned. This is part of a thesis that permeates the book, that the detailed concerns of science and religion are in many ways detached from each other: 'neither do [Christians] believe that scientific knowledge per se is relevant to ...theism' (341). However, such an 'independent' model of the relationship seems at best to be a half truth. Physics does not determine metaphysics, but it surely constrains it by conditions of consonance. In fact a modest and insightful (rather than demonstrative) natural theology does surface in the short discussion in chapter 12 of anthropic fine-tunings, in contrast to the rather cool attitude taken to such lines of argument elsewhere in the book.

If there is a deficiency in this helpful addition to the science and religion literature, it lies in a comparatively shallow engagement with theology. The chapter on miracles (13) does not acknowledge those problems of divine consistency that need careful consideration, and it devotes curiously little detailed attention to the central Christian miracle of the Resurrection.

The style is spacious – the book could have been shorter without losing content. Throughout the author writes in a style that is clear and even-handed, not thrusting his own Christian belief upon the reader, though not disguising it either. The urbane tone of the discussion is in pleasing contrast to the fiery assertions that are so often exchanged across the border between evolutionary biology and religion.

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Russell Stannard (Ed.)

God for the 21st Century

London: SPCK, 2000. ix+194 pp. pb.
£12.99. ISBN 0-281-05342-1

This book is unusual in having over 50 authors, each contributing a few pages on a chosen aspect of the relationship between science and religion. This is both its strength and its weakness, since it is extremely accessible and readable, and written without technicalities, but lacks depth and shows some significant repetition. The authors are mostly from the UK and the USA (eight countries in all are represented), and most, but not all, write from a Christian perspective. If a brief quotation is to sum up the content of this book, it might well be: 'Until a few decades ago, there was a popular notion that science was the only trustworthy path to truth. Other sources of truth, especially religious beliefs, were said to be outmoded. Now the situation is very different.' (Robert Hermann, 'Science and Religion: Converging Paths to Truth').

The book is divided into eleven sections, each with a brief descriptive introduction by the editor: Origins; The Universe as a home for Life; Evolutionary Biology; Life in the Universe; Genes and Genetic Engineering; Faith, Medicine and Well-being; The Mind; Personhood and the Soul; Quantum Physics and Relativity; Limitations to Science; and Science / Religion Dialogue. The spelling is American, an indication of its original publication in the USA (by the Templeton Foundation). As would be expected, the religious stance of the authors is quite varied, which makes all the more interesting the considerable areas of agreement among them.

Some of the pieces concentrate on scientific ideas, which is where much of the repetition comes in, but a few (for example 'Jesus in Islam' by Zaki Badawi, the Principal of the Muslim College in London) are much more theological. The most effective essays are those which explicitly relate the two strands together.

For example, Carl Veit explains the rabbinic concept of *Tsimtsum* or *contraction*, the necessity for 'an infinite, omnipresent Deity ... an all-powerful God ... to contract and withdraw into himself, as it were, to make room for the finite physical world', with the consequence that 'there are no *obvious* footsteps leading back to God'. Keith Ward inveighs against those 'vocal ... neo-Darwinian biologists' who 'claim that evolutionary biology shows that religious faith is a genetically imprinted belief that had survival value in the past', seeing this as evidence of 'a dogmatic materialism which interprets the biological evidence in a slanted way'. John Habgood argues effectively in scientific terms against genetic determinism and in favour of human moral responsibility. Russell Stannard draws fruitful parallels between the paradoxes of quantum theory and of the trinity in terms of what is knowable.

In the nature of things, much of what is included in this book will be familiar to most readers of this journal. The similarities between science and religion, various aspects of the anthropic principle, the unified nature of the human person, and the poverty of the conflict thesis all recur. However there are some more surprising ideas, for example the 'co-evolution' of God and humanity (Barbara Smith-Moran), and the notion that the robot Commander Data of Starship Enterprise would be a child of God (Anne Foerst).

The writing and editing are generally of a high quality, no mean feat when so many authors are involved. This book would be very suitable for giving or lending to those who are sceptical about a positive relationship between science and religion, both literalist believers and uncommitted scientists.

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S. Wilkens and A.G. Padgett
Christianity and Western Thought,
Volume 2: Faith and Reason in the 19th
Century

Downers Grove, Ill: IVP/Apollos, 2000.
436pp. hb. £16.99. ISBN 0-8308-1753-0

In 1990 a volume by Colin Brown with the title *Christianity and Western Thought* began a lengthy exploration of the subject to as far as about 1800. It was rightly acclaimed and the next volume was eagerly waited. Now this has appeared, though with different authors. Its scope is entirely the nineteenth century, the second contribution to a proposed trilogy ambitiously hoping to be 'the premier text of philosophical history written from a conservative Christian perspective'. Seminal figures at the edge of philosophy and theology are brought before us, with brief biographical details, relevant citations and shrewd comment. There are plenty of foot-notes and a good index.

Since, as the authors admit, this was 'the scientific century' science may be expected to play a major role in the twists and turns of philosophical ideas and their interactions with religion. Some of the famous engagements between science and religion are treated in what is basically a chronological account of 19th century philosophy. The third chapter, on Romanticism, traces some pre-Victorian encounters in the hostile reactions of S.T. Coleridge to the natural theology of Paley. This he considered to be highly dangerous to Christianity. In the same Romantic tradition the theologian Schleiermacher declined to deduce the method of creation from religion, referring enquirers to natural science instead. A chapter (4) on idealism reminds us that panentheism was not an aberration of the 20th century but may be traced to Hegel and indeed Schelling. While writing about 'Rebellion against rationality' the authors refer to Schopenhauer's assertion that nature has no independent existence but is a creation of the human will. His pessimism was followed by that of Kirkegaard and the even blacker nihilistic philosophy of Nietzsche.

With some relief we contemplate a return to rationality in the next chapter (8). But we find both Comte and his secretary St Simon as lapsed Catholics who developed warm admiration for the French Enlightenment. The latter thought that a celebration of Isaac Newton might initiate a social revolution which replaced the nobility by scientists in the seat of government. Comte located science at the heart of philosophy, rejecting metaphysics and considering all phenomena subject to 'invariable natural laws'. He has been regarded as the founder of both logical positivism and sociology. The uniformity of nature and a utilitarian philosophy were foundations of the thought of J.S. Mill also. Later in the book we encounter the rise of women's suffrage from a seedbed of evangelical religion, the pragmatism of Peirce and the indeterminism of William James, and groups like the Oxford Movement and the Princeton theologians.

The title of the final chapter (11) will most whet the appetite of scientifically inclined readers: 'Darwin and the rise of the social sciences'. There is a good account of Darwin's early years and his subsequent trajectory in Victorian science. But it is here that the greatest weakness of the book is displayed; a reluctance to engage with the philosophical issues raised by science after about mid-century. Thus while discussing the theological impact of Darwinism the authors do not consider its challenge to the authority of Scripture, nor relate it to earlier disputes on that topic and on the age of the earth. They rightly characterise the early social sciences as 'descriptive', but say the new disciplines 'followed the lead of the physical sciences', which manifestly they did not. Biology was their model. Indeed, the physical sciences are largely neglected. The climactic figure in the story is Freud, while Faraday, Joule, Clerk Maxwell, Kelvin (to name only the Britons!) are not even mentioned. Yet the changing understanding of the physical world that these men helped to bring about had pro-

found effects on the philosophy of science and even on theology, though far different from those of the evolutionists.

Not all will want a book of such length. Much of the material is covered in Alan Richardson's *The Bible in the Age of Science* which, though much older (1961), is a shorter and more focussed account. More recently Dane Gordon's *Thinking and Reading in the Philosophy of Religion* (1994) might offer another alternative, though with a very different approach. Both might be preferable for readers of scientific inclination. However, the present book should be widely used by students of philosophy or theology as a reference text, giving a general overview of the main developments in those areas during the critically important nineteenth century.

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Niles Eldredge
The Triumph of Evolution and the Failure of Creationism

New York: W.H. Freeman, 2000. 223pp.
hb. £16.95. ISBN 0-7167-3638-1

In 1992, the Vatican formally conceded that Galileo had indeed been right to claim that the Earth moves around the Sun, despite his condemnation in 1633 by the Inquisition. However this acknowledgement was tempered by the qualification that both Galileo and his persecutors had acted 'in good faith'. *Nature* (5 November 1992) commented, 'With the passage of so much time, many will say that this old tale, however heroic, has no present significance. But this would be mistaken. The Galileo business remains a perpetual problem because it provides a licence for *prejudice in the evaluation of discovery*'.

This phrase kept coming back to me as

I read Niles Eldredge's new book. Eldredge is a Curator of Palaeontology at the American Museum of Natural History, probably best known for his concept (published in collaboration with Steve Gould) of punctuated equilibrium in the fossil record. However he has also been active in face-to-face debates with creationists about the meaning and robustness of evolutionary biology. He does not claim any religious belief (he calls himself a 'lapsed Baptist'); his passion is to fight for what he sees as truth in the face of creationist confusion and (worse) wilful misrepresentation. He documents plenty of the latter and makes a powerful case for the 'standard' evolutionary interpretation of life here on Earth, an especially convincing affirmation coming from a 'hands-on' cutting-edge scientist. He sees micro- and macro- evolution as differing only in scale, which would mean that ecological understanding can inform major evolutionary events. I was particularly taken with what Eldredge calls the 'sloshing bucket' model of the evolutionary process (86-88), which resonates more about natural situations to me than the somewhat orderly version put out in many text books.

However the value of Eldredge's book is the clarity with which he deals with the misconceptions of creationists. He can be read with profit by both evolutionists and anti-evolutionists. And his concluding broadside contains pertinent – and urgent – challenges:

'The tired old creationism debate – mired as it so thoroughly is in the nineteenth century – simply has not prepared us for the kind of positive interaction between science and religion that I see eminently possible as we enter the new Millennium and grapple with tough environmental issues. Nor do I think that we can afford these stupid culture wars, with people like Phillip Johnson getting upset that his version of God seems threatened because scientist have discovered that life developed over 3.5 billion years ago on the planet and feel that they

can explain how that happened through purely natural causes. Nor can we afford the arrogant intolerance of the scientists who claim that their science – evolution in particular – demonstrates unequivocally that there is no God’.

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Werner Gitt

In the Beginning was Information

Bielefeld: Christliche Literatur-Verbreitung, 2000. 256 pp. pb. US\$9.99. ISBN 3-89397-255-2.

Werner Gitt is Director and Professor at the German Federal Institute of Physics and Technology. His specialism is information science. Whilst this enables him to say some interesting things about the natural world, his lack of theological training is evident in the naïve Biblical literalism which permeates the book.

Thus Gitt starts with a fairly straightforward account of the laws of nature, but already (33-34, repeated 162) he wants us to believe that these laws have only been operative since the completion of the (literally understood) six days of creation. As with many fundamentalists, Gitt fails to apply criteria he himself has introduced to his own hypothesis, eg ought not six day creationism to be discarded as unjustifiably ‘resistant to empirical reality’ (25-26)?

The main theme of Gitt’s book is information. He describes information as ‘a non-material (mental) entity’ (47) and immediately concludes that its origin cannot be explained in terms of material processes. Thus in one fell swoop Gitt dismisses notions of emergence and non-reductive physicalism, and whilst there might be debate – even controversy – about these, it is not at all clear that Gitt is even aware of such concepts. In any

case, the fact that information is non-material by no means precludes the Creator from using evolution to produce physical entities capable of carrying information.

Gitt is rightly concerned to see information as a vastly richer concept than the limited statistical communication theory of Shannon would have it. Shannon is concerned merely to quantify information in bits and to transmit the encoded information accurately and efficiently. Gitt sees meaning as central. He thus develops a rather elaborate five-level hierarchy for the information concept. These levels can be summarized as (i) statistics (how many symbols does the text employ?); (ii) syntax (do the symbols conform to a coherent set of rules?); (iii) semantics (what does the encoded message mean?); (iv) pragmatics (what action is desired of the recipient?); (v) apobetics (what is the purpose of the sender?).

Gitt also puts forward a long sequence of what he describes as information ‘theorems’, though I am not convinced that the terminology, with its implications of mathematical rigour, can be at all justified. Indeed the whole process seems to generate more confusion than light. For example, Gitt wants us to accept that all sorts of processes from ‘bee dancing’ to the navigation of migratory birds involve information processing, yet theorem 19 (77) informs us that ‘every piece of information is intentional’. Intentional on whose part? Can a bee really be an agent with intentionality? Of course, if he is simply asserting that God is the ultimate source of information, then I would want to agree, but totally differ from Gitt in the way I would understand that God had brought information about.

It seems to me that Gitt is time and again begging the question. For example, he states, ‘Evolutionary doctrine deliberately denies any purposefulness’ (78, the idea repeated 163). In the hands of the likes of Richard Dawkins, yes, but an author like David Bartholomew shows how random processes can be purposive.

Gitt, however, goes on to assert (124): 'The basic flaw of all evolutionary views is the origin of the information in living beings'. Yet Gitt's treatment of evolution is at best cursory. Mutations are 'in general injurious', we are told – true, but what gives direction to evolution is the sifting of the occasional beneficial ones by natural selection.

Perhaps the heart of Gitt's argument is found in a footnote on page 136. Evolutionary models which assume that matter can be self-organising are useless. But cannot matter be self-organising in the sense that the principles of self-organisation have been implanted by God? The hub of the matter, however, is that 'theistic evolution ... cannot be refuted by means of the information theorems, but it contradicts revelation'. To me this undermines the whole book. The information theorems are a complete distraction: the real issue is interpretation of the Bible.

In another recent book (*In Six Days*, ed. J. Ashton, 341) Gitt tells how he (not surprisingly, I think!) stunned a conference audience into silence by stating: 'For me, as an information scientist, the key question is the source of information. Regarding the length of the creation days, there is only one source of information and that is the Bible. In the Bible, God tells us that he created everything in six days'. The point is reiterated here (143) that only the Bible can make 'final and true

statements' on this and other questions 'on the authority and by the truth of the living God'. Genesis 2:7 includes, 'with the highest possible semantic information density', the remarkable information that, 'Contrary to all statements to this effect, man did not descend from some animal; he was created separately' (155-156). Any idea that there are other ways of understanding the early chapters of Genesis, without in any way compromising the highest view of them as the inspired word of God, is entirely absent.

The unfortunate thing in all this is that information is an important concept. Moreover, like purpose and meaning, it is not reducible to lower level concepts of chemistry and physics. Arthur Peacocke pointed this out a long while ago in the context of the information carried by DNA. Both Peacocke and John Polkinghorne have suggested that God might interact with the world by 'information input' via 'top-down causation'. Sadly, Gitt does not engage with such mainstream Christian thinkers in the area of science and religion. He is right to be anti-reductionist but quite wrong to conclude that this is inconsistent with an evolutionary origin for life and mankind. I cannot recommend his book as a helpful addition to the literature.

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