'The Firmament Sheweth His Handiwork:' Some Scientists' Reflections on Theology

Michael Fuller

There still appears to be a firm view in the minds of many people that science and religion are somehow inescapably opposed to one another. On the one hand (such a view might allege), to be a scientist means that one can't take religion seriously: on the other, to be a religious believer one has to sit light to many of the findings of science, either quietly ignoring them or perhaps even flatly denying their validity. Anyone saying that modern science and Christianity are quite compatible is often looked at askance, as though either his or her science, or his or her theology, or both, must be suspect. However, a growing number of theologians are now writing about the theological implications of science; and, in addition, some scientists are also providing more or less explicit comments on the theological implications of their work.

This should not surprise us. In his recent book *Art and the Beauty of God*, Bishop Richard Harries makes the remark that 'All works of art, whatever their content, have a spiritual dimension,'[1] in that they can provide us with comfort or solace. It is surely also true that all the *sciences* necessarily have a theological dimension, in that they all investigate one aspect or another of the material universe, and, Christians believe, that universe is itself, in some sense, the creation of God. We ought therefore to expect to discover something about the Creator in our analysis of the creation, whether we conclude, at one extreme, with the deists, that God somehow initiated the Big Bang and then abandoned the cosmos to get on with it; or whether we conclude, at the other extreme, that the universe may be regarded as being so intimately connected with its originator that it is reasonable to call it in some sense the Body of God.[2] Whatever position is adopted, a believer can assert that there is, inevitably, a theological dimension to science.

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Most writers who try to reconcile scientific and theological ideas do so from a theological perspective, as Christian believers. In this country, for example, Arthur Peacocke and John Polkinghorne, both eminent in their scientific fields before joining the ordained ministry of the Church of England, have been notably active in this area (albeit from rather different theological perspectives).[3] Where genuine discrepancies between Christian tradition and science may be perceived, such authors as these seek to resolve them; and where they may not, they say so. They also explore new theological avenues suggested by modern science: for example, in opening up the many possibilities for metaphors and symbols derived from the sciences that may be used theologically; or the so-called Anthropic Principle as a possible means of re-evaluating the argument from design for the existence of God; or how we might understand traditional Christian ideas like the action of God in the world — can God work miracles? — in the light of modern scientific thinking.

This approach, then, effectively involves the theologian reflecting on the findings of science. Fruitful as it undoubtedly is, it is striking that there has been surprisingly little effort made to examine the opposite phenomenon: scientists, who do not necessarily profess Christian beliefs, reflecting on the theological implications of their work.

Most scientists, of course, are indifferent or agnostic regarding such possible theological implications. Some, like Richard Dawkins or Peter Atkins, might go so far as to urge that science has simply rendered theology of any sort obsolete.[4] Others, though, have reflected more subtly about the relationships between their disciplines and traditional theological views. They acknowledge the theological significances of their scientific work, and attempt to write about and explore them, whilst doing so at all times from the perspective of a scientist rather than that of a theologian. The observations and conclusions made by scientists taking this approach might therefore be expected to differ quite markedly from traditional theological views, because the starting-point is correspondingly different - not the Bible and the creeds, but rather observations made in the physical world. This article is concerned with three such scientists, from three very different disciplines. Their work in turn exemplifies three different models of the way in which science and theology can be considered to interrelate. The first of these scientists is the neuroanatomist Sir John Eccles, the second is the psychoanalyst Carl Jung and the third is the mathematical physicist Paul Davies.

In his book *Evolution of the Brain: Creation of the Self*, Eccles

discusses in detail the evolution of the human brain, locating his studies firmly within a Darwinist framework. He concludes that the one thing which his work is unable to demonstrate is the mechanism by which human beings evolved consciousness. Although Eccles believes himself to be by and large a straightforward Darwinian, he yet feels moved to write: 'I believe that the emergence of consciousness is a skeleton in the cupboard of orthodox evolutionism.'[5] In discussing how it is that we are able to account for our experiences of ourselves as conscious individuals, Eccles concludes:

> Since materialist solutions fail to account for our experienced uniqueness, I am constrained to attribute the uniqueness of the Self or Soul to a supernatural spiritual creation. To give the explanation in theological terms: each Soul is a new Divine creation which is implanted into the growing foetus at some time between conception and birth. It is the certainty of the inner core of unique individuality that necessitates the 'Divine creation.' I would submit that no other explanation is tenable.[6]

This is a remarkable statement by any standards: coming as it does at the end of a closely argued work of evolutionary biology and neuroanatomy it may seem to be almost incredible.

Eccles is clearly an unabashed dualist.[7] His theological approach could, however, be criticised as leading to a 'God of the gaps:' his is the kind of argument that observes gaps in our understanding of the world that science cannot explain, and attributes the explanation of them to God. The problem with this sort of argument is, of course, that today's scientific conundrum has an unfortunate habit of being solved by tomorrow's scientific advance. The 'gaps' into which God is inserted in this sort of argument inevitably get narrower and narrower and may even vanish altogether; and where does that leave the believer (and God)? Certainly there have been alternative, more science-based, explanations of human consciousness to Eccles', for example Daniel Dennett's model of the human brain as a complex parallel-processing computer;[8] and although these alternatives currently remain at least as speculative as Eccles' view, it must remain a possibility, to say the very least, that scientific advances will one day provide either firmer bases for them, or discoveries that weigh against Eccles' theories.

Regardless of the credibility of Eccles' particular arguments, however, his approach exemplifies one way in which a scientist may draw out and reflect upon the theological consequences of his work. This is the approach which invokes more or less traditional theological

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formulations in order to fill out and complete the findings of science: effectively, treating scientific knowledge as a part of an all-embracing understanding of the cosmos that is ultimately theological. Science is interesting, and valuable, in itself, but in the end it is incomplete, and theological study is needed to complete and perfect it. Whilst some who profess religious belief might hold this to be a perfectly valid suggestion, it is unlikely to be a view that commends itself to many previously uncommitted scientists. (Eccles makes his own position quite clear: in another of his books, he explicitly professes himself to be a believer in the Christian faith.[9])

Let us now consider the thought of the great Swiss psychoanalyst C. G. Jung.[10] Jung always insisted that he was first and foremost a scientist: 'Psychology is an empirical science, and deals with realities,' he wrote.[11] However, he was not afraid to frame his theories in explicitly theological language when he felt this to be appropriate. The words 'God' and 'Christ' feature frequently in his writings. The latter is linked to Jung's concept of the Self, the fully integrated human being which is the psychological end towards which each of us should direct ourselves: 'Christ is our nearest analogy of the Self and its meaning,' he writes.[12] He is a little more cautious about his use of the word God, writing that 'I never allow myself to make statements about the divine entity, since this would be a transgression beyond the limit of science.'[13]

What, though, if not the 'divine entity,' does Jung mean when he talks about God? Elsewhere, he comments that 'Psychologically .... God is the name for a complex of ideas grouped around a powerful feeling.'[14] It is this internal God, present in the psyches of his patients, which interests Jung, not any external God 'other' to his patients. For Jung, the importance of religions in general lies in their being 'Systems of healing for psychic illness.'[15] They engender and/or promote practical psychological effects, and it is these practical effects which are of interest to Jung. A metaphysical God may or may not exist, according to Jung, but the existence or otherwise of such a God is not a debate in which he wishes to become embroiled. 'The psychic fact "God" is .... [an] existent which should not in itself be confused with the idea of a metaphysical God. The existence of the archetype neither postulates a God, nor does it deny that he exists.'[16]

Jung's writings exemplify another approach to theology by a scientist: to note that there are theological implications in his work, to develop them within the context of his work, but to leave open the integration of these science-based theological ideas with more orthodox, traditional ones. The theology is prompted solely by the

science: any overlap between this and more traditional theology is purely fortuitous, and development of it is not reckoned to be the preserve of the scientist. (Jung has not been short of apologists who have tried to develop such overlaps, and to integrate his ideas with more conventional Christian doctrine: Christopher Bryant might be cited as an example of such a writer.[17]) The theological dimension of Jung's science, then, may be said to exist alongside conventional theology, rather than being subsumed within it, as was the case with Eccles.

Paul Davies is a mathematical physicist, who has also written books which comment on the metaphysical implications of his subject: he has recently been awarded the Templeton prize for Progress in Religion in recognition of this work. He has made the startling comment that 'It may seem bizarre, but in my opinion, science offers a surer path to religion than God.'[18] In his expositions of some of the extraordinary features of late twentieth-century physics, he notes that this physics has given us a new understanding of the remarkable beauty of the universe which we inhabit, and that although physics can tell us a great deal about how the universe works, and may soon reveal to us plausible models for how the universe came into being, is cannot provide a reason for why the universe should exist in the first place, or for why it and the laws which govern it should take the precise and beautiful forms which they do. Davies remarks, 'Although many metaphysical and theistic theories seem contrived or childish, they are not obviously more absurd than the belief that the universe exists, and exists in the form it does, reasonlessly.'[19]

Davies rejects so-called 'many worlds' theories, as alternatives to some kind of design argument to account for our universe being the way it is. 'Many worlds' theories maintain that our universe has come about purely by chance, without divine involvement, the extreme improbability of this being offset by our universe being only one of an huge ensemble of universes, so huge that one of them almost inevitably contains the conditions which enabled life as we know it to evolve. Davies, however, points out that 'You can use many worlds to explain anything at all. Science becomes redundant,'[20] and further adds that such a theory depends on 'Metaphysical assumptions that seem no less extravagant than design. In the end, Occam's razor compels me to put my money on design.'[21]

Davies notes that 'Science began as an outgrowth of theology.'[22] He shuns conventional religious understandings of the universe, but yet maintains, 'I cannot believe that our existence in this universe is a mere quirk of fate, an accident of history, an incidental blip in the

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cosmic drama.'[23] He is chary about stating his own understanding of who (or what) God might be. He suggests that God might be considered to be 'The supreme holistic concept, perhaps many levels of description above the human mind,'[24] or 'A mythical personification of .... creative qualities,'[25] but in general seems content simply to put forward critiques of traditional understandings of God and, through his accounts of the many remarkable findings of contemporary scientists, to 'Expand the context in which the traditional religious issues are discussed.'[26]

Davies' approach may be taken to exemplify a third way in which a scientist may reflect on the theological implications of his or her subject-matter: effectively, by pointing out the limitations of traditional ways of thinking about God, and by urging in their place a theology consonant with, perhaps even derived from, the findings of contemporary science. Theology is thus effectively made a part of the scientific enterprise. This is completely the opposite approach to that of our first kind of scientist, exemplified by Eccles, who effectively treated science as a part of the theological enterprise. (An American cosmologist, Frank Tipler, has gone still further down the lines suggested by Davies, and has made the delightful assertion that 'Theological research in the twenty-first century will require a Ph.D. in particle physics.' Tipler observes that in mediaeval times 'The highest degree in philosophy - which included the most advanced knowledge of the physics of the day - was a prerequisite before a student was permitted to begin study for a degree in theology.'[27])

It is clear that the first of these types of approaches to theology will be compatible with more conservative theological positions, whilst the last will be compatible with more radical theological positions, if any. Whichever approach is preferred, it is surely of great importance for theologians of all hues to pay close attention to the theological suggestions made by scientists. At the very least, the language available to the theologian might be enriched by such attention, whilst at best it might prove possible for more wide-ranging theological speculation to be generated than would be possible without the insights into the wonders of the cosmos which scientists can provide.

1 R. Harries, *Art and the Beauty of God* (London: Mowbray, 1993), p. 101.

2 The idea of the cosmos as the body of God has been developed in G. Jantzen, *God's World, God's Body* (London: Darton, Longman and Todd, 1984) and S. McFague, *The Body of God* (London: SCM, 1993).

3 For recent work by these authors, see A. Peacocke, *Theology for a Scientific Age* (London: SCM, 1993) and J. Polkinghorne, *Science and Christian Belief* (London:

SPCK, 1994).

4 See, for example, R. Dawkins, *The Blind Watchmaker* (London: Penguin, 1988), and P. Atkins, *The Creation* (London: W. H. Freeman and Company, 1981).

5 J. C. Eccles, *Evolution of the Brain: Creation of the Self* (London: Routledge, 1989), p. 176.

6 Eccles, *Evolution of the Brain*, p. 237.

7 The philosophical aspects of Eccles' views are developed in K. R. Popper and J. C. Eccles, *The Self and Its Brain* (London: Routledge and Kegan Paul, 1983).

8 See D. Dennett, *Consciousness Explained* (London: Penguin, 1992).

9 J. C. Eccles, *The Human Psyche* (London: Routledge, 1980), p. 252.

10 For a fuller account of the relationships between Jung's thought and traditional theology, see the author's 'C. G. Jung: Scientist-Theologian?', *Theology*, XCV, 1992, p. 270.

11 C. G. Jung, *Collected Works* (*CW*), vol. 9 (ii), paragraph 98 (2nd Edition, 1968). All references to *CW* are to the translation by R. F. C. Hull and others (London: Routledge and Kegan Paul), the dates of publication of each volume being indicated. All references to *CW* are to volume number followed by *paragraph* number.

12 C. G. Jung, *CW* 9 (ii), 79.

13 C. G. Jung, in a letter of 1945 quoted in V. White, *God and the Unconscious* (London: Collins Fontana, 1960), p. 89.

14 C. G. Jung, *CW* 5, 128 (2nd Edition, 1967).

15 C. G. Jung, *CW* 11, 531 (2nd Edition, 1969).

16 C. G. Jung, *CW* 5, 89 n. 29.

17 c.f. C. Bryant, *Jung and the Christian Way* (London: Darton, Longman and Todd 1983) and the appendix to the same author's *The Heart in Pilgrimage* (London: Darton, Longman and Todd, 1980).

18 P. Davies, *God and the New Physics* (London: Penguin, 1990), p. ix.

19 P. Davies, *The Mind of God* (London: Penguin, 1993), p. 231.

20 Davies, *The Mind of God*, p. 190.

21 Davies, *The Mind of God*, p. 220.

22 P. Davies, *Are We Alone?* (London: Penguin, 1995), pp. 90–91.

23 Davies, *The Mind of God*, p. 232.

24 Davies, *God and the New Physics*, p. 223.

25 Davies, *The Mind of God*, p. 215.

26 Davies, *God and the New Physics*, p. 229.

27 F. Tipler, *The Physics of Immortality* (London: Macmillan, 1995), p. 329.