Beyond Science and Nature? Reflections on Scientific Reductionism and Mental and Religious Experience

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This paper responds to the critique of scientific reductionism in the *Manifesto for a Post-Materialist Science* (2014). Reflections on the language of transcendence, notions of creation and Ian Ramsey's epistemology lead into a discussion of the concept of mind. The interpretation of mind in terms of emergent properties, widely welcomed as 'nonreductive physicalism', is questioned and the alternative of a qualified substance dualism presented. The *Manifesto's* encouragement of the scientific study of spiritual experiences is related to Alister Hardy's original appeal. Differences between sense and religious experience are explored; the distinction between methodological and ontological types of reductionism discussed; and an apologia for an open approach to experience developed, as an alternative to a more radical post-materialist scientific method. Concluding remarks include a plea for more epistemological humility vis-à-vis experiential claims, the avoidance of 'spiritual reductionism' and an acknowledgement of the significance of the material for human nature and dignity.

Keywords**:** *Manifesto*; materialism; mind; reductionism; transcendence

Going Beyond

Sometimes even the little words can be troublesome. To 'go beyond' something is to go to its 'further side'; it is to reach or progress further than it does – even as far as what people sometimes designate '*the* beyond', a.k.a. 'the unknown'. The Latin *trans* ('across') is often adopted as a prefix to indicate this movement; and *super* – or *supra* – ('above', 'beyond') is employed in a similar fashion. So we speak of 'transcending' (literally 'climbing across') the range or limits of something, and may thus acknowledge 'the transcendent'. And according to the *Concise Oxford English Dictionary*, people label an entity, property, force or event that 'goes beyond scientific understanding or the laws of nature' as *supernatural*.

I write as a (sort of) theologian; and theologians are supposed to know about this stuff, or at least – as academic theologians have 'no additional organ for knowledge' of the spiritual (Holmer 1978: 21) – to be able to argue about it or It: the Real, Other, Beyond, More, Divine; the putative object of religious experience.

Should Theologians Comment on Science?

As is well known, theologians have in the past burned their fingers so often when they have tried to meddle in science that most of us are a little wary about going out beyond our subject specialism(s), crossing frontiers that are still pockmarked with the ancient battles of the wars between science and religion, and wandering into the territory of the natural scientist – whose methods we do not share, whose theories we are unlikely to understand, and whose communities rarely extend much of a welcome. There is every excuse, then, for being tentative, even to the point of silence, in one's comments on the progress of the natural sciences, despite its clear relevance to the concerns of theology.

Recently, however, some – admittedly, rather renegade – scientists published a *Manifesto for a Post-Materialist Science* (2014). This called for a transition to a post-materialist science, on the grounds that 'the [materialist] focus that has dominated science in the modern era cannot account for an ever-increasing body of empirical findings in the domain of consciousness and spirituality' (272). Despite some reservations, some of which I shall touch on in this paper, I am willing to give a cautious welcome to the *Manifesto's* call for a more open scientific perspective. It is a call that will be enthusiastically heard by some theists and theologians, as well as by many who study or have undergone religious experiences.

The *Manifesto* rightly distinguishes the 'non-dogmatic, open-minded' scientific *method* from a scientific *worldview* based on the 'assumption', 'dogma' or 'ideological belief system' of a materialist philosophy that recognises matter as 'the only reality' (§§1-6). To the theologian who doesn't really have a proper method – or at any rate no single one – such language sounds like a call to arms. Echoing Bugs Bunny, we realise that when the scientist strays into the territory of dogmas, assumptions, ideology and 'beliefs', this can only mean war. For that is *our* domain. Scientists who embrace such *scientism* are out to get us or get rid of us, or so it would seem from the evidence of Richard Dawkins *et hoc genus omne*. A naturalist study of Nature and a materialist construal of spirit are big guns in their armoury.

It is worth noting that on a Christian reading (which Christianity shares with most other theistic faiths), Nature is viewed 'as creation' and even as 'all that exists in dependence on the divine Creator' (McGrath 2004: 44; cf. 2001: 87; Clark 1983: 394; cf. Peacocke 2007: 188). On this account, 'Nature' doesn't map onto the 'material' or 'physical' as neatly as one might expect from the dictionaries. The major reason for this dissonance is the topic that lies at the heart of the 2014 *Manifesto*, which is the introduction of mind, consciousness and spirituality into scientific study. The *Manifesto* wants science to go beyond the physical, as it believes that reality and Nature go beyond the physical. And the doctrine of creation shares this view, for it claims that the universe comprises both material *and mental* entities and events, all of which owe their origin and continued existence and activity to the gracious act of a personal, supreme Mind or Spirit, which is usually regarded as infinite and noncorporeal.

Students of religious experience, as well as those who undergo it, often speak of mental or spiritual entities and events. This fact alone should justify exploring the problems posed by the concept of mind, which is one of the things that I want to

attempt in this paper. In doing so, however, we are obliged to acknowledge that much recent study of the physical brain has seemed to many, including philosophers and theologians as well as scientists, to render implausible the very idea of mind as something distinct from matter. Any claim of this kind is bound to impact on our understanding of spiritual or religious experience.

Before grasping this mental nettle, however, I offer two further general comments.

(1) The first is that 'beyond', like most other prepositions, specifies no determinate position, whether used literally or metaphorically: instead, it points a direction. Similarly, 'transcendence' comes in degrees, and one may even argue the same about the term 'supernatural'. After all, traditional Christian theology distinguished different 'orders' within God's creation, one of which comprised the angels. Angels were understood as finite, non-material intellectual beings with some 'supernatural' powers (Rahner 1975; McGuckin 2005: 12-13). They are frequently referred to as 'supernatural creatures'.[1]

(2) Secondly, it is pertinent to recall that Bishop Ian Ramsey, when he was Nolloth Professor of the Philosophy of the Christian Religion at Oxford in the 1950s and 1960s, developed an intuitionist theory of knowledge in which a 'more' was disclosed to the human mind at various levels, but always through the medium of something that had a lesser status. The more of a universal was beyond the concrete particulars that instantiated it; the more of a pattern, meaning or mathematical concept was beyond the mere marks on paper that expressed them; the more of a person was beyond her or his human body and behaviour; the more of a moral imperative was perceived as beyond the circumstances of human life; and the more that is God was disclosed through the created universe and its human history.

In this context, Ramsey insisted that the medium of these revelations was included in our experience of them, within the 'disclosure situation' that comprises 'what is seen and more' (Ramsey 1959: 216). So we discern the person as 'a body and more', and experience the more that is God when 'the universe declares itself . . . around some group of [empirical] events' (Ramsey 1964: 58). In all these cases, our knowledge of the medium of the disclosure, which we know through our sense experience, provides the metaphors and models for articulating the nature of the mysterious

[1] It is open to debate as to whether mind as such is 'supernatural'. Philip Clayton asserts that 'mental causation is not supernatural; it is natural' (Russell, Murphy, Meyering and Arbib 1999: 205). In which case, John Haught might be thought to have put the dividing line in the wrong place when he writes that 'the human mind (or spirit) has already transcended the limits of nature, not finally or decisively, but at least by anticipation' (Haught 2006: 23). For Arthur Peacocke's qualified panentheism ('all-things-in-God-ism'), God is ontologically '"more or other" than the world' yet the world is 'in' God – though not 'of' God (Russell, Murphy, Meyering and Arbib 1999: 237). This allows Peacocke to argue that there are no supernatural entities, miracles or dualisms 'within the natural world' (Peacocke 2007: 9) and that 'God is the only supernatural entity or being' (Peacocke 2001: 51; cf. 161; Russell, Murphy, Meyering and Arbib 1999: 434). We may note that John Hick identifies different degrees of naturalism, distinguishing 'a hard, or materialist, version of naturalism' from 'the soft naturalism which recognizes the existence of a non-physical consciousness which reflects but, however, has no influence over the matter constituting our brains' (Hick 2006: 56).

more that transcends the things we see 'with the eyes of flesh' (Ramsey 1972: 115), and therefore cannot be described in the literal fashion that we employ for objects of the senses. For Ramsey, then, God was just the extreme end of a spectrum of many 'mores'. Talk about God, however, faced even greater difficulties than was the case with the lesser mores when it became engaged in the task of 'articulating a mystery' in terms that are drawn from the natural world – which we inevitably understand so much better, and can represent so much more easily, in human, mundane language.

But my main point is that Ramsey's position conveys a sense of 'going beyond' that does not deny the reality of what it transcends. I fear that this is a fault that has marked much past theology and talk about 'the spiritual' in general. So it is good to read in this manifesto that 'post-materialist science does not reject empirical observations . . . post-materialism is inclusive of matter' (*Manifesto* §16). One of my concerns about the document, however, is that it could easily be understood (and in consequence readily rejected) as advocating an 'anything goes' form of speculative science that has lost its anchorage in the gritty, gutty truths about the material world, which have been so hard-won over many years by hard-nosed experimentalists. The same mistake is often made in many critiques of evolutionary biology that derive (albeit in rather different ways) from the theological concerns of conservative religious believers and the sneers of a certain type of social scientist. Such reactions often reveal an unrealistic, and ultimately unworthy, contempt for what in the nineteenth century was called our 'brute origins' – our emergence in and through a Nature that encompasses other created beasts, and by way of forces that included struggle, death and competition, as well as the expression of our more polite, cooperative instincts and intellectual strengths (cf. Author 2009: 172-177). Other religions may be permitted to disparage matter, but such an attitude should have no place in the Abrahamic traditions, nor in *any* form of science.

The Moreness of Mind

Mind is often presented as the paradigm case of transcendence *within* Nature. The claim about 'the *moreness* of mind' (Haught 2006: 51) serves as a stop-card for the 'nothing-buttery' of the likes of Francis Crick, for whom human consciousness is 'no more than the behaviour of a vast assembly of nerve-cells and their associated molecules' (Crick 1995: 3). This position is very widely held, even though it does not seem to satisfy our instinctive sense that – if one dare put it this way – mind *matters*. Such reductionist accounts of mind seem to many to reduce the significance of something that is supremely significant to us. Quotations from two philosophers and a neuroscientist capture this theme of the importance of mind, despite the fact that their authors hold to very different views on the subject: mind is 'the most familiar feature of our lives' (Galen Strawson), 'the very essence of our meaningful existence' (John Searle 2004: 158) and 'all that counts in life' (Charles Sherrington 1951: 256).

The terminology of this debate has changed over time. Philosophers used to talk of the soul, later about the self – especially the 'pure ego' or the 'elusive I'; then it was the mind. Now discussion usually focuses on what David Chalmers calls the 'hard problem' of (phenomenal) *consciousness* – as distinct from those easy problems that neuroscientists spend their time on. The hard problem is the *problem of subjective experience*, especially that there is something 'it is like', something it feels like, to be me; or to see red; or even to be a bat (Chalmers 2002: 247; Nagel 1979: ch. 12).

What *is* this consciousness? Is it real? What makes it mine, rather than yours? How does it arise from this grey jelly inside my skull? Why am I not a zombie? (At least in philosophy, a zombie is a being that behaves like me but is without consciousness; so there is nothing 'it is like' to be a zombie.)

A strong lobby of philosophers, theologians and neuroscientists, however, appear to agree with William Stroeger in affirming *both* that 'our experience of mind seems to transcend what is purely physical or material', *and* that these mental and spiritual elements are not 'immaterial' or 'unphysical' in the sense that they are separate from matter, or independent of it, but only (perhaps) 'in the sense that they involve characteristics of matter which go beyond what we can model or understand' (Russell, Murphy, Meyering and Arbib 1999: 129, 134; cf. 135). But does this understanding still allow us to maintain Philip Clayton's 'Insufficiency Theory', which predicts that there are parts of what it is to be a person – 'genuine mental causes' – that lie in principle beyond the reach of the neurosciences (Russell, Murphy, Meyering and Arbib 1999: 188, 200; cf. 194): that 'the mental is dependent on yet not reducible to the physical' (200)?

There are many versions of Stroeger's view that may make us feel uneasy. The influential philosopher, John Searle, has argued in great detail for a biological naturalism, while maintaining that consciousness, although 'entirely causally explained by neuronal behavior . . . is not thereby shown to be nothing but neuronal behavior' (Searle 2004: 119). On his account, causal reduction is permitted, but ontological reduction is denied, to a degree, on the intuitive grounds that 'if it consciously seems to me that I am conscious, then I am conscious' (122). This 'first-person ontology' of mental phenomena is 'irreducible to any third-person ontology', he declares (98). Yet, for Searle, consciousness is logically on all fours with other system-level phenomena such as solidity, liquidity or transparency. These are all *emergent properties* of physical systems, real causal properties; but they are themselves entirely caused by the micro-elements within the system (Searle 1984: 18-27), although 'unlike solidity, consciousness cannot be redefined in terms of an underlying microstructure' (Searle 1992: 123). Searle bluntly asserts that 'the causal powers of consciousness are exactly the same as those of the neuronal substrate' (2004: 127-128).

Even the Christian philosopher, Nancey Murphy, denies that there is any new kind of metaphysical entity at the higher level of organisation even of human brain systems, although she argues against 'reductive materialism'. She calls her position 'nonreductive physicalism'. Like Searle, she affirms consciousness but denies the existence of any nonmaterial entity, the mind or soul (Brown, Murphy and Maloney 1998: 130-131). God's creation, she insists, is 'purely physical' (148, n. 41). A similar view is held by other theists, including the neurophysiologist Malcolm Jeeves, the psychologist Warren Brown, the physical biochemist and theologian Arthur Peacocke, and a number of others engaged in the dialogue between science and religion (Russell, Murphy, Meyering and Arbib 1999: 147; Jeeves and Brown, 2009: ch. 8).

Why is this position so popular? It appears to have arisen mainly as a rational response to the empirical evidence of the tight linkage between brain and mind (Brown, Murphy and Maloney 1998: 81), which encourages many to reject a duality

of substances. (Conceptual concerns over the plausibility of causal interaction between them also plays a part.) In the taxonomy of philosophical views about the mind-brain relationship, Murphy's standpoint constitutes a form of *monism*, or one-ism, which plumps for the physical as the only substance (e.g. Brown, in Jeeves 2004: 63). On this view, mental activity is 'embodied in brain activity' but it is not thought to be *identical* to brain activity (Jeeves, in Brown, Murphy and Maloney 1998: 89). So this is not a thoroughgoing reductionism, as it acknowledges emergent properties or functions of matter that depend on its organisation or form. In embracing this holistic view, in which the whole is more than the sum of its parts, its proponents further argue that these emerging causal capacities can exercise an additional real 'top-down' or 'whole-part' constraint on the system. This can complement and interact with the products of 'bottom-up' causal sequences that start at the level of the system's components – in this case, neurons and their atomic ingredients.[2]

In some of its versions, nonreductive physicalism lies close to the classic *double-aspect* theory of mind, which goes back to Spinoza and was reinterpreted as *natural monism* by William James and Bertrand Russell. Here body and mind are two non-interacting aspects of, or properties of, a single more fundamental kind of substance. They may be described in two different ways: an inner 'I-story' and an outer 'brain-story', as Donald MacKay puts it in his account of 'duality without dualism' (MacKay 1988: 56, 127; cf. Jeeves 2004: 233-249). The philosophers Owen Flanagan (1992: ch. 11) and Thomas Nagel are among those who confess themselves rather drawn to this view, although the latter complains of its 'faintly sickening odor of something put together in a metaphysical laboratory' (Nagel 1979: 49). And, indeed, one later advocate, David Chalmers, toys with its implication of *panpsychism*: the belief that all matter involves some sort of consciousness or 'protophenomenal' quality (Chalmers 2002: 265-266; cf. 1996: ch. 8).

But does an account of the mind-body problem along these lines really hold together? And does it truly meet our need for a satisfactory understanding of the mind?

The philosophical theologian, Keith Ward, is suspicious of nonreductive physicalism. He agrees with Jaegwon Kim that once we admit mental causality into the system 'physicalism has, in effect, been given up, and we have a dualist view of spirit and matter'; in fact, some sort of dualism 'seems inescapable' (Ward 2008: 158; cf. Kim 2011: 124-125, 220). Earlier in his discussion, Ward argued that the distinction between property dualism and substance dualism (see below) is itself not clear-cut, since there may be no clear distinction between substances and properties (Ward 2008: 153). Later he allows – what many theists who discuss this problem seem to

[2] It has been pointed out that, while some versions of this position – e.g. that of Philip Clayton – envisage a true emergent entity that adds to the ontology of the universe, in the case of Peacocke and others all that emerges are *properties* of matter (Gillett, in Clayton and Simpson 2006: 812-813; but cf. Ward, in Peacocke 2007: 156-157, 60). The former state of affairs would characterise a truly emergent mind that incorporates intentional agency that requires a form of mental causal activity that is ontologically distinct from that of neurons (cf. Clayton, in Peacocke 2007: 168-175).

forget – 'the possibility of at least one consciousness . . . existing without a body': that is, God (160; see also Swinburne 1977: ch. 7; Polkinghorne 1998: 23).[3]

So some kind substance dualism, which is the view that the mental and physical are fundamentally (ontologically) distinct,[4] still hangs on – if only by theistic fingernails – among the live options in the debate over the nature of mind. Certainly, it seems logically plausible and even imaginable that God may exist, possess an identity and be identifiable, and even act and form relationships (cf. below), without the advantage of a body.

But what about us? It is a surprise to many outside these disciplines to learn that most biblical and systematic theologians now prefer an essentially embodied view of human nature. They also identify the future Christian hope as a hope for a resurrection or recreation of the whole person in a 'resurrection world', either a re-created earth or (more plausibly) a different space-time universe (cf. Hick 1976: chs 14, 20, 21; the essays by Jones, Allen and Green, in Jeeves 2004; Wright 2007: chs 6-10; but see also Badham 1976; Badham and Badham, 1984). Academic theologians, especially those within Protestantism, are today much less likely to understand life after death in terms of the survival of a disembodied mind. This is despite the fact that the latter option was given coherent conceptualisation by the philosopher, Henry Price, who argued that even without a body we could still 'experience' and 'act' in the next life, in a manner analogous to our present experience and action within dreams (Price 1965).[5]

Although Price's proposals for understanding disembodied experience and action (and communication from others by telepathy) received positive comments from the religious philosopher H. D. Lewis (Lewis 1969: 103; 1973: *passim*), Richard Swinburne makes no reference to them in the closely argued defence of substance dualism contained in his magisterial *The Evolution of the Soul* (Swinburne 1986). Nevertheless, Swinburne asserts there that there is 'no contradiction in supposing the soul to continue to exist without its present body or indeed any body at all' (186), despite its requiring a body to function under mundane conditions and the high correlation witnessed then between brain events and mental events (Swinburne

[3] Even if the universe exists in some panentheistic way 'within' God, most theologians affirm an ontological difference between the two that prevents our saying, without appropriate qualifications, that God is embodied. See Barbour 2002: 29; Russell, Murphy and Peacocke 2000: 57, 155, 282; Peacocke 2001: 108; 2007: 52.

[4] It is possible to espouse a form of substance dualism in which the physical affects the mental but not vice versa (*epiphenomenalism*); the form of dualism discussed here is *interactionism*, in which the mental and physical interact in both directions.

[5] H. H. Price held a chair in philosophy at Oxford and also served as President of the Society for Psychical Research. He was John Hick's doctoral supervisor in the late 1940s. In his autobiography, Hick recounted a vivid religious experience that Price had had in 1965, which Price described to him as a 'sense of presence', although it involved a thought conversation with an invisible visitor. Hick comments: 'I could only respond that he was very lucky. For an ounce of first-hand religious experience is worth more than a whole library of books about it' (Hick 2002: 75). (We may recall that St Thomas Aquinas was reported to have once said something similar.) The anecdotal evidence, which arises from a number of sources, of a correlation between being the recipient of personal spiritual experiences and advocating dualism is intriguing.

insist that 'mere correlation does not explain'). Thoughts are themselves efficacious, Swinburne argues, and the soul has a continuing structure of beliefs and desires distinct from any brain structure, although related to it in its embodied life. Although the soul is not naturally immortal, Swinburne regards it as analogous to a light bulb that needs an electric light socket to work, but which may function in different sockets (thus permitting reincarnation or resurrection), or even without 'plugging it into' any brain at all (310-311).[6] Such a dualist account would allow consciousness to be generated by the brain as an emergent reality, although it remains (as Ward puts it) 'logically but not (in this world) causally separable from a physical brain and body' and 'capable of reembodiment'. So Ward hints, and Swinburne insists, that the mind or soul is capable of existing as a pure consciousness (Ward 2008: 159, 161; although cf. Ward, in Peacocke 2007: 161). Interactionist dualism has had other champions, including the Nobel laureate neuroscientist John Eccles (Eccles and Robinson 1985, Eccles 1989) and the philosopher Karl Popper (Popper and Eccles 1977: Part I).[7] It would appear, therefore, that this more radical option is still on the table, at any rate for some, in the debate over the concept of mind.

This position, however, even in the qualified form which, following Hick (2006: 11), we may call 'non-Cartesian dualism', or with Swinburne 'soft dualism' (1986: 10), clearly goes far beyond what neuroscience as presently conceived can endorse.

Religious Experience

Two key elements of human consciousness are *agency*, in which we make choices and actively do things, to some extent freely, and *experience*, in which things happen to us while we are relatively passive (although the brain is active during experience as well as action). We say that we 'perform' acts but 'undergo' experiences. These two elements also represent both poles of a third key element, *communication*. Both religious experiences and communications between human beings and the divine are fundamental features of the theistic religions.

One major difference between sense experience and spiritual or religious experience is in the nature of their supposed 'objects' or 'targets', which in the one case are essentially 'worldly' material entities or events located in time and space, whereas in

[6] Swinburne also holds that souls can exist without necessarily functioning (Swinburne 1986: 176-177).

[7] Eccles also allowed for survival either as a disembodied self or in 'some renewed embodied existence' (Eccles and Robinson 1985: ch. 12; Eccles 1989: 241-242). He drew on quantum mechanics' probability field as an analogy for the way the mind influences the physical brain by small displacements of the membranes of neurons so as to release neurotransmitters without any transfer of mass or energy, and therefore without contravening the law of conservation of mass-energy (Eccles 1989: 189-192). Such speculation chimes in with the mathematician Roger Penrose's suggestion that quantum effects might operate in the microtubules within neurons, if they work 'somewhat like a superconductor' (Penrose 1997: 132). Although the neurophysiologist and philosopher, Raymond Tallis, rejects such explanations for mind-body interaction (Tallis 1999: 242), he argues more generally that 'it is no longer acceptable to ignore the fact that modern particle physics now recognises the crucial influence of the consciousness of the observer on the observations on which physical theories depend' (244). The authors of the *Manifesto* would agree (§7).

the other they comprise essentially mental entities or events that transcend these mundane limits and may be active in generating these experiences. A second difference lies in the degree and nature of the affective responses to these two types of experience and the truths that they convey, with spiritual or religious experience evoking a far more self-involving emotional encounter and subsequent relationship with its transcendent focus (cf. Author 1994: ch. 6; 2012; and literature cited). The theologian, John Haught, writes that in religious experience the 'more' will be 'something that grasps us rather than something we can grasp. We can know it only by surrender, not possession' (Haught 2006: 26). Many accounts of religious experience concur with this description.

Theology and the religions themselves, however, have from time to time displayed something of a love-hate relationship to such experiences. While many regard them as foundational, and even those theists who purport to dismiss religious experience are forced to assume it as a necessary correlate of divine revelation (as nothing is disclosed unless someone witnesses its unveiling), the variety and ubiquity of spiritual experiences make it difficult to relate them to a coherent and systematic set of religious claims. This experiential domain therefore presents theology and the religions not only with an 'embarrassment of riches', but also (to adopt another cliché) with the embarrassment of receiving 'too much information' of too varied a nature. Another difficulty both for theology and for religion results from the fact that neither of these phenomena are based on religious experience or even revelation *alone*, but derive from many sources and formative factors (including human reasoning). This diversity of origin and influence gives rise to many tensions and conflicts of belief and interpretation, especially when contemporary experiences are added to the mix (Macquarrie, 1977: 4-18; Author, 2010: ch. 2).

The *Manifesto* nods its encouragement in passing towards the scientific study of spiritual experiences (§§15e and f). Alister Hardy's influential call for such a study was for a natural history of a natural phenomenon, 'an exercise in human ecology' (Hardy 1979: 3, cf. 9). This was essentially intended as 'a quantitative, sociological survey of man's behaviour and reactions in relation to his experience' of an inner spiritual awareness (16). Since Hardy's initial appeals, a great deal of work has been done using the methods of the *social* sciences to amass an impressive body of evidence in this area. Hardy had strongly affirmed the place of consciousness within Nature, even arguing for the 'cardinal importance within the process of Darwinian evolution' of 'the mental side of life' – a concern that contributed to his notion of 'Darwinism with a difference' (Hardy 1979: 11; 1984: ch. 13; cf. 1965). Yet Hardy expressly claimed that the study he did so much to promote could never be 'a science of the inner essence of spirituality' (Hardy 1979: 16).

Hardy would undoubtedly have dismissed, however, the recent attempts of 'neurotheology' to identify the causes of unusual religious and spiritual experiences entirely within the brain (e.g. D'Aquili and Newberg 1999; cf. Ramachandran and Blakeslee 1998: ch. 9; Hick 2006: chs 5 and 6; Fox 2014: ch. 4). We may argue that correlation is not itself sufficient evidence of such (single) causation. But nor is it enough simply to issue the rejoinder that the same reductionism could also be applied to sense experience as it, too, may all be 'in the mind'. The two cases are similar but significantly different. Conceding this, the philosophy of religious experience has been compelled to address religious experience's claim to

veridicality or objectivity in the absence of the tests against illusion that support sense experience: e.g. checking against one's other senses and under different conditions, the fulfilment of empirical predictions, consistency with other experiences and agreement with other perceivers. While philosophers of religion such as Swinburne (Swinburne 2004: ch. 13) and William Alston (Alston 1991, 2005) have plausibly argued that claims to experiences of God may reasonably be judged veridical, they can do so only by recognising and allowing for these differences between sense experience and its spiritual cousin (see also Franks Davis 1989: 66-82).

In my view, four differences between sense experience and religious experience are particularly pertinent to this debate (some of them also apply to psi phenomena and more generally).

(1) Spiritual experience is *not universal*: partly, perhaps, because it may depend on a 'faculty' or capacity that is not possessed by everyone, and partly as a consequence of factors (2) and (3) below.

(2) Human beings may need to be in some particular *spiritual condition* before they can have such experiences. (While the religions tend to endorse this claim, it does not seem to be a good fit to the wider sociological evidence – unless human need or distress, which is often regarded as a likely trigger for such experiences, may be regarded as a 'spiritual condition'.)

(3) Agents are usually regarded as being *free to perform or withhold their actions*, and these may include giving others particular experiences or revelations (cf. Alston 1991: 219; 2005: 217). This creates a major difficulty for attempts to predict religious experiences that may arise from special divine agency. At another level, it causes problems for the verification of social scientists' theories, and partly explains why their experiments are not as open to the test of repeatability as are those of the natural scientist. This factor also suggests why there cannot be an 'exact science' of the activity of the mind.

(4) The final difference is related to the last one, and may be designated the *incompleteness of agent explanation*. In the case of most sense experience of material objects and events, we don't normally ask why – only how – (for example) a leaf produces the neuronal changes that result in the conscious experience of 'greenness'. In the case of agents, however, we always want to ask an additional 'Why-question' about their actions. This is true, to an extent, of our sense experience of material objects and events such as bodies and their behaviour, which express the mental life that lies behind them. But it is especially relevant in situations in which minds or spirits need to be active in order to reveal themselves to others. Our expectation in such circumstances is that there will be some mental dispositions such as intentions, purposes and motivations that undergird these actions.[8] In which case, 'How-answers' alone will no longer entirely satisfy us.

[8] If we are going to posit God as the agent concerned, we will want to know if God's intentions are good or otherwise. That is why theology has to struggle with the problem of evil, and the natural sciences do not.

Reductionism and a Wider Empiricism

Some elements of the above discussion feed into the concerns expressed in the *Manifesto* over scientific reductionism. Critics of materialism normally agree in permitting *methodological reductionism*, as a research strategy that seeks to understand higher levels of organisation through the study of its lower levels (Barbour 2002: 20). Indeed, according to Murphy, it is a strategy 'to which cognitive neuroscientists must be committed in principle' (Russell, Murphy, Meyering and Arbib 1999: xxiv; cf. Brown, Murphy and Maloney 1998: 129). It is not this methodology, but certain *epistemological, causal or ontological philosophical theses* that may be adopted by scientists that need to be questioned and resisted. It is clear, however, that these more suspect forms of reductionism also come in degrees, and many readers may regard nonreductive physicalism, which forms the consensus position within much of the current literature on the debate between science and theology, as having taken a reductive step too far along that spectrum. The authors of the *Manifesto* share this uneasiness, as I do also.

Paradoxically, one may enlist John Searle in this discussion, for he argues that 'there is no such thing as the scientific world. There is, rather, just the world, and what we are trying to do is describe how it works and describe our situation in it' (2004: 303). Thus 'science does not name an ontological domain; it names rather a set of methods' (302). We may couple this with a cautionary word from Raymond Tallis, penned with reference to a couple of philosophies of mind that he describes as resulting from 'a confusion between a methodological decision – to make science easier or more fruitful or more scientific – and a discovered truth about the world' (1999: 118).

It is tempting to refer here to an old analogy from the debate between science and theology. What science catches in its net, and may therefore explore in detail, will partly depend on the size of its mesh. Theists do not expect God to be hoisted into the trawler's hold, for whatever can be caught by a scientific net *cannot* be God. Metaphorically speaking, God is 'too big' – or 'too small', anyway too different – to be captured in this selective net. *Mutatis mutandis*, the same could be said of mind, at any rate when the scientific net is woven by materialists.

Yet I remain uneasy about expecting science to identify gaps in the causal nexus of the world and then react to such mysteries by postulating a transcendent cause, instead of settling itself down to the brief it knows best and is best structured to take on: that is, the task of patiently and thoroughly continuing to search for any physical causes that may close the explanatory gap. Experience of the intelligent design lobby suggests that postulating an extraordinary cause too quickly (in this case a Designer-of-the-gaps) leads to bad science – and sometimes bad theology, too (see Ruse 2003: 322; Ayala 2006: 85–9; Alexander 2008: 189–90, 315; and, more generally, Dembski and Ruse 2004; Shanks 2004; Sarkar 2007). Not every scientific puzzle points to a transcendent mystery.

Another concern is whether science can really ever 'do subjectivity' at all. Haught argues that the denial of subjectivity is 'a failure to be radically empirical in one's approach to nature' (Haught 2006: 70, n. 27). He calls for a 'wider', 'richer' or 'more capacious' form of empiricism (119, 126, 137), and finds it exemplified in thinkers

such as Whitehead, Bergson, Polanyi, Lonergan and Teilhard de Chardin. But not all the figures in this list were practising scientists, and it would seem that Haught is himself advocating a *philosophical* position, which in this case is a standpoint that provides a much wider perspective than materialist scientism, one that operates as a species of stereoscopic vision that 'embraces both the inside and the outside of things' (128). Interestingly, Haught also confesses that he has no objection to 'the fact that science itself cannot talk about subjectivity' (139). What is important is that we somehow make room for subjectivity with the help of some such philosophical stance.

Haught's point is well made. But can and should this sympathetic philosophy ever form a part of *science*, or is that to make the same mistake as the materialists by re-writing science so as to serve a particular philosophical belief-system? And what is the cash-value of this metaphor of 'making' or 'allowing' room for subjectivity within the practice of science? It seems to me that this kind of language characterises a general approach or stance rather than any specific methodology. It may be that for the present we should be willing to remain content with such a general line of defence (and/or attack?).

Introducing yet another metaphor is unlikely to progress the discussion, but here it is anyway. Many would argue that science needs to be more 'open' to the varieties of experience that people claim, including seeming experiences of the paranormal, the spiritual and the religious. This attitude of openness would seem to be central to an unconstrained and uncensored approach to reality that is fully honest and objective.[9] It constitutes, if only in the broadest sense, a wider empirical approach. Science should be open to the possibility of such experiences, and to the possibility of their having unusual causes. But, in order to be a science, or even merely a reflective form of knowledge, science must remain 'critically open', always keeping its evaluative wits about it (cf. Author 1994: 94-99). There must, then, be some limits to openness. How does the cliché express this truth? 'A window stuck open is as bad as a window stuck closed' (cf. Midgley 1983: 13).

A Personal Conclusion

As a theologian and a religious functionary (a Christian priest), I always feel that I ought to add a word of contrition when criticising scientists. Although the relationship between science and religion, like that between science and Christian theology, was never as warlike as some have portrayed it, my side has often played a part in resisting scientific research and much of the medical and technological practice based on it. The Church, in particular, has a terrible history of seeking to silence the voices of those whose experiences and interpretations did not easily fit its own worldview, nor its authority structures. The time is long past when theologians can expect a hearing when they sit in judgement on any scientific evidence, theory or manifesto. We have for too long been too dogmatic about our dogmas, and insufficiently humble in our humility.

[9] 'Objective' in the sense of 'not influenced by personal feelings or opinions', although not in the other sense of 'not dependent on the mind for its existence' (*Concise Oxford English Dictionary*, meanings 1 and 2).

It might help if religious believers took more seriously what they purport to believe about transcendence. To affirm the otherness of God necessarily entails recognising the inadequacy of all human descriptions and theories of the divine. Faith is therefore not only compatible with doubt, it demands a considerable helping of agnosticism. As Ian Ramsey often put it, 'we can be sure of God, yet tentative about our theology' (Ramsey 1963: 23; cf. 1965: 25-27, 89). And certainly, as science has gradually uncovered the degree to which ordinary matter itself is 'beyond us', theists and theologians can no longer pretend to know what they do not know about God's created reality – or about the mysterious nature of its Creator.

Transcendence goes all the way down. A great many truths are beyond us, and not only because we may have not sufficiently researched or reflected on them. Biologists, at least, will not to be surprised by this. We cannot expect that creatures of our size, evolutionary history and survival needs should ever be able easily to grasp conceptually, let alone *imagine*, the deep structure of subatomic events, the early development of the universe or the mind of its God – and also, perhaps, the nature of any mind. Escaping the sabre-toothed tiger has been our primary objective for a long period in our evolution, and to excel at this sort of assignment never required us to pass any tests on those other, more recent and much more abstract topics. Our brain and its consciousness have grown beyond our survival needs, of course, but they *began* as adaptations. They proved to be useful for spotting tigers, but the selfsame hardware allowed us to see the stars (and later enabled some of us to understand them).

A similar epistemological humility should be extended to people's claims to religious experience, and even to psi phenomena. The restricted range of my own experience – and the even narrower compass of my imagination – is no excuse for my not listening carefully to the different experiences of other people, as well as their interpretations, including those experiences that people are willing to label spiritual or religious. Any refusal to listen to the experience and reflections of others is hard to justify in the theologian or minister (Author, 2002: 114-122, 146-148). This is especially the case when there are aspects of the traditional concept of God and of God's relation to the world that are not only compatible with a range of experiential claims, but should also lead theists to expect them. The occurrence of revelations and religious experiences is prima facie plausible, given the theological assumptions of many faith traditions. One might extend this maxim to embrace claims about phenomena such as telepathy and psychokinesis, which those who believe in prophecy and miracles might expect to be aspects of God's activity. The maxim should without doubt also apply to facts about the wide distribution of religious and spiritual experience within the population, as theists expect the Spirit to blow 'where it wills'. Yet spiritual sensitivity may vary gratuitously throughout populations, as do God's other gifts; and we should therefore expect that spiritual and religious experiences will not come to all (cf. Fenwick and Fenwick 2008: 72, 114). Nonetheless, theists who are wedded to a theology of grace and God's concern for those in need will not be well disposed to the view that these experiences – however 'rewarding' – are to be thought of as rewards that come to the chosen as their just deserts, or as indices of their moral worthiness, spiritual status, intellectual power or theological orthodoxy; and have been deliberately withheld from others for opposed reasons.

Perhaps in this personal conclusion I may be permitted a relevant personal and pastoral comment. Among my acquaintances there has been an ordained professor of theology and a bishop: one of whom maintained that he had never had anything he would call a religious experience, whereas the other professed that he had all his life earnestly sought but had never received a particular form of religious experience. Both of them were, on most other criteria, religious, spiritual and Christian individuals. As a consequence, I am unwilling to engage in the sort of *spiritual* reductionism that reduces everything about religion and spirituality to spiritual experience – or (worse) to just one of its particular forms, such as charismatic or mystical experience.

Humility is also called for in the area of theological anthropology. The biblical notion of the psychosomatic unity of human beings, who are formed out of the dust of the earth and enlivened by God's breath, implies a fundamental embodiment *in this life*. And the work of neurophysiologists, psychiatrists and geneticists has underscored the limitations, as well as the possibilities, that are imposed on us by the structure and functioning of the physical brain and its internal electrochemical relations. These physical limitations are likely to apply to some degree to our mental and spiritual experiences also. Things also go wrong in these brains, and some things are always wrong in some of them: things that limit people's freedom, or at least their responsibility, as well as their flourishing. Religions and theologies that make much of judgement and blame should listen to this evidence, and it should inform their theology better than it presently does. Whether and however human consciousness may transcend the human body in this life, and however it may survive or be recreated in the future free of some of these restrictions, our physicality is a real part of what it is to be human *now* – and it must unquestionably affect how and what we will think and remember in any future state.

We are not currently angels who are only contingently entangled in the mud of the earth. Rather, it is out of that mud that we have been made; and there is no other way that creatures like ourselves *could* have been made and could have evolved. (If angels exist, we can safely assume that they haven't evolved in the earthy manner in which we have come to be.) It is therefore not reductionist to hold that our status, constitution and origins imply that *matter* matters, too, as well as mind. Post-materialism cannot give us back our dignity and power as humans (*Manifesto* §16) by robbing us of the dignity and power that is already our possession, and which has come to us only with and in our physicality. In this life, at any rate, we are matter-and-more, though never *less*.

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