

JOHN TURL

Substance Dualism or Body-Soul Duality?

The natures of mind and soul have been frequently discussed over the last decade in this journal. The trend has been to move from a dualistic account towards some form of monism, while attempting to avoid the extreme of materialism with its perceived threat to rational and moral freedom. This article queries whether dualism really is dead and whether the new soul to which we are asked to subscribe is the soul of biblical teaching. Philosophical and metaphysical arguments are used to support the thesis that some form of dualism is still scientifically respectable, but the distinction of substance may be based in our ignorance of the nature of both matter and spirit.

Key words: dualism, emergence, materialism, mind, monism, physicalism, soul

Introduction

Recent articles in this journal have proposed that substance dualism is no longer tenable.¹ Instead, various forms of monism (even if ‘dual-aspect’) have been advocated, namely that humans are essentially embodied, and the soul cannot be considered a distinct entity. The implication of this is that the soul, however perceived, is not immortal and our hope of life after death is rooted in God’s ability to recreate, in a transformed embodied form, the pattern representing the essence of a person.²

Many Christians may view this trend with misgiving, even though we are assured it does not threaten our hope of eternal life. Some may feel it is an erosion of traditional belief, others that it will spawn another great divide between ‘scientific’ and ‘non-scientific’ Christians equal to that caused by the creation controversy.

This article attempts to demonstrate that substance dualism is still a respectable position with regard to science and philosophy, but that Christians

1 Compare Booth, D. in ‘Human nature: unitary or fragmented?’, *Science & Christian Belief* (1998) 10(2), 156, ‘as best I can understand, a human being is a psychobiosocial unity... The present paper does not claim that this is definitely asserted in the Bible nor am I saying that this is (yet) the fully realised consensus in psychological and related sciences’, with Green, J.B. ‘Scripture and the human person’, *Science & Christian Belief* (1999) 11(1), 52 ‘Scripture itself points predominantly in the direction of a monist account.’

2 Polkinghorne, J. *The Faith of a Physicist*, Minneapolis, MN: Fortress Press (1994), chap. 9 ‘Eschatology’, p.163.

should be just as prepared to review their understanding of anthropology as the physicists of the twentieth century were to review the nature of energy and matter when confronted by the evidence of wave-particle duality.

Philosophy

1. *Physicalism: a paradox of particles*

It has been argued³ that dualism, with the possibility of soul immortality, was not indigenous to Judaism and early Christianity, but was absorbed from classical Greek thought, through Origen, Augustine and Aquinas, down to Descartes, who regarded the material body and immaterial mind as distinct but interacting entities. In this section I shall consider not how or when the philosophy became integral to Christianity, but why it may be deemed necessary.

There has been discussion in *Science and Christian Belief* of the implication of man's being created in the image of God, drawing attention to the fact that whilst rationality has often been uppermost in Christian thinking, there are many other facets to this image which deserve equal consideration, particularly communion.⁴ However, responsibility and rationality are essential to the argument over the nature of the soul; without them we could neither construct the argument nor have assurance of its validity.

(a) Responsibility is inseparable from cause. If it is possible to claim that your decisions and acts have been determined totally by factors not of your making, such as environment, drugs, mental disorder, then you should not logically be held responsible. Ultimately all high-level descriptions can be reduced to low-level factors, that is, biochemistry and fundamental physics. You may of course be *held* responsible by others who are similarly determined to make such judgements, but you cannot really *be* responsible. Or if 'you' can, *you* are not really there at all.⁵

This is clearly unacceptable scripturally, since we are held by God to be responsible for our actions, and dangerous philosophically, since lack of responsibility undermines all morality. The alternative is that people are causal agents. Now in a fully material universe this could not be so; every process is either locked into a causal chain or is unpredictable because of quantum effects

3 Jeeves, M. 'Changing portraits of human nature', *Science & Christian Belief* (2002) 14(1), 23.

4 e.g. Anderson, R. referred to in Brown, W.S. & Jeeves, M.A. 'Portraits of human nature', *Science & Christian Belief* (1999)11(2), 148; Messer, N. 'Human genetics and the image of the Triune God', *Science & Christian Belief* (2001) 13(2), 103.

5 Travis, S.H. *Christ Will Come Again*, Toronto: Clements Publishing (2004), also asks 'if all the cells in my body are different from what they were seven years ago, why do I still feel responsible for what I did then?'

– in practice a mixture of the two, the proportions depending on scale. Thus materialism undermines a key feature of the *imago dei*.

Thoroughgoing monism must be materialist, because it requires that however consciousness is produced, the only possible causes are the particles/wave-functions making up the brain and the interacting environment. Therefore, however much you claim that higher-level realities such as moral awareness, rationality and interpersonal relationships, influence actions, they are at rock bottom themselves constructs of the fundamentals. Reductionism⁶ is inevitable. What we think are realities are mere ‘epiphenomena’.

(b) Rationality suffers the same fate. The often-quoted logic is that of J.B.S. Haldane:

It seems to me immensely unlikely that mind is a mere by-product of matter. For if my mental processes are determined wholly by the motions of atoms in my brain I have no reason to suppose that my beliefs are true. They may be sound chemically, but that does not make them sound logically. And hence I have no reason for supposing my brain to be composed of atoms. In order to escape from this necessity of sawing away the branch on which I am sitting, so to speak, I am compelled to believe that mind is not wholly conditioned by matter.⁷

W. Hasker uses the same argument when he says of causal reductionism:

On this view, our acceptance of certain conclusions is not determined by the fact that those conclusions follow from known truths according to correct principles of logical inference. Rather, we accept those conclusions, and only those conclusions, that we are determined to accept by the particles that make up our brains. And those physical laws do not in any way have in view the goal of leading us to true conclusions about the world...⁸

S.H.Travis restates the argument succinctly in terms of modern technology:

A computer... cannot check the validity of its own programming⁹

If electrons have the last word, I can have no confidence in what they make me think. If *I* have the last word, I tell the electrons where to go. So *I* am not electrons.

6 Throughout this article I use the term reductionism to mean ‘strong reductionism’, the philosophy that explanations of behaviour at the level of the sciences supplant explanations at agent levels.

7 Haldane, J.B.S. *Possible Worlds and Other Papers*, London: Chatto & Windus (1927). The argument is of ancient origin and central to Epicurus’s thinking. Despite atomic materialist convictions he could not see any way to preserve the freedom of the will without allowing deviations from the causal chain. (See Lucretius, ‘Of the Nature of Things’, II.2)

8 Hasker, W. ‘On behalf of emergent dualism’, chap. 3, in Green, J.B. & Palmer, S.L. (eds.) *In Search of the Soul*, Downers Grove, IL: IVP (2005), p.85.

9 Travis *op. cit.*, (5), chap. 5, ‘Is life after death conceivable?’, p.163.

It is this that goes against the scientific grain. How can there be something non-physical, non-localised that interacts with the particles in my brain? How can a non-physical entity produce physical force? Would this imply that energy is not conserved? It is issues such as these, which I will return to later, that have caused many scientific Christians who cannot accept the reductionist answer, to look for a form of monism that appears to include human responsibility and significance.

2. Dual-aspect monism: a dream of dualism

The original form of this philosophy was proposed by G.H. Lewes in his *Problems of Life and Mind* (1874-9). But the principles were revived and reformulated in a Christian context in 1964 by D. MacKay, and popularised during the last decade particularly by J. Polkinghorne, who gives this description:

‘Dual aspect monism’... differs from classical dualism, which maintains that there are two sorts of substance: mind and matter.... I’m sure that we’re not simply matter, and I’m sure that reality is more than just ideas.... Dual aspect monism tries to take seriously both our mental experience and our material experience. It says that they’re related to each other in a very deep and complementary way, that there is only one stuff in the world. Dual aspect monism seeks to avoid devaluing or subordinating one side or the other. Sometimes it might seem a little like a subtle form of materialism, but I don’t think it is, because it doesn’t treat the mental as being just an epiphenomenon of the material.¹⁰

Dual-aspect monism is a theory of bidirectional irreducible description. Although there is only one stuff, for every conscious experience there is a physical description of brain function and a correlating mental description, and neither is reducible to the other. M. Velmans describes it as ‘ontological monism combined with epistemological dualism’.¹¹ Given that the ‘one stuff’ follows inexorable laws, it is difficult to see how to attribute any causative power to the mind, if the mental must always correlate with the matter. It would be a case of over-determination. Moreover, for the monist the immaterial cannot cause matter to do anything.

3. Non-reductive physicalism: a negation of principle

Non-reductive physicalism describes mental states as physical products but maintains that they are not reducible to physical properties. It is a theory of *unidirectional* irreducibility. The ground on which attempts have been made to

10 Harris, L.F. ‘Divine action: an interview with John Polkinghorne’, *Cross Currents*, ARIL (1998), 48 (1).

11 Velmans, M. *Journal of Consciousness Studies* (2002) 9 (11), 69-95.

demonstrate that mental processes are not reducible to the generating physical processes, is the radical difference between their descriptions.¹² Qualia, such as colour, warmth, pain, may correlate with brain states, but do not appear to be definable as particle processes and configurations.

Unfortunately, although radical difference may convince that reductionism should be impossible, it does not offer any clue as to how to break the chain in the reductionist argument. In the case of aesthetic appreciation this may not matter much, since we may be content to enjoy the epiphenomenon while accepting logically its physicalist status. But in the case of rational argument and decision making, we cannot afford the luxury of such misapprehension. Until the reductionist argument is disarmed, the spectre of epiphenomenalism will continue to haunt us.

But however contradictory it may seem to contemplate phenomena which may not be reducible to physical explanation, the real problem occurs when the theory is invoked to justify mental causation. In 1998 a symposium was held on 'Portraits of Human Nature' following publication of a book on that theme.¹³ Brown and Jeeves¹⁴ described the proposals as giving 'a non-reductive view of the relationship between human subjective mental life and neurobiology which allows top-down causal influences'.¹⁵ But this position is open to the objection that physicalism may not allow independent top-down causal influences, because what is at the top is supported by what is at the bottom. Velmans regards this as one of three fatal flaws in non-reductive physicalism:

If first-person experiences are invariably accompanied by distinct physical correlates, and if the physical world is causally closed, I don't see how such experiences could exercise causal control – as the relevant control would already be exercised by their physical correlates.¹⁶

In the symposium N.Murphy 'argued that descriptions and explanations formulated at a higher level (e.g. human consciousness) can be seen as supervening on lower level explanations, even though they presume the necessity of the operation of processes at a lower level'.¹⁷ But in her contribution to the book she claims that supervenience can be used to argue that higher-level mental states are not necessarily causally determined by lower-level brain states.¹⁸ However her argument, which hinges on the additional role of circumstances, fails to show how the causal chain is broken. Murphy's use of the concept of

12 Lewes, G.H. *The Physical Basis of Mind*, (1879).

13 Brown, W.S., Murphy, N. & Malony, H.N. (eds.) *Whatever Happened to the Soul?*, Minneapolis, MN: Fortress Press (1998).

14 Brown & Jeeves *op. cit.*, (4).

15 *ibid.*, 150.

16 Velmans, M. *op. cit.*, (11): '1. We lack conscious knowledge of the details of the processes that we are supposed to consciously control.... 2. The problem of causal closure. (quoted)... 3. Consciousness comes too late to affect the processes to which it most closely relates....'

17 *ibid.*, 145.

18 Brown, Murphy & Malony (eds.) *op. cit.*, (13), p.132ff.

'supervenience' of 'emergent systems' to explain 'downward causation' has been called in question.¹⁹ An emergent system is one arising from complex patterns of simpler components, and having laws of its own not applicable to the components. Emergent systems in physics certainly have high-level laws (e.g. the ideal gas law, $PV = nRT$) not applicable to lower-level systems (e.g. particle collisions), but if the physics is all in place (kinetic theory), the high-level law is derivable from low-level laws (e.g. momentum conservation), so causation is still maintained in a bottom-up direction. Attempts to subvert this causation inevitably involve the introduction of apparently top-down processes which themselves can be explained bottom-up. Thus you cannot claim that compression of gas is an example of top-down causation,²⁰ because the act of compression also has bottom-up causation. Undoubtedly the mind is an emergent system in this sense, but you could no more claim that its activity at the emergent level has power over the brain at the particle level than you could for any other physical system.

This is the ultimate weakness of all arguments proposing the causal efficacy of high-level mental processes, whether they be the action loops of Brown,²¹ or the supervisory systems of MacKay.²² Whatever efficiency is attributed to such structures and processes, they are themselves caused ultimately bottom-up. There is no break in the causal chain. Whatever validity is given to the statement 'I did this', there are always particles obeying the laws of physics 'behind the P'. All of these systems could be modelled by complex silicon circuitry, but no one claims that there is something rational, moral or free in silicon. Indeed Brown locks mental processes firmly into the causal chain:

mind is not the brain, but neither is it a non-material emergent in some... dualist sense. Rather mind is a description of the brain and body operating as one... So... mental causation is illusory... mind is... causes-in-process. Perhaps it would be more accurate to propose that mental causation poses a different sort of problem than many discussions have imagined, but it is the sort of problem that is comprehensible within the sort of nonreductive psychobiology that I have suggested.²³

Whatever sort of non-reduction this is, it is clearly epistemological, not physical.

Another line of argument for non-reducibility of reasoning and volition, that does not show how the causal link is broken, is based on a still-controversial

19 Cullen, L. 'Nancey Murphy, supervenience and causality', *Science & Christian Belief* (2001) 13(1), 39-50.

20 Gijssbers, A. 'Supervenience and causality – a medical response', *Science & Christian Belief* (2001) 13(2), 163.

21 Brown, W.S. 'Did my neurons make me do it?', Fuller Integration Lecture 3, (2005).

22 MacKay, D. *Behind the Eye*, Oxford: Blackwell (1991).

23 Brown *op. cit.*, (21).

application of K. Gödel's Incompleteness Theorems²⁴. These state that there are limits to what is provable within certain formal consistent mathematical systems that use arithmetical principles, namely (1) there must be true but unprovable statements, and (2) it is impossible to prove self-consistency. Gödel himself suspected that the theorems had implications for the nature of the human mind. He succeeded in proving certain relevant supporting theses, and conjectured that the mind's power might necessarily exceed that of any finite machine.²⁵

In 1961, using Gödel's arguments, J. Lucas claimed to have proved that the brain cannot be described fully in mechanistic terms, and therefore machines cannot and will never emulate certain brain processes.²⁶ Later, Lucas claimed that he had proved that the human will must be causally free.²⁷ These claims have both been contested, and debate is ongoing. If the proofs were to be vindicated, they would not of themselves show that dualism is inevitable, but they would put the onus on non-reductive physicalists to find a weak link in the causal chain.

4. Pluralism: a patchwork of probability

A rather different approach involving emergent systems has been the pluralism of N. Cartwright. Prof. A. Torrance sees this as a possible 'third way' between the apparently mutually-exclusive alternatives of reductive physicalism and Cartesian dualism.²⁸ The difference here is that the emergent system is granted causal power by denying the 'fundamentalism' of traditional science, namely the universality, and even the existence, of its laws. We invent laws to describe carefully contrived models, and the real universe is just not so simple. Thus an emergent system could have 'capacity' of its own not derivable from the behaviour of its components or the laws of models. This somehow severs the causal link with the world at the particle level:

There is a tendency to think that all facts must belong to one grand scheme, and moreover that this is a scheme in which the facts in the first category (those that are legitimately regimented into theoretical schemes) have a special and privileged status. They are exemplary of the way nature is supposed to work. The others must be made to conform to them. This is the kind of fundamentalist doctrine that I think we must resist.... Not only do I want to challenge the possibility of downwards reduction but also the pos-

24 Gödel, K. (1931), 'Über formal unentscheidbare Sätze der Principia Mathematica und verwandter Systeme', Part I, *Monatshefte für Mathematik und Physik*, Vol.38, pp.173-198.

25 Gödel, K. 'Some basic theorems on the foundations of mathematics and their philosophical implications', 1951 Gibbs lecture, American Mathematical Society.

26 Lucas, J.R. 'Minds, machines and Gödel', *Philosophy* (1961) XXXVI, 112-127.

27 Lucas, J.R. *The Freedom of the Will*, Oxford: Clarendon Press (1970).

28 Torrance, A. 'Developments in neuroscience and human freedom', *Science & Christian Belief* (2004) 16(2), 134-135.

sibility of 'cross-wise' reduction.²⁹

Whether this would grant the human mind the sort of causal independence it needs for rationality and responsibility is very debatable. Does the substitution of an 'emergent capacity' for a model law make the system any more free, or does it simply chain it to a different machine? And how many scientists could, or would be prepared to, work to such a philosophy anyway?³⁰

5. Compatibilism: a call for compromise

Seeing that the writing may be on the wall for non-reductive physicalism, and not willing to return to dualism, some have suggested we look for meaning within the strict confines of monism, returning to the *compatibilism* of Hume. This philosophy accepts the determinism of monism, but argues that, provided people are not coerced by external forces (physical torture, mental pressure), their decisions are made according to their desires or reasons. They are 'free' to do what they want. The apparent choices are 'compatible' with the physical causes.

J.Byl,³¹ developing such a position, argued for a thoroughly determinist view of physical laws, rejecting even any indeterministic interpretations of quantum mechanics, on the ground that God not only *does not*, but also *cannot*, play dice (a strange analogy if the throw of the dice is determined). The resulting compatibilism, while granting humans superficially the ability to make decisions according to their wants, is actually as thoroughgoing a predestination as that of Calvin. As far as Adam was concerned, he 'was not forced to eat the fruit against his own will; he did so for reasons sufficient to him'³². But from God's viewpoint, he 'foreknew what the end of man was to be before he made him, and foreknew, because he had so ordained by his decree'³³. Adam may have acted as he wanted, but he could not, at that point in space-time, have wanted otherwise. He was locked into a determined universe.³⁴

29 Cartwright, N. *The Dappled World*, Cambridge: Cambridge University Press (1999), pp. 24-25.

30 For an excellent short description and defence of Realism, see Bussey, P. 'Beyond materialism', *Science & Christian Belief* (2004) 16(2),160-163. Nancy Cartwright claims to have shifted her attack from Realism to Fundamentalism between writing *How the Laws of Physics Lie* (1983) and *The Dappled World* (1999). But her pluralism is still clearly more at home with what Bussey calls Nominalism: 'laws of nature are no more than human descriptions of observed regularities in the behaviour of nature; these empirical regularities are the fundamental reality and there is nothing underlying them'.

31 Byl, J. 'Indeterminacy, divine action and human freedom', *Science & Christian Belief* (2003)15(2), 101-116.

32 *ibid.*, 115.

33 Calvin, *J. Institutes*, III:XXIII.7, (1559), Beveridge, H. (trans.), London: James Clarke & Co. (1962).

34 I am describing here a strictly physicalist determinism. Central to Byl's position is the belief that all natural events have causes. In §4.2 he asserts that human creativity requires that 'our *mind* is causally effective....our brains are not purely *physically* determined but are open to input from our *minds*'. If I have read this correctly, he does not seem to be taking into account the implications of his original position, namely that mental phenomena must themselves be governed by physical and/or divine causes.

Such a philosophy clearly raises huge questions about human responsibility. T. Clark's report³⁵ on the 1998 Ethics and Public Policy Center Conference in Washington on 'Neuroscience and the Human Spirit' shows clearly the difficulty in applying such philosophy to the real world of human relations, in particular the judicial system:

The law, conveniently for attributions of ultimate responsibility, blocks the consideration of causal explanations in favor of placing the agent fully, and freely (in the radical libertarian sense), in control at the moment of choice.... Mitigation in sentencing is the law's nod to obvious influences on an offender's behavior, be they environmental or genetic, since all but the hardest compatibilists find their sympathies swayed by a clear causal story.... But by being tied to the assumption of libertarian agency, they effectively block the admission of, and therefore action on, the fact that people are indeed caused creatures to the very core.... That the law may eventually have to face up to its central anachronism prompts some concern at the conference.

Compatibilism is an unstable, fair-weather philosophy. The further you go down the road of mitigation, the more you have abandoned compatibilism. No one is likely to object to the statement that a decision is determined if it concerns the consumption of a naughty-but-nice cream cake. Maybe it wasn't good for the health or the figure, but it was what the person wanted, determined or not. But if in a future court of law we find the behaviour of the majority of offenders can be causally explained, and consequently they are acquitted on grounds of mitigating circumstances, then the case for compatibilism is called into question.

The problem of responsibility is even worse in relation to God. Compatibilists can argue *that* humans have a form of freedom, and can argue over the implications for interpersonal responses (e.g. should/can X, within the limitations imposed by X's form of freedom, criticise Y for being short-tempered, given the limitations imposed by Y's form of freedom?). But there is no let-out clause for God. He chose, and was really free, to create the universe as it is, or as it would become. God therefore becomes inescapably the author of human sin. P. Richmond, who argues the compatibilist case for 'justifying the punishment of predetermined wrongdoing and God's acceptance of sin' concludes that 'a compatibilist version of free-will and responsibility is easier to reconcile with modern science, but offers no help with the problem of evil'.³⁶

The meaningfulness of causal freedom for the human will, and by implication the need for a soul, has been questioned. But it is not possible to do this

35 Clarke, T. 'Does neuroscience threaten freedom and dignity?', (2000), www.naturalism.org/neurosci.htm

36 Richmond, P. 'Neuroscientific determinism and the problem of evil', *Science & Christian Belief* (2004) 16(2), 140, 155.

for the divine will. The issue therefore becomes whether or not God has communicated this attribute to humanity, for which recourse must be made to Scripture.

Scripture

There are numerous passages of Scripture citable in support of dualistic anthropology.³⁷ However, arguments have been advanced that these can also be consistently interpreted monistically, the supposed dualism not being implicit in contemporary Jewish thinking. Brown and Jeeves reported on a ten-point non-dualistic methodology proposed by J. Green for approaching the scriptural data, but noted that F. Watts suggested 'a note of caution about whether Green may exaggerate how consistently monist the Bible is.'³⁸

Passages which have been considered in this journal include the following (references/comments are to possible monistic (M) and dualistic (D) interpretations): 1Samuel 28, M³⁹ D⁴⁰; Matthew 10:28, M⁴¹; Luke 16:19-31, M⁴²; Luke 23:43, M⁴³D⁴⁴; 1Corinthians 15:35-38, M⁴⁵D⁴⁶. Other biblical passages worthy of consideration include the following, where I suggest a possible dualist interpretation, and where able, what I imagine might be a monist response:

37 The nature of Jesus Christ is an issue worthy of serious consideration which I must omit as space does not permit. The Council of Chalcedon (451) declared that Christ was 'truly God and truly man, of a rational soul and a body'.

38 Brown & Jeeves *op cit.*, (4), 147.

39 Booth *op. cit.*, (1), 152: 'The medium at Endor... convinced King Saul that he was talking with the dead prophet Samuel by saying that she could see an old man in a cloak.'

40 Schaeffer, F. *True Spirituality*, Wheaton, IL: Tyndale House (1971), p.45: 'There is no reason to think of this as being anything other than Samuel's spirit.'

41 Booth *op. cit.*, (1), 150: 'it would be hazardous to base doctrine on a single saying which Jesus had shaped to his hearers' experience.'; Green *op. cit.*, (1), p.58: 'It is worth exploring whether such texts make use of a metaphorical rather than an ontological dualism.... martyrdom is only the end of one's existence in this world, and not the end of one's life.'

42 Green, J. 'Eschatology and the Nature of Humans', *Science & Christian Belief* (2002) 14(1), 43-45: 'Luke's parable... has no period of detention, but has the righteous already participating in rewards, the wicked already suffering punishment.... We would be ill-advised to imagine that Jesus speaks... of disembodied existence.'

43 *ibid.*, 45-46 "Paradise"... came to be employed for the final paradisaic state enjoyed in the new creation.; "intermediate state"... presumes that time experienced by the dead and by those still living is identical'.

44 If Jesus had wanted to promise the thief that he would rise again, he could easily have done so, as he had said to Martha concerning Lazarus. Instead he gave an assurance of more immediate nature. Regardless of any issue concerning the interrelation between earthly and heavenly time, Christ's presence in heaven on that day would have been between crucifixion and resurrection, and could not easily be imagined to be post-parousia. Thus the existence of the thief after death but before resurrection is implied.

45 Booth *op. cit.*, 153: 'Paul taught that resurrection is like God's raising of the glorious plant from the bruised seed.... the raised person is created by God.'

46 Paul likens death to the planting of a seed. A plant dies but leaves behind a seed. *The seed is not dead, but dormant*, awaiting the reclothing of new life.

Matthew 22:31-32

D: When God originally spoke these words to Moses (Exod.3:6), he did not say 'I was the God of your father...', which is what you would expect if the dead would only live again when re-created in the resurrection. Furthermore, Jesus identifies Abraham, Isaac and Jacob with 'the living', not 'the remembered' or the 'pending-resurrection'.

M: Abraham, Isaac and Jacob were indeed alive to God, since held in his memory awaiting resurrection.

Luke 9:28-36

D: The pre-resurrection spirits of Moses and Elijah appear to Jesus to speak about his 'departure'.

John 4:24

D: A direct parallel is drawn here between 'spirit', as essential nature of God, and the worshipper's spirit. Since God is pure spirit, worshippers can only commune with God on that level.

M: This verse does not claim an ontological existence for the spirit. It merely emphasises that worship should be spiritual, not formalistic (Deut. 10:16).

Acts 7:59

D: Stephen did not pray, 'Raise me up at the last day', but believed that his spirit would be with Christ after his body had died.

Hebrews 12:23

D: The writer to the Hebrews pictures the spiritual realm in relation to the present physical realm.

Proof texts can often be 'explained' to suit either viewpoint; which argument carries the more weight is likely to be determined by the reader's position. A more convincing approach has been sought by considering texts and the use of Hebrew and Greek words in relation to the mind-sets of their writers and contemporary society. But here again debate is vigorous. Some hold the view that since there is no Hebrew word for the concept of 'body', in contrast to Greek (*σωμα*), it would not have been possible in Old Testament times to have made the dualistic body-soul distinction; Paul's anthropology must therefore be deduced in this light.⁴⁷ Others have challenged this on linguistic semantic grounds, arguing that conceptual distinction is not dependent on multiple terminology⁴⁸ (cf. 'to know' in English, which can mean both 'connaître' and 'savoir' in French), and that furthermore it would be unreasonable to limit New Testament theology to the revelation of the Old.⁴⁹

In addition to the need for interpreting what Scripture says or implies about the nature of the soul, it is also necessary to consider the implications of those

47 e.g. Robinson, J.A.T. *The Body*, London: SCM (1952).

48 Barr, J. *Semantics of Biblical Language*, London: Oxford (1961).

49 Cadbury, H.C. 'The Peril of Archaizing Ourselves', *Interpretation* (1949) 3, 331-337.

interpretations. Any monist philosophy, dual-aspect or otherwise, makes the soul a dependent construct of the physical. When the body dies, the soul dies with it. What, then, is involved in resurrection? How can there be any continuity of individual identity?

J. Polkinghorne describes the process as follows:

That psychosomatic unity is dissolved at death by the decay of my body, but I believe it is a perfectly coherent hope that the pattern that is me will be remembered by God and its instantiation will be recreated by him when he reconstitutes me in a new environment of his choosing. That will be his eschatological act of resurrection.⁵⁰

This evidently does not seem entirely satisfactory to some, because elsewhere he notes:

Some philosophers have objected to the idea of re-embodiment without intervening physical continuity, on the grounds that if it were possible, then what would prevent the multiplication of replicas, with the incoherence of personal identity that would result. The answer is surely that only God has the power to effect such re-embodiment and divine consistency would never permit the duplication of a person.⁵¹

Even if God *would* never do such a thing, consider the implications of the fact that he *could*. Suppose God *were* to create an exact pattern of me in this world, particle for particle, in an identical environment (e.g. sealed room) *while I am still alive*. At creation, the duplicate would be identical to me, but could not *be* me, because monistically the duplicate constructs its own consciousness. Thereafter, the two of us might diverge in nature to greater or lesser extent, like identical twins, because of different experiences. The duplicate started *like* me, but *was not me*. Now imagine that such a duplicate is created after my death. As far as the duplicate is concerned there is no difference. It was not me before, when I was alive; it is not me now, after I have died. The pattern is not the person.

Other objections to the pattern postulate quickly come to mind which are very difficult to answer. Since God can remember all patterns that have represented 'me', why could he not remember only the best? Why should a later pattern have more validity than an earlier pattern? In which case, is there such a thing as apostasy? Could he remember more than one of my patterns, and recreate other instances of me? What is it about my pattern today that makes me the same person as my pattern ten years ago? Why should a pattern influenced by drugs or injury have less validity than one which is not? In this case we might advocate conversion by chemotherapy. What about the patterns of

⁵⁰ Polkinghorne *op. cit.*, (2), p.163.

⁵¹ Polkinghorne, J. *The God of Hope and the End of the World*, New Haven, CT: Yale University Press (2002), p.108.

the senile or the comatose? How could God choose which pattern to reprint? And what of the promise that I shall be recreated without sin? That is a pattern that has never been me.

The continuity problem is addressed by the fission and reassembly views of K. Corcoran in his constitutional view of persons,⁵² a materialist philosophy where the person is constituted by the body but not identical to it. Such is the importance of the body to the person that resurrection must ensure that the same body persists. Either the body divides on death, giving a corpse and a body in heaven, or is reassembled with causal connection across the gap of death. Corcoran conveys considerable uncertainty about his own views such that it is difficult to be enthusiastic about them. They certainly stretch credulity, and have a decidedly ad hoc flavour to them. Whether they can be reconciled with 1 Corinthians 15:50 is debatable.

A monistic interpretation of the resurrection also raises difficult questions about the concept of hell, whatever your view of its nature and duration. That God may condescend to reconstitute the patterns of the righteous is worthy of praise and gratitude, but what are we to make of a God who is hell-bent on reconstituting the wicked (cf. Jn 5:29)?

Physics

When it comes to considering the science of the soul, there is probably a little physicalist in even the most dualistically inclined of us. It goes against all our training to suppose that the system we are investigating may have something in it not susceptible to our methods. It raises huge questions. What is a soul? Where did it come from? Where is it? How does it relate to physical systems? *Can* something non-physical relate to the physical?

On reflection we have to allow that some of these questions may be the result of mere prejudice, looking for problems rather than solutions. There are many examples in science where evidence has forced us to accept the inconceivable and we have been obliged to rebuild science around it. The non-relativism of the speed of light *in vacuo* is totally counter-intuitive. Einstein's solution was to accept it and redefine physics to accommodate it. Planck's solution to the black-body radiation curves required the existence of energy quanta, which have given birth to all manner of unimaginable effects. But we accept their existence because the theory works so well.

We tend to forget that even 'simple' physics is littered with unanswerable questions, some closely parallel to those that can be asked about an ontological soul. There are deep questions of nature. What is electric charge? It was once a serious philosophical concern that we could not say what is the nature of

52 Corcoran, K. 'The constitution view of persons', chap.5 in Green & Palmer (eds.) *op. cit.*, (8).

force, 'but our minds no longer vexed' have ceased to ask that particular 'illegitimate question'⁵³. Then there are questions of location. Where is the gravitational potential energy of an aeroplane located? In the aeroplane? But it is as much a property of the Earth as of the aeroplane, so the best we can do is to say that it is in the Earth-aeroplane system, but where exactly is that? Is it in the (infinitely extended) gravitational field? What part of it?

In physics, we recognise that there are questions we will not be able to answer. The ancient Greeks recognised that a fundamental entity is not describable, because it is not composed of parts. Instead, you will only be able to describe its effects or interactions. Thus, you cannot say what an electron is, but you can demonstrate its effects on the liquid in bubble-chambers or on oil-drops falling in an electric field. Let us attempt a physical approach to the hypothetical soul, starting with a cursory glance at the main theories on offer.

1. The theories of a soul

From the time it was perceived that dualism had philosophical difficulties, various 'theories' have been proposed. 'Mind' and 'soul' here are used somewhat interchangeably depending on the proponent's religious views.

The main ontological categories are:

Substance Dualism

The mind is an unextended non-physical 'substance' which interacts with the brain (Descartes).

Property Dualism

There is only one kind of substance, but in complex systems such as the brain it can lead to physical properties and irreducible mental properties.

Predicate Dualism

There is only one kind of substance, with physical properties, but psychological descriptions are fundamentally different from, and not reducible to, physical descriptions.

These may be associated with one of the following interaction categories:

Interactionism

The mind and brain are distinct entities which can interact, one or each imposing limitations on the other.

Epiphenomenalism

Mental states are constructs of, and supervene on, the physical; they have no causal ability (Huxley).

⁵³ Hertz, H. *Principles of Mechanics*, Introduction.

Parallelism

Mental states are in divinely ordained pre-established harmony with the physical (Leibniz).

and one of the following origin categories:

Creationism

Every person's soul is created by God at some moment between conception and birth (Lactantius, Pelagius, Calvin).

Traducianism

Souls are generated with bodies in the process of human reproduction (Tertullian, Luther).

Emergentism

The mind emerges from the brain at some point in its development, becoming causally independent.

The only combination that will produce a dualism with causal efficiency is clearly some form of substance dualism (the others being forms of dual-aspect monism) married with interactionism (the others offering no causal link from mind to brain). But the question of soul origin remains open. Proponents of such positions include neurophysiologists J.C. Eccles and C.S. Sherrington, neurosurgeon W.G. Penfield, and philosophers K. Popper and W. Hasker.

2. The nature of a soul

It would be a mistake to attempt to *define* 'soul', just as it would be to define an electron. But we might suggest as a *description*, that which can inspect and judge qualia, especially the 'higher' ones – for example, our appraisal of certain mental processes, such as the construction of truthful accounts or rational arguments, love of our neighbours, sorriness for wrongdoing, trust of God. It may be objected that some of the mental processes themselves could be induced or suppressed by drugs, brain surgery or damage, not to mention less invasive influences such as the opinion of friends (1Cor. 15:33). But on the soul hypothesis, there is something which has causal power, over and above the processes, with greater or lesser control over them, whose evaluation of them is of paramount importance to God.

The effect of the physical influences would be to *alter the predisposition of the brain to be influenced by the evaluation of the soul*. What we are attributing to the soul is not the mental processes themselves, but the *ability to evaluate/influence* how the brain is used. By analogy, a car requires the judgement of a driver. A mechanic can certainly alter the ability of the car to respond to the driver, for good or ill, but the alterations made by the mechanic do not constitute an opinion of the driver. There are, indeed, perfectly good reasons why the driver would want a mechanic to tamper with the car. In the same way, there are good reasons why humans would want the services of a brain surgeon

or psychiatrist, because the soul is limited in its control over the brain.

A closely related aspect to nature is form. Here again the physicalist in us reacts against the concept of soul. Objections arise that we would never dare to entertain in a physical context. What does a soul look like? What is its shape or size? We often try to ask and answer questions like this in science, but in reality we can only do so for entities having structure, and even then our models may be seriously flawed. For fundamentals in science, we have no models at all. Theologically, the soul has been assumed to be 'simple', not composite⁵⁴, that is, fundamental, and therefore by nature unpicturable. We are all familiar with textbook diagrams of atoms, grossly out of scale, and outdated by wave-mechanics. But what about electrons? No experiment has ever revealed the electron *as particle* to have any measurable size, in contrast to composites like nucleons. But can we conceive of a pointlike entity? Add to this the fact that the electron has wavelike properties necessitating spatial extent, but which defy any physical interpretation other than the probability of finding the particle, and you have an entity easily rivalling the hypothesis of the soul in inconceivability.

3. The origin of a soul

The question of where souls come from is not recent. There are at least two traditional schools of thought, linked to different theologies of original sin.⁵⁵ Neither of these positions is without difficulty. Creationism has been linked to the doctrine of Federal Representation, making Adam the legal representative of humanity. When he fell, he did so on behalf of all. This appears to make God responsible for evil since he creates sinless souls which are then associated with fallen bodies. Traducianism, on the other hand, is burdened with philosophical difficulties concerning procreation. It has been linked to either *Realism*, where all of human nature was present in Adam, and therefore shared in his fall, or *Mediate Imputation*, a theory of inherited corruption.

The more recent emergentism views the soul as produced by the neurobiological processes of the brain; it then attains some causal freedom, in the same way that a child gains independence from parents. For this theory to be distinct from both traditional monism and dualism, and free of the philosophical problems inherent in the hybrids, *some physical property of matter would have to make it possible, within the context of complex neural networks, for matter to generate the soul*. It would then be a moot point whether the soul should be properly regarded as non-physical (any more than energy or a field) since it would be generated by a physical process. On this viewpoint, the theory could legitimately be regarded as monistic. The doubtful dogma that 'there is only

54 Aquinas, T. *Summa Theologica*, (c.1265-9), Part I, Q.75. It is this reason that Aquinas gives for the immortality of the soul, since only composite entities can decay.

55 Berkhof, L. *Systematic Theology*, Edinburgh: Banner of Truth (1984), Part Two, II.B, & III.A-C.

one kind of stuff⁵⁶ would then become redundant, as would the chief criticism of Cartesian dualism, that ‘there are two fundamentally different kinds of substance’. But once the soul has been formed it would have to be capable of self-determination. It seems to me that a process of this nature may offer the most promise of a solution to theological, philosophical and scientific problems relating to the soul.

W. Hasker likens the process of emergence to the production of a magnetic field, which is a distinct entity from the causative magnet or current.⁵⁷ He cautions against pressing the analogy too far. However, an improvement might be to make the comparison with the production of an electromagnetic wave by an oscillating current, since the photons are at least capable of continued existence if the current ceases, whereas the static field is not. Needless to say, it is the property of self-determination that defies physical analogy.

Hasker’s theory also allows for the possibility of ‘animal souls’ having a lower degree of conscious experience commensurate with their neural complexity.⁵⁸ He sees no objection to attributing consciousness, and by implication emergent souls, to pet dogs and cats, though admitting we do not have the evidence that would enable us to say how far down the biological scale this would go. C.S. Lewis suggests that animal souls may in some measure be bound up with their relationship to humans, and their existence in the Resurrection contingent on that relationship.⁵⁹ If some animals have souls, it follows that souls are not exclusively concerned with the higher functions such as rationality and morality, since we do not attribute these faculties to animals. Thus the physiochemical effects of endorphins have their qualia counterparts of pleasure and happiness in the soul, and we should not despise these as ‘unspiritual’. We are to have a holistic view of human experience.

4. The location of a soul

The belief of Descartes that the seat of the soul is the pineal gland is often used to highlight the difficulty of substance dualism. As already shown, identification of location is not always possible or necessary for physical quantities to be accepted as real. So it is not clear that this should be required of the soul. It is tempting to narrow down the location to the brain, but the nervous system, which provides information to the brain, extends throughout the body. Clearly the soul is not dependent for its existence on any one of the senses – we would not consider a blind person’s soul to be ‘disabled’ – but its character may differ ‘as star differs from star in splendour’ (1Cor. 15:41).

The importance of interpersonal relationships as an example of ‘souliness’

56 Are electrons, neutrinos & quarks all the same kind of stuff?

57 Hasker, W. *The Emergent Self*, Ithaca/London: Cornell University Press (1999).

58 Hasker *op. cit.*, (8).

59 Lewis, C.S. *The Problem of Pain*, London: Bles (1940), chap.IX.

has already been mentioned. These may enrich, or even damage the soul (1Cor. 15:33). J. Donne went so far as to extend this concept to all humanity: 'No man is an *Iland*, intire of it selfe;... any mans *death* diminishes *me*, because I am involved in *Mankind*.'⁶⁰ If location is difficult to specify within the body because of the extent of the information-gathering process, it may similarly be difficult to restrict the soul to the body because of these relationships. There may be more than mere sentiment in the claim that 'though I am absent from you in body, I am present with you in spirit' (Col. 2:5). A similar argument may be used for the soul that is 'alive to God' (Rom. 6:11); 'God raised us up... and seated us with him...' (Eph. 2:6).

Perhaps spatial extent is simply an inappropriate concept to apply to the soul. 'Location' may be all-important to estate agents, but in spiritual matters it is more a question of possession.

5. The interactions of a soul

Even if the soul is not perceived as being responsible for all operations of the mind, the need for an interaction between soul and matter still exists, otherwise the concept of Christian sanctification is meaningless. Ever since the dualism of Descartes, the cardinal difficulty with the concept of a spiritual soul has been to understand how it could interact with the physical brain. Let us examine this problem in the context of modern physics.

An electron is only known to be affected by two types of force – gravity and electroweak. The only entities capable of producing such forces are other particles that 'feel' these forces, and the gauge bosons, such as photons. In practice, this reduces to electromagnetic and weak interactions, as gravity is far too weak to exert significant force on the scale of fundamental particles. So, for example, electrons can be pushed by other electrons, or raised to higher energy states by photons. How then can the soul affect matter? The scientific answer must presumably be that at least some matter has some property capable of interacting with the soul. Would this not make soul simply a new, previously undetected, material entity? But what knowledge do we have of the nature of matter⁶¹ that makes us certain we know the difference between the material and the spiritual?

This type of argument is a perfectly standard scientific approach. For example, in the last decade evidence has accumulated that the expansion of the universe is accelerating rather than slowing down as standard gravitational models would suggest.⁶² The proposed solution involves acceptance of the existence

60 Donne, J. *Devotions Upon Emergent Occasions*, Med.XVII (1624).

61 Bussey, P. *op. cit.*,(30), 171,177 raises this issue in relation to the interaction of mind with matter, and the mental nature of matter implicated by the existence of physical laws.

62 Riess, A.G. et al. 'Observational evidence from supernovae for an accelerating universe and a cosmological constant', *Astron.J.* (AAS) (1998) 116(3):1009-1038.

of dark energy. Whether or not this will prove to be the correct answer does not matter. The point is that the scientific community is used to being forced to consider new particles, interactions and properties, in order to make sense of observational evidence that does not fit existing theories. As Christians, we should not assume God has constructed the universe such that it contains no experimental evidence of spiritual interaction (Rom. 1:20).

In the solution of many physical problems, interaction can be considered in terms of either forces or energy transfer. A forces approach tends to be more imaginable, as we have everyday perception of forces, but often in physics an energy approach is more powerful analytically. In terms of the proposed interaction between body and soul, energy considerations raise an all-important question. If the soul causes physical events, does this not imply there is continual, or spasmodic, injection of energy into physical systems? Is the law of conservation of energy, arguably the most fundamental law in science, being violated?

As in most cases in the history of physics where energy conservation has been threatened, abandonment of the law would be a last resort, and perhaps unthinkable, in any revision of theory. Therefore the most reasonable hypothesis is that the soul is not an 'external' source of energy, but derives energy, *if energy is needed*, from the body. We might suggest that the soul never needs to store energy and that changes in the soul will not have an effect on the entropy of the universe.

Whether or not we can postulate a reasonable method of interaction, for Christians the basic datum is that *pure spirit can interact with matter*. For example:

God, who is spirit, created the universe, which is matter (Jn 4:24; 1:3).

Angels have communicated with humans (Heb. 1:14; Lk. 1:13,28).

The Holy Spirit affects human minds (Jn 14:26; 16:8).

For the Christian who believes that the Holy Spirit is active in the world, causal closure of the physical domain is not an option. There is something in the mind that is designed to interface with the spiritual. It should not therefore be seen as an inappropriate mechanism if a person's soul, which I contend to be a spiritual entity, can affect her/his own brain. It should in fact be a normal result of the decision-making life of any sane person, as illustrated by Francis Schaeffer in this very mundane example:

There is a uniformity of natural causes, but not in a closed system. The course of nature can be changed – can be reordered – just as when I through a choice of the will interrupt something, for example by reaching over and turning off a light. This act of my will reorders the natural flow of cause and effect.⁶³

63 Schaeffer, F. *Death in the City*, London: IVF (1969).

Metaphysics

One of the most serious accusations that can be levelled against a theory is that 'I have no need of that hypothesis'. Ockham's razor demands that we do not multiply entities unnecessarily. In the case of any dualistic theory of the soul, it has been claimed that this criticism has become (or is close to becoming) true, in view of the findings of neuroscience and psychology. N. Murphy has stated 'All of the human capacities once attributed to the immaterial mind or soul are now yielding to the insights of neurobiology.'⁶⁴ Has the soul already been consigned to the same archive as the aether? A number of comments can be made against this claim.

1. The Philosophical Imperative

It is not at all clear that the soul hypothesis is not needed. Many feel that the philosophical problems with monist theories are insurmountable, that there is no escape from reductionism, epiphenomenalism and the self-referential trap of Haldane's argument. Hasker sees this as fatal to all rationality: 'On the assumption of the causal closure of the physical, no one ever accepts a belief because it is supported by good reasons.'⁶⁵ Some philosophers are convinced that Gödel's conviction, and the application of his theorem by philosophers such as Lucas and Penrose to the causal independence of the mind, will eventually be vindicated.

2. The Interpretation of Science

One of the most significant factors motivating the espousal of some form of monism has been the growing body of evidence that brain function, damage and stimulation are all closely associated with spiritual and mental experience and behaviour. In the Boyle Lecture 2008, M. Jeeves surveys research and comments that 'such a view sits uneasily with the beliefs of many people that such experiences are manifestations of nonmaterial human minds, souls, or spirits'⁶⁶. Thus brain damage due to accident, disease, drugs, or surgery, has been shown to have significant influence on memory, mood, personality and other cognitive functions. B. Libet has performed timing experiments which seem to indicate that volition is *preceded* by relevant brain activity,⁶⁷ but he suggests that consciousness can veto the act. D. Wegner, however, argues that the volition is rendered an illusion.⁶⁸ The trend of thought seems to be that neuro-

64 Murphy, N. 'Conditional Immortality and Cognitive Neuroscience', *Center for Christian Bioethics Update* (2000).

65 Hasker *op. cit.*, (57).

66 Jeeves, M. 'The Boyle Lecture 2008: Psychologising and Neurologising about Religion: Facts, Fallacies and the Future'.

67 Libet, B. 'Do We Have Free Will?' *Journal of Consciousness Studies* (1999) 6, nos.8-9, pp. 47-57.

68 Wegner, D. *The Illusion of Conscious Will*, Cambridge, MA: MIT Press (2002).

science is moving inexorably down the road of ‘explaining’ psychology, and promises to go all the way, rendering the soul hypothesis redundant. By ‘explaining’ is actually meant ‘explaining away’, because the radical difference between physical and mental descriptions of any event makes the possibility of a true explanation unlikely. However, by no means all the evidence favours the monist. The neuroscientist M. Beauregard has argued from studies which include the obsessive-compulsive disorder, near-death and out-of-body experiences, and the placebo effect, that a non-materialist interpretation does better justice to the evidence than a materialist one.⁶⁹ The fundamental weakness of the neuroscientific evidence is that it is essentially correlative; it offers no explanation at all of causation between the physical and the mental.

From a monist viewpoint it is understandable that these correlations appear to undermine traditional belief. However, it is debatable whether the dualist should be surprised by these findings, since on either view the brain is unquestionably the machinery used to actualise the experiences. The debate is not about the machinery; it is about the source of control. Monism puts the machinery in control, with questionable attempts to grant the mental states thus generated a second ‘level’ of control (‘emergent systems’ with ‘downward causation’).⁷⁰ Complex systems may well have ‘properties of the whole that are not found in the elements’,⁷¹ but that does not give them any unusual causal power. Dualism simply asserts that regardless of its origin and nature, there *is* a ghost in the machine, and that to a greater or lesser extent it is at the controls.

What has become necessary for the dualist with modern insight is a revision of understanding of where the boundary lies between essential soul and contingent personality. In this respect, far from undermining traditional belief, science may well have done Christianity a service. An area of concern for some Christians is what happens to a person’s standing before God if the balance of mind is disturbed. Great distress can be caused to relatives when a person of faith is so affected by dementia that all evidence of the original commitment appears to be lost. However, if the psychological phenomena are the result of effects on the brain beyond the control and outside the responsibility of the person affected, there is no reason to believe the soul has been compromised. To use my earlier analogy, it is a case of the driver being unable to control the vehicle because of some catastrophic mechanical failure as opposed to poor maintenance. The resulting accident may look the same, but the driver was not to blame.⁷²

69 Beauregard, M. & O’Leary, D. *The Spiritual Brain: A Neuroscientist’s Case for the Existence of the Soul*, New York: HarperOne (2007).

70 Murphy, N.C. & Brown, W.S. *Did My Neurons Make Me Do It?*, Oxford: Oxford University Press (2007).

71 Brown, W.S. ‘Resonance and dissonance – a response to Malcolm Jeeves’, *Science & Christian Belief* (2009) 21(1).

72 I am not claiming that a person’s nature is *necessarily* unaffected by brain damage. Damaging a piano will *certainly* affect piano-playing, but it *may* also affect the attitude of the piano player.

It may seem to the sceptical monist as if the dualist's soul is being squeezed into the last available gap of knowledge, possibly even where the experimentalist cannot reach. Prof. P. Clarke believes that 'the only kind of substance dualism that is still even remotely defensible in the light of modern neuroscience is a limited one, invoking a separate soul acting on the brain only for very particular aspects of our humanity such as free will'⁷³. But the reality is that the soul has been put back where it belongs – from filing clerk to chief inspector. It is not *what* we think, say, and do, that matter ultimately, or even *how* we do it, but *why*.

3. The Nature of Fundamental Theories

Since the advent of quark theory, physicists have been faced with the uncomfortable possibility that the deeper the level at which you try to explain phenomena, the more detached may be the theory from experiment. Quark theory was possibly the first generally accepted theory where the principal actor does not make an appearance on the stage. Not only have quarks never been observed; there are also theoretical reasons *why* they never will be.⁷⁴

Some of the most recent theories are even more remote from experimental verification. Supersymmetry, an elegant theory unifying all forces of nature, predicts the existence of a whole range of particles that are unobservable, and the many-worlds interpretation of quantum mechanics assumes the existence of an ever-increasing multiplicity of universes with which we cannot communicate. Admittedly many physicists are uncomfortable with these theories for the very reason that they are untestable in the areas of controversy. But we may have reached a level of scientific investigation where our desire for the ideals of testability will not be satisfied.

If this is so for the 'uncontroversial' world of fundamental physics, what reason have we to expect that it will not or should not be so for the world of the spiritual? Thus comments Stephen Barr on some of the more speculative theories of cosmology:

it is quite typical of such scenarios with many universes or domains that the entities they postulate cannot be directly seen by us. This is not something that should cause anyone to mock these ideas... one of them may someday be shown to be right. However, it should make religious believers less embarrassed by the fact that some of the entities they talk about also cannot be dragged into the laboratory.⁷⁵

⁷³ Clarke, P. 'Neuroscience and the soul – a response to Malcolm Jeeves', *Science & Christian Belief* (2009) 21(1).

⁷⁴ The energy needed to separate quarks in a hadron is sufficient to generate another quark-anti-quark pair, which will divide itself between the original combination and the separated quark, making a new meson, as in the case of pion production.

⁷⁵ Barr, S. *Modern Physics and Ancient Faith*, Notre Dame, IN: University of Notre Dame Press (2003).

P. Bussey identifies two reasons why consciousness should lie ultimately beyond the explanatory power of physics:

- I cannot experience your consciousness, since to do this I would have to be you. Physics... deals entirely in quantities that are definable and measurable objectively and publicly. There is no conceptual equipment in physics for *intrinsically private* things.
- There is no reference-point within physics for the conscious sensations themselves ('qualia'). Colours, musical notes,... may well be correlated with the behaviour patterns of neurons in the brain, but they are not *definable* in terms of these or any other physical items.⁷⁶

To these I would also add:

- Observation and explanation in physics are quintessentially processes linking two different domains, the rational and physical. The agency by which we do this is consciousness.⁷⁷ To ask for an explanation of consciousness is to put it in one of the domains, the physical, when it is by nature and necessity the link between the two.

If the soul is the ontological entity which actualises consciousness, then it must remain physically unobservable and unexplainable. Until monism, whether single or dual-aspect, can provide a kinetic theory of consciousness, dualism will remain on the menu.

Conclusions

- It seems difficult if not impossible to construct a non-reductive monism; reductive monism seems unacceptable philosophically and theologically.
- Scripture does not naturally favour monism in preference to a dualistic account of man.
- It is not necessary to assume that physics is hostile to the existence of an ontological soul.

It might therefore be premature to 'argue that Christians who have not already done so ought to join philosophers and neuroscientists in adopting a physicalist account of the person'⁷⁸. Some might not like what's on offer. The philosophers and neuroscientists are not all saying the same thing anyway.⁷⁹ And in what sense 'ought' Christians to conform in the manner suggested? *If*

⁷⁶ P. Bussey *op. cit.*, (30), 165-166.

⁷⁷ cf. Popper's three worlds, Popper, K. *Objective Knowledge*, Oxford: Clarendon (1972) 4.1.

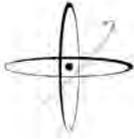
⁷⁸ Murphy, N. 'The Problem of Mental Causation', *Science & Christian Belief* (2002) 14(2), 143.

⁷⁹ e.g. the compatibilism described in Richmond *op. cit.*, (36) is a very different monism, in both form and implication, from that of N. Murphy; J. Eccles and K. Popper developed a philosophy of 'dualist interactionism', but have different views on the origin of souls/minds.

non-reductive physicalism is true *perhaps* they ought, as an *intellectual* obligation, *if* they understand *and* accept the arguments. But some philosophers at present do not believe non-reductive physicalism is internally consistent⁸⁰ So the 'ought' does not follow. If dualism is true, or might be, there is no good reason why Christians ought to believe in monism. If monism is true, this article has argued that there is no 'ought' about it. They will do what they are physically determined to do anyway.

John Turl was formerly Head of Science at Woodford County High School before retiring in 2007. He is a Fellow of the Royal Astronomical Society.

80 Kim, J. *Supervenience and Mind*, Cambridge: Cambridge University Press (1993).



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