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Developments in Neuroscience and Human Freedom: Some Theological and Philosophical Questions

Christianity suggests that human beings are free and responsible agents. Developments in neuroscience challenge this when wedded with two 'fideisms': 'naturalism' and 'nomological monism' (causality applies exclusively to basic particles). The wedding of Galen Strawson's denial that anything can be a cause of itself with a physicalist account of brain states highlights the problem neuroscience poses for human freedom. If physicalism is inherently reductionistic (Kim) and dualism struggles to make sense of developments in neuroscience, Cartwright's pluralist account of causality may offer a way forward. It integrates with thinking about the person from a Christian epistemic base and facilitates response to Strawson.

Key Words: God, person, neuroscience, freedom, naturalism, nomological monism, physicalism, dualism, causality.

Five years ago, the *Ethics and Public Policy Center* in Washington, hosted a conference on 'Neuroscience and the Human Spirit'. In his opening address, the organiser, Dr Frederick Goodwin, asked whether developments in the field do not pose a challenge to the 'very foundation upon which our civilization rests', namely, 'free will and the capacity to make moral choices?' The question I am seeking to address here raises the same issue with respect to the grounds of the Christian understanding of its message and, indeed, of what it is to be a person.

In the light of recent advances in understanding the physical workings of our neural substrate, the electrochemical nature of cerebral processing and so on, does it still make sense to conceive of our minds as the free cause of our actions and the conscious centre of human life? So much suggests that the workings of our minds require to be construed in radically physical and, apparently, impersonal terms – as a complex causal series of synaptic firings and the like. What appears to be at stake is the assumption which informs not only Christian faith and ethics but our everyday approach to life, namely, that we human beings are essentially free agents who initiate decisions and take responsibility for our actions. As Malcolm Jeeves' opening quotation from Ted Honderich makes clear, the issues raised are not simply of concern to Christians!

When these issues are raised within the context of Christian philosophical theology, certain presuppositions are already in place. To be a Christian is to be

defined by an event of recognition – the perception of God's Self-disclosure in the person of Jesus Christ. This recognition – that in Him we have 'God with us', the fullness of God dwelling bodily – is not the result of argumentation, or demonstration, or proof, or evidence.[1] Nor, indeed, is it the result of some blind and irrational leap of faith. Rather (and here all four Gospel writers, as also Paul and the 'deutero-Pauline' writers, are unanimous), it is an all-transforming event of recognition. It is a perception, an act of intellectual assent, that is given in, through and with the Self-disclosing presence of that same God. It is a recognition which, as Paul suggests, re-schematises our understanding and frames of reference so that we are given the eyes to see what otherwise we could not see, to recognise God's presence where otherwise recognition would not be possible[2] and, in and through this, to understand ourselves.[3] Christians also believe that this is God's world and that he has given minds that are able to penetrate its inherent God-given rationality which will not conflict with the person of the incarnate Logos 'through whom all things came to be, and we through him'.[4] This is not to deny, of course, that there will be problems and challenges along the way. However, to the extent that we believe that the Christian Gospel is true, we should also believe that it will not clash with the discoveries of hard scientific research. Where there appears to be tension, therefore, we should seek to understand why this is the case.

This brings us to the challenges posed by the neurosciences and the apparent conflict with Christian affirmations. Our first duty, I shall argue, is to distinguish between neuroscientific developments which appear problematic in and of themselves and the problematic interpretations of these developments from within foreign, 'epistemic bases' or interpretive frameworks. I shall suggest that when we detach the science from two related and widely influential fideisms, some of the more difficult problems lose their force.[5] The two fideisms

1 cf Matthew 16:16-18. The church is the community of those who recognise who Christ is – a recognition that flesh and blood cannot reveal (v 17) and which is fundamentally reconstitutive of who we are – Simon is renamed Peter (v 18).

2 cf Romans 12: 2. We are to be transformed by the renewal of our minds for the discernment of truth. The Greek brings out the connection between the *metamorphosis* of our minds (whereby we come to have that 'mind' which was in Christ Jesus) and the Greek word *metanoia* denoting a reorientation of our thinking (*noein*) such that it can penetrate *through* (*dia*-noein) to the being and reality of God, as Peter's did at Caesarea Philippi (see footnote 1).

3 John Calvin famously opens his *Institutio* with the statement, 'Nearly all the wisdom we possess, that is to say, true and sound wisdom, consists of two parts: the knowledge of God and of ourselves. But, while joined by many bonds, which one precedes and brings forth the other is not easy to discern.' Calvin, J. *Institutes of Christian Religion*, Battles, F.L. (trans.), McNeill, John T. (ed.) Westminster, (1960) Book 1, Chapter 1, Section 1, 35.

4 1 Cor. 8:6 (New English Bible).

5 I am using 'fideisms' here to denote the fact that both positions deny realities without sufficient access to the grounds required for such denials to be based in clear evidence. To assume/affirm that God does not exist, as naturalism does (while being unable to offer any kind of account as to why there is anything rather than nothing, for example), constitutes a kind of act of faith or conviction which transcends the kinds of evidence with which science has to do. To commit to the view that there can only be one very specific kind of law at work in the universe is again to commit to claims which transcend the remit of hard science.

to which I am referring are naturalism on the one hand and what is referred to as 'nomological monism' on the other. Both require to be rejected, indeed, if science is to be liberated from what becomes a kind of distortive cramp.

So what, briefly, is naturalism?

Naturalism, as Roger Trigg puts it, is the view that 'reality is wholly accessible (at least in principle) to the natural sciences' and that 'nothing… can exist beyond their reach'.[6] Similarly, Alvin Plantinga argues that naturalism assumes that, 'there is no God, and we human beings are insignificant parts of a giant cosmic machine that proceeds in majestic indifference to us, our hopes and aspirations, our needs and desires, our sense of fairness, or fittingness'[7].[8] As old as Lucretius, Plantinga comments, it is as contemporary as Davidson, Dawkins, and Dennett.[9] Although emphatically *not* demonstrated by science – and constitutive of a threat, indeed, to science's claim to truth – naturalism is a fundamental supposition of much that goes on in the 'natural sciences'. For Michael Tye, indeed, it is the inevitable assumption of scientific research in the cognitive sciences. 'The key idea in naturalism', he writes, 'is that the mental is a part of nature in the same way as the chemical, biological, and geological. … Psychology is a science no different in its procedures and laws from other sciences.' What this means, is that 'naturalism with respect to the mental, once

6 Trigg, Roger *Philosophy Matters*, Oxford: Blackwells (2001), p. 149.

7 Plantinga, Alvin *The Twin Pillars of Christian Scholarship*, (The Stob Lectures) Grand Rapids: Calvin College and Seminary (1990), pp. 9-10.

8 For David Ray Griffin, 'Scientific naturalism in the generic sense is the doctrine that there can be no supernatural interruptions of the world's causal processes.' 'Scientific Naturalism: A Great Truth that got Distorted', *Theology and Science* (2004) vol.2, no. 1, 9. Griffin goes on, however, to advocate naturalism to the extent that it excludes divine interruptions in the natural order – what he refers to as 'naturalismns'. 'I do believe that naturalismns, which simply rejects supernatural interruptions, is a great truth.', p. 27. This 'fideism' ('I do believe'!) involves no conflict with 'the primary doctrines of the Christian good news.'(p.9) The question which requires to be considered is the extent to which his naturalistic affiliations involve a selective reading of these primary doctrines and thereby self-confirming conclusions.

One of the most remarkable pieces of writing to appear on naturalism in recent years was written by Quentin Smith, Editor-In-Chief of *Philo: The Journal of the Society of Humanist Philosophers* who, in his article entitled, 'The Metaphilosophy of Naturalism', exposed with admirable candour how effective and cogent the arguments were which the Christian philosophers were producing against philosophical naturalism. cf *Philo* Vol 4, No 2 (2001).

9 It should be added, that 'naturalism' is notoriously difficult to define. As Thomas Bontly points out in 'Should Intentionality be Naturalized?', 'One would like to begin by analysing the meaning of the term 'naturalism,' but as it lacks the corpus of well-established ordinary-language uses that can be studied through intuition, conceptual analysis does not seem appropriate.' *Naturalism, Evolution and Mind*, Walsh, D.M (ed.), Cambridge: C.U.P. (2001), pp.51-52. What can be affirmed, however, is that reductionism belongs to the very essence of naturalism (cf Fodor, J. *Psychosemantics*, MIT (1987) 97) – it defines reality by excluding from consideration what is regarded as not 'natural' – that would normally include, as Plantinga and Trigg rightly point out, the 'supernatural'!

properly explicated, is really beyond question.'[10]

Clearly, one needs to enquire further as to what precisely this involves. However, in so far as this suggests that natural science must, theoretically, be able to provide a full and exclusive explanation of the mind, its operations and thus its content (as this includes intentions, reasoning, thought processes, the perception of God and ethical norms), naturalistic accounts are likely to find themselves in tension with Christianity. To the extent that naturalism is the conviction that one can offer a complete, grand unified account of the human with exclusive recourse to 'natural laws', it will inevitably be incompatible with Christianity and will inevitably be so whatever it is wedded to – be it neuroscience, moral philosophy, biblical interpretation or the Farmer's Almanac![11] It is imperative, therefore, that we not confuse neuroscientific discoveries with naturalistic readings of these. The second fideism, 'nomological monism', is the assumption that there is only one kind of causality that science can recognise, namely, that operating between basal particles or entities. We shall return to this later.

Finally to our question. How far is it the case that developments in neuroscience threaten to undermine our convictions that we are free, responsible and accountable agents, as is so widely feared? Clearly, it does just that *to the extent that* they are read as presenting the human self as constituted by a tight – indeed, closed – series of causal connections between successive brain states. In short, if a full and robust scientific account of our hard-wiring, our brain state at a particular time (T1) and all relevant stimuli constitutes a full and complete explanation of our brain state at (T2), then this would seem to imply that 'freedom' becomes a somewhat vacuous concept misrepresenting a process which is actually conceivable in purely deterministic terms.

This question has already generated a lively debate among British scientists who are Christians – one, indeed, which has been analysed and summarised by Malcolm Jeeves with characteristic clarity and insight in his book, *Human Nature at the Millennium*.[12] The terms in which the debate has been couched stem from the distinction that David Hume made famous, between the 'liberty of spontaneity' and the 'liberty of indifference'. The 'liberty of spontaneity'

10 There is, of course, much debate as to how reductionist naturalistic neuroscience must be. Shapiro, for example, advocates a naturalistic approach to psychology but operates with a less reductionist account.' The assumption that the cognitive scientist might reasonably adopt is that mental phenomena, even if irreducibly intentional, are nevertheless natural: On this view, cognitive science ought to be placed alongside, rather than beneath, other so-called natural scientists, for its subject matter, the cognitive scientist might insist is no less natural than the nonintentional subject matters of physics and chemistry.' Shapiro, L. 'The Nature of Nature: Rethinking Naturalistic Theories of Intentionality', *Philosophical Psychology*, 10, 315.

11 cf Alvin Plantinga's exchange with Frederick C. Crews, in 'Saving us from Darwin: An exchange', New York Review of Books, 29 November, 2001.

12 Jeeves, Malcolm *Human Nature at the Millennium*, Grand Rapids: Baker Books (1997), chapter 12.

refers to the subjective *sense* of non-compulsion ('non-violence', to use Hume's language) in one's actions – the sense that they are owned and directed in accordance with one's will. By contrast, the 'liberty of indifference' identifies freedom with an objective indeterminacy in the course of successive events – what Hume referred to as a 'certain looseness or indifference.'[13] Malcolm Jeeves explains the distinction in terms of two different accounts of our choosing to eat porridge:

1. According to the liberty of spontaneity, if we were to replicate on different occasions the identical circumstances in which a person chose to eat porridge for breakfast, 'the person would always choose porridge, since choosing porridge is what the person wanted to do.'[14]

2. According to the liberty of indifference, in replicated identical circumstances the person would retain the 'ability to take either porridge or stewed fruit' – to the extent that the decision is free, the argument runs, the decision could go either way.

So what is going on here? To start with the second interpretation of freedom first, the appeal of the 'liberty of indifference' is that it repudiates any tightly mechanistic account of human action where human actions risk being interpreted in a reductionistic way as determined *events* rather than *actions* within a wider causal nexus. It implies, as such, a genuine indeterminacy in human agency that allows the kind of space for responsibility which a mechanistic model leaves out. To the extent that it allows responsibility and accountability, it appears to open the door not only to moral culpability but also to rationality – to the extent that rational conclusions are held to be the result of free deliberation aimed at truth rather than the product of a tightly determined, mechanistic chain of events.[15] It is in relation to precisely this issue that a funda-

13 'Few are capable of distinguishing betwixt the liberty of spontaneity, as it is called in the schools, and the liberty of indifference; betwixt that which is opposed to violence, and that which means a negation of necessity and causes.' Hume complains bitterly about people's inability to distinguish between them! Hume, David *On Human Nature and the Understanding*, Flew, Antony (ed.) Collier-Macmillan (1962), p. 277.

14 Liberty of spontaneity means, thus, the person's doing what he wants to do free from pressure, compulsion or, as Hume would have it, 'violence'. The person here wants to eat porridge and does not *feel* compelled to eat it by some external force which does violence to his wishes. 'Liberty', that is, to be free, means no more than precisely that!

One might add that David Hume used the notions of liberty of spontaneity and of indifference to set up a *compatibilist* account. He saw the compatibility of liberty of spontaneity with determinism as a strength, not a weakness, for he thought that indeterminism threatened responsibility.

15 It should be noted here that not all libertarians accept that rationality requires indeterminism. (cf Richard Swinburne, for example, in *Evolution of the Soul* OUP 1986.) It may be argued, for example, that computers are not irrational for being deterministic. The implication of my argument, however, is that computers are not irrational but, rather, non-rational. They behave in predetermined ways programming the material fed into them in accordance with certain rules. To attribute rationality to a scientist, by contrast, implies the capacity to own and deliberate over insights and intuitions which constitute the free and self-critical, heuristic response to the self-prescriptions of 'Reality' – and where these prescriptions constitute a dialogical response, as it were, to questions put to Reality.

mental problem emerges for naturalistic approaches to neuroscience – making them vulnerable to Alvin Plantinga's famous 'evolutionary argument against naturalism'.[16] If we assume evolutionary naturalistic premises – that our brain states and operations are heteronomously programmed or determined by drives oriented exclusively toward fitness – then the kinds of claims we are evolved to make will be whatever claims are most likely to facilitate this fitness. Consequently, naturalistic claims must regard their own claims as the product of these drives – thereby weakening the suggestion that these are driven by a free, detached and ethically responsible concern for the truth of the matter whatever the implications of one's judgement with respect to one's fitness or flourishing. The connection between naturalism, neuroscience and questions regarding freedom and the truth question is supremely illustrated in a quotation from one of naturalism's leading advocates, Patricia Churchland:

> Boiled down to essentials, a nervous system enables the organism to succeed in the four F's: feeding, fleeing, fighting, and reproducing. The principle chore of nervous systems is to get the body parts where they should be in order that the organism may survive… Improvements in sensorimotor control confer an evolutionary advantage: a fancier style of representing is advantageous *so long as it is geared to the organism's way of life and enhances the organism's chances of survival* [Churchland's emphasis]. Truth, whatever that is, definitely takes the hindmost.[17]

The identification of freedom with indifference, however, poses a problem of its own – one that is found precisely at the point of its strength. If we correlate freedom with indifference, freedom is identified not as willing a desired end but as an arbitrary capacity to opt for an end whether it is desired (i.e. willed) or not. Free will comes to denote freedom without the will, that is, without the willing and thereby risks identifying freedom with the arbitrariness of whim –

16 cf. Alvin Plantinga's evolutionary argument against naturalism in *Warrant and Proper Function*, New York: O.U.P. (1993), chapter 12 esp pp. 228-237. It should also be noted that Plantinga's argument has notable critics – see Beilby, James, ed., *Naturalism Defeated? Essays on Plantinga's Evolutionary Argument Against Naturalism*, Cornell University Press (2002). Clearly it can be argued that an ability to discover truths about the physical world would indeed be helpful for human reproductive fitness. That having been said, however, it is not clear that evolutionary naturalism is such a truth – it is a philosophical theory that makes ultimate (fideistic) claims vis-à-vis the nature of reality. It is not clear how the ability to make veridical claims of this kind is likely to serve human reproductive fitness or be the happy result of any such adaptation.

17 Churchland, Patricia *Journal of Philosophy*, LXXXIV Oct 87, p. 548. (Cited by Plantinga). If Churchland is correct and the fitness of the species' nervous systems or brains is defined in terms of maximal evolutionary advantage, and if believing in God threatens to restrict the capacity for sexual expression, evolution is likely to deliver the species to a universal agnosticism. If, however, religious attitudes generate a more enthusiastic commitment to breeding and, thereby, further the species, then the more evolved people are, the more likely they are to embrace such religious attitudes. What becomes clear is that it will become impossible to assess whether Dawkins' truth claims suggest he is more or less fully evolved and it is not clear that anyone will be able to determine whether being more or less fully evolved is likely to engender claims more or less aimed at truth in this regard!

although even a whim is a kind of desire! This is what happens when one dichotomises between freedom and intention, freedom and desire – and it is far from clear that that ultimately serves the aim of sustaining moral responsibility and the infrastructure of truth. Far from being the zenith of human existence and the essence of morally responsibility, freedom conceived in these terms risks becoming the capacity to act unpredictably, counter-intuitively and in unreasoned or irrational ways.

Whereas the strength of the *first* option (the liberty of spontaneity) is its avoidance of any dichotomisation between freedom and desire or intention, it risks re-interpreting freedom in compatibilist – i.e. determinist – terms. This would mean that to suggest that the child abuser, rapist or tyrant is free translates to an acknowledgement that their actions are simply the uninterrupted outworkings of their brain states with respect to which no external constraints are registered when they commit their crimes. What is more, the rest of us are no more free with respect to the enactment of our contingent brain states when we imprison or punish them. It is not a major step from this position to suggesting that the whole business of human action is to be regarded as morally neutral. Both the extremes of human behaviour (of the Hitlers and the Mother Teresas), as also the sins and acts of deceit for which each of us 'is responsible', become an expression of diverse brain states with respect to which the relevant agents *have* no responsibility. The ramifications of the theological endorsement of such a position are clear – and, indeed, are held by a number of Calvinist theologians. Every act of murder, rape and child abuse, not to mention the holocaust *in toto,* requires to be seen as concretely and specifically willed, decreed and determined by God. The One who says 'Suffer the little children to come unto me' is the one who 'simultaneously' in Eternity programmes millions of people throughout history to torture, abuse, rape and murder them![18]

'Ought implies can'

It was precisely the implications of determinism for moral accountability that led Immanuel Kant to argue that freedom was a necessary condition of accountability. Whereas freedom can neither be proved nor demonstrated, it requires to be postulated. If there is no real freedom, there is no morality – 'Ought implies can.' This, however, is a dictum which cuts two ways and the recent work of Galen Strawson serves to present us with the essence of the challenge to the notion of moral responsibility and accountability that neuroscientific research serves to highlight given its implications for the possibility of free agency. For Galen Strawson (the son and leading critic, indeed, of the

18 Clearly, Molinist accounts or the 'free will defence' cannot be appealed to here. No defence of God can be offered by suggesting that he chose to create the actual world having considered the ramifications of all the counterfactuals of freedom in all possible worlds since the kind of 'freedom' which such approaches assume simply does not exist on this account.

famous compatibilist philosopher, P. F. Strawson), given that the morally significant aspect of who we are is our brain states and given that nothing (not least a brain state) can be a cause of itself, we *are not* and *cannot be* morally responsible for our actions. His arguments, indeed, go to the nub of the freedom problem that is highlighted when persons are conceived as a mere succession of causally related brain states.

The Essential Form of Strawson's argument[19]

(1) Nothing can be a *causa sui* – [that is] nothing can be the cause of itself.

(2) In order to be truly morally responsible for one's actions, one would have to be *causa sui*, at least in certain crucial mental respects.

(3) Therefore, nothing can be truly morally responsible.

The Argument Itself

(1) Interested in free action, we are particularly, even if not exclusively, interested in rational actions, (i.e. actions that are performed for reasons), and wish to show that such actions are or can be free actions.

(2) How one acts when one acts rationally (i.e. for a reason) is, necessarily, a function of, or determined by, how one is, mentally speaking.

(3) If, therefore, one is to be truly responsible for how one acts, one must be truly responsible for how one is, mentally speaking…

(4) But to be truly responsible for how one is, mentally speaking…one must have chosen to be the way one is, mentally speaking… (One must have consciously and explicitly chosen to be the way one is, mentally speaking…, and one must have succeeded in bringing it about that one is that way.)

(5) But one cannot really be said to choose, in a conscious, reasoned fashion, to be the way one is, mentally speaking, in any respect at all, unless one already exists, mentally speaking, already equipped with some principles of choice, 'P_1' – with preferences, values, pro-attitudes, ideals, whatever – in the light of which one chooses how to be.

(6) But then to be truly responsible on account of having chosen to be the way one is, mentally speaking… one must be truly responsible for one's having *these* principles of choice P_1.

19 This is an adapted version of Martin O'Neill's distillation of Strawson's underlying argument (2001) which can be accessed on a Harvard web-site:
http://www.people.fas.harvard.edu/~mponeill/ethics/freewill.html, retrieved, January 24, 2004.
For an overview of the issues associated with freedom by Galen Strawson, see his 'Free will', in Craig, E. (ed.), *Routledge Encyclopedia of Philosophy*. London: Routledge (1998), retrieved January 24, 2004, from http://www.rep.routledge.com/article/V014

(7) But for this to be so one must have to have chosen them, in a reasoned, conscious fashion.

(8) But for this, i.e. (7), to be so, one must already have had some principles of choice, P_2, in the light of which one chose P_1.

(9) And so on. True self-determination is logically impossible because it requires the actual completion of an infinite regress of choices of principles of choice.[20]

What Strawson has sought to provide is a *reductio ad absurdum* of the claim that human beings are morally responsible. This serves to highlight the problems that emerge when human beings are defined in terms of successive brain states. Although its implications are far more wide-ranging, it serves to define the challenge to freedom which stems from the neurosciences. Why? Because the fundamental problem with reconciling free autonomy with the identification of the self with brain states is that any attempt to introduce responsibility seems to commit us to this infinite regress. It seems particularly problematic to suggest that a brain state can be a cause of itself. Every brain state requires to be understood in the light of a previous brain state. To the extent that a brain state is 'brought about', the morally relevant cause of that is to be understood as the intentionality identified as the brain state at T^{-1} and the cause of that intentionality, the brain state at T^{-2}… and so on.

In sum, it makes no logical sense to suggest that 'the buck stops' with the self[21]. So, does contemporary neuroscience require us to assume that the buck just doesn't stop – that it no more stops with the billiard player, than it stops with the cue or, indeed, the billiard ball? Here lies, in part, the appeal of a dualist anthropology. Although mind-body dualism does not address the logical force of Galen Strawson's argument (which can be argued to apply even to God), it appears to help the situation of a soul or mind lying somewhere 'behind' or 'above' the physical brain states that neuroscience studies, suggesting, thereby, that the self transcends the subject-matter of neuroscience and may constitute, *to some degree*, some kind of *causa sui*. In short, it appears to postulate an origin of actions that transcends the succession of physical states and of which it may be said that the buck stops – or starts! What must be pointed out, however, is that the problems that this solution generates vis-à-vis causality, individuation, the mapping of the mental on to physical brain states and so on are immense – too extensive, indeed, to allow exploration here![22]

20 Strawson, Galen *Freedom and Belief*, Oxford: Clarendon (1986), pp. 28-29.

21 cf. the recent interview with Galen Strawson entitled, 'The Buck Stops – Where?' first published in *The Believer*, March 2003 and reproduced on the naturalism website: http://www.naturalism.org/strawson_interview.htm, retrieved, January 24, 2004.

22 This is not to suggest that all philosophers think the relevant problems are insuperable. Richard Swinburne is a dualist who has offered a vigorous defence of the position against the kinds of concerns to which I am alluding. cf. Swinburne, R.G. *The Evolution of the Soul*, Oxford: Clarendon (1986).

Finding a way forward – Kim, Cartwright and Rockwell[23]

In recent years, an alternative position has been advocated by the likes of Nancey Murphy and other non-dualists which is referred to as *non-reductive physicalism*. This approach espouses physicalism, thereby seeking to take neuroscience and what it tells us about the brain seriously, while refusing to accept the reductionistic implications to which I have referred. Although this position found instant popularity, Jaegwon Kim of Princeton set out to offer a repudiation of the position in two significant books, *Supervenience and the Mind* (CUP, 1993) and *Mind in a physical world: an essay on the mind-body problem and mental causation* (MITUP, 1998).

Non-reductive physicalism, he argues, sets out to hold two theses simultaneously. On the one hand, it holds that thoughts, intentions, fears and so on ('functional properties') cannot be reduced to physical properties. On the other hand, it holds that all causality is nonetheless physical – that is, all causal relations take place between purely physical entities.[24] What Jaegwon Kim demonstrates very simply is that you can adopt either a physicalist approach or a non-reductivist one but you cannot have both.[25] The reason is explained by means of the following simple diagram:

M causes M*

P causes P*

One mental event (M) causes another mental event (M*). The first mental event might be a thought of the following kind: 'Because I travelled to London this weekend, I reneged on my commitment to take my sons climbing in Glencoe.' The second mental event (M*) is a thought caused directly by the former, for example, 'I shall take them to Glencoe next Saturday.' The first thought (mental event) brought about the second. It *caused* it indeed!

If non-reductive physicalists are to hold to physicalism in interpreting this succession of events then, Kim suggests, the mental event 'M' requires to be understood as 'physically realised' in the form of a physical brain state, namely, 'P', and 'P' requires to be understood as causing brain state 'P*', that is, the physical realisation of the mental event 'M*'. But, as Kim then shows, 'M causes M*' becomes superfluous on this account. That is, it fails to contribute anything. The simple reason for this is that P can cause P* all by itself. Not only is no help from M required, it is not possible. Why? Because, M *cannot in*

23 This section replicates material from my chapter, 'What is a Person?' in Jeeves, Malcolm (ed.) *From Cells to Souls – and Beyond*, Eerdmans (2004).

24 This section is based on and draws extensively on Teed Rockwell's particularly perceptive analysis and summary of Kim's position in his article, 'Non-reductive Physicalism' in the web-based *Dictionary of the Philosophy of Mind*, ed. Eliasmith. http://www.artsci.wustl.edu/~philos/MindDict/, retrieved January 24, 2004.

25 Kim, Jaegwon *Supervenience and the Mind*, Cambridge: Cambridge University Press (1993), pp. 351-352.

and of itself cause anything![26] Put simply, on all physicalist accounts, physical causality is all there is, and, as Rockwell explains, 'mental descriptions are somewhere between being shallow and being outright falsehoods'.[27]

The only alternatives, for Kim, therefore, are:[28]

1) Dualism, which regards M and M* as being independent of P and P* since they characterise entirely different substances;

2) Reductionism, which identifies mental events with physical events;

3) Eliminativism, which is the view that mental phenomena such as beliefs, desires and other conscious states do not exist – a view that is also, one might add, hoist on its own petard to the extent that it involves making the claim that there are no claims![29]

4) Mental Epiphenomenalism which affirms the existence of mental events M and M* but denies that they have any causal powers – a position which Kim regards as self-contradictory.[30]

This places the so-called non-reductive physicalist on the horns of a dilemma. The first position is non-reductive but clearly not physicalist. The second is physicalist but highly reductive. Neither option is thus satisfactory.

So what is Kim's alternative? Kim is a physicalist – albeit a very anxious one. He thinks that all higher level causation (for example, the kinds of causation we associate with thoughts, ideas – i.e. mental events) ride 'piggy-back' (to use Loewer's expression), on more basic causal interactions.[31] When we think that a complex entity like a thought or a personal commitment is having a direct causal impact on another person, for example, this is only apparent. The real causal relation belongs exclusively to the simplest, the most basic physical constituents of these entities. That is, he ends up denying causality to anything other than the most elementary physical components. He writes, 'all causal relations involving observable phenomena – all causal relations from daily experience – are cases of epiphenomenal causation'.[32]

In short, nothing more complex than the smallest, sub-atomic entity can have any causal power. No emergent structures such as thoughts or deliberation or logical argument or other such processes can have any causal effect on

26 That is, without P's help – without P causing P*.
27 Rockwell, *op. cit*. [24]
28 Here again I am utilising Rockwell's summary.
29 cf. Georges Rey's contribution, 'Eliminativism', in the *Routledge Encyclopaedia of Philosophy*, Vol 3, 263.
30 Kim bases his argument here on Samuel Alexander's conviction that '*Being real and having causal powers go hand in hand; to deprive the mental of causal potency is in effect to deprive it of its reality.*' (p. 130) It makes no sense therefore to speak of events which can have no causal status, function or role.
31 Loewer, Barry 'Mental Causation', *Routledge Encyclopaedia of Philosophy*, vol 6, 310.
32 Kim, *op. cit*., p. 96.

anything whatsoever. They are merely 'epiphenomena'. Whereas complex individuals, be they human agents, animals, flies, billiard balls or arguments, may appear to have causal efficacy, in actual fact they have none. No complex individual can have any kind of capacity for 'downward causation'. What this means is that no philosopher or neuroscientist's argumentation can *per se* have any causal impact whatsoever on anything or anyone!

Rehabilitating emergent causal processes.

Kim presents us with a choice. We can opt for physicalism, accept its reductionist consequences and interpret all mental events as riding piggy-back on ('supervening' upon) the only kind of causality that has any reality. Or we can return to Cartesian dualism.

But might there not be a third way forward? As Teed Rockwell argues, immense problems emerge when we opt for a physicalist denial of emergent causal processes. To reduce all causality to the nexus of causal relationships between absolutely basal or microscopic entities generates highly counterintuitive results. For example, when Dan Murphy mocks Joanna Bloggs' red hair with the result that she reports him to the teacher for cheating in his maths exam, the only real causal events taking place are those basic causal connections between all the individual sub-atomic particles (that is, quarks… or whatever quarks are composed of[33]) which compose Murphy, Bloggs, the sound transmissions and the maths exam. In fact, we are really talking about myriad interactions between sub-atomic particles that recognise no causally relevant boundaries whatsoever between Murphy, Bloggs, their skin molecules, the air molecules that surround it and all that constitutes the maths exam, whatever physical particles these might be. Put simply, causality on this account does not recognise individual entities of any kind, either conscious or non-conscious, with any degree of complexity whatsoever. All the relevant subjects and objects in this statement are epiphenomena that have no causal status or relevance in and of themselves.

Clearly, such an account raises a whole host of questions not the least of which are the following: how can this kind of approach make any sense of how the mind can think through complex theoretical arguments where each step along the way leads conceptually or deductively to the next? How can such conceptual links possibly be explained exclusively in terms of a series of causal relationships between basic physical particles?

33 Rockwell likens Kim's requirement that causal entities require us to penetrate beneath all macroscopic 'epiphenomenal' patterns to basal causal entities as being like peeling away endless layers of onion skin. See 'Non-reductive Physicalism' cited above.

A question of causation

In 1999, the eminent philosopher of science and fellow of the British Academy, Nancy Cartwright, wrote a book in philosophy of science that serves to suggest an interesting alternative to dualism and physicalism, namely, 'pluralism'. This is the view that patterns emerge in physical processes which have genuine causal powers. In support of this, she repudiates the 'fundamentalist' assumption that 'all facts must belong to one grand scheme'[34] whereby the world is understood in terms of the operations of one single kind of causal law – what she describes as 'nomological monism'.[35] Rather, it requires to take account of diverse patternings and interactive processes. What this suggests is a highly complex world – what she describes as a 'dappled world' characterised by a 'patchwork of laws'.[36] This is a world in which there is a variety of macroscopic patterns which have a causal impact on the shape of things – precisely as Malcolm Jeeves argues in the section of his paper on 'Top-down effects'. As Rockwell points out, some of these 'would be able to control the particles they were made of, rather than exclusively the other way around…' He adds, 'Mental processes could be one kind of emergent phenomenon, but not the only one.'[37] Our mental processes, therefore, become simply 'one of many different kinds of emergent properties'.[38]

The fundamental question round which this whole debate about neuroscience, brain states, mental causation and moral responsibility revolves, therefore, can now be seen to concern the question *where precisely causal properties are located*. Do they only belong to physical objects? If so, are they only to be found at the level of microscopic physical entities? Or are they to be found at the level of complex entities, that is, of higher level patternings? If this is the case, might they not also be found at the level of still higher and more complex kinds of reality like 'minds' or, indeed, 'persons'. Persons would then be seen as a) having genuine causal powers; and b) emerging from but not identical with mental states.

As Rockwell points out, 'Kim has shown us that if we are willing to say that causal properties emerge anywhere between quarks and minds, we have no reason to deny causal powers to minds.' Whereas Kim's world-view suggests they are only to be found at the level of quarks, Cartwright articulates a world in which emergent causal processes are to be found involving a variety of different kinds of complex objects which exist at diverse 'levels' of complexity.[39]

34 Cartwright, Nancy *The Dappled World: a Study of the Boundaries of Science*, Cambridge: Cambridge University Press (1999), p. 25.
35 Cartwright, Nancy, *op. cit*.[34], pp. 32-33.
36 Cartwright, Nancy, *op. cit*.[34], p. 25.
37 Rockwell, *op. cit*. [24].
38 Rockwell, *op. cit*. [24].
39 The language of 'levels' is potentially problematic and should be treated with caution, as Malcolm Jeeves rightly warns in his conclusions.

Conclusion

It is imperative that we do not confuse scientific claims with those of the naturalism in which they are so often couched – to do so is, quite simply, unscientific. Acknowledging this led us to ask whether neuroscientific claims pose a problem *in and of themselves* for the concepts of freedom and accountability so significant for Christian belief. An analysis of the insights but also the problems associated with the liberty of spontaneity and the liberty of indifference served to define the fundamental questions. First, there is the argument (so tidily presented by Galen Strawson) that a brain state can never be the cause of itself. Secondly, there are the inherently reductionistic consequences of physicalism when it is wedded to the view that causality only functions at one level, that is, between basic physical particles.

The recognition of this led me to suggest that the fundamental issue regarding the perceived challenges of neuroscience concerns how we think of causality and causal agency. Particularly pertinent here is Nancy Cartwright and Teed Rockwell's argument that complex entities like persons, thought processes and economic trends can possess causal powers. All such entities are inextricably related to (even emergent from) the physicality of the contingent order but take on causal agency of different kinds.

This suggests that, contra Galen Strawson, the human person may perhaps be seen as a *causa sui*, albeit in a highly qualified sense. If physical entities may indeed give rise, as Cartwright and Rockwell suggest, to complex entities which possess causal powers vis-à-vis the molecular components from which they emerge, then there may be a form of causal agency which undermines one aspect of the force of Galen Strawson's critique.[40] Strictly speaking, the resulting position would be neither physicalist nor dualist. It would be pluralist in the sense that it acknowledged irreducibly diverse facets of reality which were in causal interaction with each other implying the need to differentiate between various kinds of causal interaction. Causal relations between minds or between steps in an argument or between trends in fashion or popular music would require to be distinguished from causal relations between billiard balls or quarks. At the same time however, none of the forms of interaction referred to here could be conceived in abstraction from causal relations between 'material' entities. What it is particularly pertinent to notice is that this opens the door to an approach which takes the results of neuroscience – and thus our physicality – radically seriously while simultaneously denying that neuroscience can, in and of itself, provide a grand unified theory of the person.

In conclusion, I should like to suggest that thinking from a humanist epistemic base requires us to conceive of a world that is considerably more complex

40 Such an approach opens the door to emergent levels of selfhood which have causal agency with respect to passions, desires, commitments and so on – which are no less than constitutive of who we are!

than the strictures of the prevalent naturalistic, deterministic and reductionistic forms of physicalist account allow. It is a fortiori the case, therefore, that thinking from a Christian epistemic base should make one that much less surprised by the richness and variety of the contingent laws and structures of this world – a world in which human beings are created to love, to take responsibility, to pray and to respond to God's free and dynamic engagement with humanity. What should be clear, therefore, is that Christians involved in science – as also in academic theology – should have the courage to disentangle the genuine deliverances of objective scientific research from the confused and restrictive epistemic bases in which these deliverances are so often couched and from which their ramifications are so widely interpreted. This is necessary not simply for the proper interpretation of the Christian faith but for the well-being of science itself.

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