Panpsychism

1. What is Panpsychism?

The term 'panpsychism' refers to a range of doctrines whose core assertions are that mentality is ontologically fundamental and ubiquitous. Mentality is fundamental in the sense that it can neither be explained in terms of anything else nor be reduced to anything else. To say that mentality is ubiquitous is to say that every aspect of concrete reality partakes of mentality in some way or in some measure. The commitments of panpsychism can be further clarified by contrasting it with other accounts of mind. Cartesian substance dualism accepts that the mental is fundamental but denies its ubiquity. According to Descartes, minds are self standing entities which 'attach' to only a tiny fraction of the material bodies in the world. While mind cannot be explained in physical terms and can exist independently of the physical world, the physical enjoys the same status with respect to minds. Minds and bodies are, so to speak, co-fundamental on the Cartesian view. Standard modern forms of physicalism deny both that the mental is fundamental and its ubiquity. Physicalists split on whether mentality can be *explained* in physical terms[1], but must agree that the physical is the ontological foundation of the world and that mentality is in some way an expression of the physical. Reflection on this division reveals an obvious third possibility, the 'inverse' of physicalism, in which mentality is ontologically fundamental and the physical is in some way an expression of mental reality. Such a view would be a kind of panpsychism but not a form commonly encountered under that label. More frequently, panpsychism endorses the co-fundamental status of matter and mind insofar as it allows there are features of the world which are non-mental. Panpsychism is also not generally a view in which mentality is taken as 'substantial'. It is more natural to regard panpsychism as expressing the view that, roughly speaking, everything exemplifies certain mental *properties*. However, it is an important and distinctive claim of many panpsychists that the 'object / property' metaphysics we take for granted is fundamentally mistaken and must be replaced with another metaphysical vision of the basic structure of reality.

Probably the best way to locate panpsychism within the mind-body problem is to see it as the counter-position to emergentist views of mentality (of which modern physicalist theories are all examples[2]). Modern commonsense bridles at the claim that planets, trees, rocks, atoms or electrons possess mental attributes. In particular, the modern scientific world view has it that all things are ultimately constituted of fundamental, simple and purely physical entities which possess a relatively small number of basic attributes such as mass, charge and spin. There is no place for and no need to postulate that these physical building blocks have any mental properties whatsoever. And yet it is certain that some of the composite objects – such as ourselves – made from quarks, electrons and the other fundamental physical entities *do* exemplify mental properties. Therefore, the modern scientific viewpoint has to endorse some form of emergentism.

While any conception of emergence requires that composite things have properties which their components lack, the proper characterization of emergence remains controversial. Theories range from the highly radical (such as those espoused by the so-called British emergentists, see McLaughlin 1992 for an excellent survey; see also Blitz 1992) to benign accounts that see emergence as nothing more than

1 Non-reductive physicalists deny that there is any explanation of mentality in purely physical terms, but do not deny that the mental is entirely determined by and constituted out of underlying physical structures. There are important issues about the stability of such a view which teeters on the edge of explanatory reductionism on the one side and dualism on the other (see Kim 1998).

2 Save perhaps for eliminative materialism (see Churchland 1981 for a classic exposition). In fact, however, while eliminative materialism is willing to declare beliefs, desires and other intentional mental states mere fictions of primitive proto-theorizing, consciousness itself has never been seriously attacked (but see Dennett 1991, especially ch. 12).

complexity, perhaps of a high enough degree to forestall all attempts at practical prediction and explanation (on such accounts, the weather is an emergent feature of the physical processes we call the atmosphere, see Holland 1998).

From the point of view of the panpsychist, the problem with emergence is that radical forms seem highly implausible and no less mysterious and opposed to modern common sense than panpsychism itself, while benign forms seem incapable of explicating the generation of mentalistic features such as consciousness from the mere complex interplay of the available physical features.

2. The History of Panpsychism

Panpsychism is a truly ancient doctrine that can probably be traced back to the animism that seems to have been universally accepted by our distant ancestors, and which we still see naturally and spontaneously occurring in our children. Philosophical and science-based articulations of it have persisted throughout our intellectual history, down to the present day (see Skrbina 2005 for a detailed account; see also Seager and Hermanson 2005). As a distinctive philosophical doctrine, panpsychism was advanced by several of the presocratic philosophers of ancient Greece. One of the earliest, Thales (c. 624-545 BCE), deployed an analogical argument to extend mind beyond the obviously conscious people and animals. Thales noted that creatures with minds were 'self-movers', but then observed that other things, notably magnets and amber were also capable of self-motion under certain conditions. We have very few of Thales's writings, but Aristotle tells us that Thales extended the argument to claim that 'everything is full of gods' and Diogenes reports that Thales believed that 'the universe is alive and full of spirits'.

The presocratics understood the panpsychism-emergence dynamic (see Mourelatos 1986). The emergentist line of thought culminated with the atomism of Democritus (c. 460-370 BCE), in which more complex elements of reality were formed from a set of ultimately simple atoms which could interlock in a variety of ways. On the other hand, Anaxagoras (c. 500-425 BCE) flatly denied the intelligibility of emergence and instead maintained a kind of universal mixing theory in which 'everything is in everything'. Interestingly, mental features alone did not allow of admixture of the other qualities although everything possessed a portion of mind within it (see Barnes 1982). It is tempting to interpret Anaxagoras as thereby endorsing both the fundamentality and ubiquity principles of panpsychism. However, he did not draw the conclusion that *everything* had a mind – a seemingly paradoxical admission which is in fact a recurring claim amongst panpsychists.

The rise of 'Aristotelian Christianity' through the middle ages was not conducive to panpsychism, until in renaissance the doctrine regained its prominence (see Skrbina 2005, ch. 3). But it was the birth of the mechanical world view associated with the scientific revolution that really forced the issue between emergence and panpsychism. Galileo famously tried to sweep the problem of mind under the rug with his distinction between primary and secondary qualities, but this could only temporarily put off the need to integrate mind into the burgeoning scientific picture of the world. Of course, Descartes's dualism was the most obvious approach: simply and totally hive off mind from the physical world, permitting only such minor 'leakage' between the two realms as necessary for free human action and sensory consciousness. Cartesian dualism is deeply unsatisfactory with its totally mysterious causal interaction between completely disparate substances, especially as the interaction threatens some of the most fundamental principles governing the physical world, such as conservation of energy. Philosophers were quick to find alternative views of mind, and panpsychism figured in two of the most prominent.

It was Spinoza's view that both mind and matter were but merely two attributes of an underlying, infinite and infinitely complex substance (which Spinoza notoriously identified with God). Every material thing has its mentalistic aspect, and vice versa. As Spinoza wrote: 'a circle existing in nature and the idea of the

existing circle, which is also in God, are one and the same thing ... therefore, whether we conceive nature under the attribute of Extension, or under the attribute of Thought ... we shall find one and the same order, or one and the same connection of causes ...' (1677/1985, Prop. 7, scholium). In terms of the core principles of panpsychism, Spinoza clearly holds that mind is fundamental, though not uniquely so, and ubiquitous – there is nothing that is not, when considered from the appropriate viewpoint, mentalistic in its nature.

Leibniz's philosophy can be seen as a kind of splintered mirror of Spinoza's. Perhaps to avoid the heretical features of Spinoza's views (e.g. making each of us literally a part of God and identifying God with nature) Leibniz replaces the single supreme substance with an infinity of diverse finite substances and one separate infinite substance. These are *monads* and each one is what Leibniz called an 'incorporeal automaton' (Leibniz 1714/1989, §18) in the sense that each contains within itself the complete cause of its succession of states (which Leibniz called its perceptions to emphasize their mental nature). Each monad is completely independent of every other thing, requiring only God for its creation and endurance. There is no element of nature that is not associated with a set of monads, but Leibniz introduced an important distinction between what he called organisms and mere aggregates. A mere aggregate corresponds to a set of monads which is not hierarchically organized; an organism by contrast is an organized set of monads under one dominant monad. For example, your body is made of organs, which have sub-organs, in an hierarchical organization which subserves its biological functionality. The corresponding system of monads reflects this organization, expressed in the clarity and perspective of the information possessed by each monad in the hierarchy. Thus while your body has a corresponding dominant monad that is your conscious mind, a heap of sand has no such 'top' monad but corresponds merely to the set of monads of the smallest organized units constituting it (grains of sands are likely to be themselves mere aggregates but perhaps the molecules are organisms in Leibniz's sense).

Each monad contains within it a complete specification of the entire universe from a particular viewpoint, expressed with more or less clarity. A monad that was incomplete could fit into more than one possible world, putting God into an impossible dilemma about which world to create insofar as He is governed by the principle of sufficient reason. So why is it that we, for example, find ourselves ignorant about so very much?

To answer this, Leibniz deployed another novel (for the time) and important distinction: that between conscious and non-conscious mental states. The mental lives of most monads are almost entirely unconscious, consisting of 'petite perceptions'. Fully conscious states are introspectible and form what Leibniz called 'apperceptions'. Even monads with rich conscious lives, such as ourselves, are aware of only a tiny fraction of our mental states. From the point of view of articulating the forms of panpsychism the introduction of this distinction naturally bifurcates the theory, but also imposes two great conceptual difficulties. The first is to give a characterization of the mental which captures its essential mental aspect without using the notion of consciousness. The second is to describe the relation between the unconscious and conscious mental states, and this leads to fundamental problems which threaten to undercut the supposed advantage that panpsychism has over emergentist views.

It must also be noted that Leibniz did not agree with Spinoza on the co-fundamentality of matter and mind. For him, the physical world was a 'well founded illusion' or logical construction from the sum total of all monadic points of view. This is a kind of idealism, but not of the usual sort (such as Berkeley's or the later so-called absolute idealists). For Leibniz allows that every thing which we regard as a material being (a speck of dust or a single unobservable atom) has its corresponding mental aspect which grounds it. More typical idealists regard objects such as dust motes as mere constructs of the conscious states of full-fledged minds.

The 19th century was the heyday of panpsychism, though generally of the idealist form. Idealism was the

'received' metaphysical viewpoint; materialism was but a minor and disreputable pursuit. The founders of scientific psychology: Gustav Fechner, Wilhelm Wundt, Rudolf Lotze and William James, to name a few, were all panpsychists of one stripe or another. Many embraced a double or multi-aspect view of the world, in which everything possessed both a mentalistic and physicalistic side, but the mental aspect was frequently regarded as the more fundamental (for pure idealists this goes without saying). James, for example, while endorsing a dual aspect view he called 'neutral monism' added in a notebook written in 1909: ''the constitution of reality which I am making for is of the psychic type' (see Cooper 1990).

The tension between emergentist and panpsychist positions culminated in the early to mid 20th century with several sophisticated theories of emergence that strove to integrate the incredible advances that were being made in the physical sciences into a coherent metaphysical view of the world (see Morgan 1923, Alexander 1927, Broad 1925; for a survey see McLaughlin 1992). These emergentists clearly made the crucial distinction between epistemological and non-epistemological forms of emergence. The latter involves 'merely' the impossibility of our understanding in detail how complex systems behave, even if we grant that their behaviour is completely determined by the purely physical properties of the fundamental entities that constitute the world. The former, often called radical emergence, entails the production of genuinely novel, causally efficacious features of the world, stemming from the combination of fundamental components. Writing at about the same time as these emergentists, Alfred North Whitehead's (1929) 'process philosophy' represented the last and most sophisticated development of panpsychism within the context of a complex, overarching and revisionary metaphysics (for an introduction to Whitehead's panpsychism see Griffin 1998).

But emergentism fell rapidly out of favour as the new quantum mechanics promised to reveal how the heretofore primary example of uncontroversial emergence, chemistry, could be in principle reductively understood in terms of basic physics. This development led in turn to a vigorous renewal of materialist views of the mind so that, somewhat paradoxically, the death of emergentism was not the victory of panpsychism. Rather, both accounts were supplanted by a vigorous and fruitful materialist research project in philosophy seeking to duplicate, at a very abstract level, the successful treatment of chemistry in the realm of the psychological. Just as chemical properties arise from entities which entirely lack them, so too would mental properties be seen to arise from entirely non-mentalistic physical constituents. This philosophical project began with 'logical behaviourism' (see Carnap 1932/33), proceeded to the psycho-neural identity theory (see Smart 1959, Place 1956) and has led to a host of successor physicalist accounts of mind (see Kim 2006 for a survey). It has proved surprisingly difficult to produce an acceptable version of materialism however, and the problem of consciousness has loomed recently as especially recalcitrant (see Chalmers 1996). In fact, the so-called hard problem of consciousness, the problem of explaining exactly how material systems generate, realize or constitute states which have phenomenal character (states for which there is 'something it is like' to be in them) has seemed to some so difficult that a renewed interest in more radical approaches, such as emergentism and panpsychism, has appeared and it is in this light that we ought to consider the arguments for and against panpsychism.

3. Some Arguments for Panpsychism

Roughly speaking, the arguments in favour of panpsychism can be divided into three broad categories: genetic arguments, analogical arguments and arguments from 'intrinsic nature' (for a much more comprehensive list of arguments see Skrbina 2005). Genetic arguments focus on the issue of emergence or the question of how mental features could arise from a non-mental background. As noted, this argument goes back to ancient times and it has retained its appeal to the present. The argument can be given in either an a priori form or in more empirical versions.

The structure of the a priori argument can be expressed very straightforwardly, if somewhat elliptically:

1. If Mind is emergent then it is either or epistemologically or non-epistemologically emergent.
2. Mind is not epistemologically emergent.
3. But no non-epistemological form of emergence is coherent.
4. Therefore, mind is not emergent, and must therefore be fundamental.

Notice that this argument does not quite establish panpsychism, since it does not yield the ubiquity principle.

Thomas Nagel presented a clear form of the argument, in which the lynchpin principle (2) is stated thus: 'there are no truly emergent properties of complex systems. All properties of complex systems that are not relations between it and something else derive from the properties of its constituents and their effects on each other when so combined' (1976, 182). Thus the only coherent form of emergence is an epistemological doctrine about the limits of our understanding of complex systems coupled with an appreciation for the usefulness of high-level explanatory systems which we must deploy in the face of intractable complexity. However, it is not altogether clear why Nagel denies that some of the 'effects' which arise from the combination of low level physical entities are not or could not be radically emergent. The classical emergentists would have agreed with the *letter* of Nagel's principle, but not the spirit. They allowed that emergence was a lawlike feature of the world, but denied that it was the effect of fundamental physical properties working by themselves. Instead, the world exemplifies underivable 'laws of emergence' that govern the combinatory properties of physical entities. As C. D. Broad put it, such a law 'would be a statement of the irreducible fact that an aggregate composed of aggregates of the next lower order in such and such proportions and arrangements has such and such characteristic and non-deducible properties' (Broad 1925, p. 78). It must be noted though that many if not all of the currently fashionable views of emergence in the sciences of complexity seem to be consistent with the purely epistemological reading of emergence (and to resist going beyond it), and to that extent Nagel's argument carries some weight.

Recently, Galen Strawson (forthcoming) has argued for the incoherence of radical emergence, roughly on the grounds that the only kind of emergence of Y from X that makes sense is one in which 'Y is in some sense wholly dependent on X and X alone, so that all features of Y trace intelligibly back to X (where 'intelligible' is a metaphysical rather than an epistemic notion)'[3].

Perhaps the issue of the coherence of radical emergence comes down to the question of whether it is possible to articulate a sense of dependence in which emergent features are both dependent on low level features but are not merely the product of these low level interactions working 'by themselves'. Opponents will deny that there is any legitimate kind of dependence that can be explicated without showing how the low level features have within themselves the power to produce the emergents, thus demoting radical emergence to the merely epistemological.

I am inclined to think however that such a conception of dependence is at least barely coherent, which can be shown by a computer simulation thought experiment. Imagine that we have a working computer simulation of fundamental physics. To some minor extent we have this already; it is, for example, possible to approximately compute the mass of the proton from the fundamental physics of quark interactions using the theory of quantum chromodynamics (plus a host of simplifying assumptions and a few years full time effort by a supercomputer). But what I am thinking is a purely imaginary extension of such computational systems that ignores the practically insuperable difficulties of complexity and encompasses the presently unavailable 'theory of everything'. The point of the thought experiment is that

3 A similar argument was given by S. Pepper (1926), although Pepper seemed to allow for radical emergence if the emergent features were physically epiphenomenal. For a reply see Sellars and Meehl (1956).

we know that computer programs will provide outputs that depend entirely and only upon the nature of their coded algorithms. If we code into the system only the principles of state evolution and interaction of the fundamental physical features then the output will be just what those features can give rise to according to the theory we are simulating. In a world containing only epistemological emergence, we would expect that such computer simulations would exactly mirror the behaviour we observe in the macroscopic world. But if radical emergence was at work, we would expect an inexplicable divergence of real world behaviour from the behaviour of the simulation.

A scenario in which we have good reason to suppose that our fundamental theories are correct and in which simulated behaviour diverges from real behaviour seems perfectly coherent. The fact that computers run the exact code provided them obviates the issue that computers themselves might have emergent properties. It seems possible that we would opt for accepting a simpler fundamental theory with radical emergence rather than necessarily declaring that the fundamental theory is mistaken simply because of the divergence of simulated from actual behaviour. In such a case, we would have to add certain 'laws of emergence' that would impose new constraints on the simulation when certain complex configurations of the fundamental physical entities arise. We might find that once the laws of emergence are in place within the simulation, no further divergence in behaviour between the simulation and actuality ever occurs. Therefore I think we can give some real content to the idea that dependence can be preserved within a system that endorses radical emergence.

However, while this model may legitimate the concept of radical emergence, it does not go beyond addressing the mere existence and efficacy of emergents. It does not in any way at all tell us how conscious states – that is, states with phenomenal character – could emerge from the entirely non-conscious. In fact, radical emergentists deny that such an understanding is possible. Emergence must be accepted with, in Samuel Alexander's phrase, 'natural piety' as a pure brute fact. While all theories rest upon some brute facts (e.g. the values of certain physical constants) it is passing strange that the generation of something so remarkable as consciousness should be brutely contingent on extremely special configurations of vast numbers of precisely organized physical matter, such as we find in the human brain's exquisitely networked 100 billion neurons. If the creation of states of consciousness is contingent upon the formation of such astonishingly complex and intricate physical states, it is hard not to believe that they occur *because* of the intricate organization and hence can, in principle, be explained by it. But this would mean that consciousness would turn out to be a merely epistemological emergent. Such a view runs afoul of the obvious reply that 'nothing comes from nothing' and that all that the intricate organization of fundamental physical entities can produce is intricate organization and correspondingly intricate patterns of causal relations which are all ultimately resolvable into the causal connections present at the most fundamental level of physical reality. Patterns of organization, however, are manifestly not the same as conscious experience or, at least, the claim that certain very special and very complex patterns of material organization *are* conscious states is precisely the kind of bizarre brute fact we are trying to avoid. This line of thought is, in fact, taken to provide a rich support for their theory by panpsychists. But before turning to that, we should examine the more empirical version of the genetic argument.

The rapid success of Darwin's theory after its introduction in 1859 transformed debate about life and mind. The genetic argument for panpsychism here rests on the idea that evolution is a gradual process which slowly and incrementally modifies preexisting features via natural selection. Yet the advent of consciousness into a world utterly devoid of experience represents a giant discontinuity. The smallest, vaguest twinge of *feeling* is something radically different from the properties of insensate matter. William Clifford put it thus: '... we cannot suppose that so enormous a jump from one creature to another should have occurred at any point in the process of evolution as the introduction of a fact entirely different and absolutely separate from the physical fact. It is impossible for anybody to point out the particular place in the line of descent where that event can be supposed to have taken place.' (1874/1886, p. 266). Such

considerations also moved William James, who wrote that 'we ought ... to try every possible mode of conceiving of consciousness so that it may not appear equivalent to the irruption into the universe of a new nature non-existent to then' (1890/1950, p. 148). The empirical content of this argument is that Darwinian evolution is the mechanism of emergence (at least within the biological realm). But then it is clear that all emergence will be of the epistemological variety, and will not suffice to account for the generation of consciousness.

Turning briefly to the argument from analogy, the basic idea is to find some feature of matter which suggests – hopefully strongly suggests – some fundamental similarity with mentality. It is unfortunately difficult to come up with anything along these lines which is at all convincing (see the remarks on Thales above). Some, including Whitehead, have seen in the indeterminacy of modern quantum physics an echo of freedom of will, but the pure randomness of quantum indeterminacy seriously weakens this analogy. Perhaps a more promising avenue is the role of *information* in quantum physics. The entangled states which express what Einstein derisively labeled 'spooky action at a distance' suggest that it is information rather than causal connection which grounds at least some of the fundamental constraints at work in the physical world. One might then hope that there is some kind of proper analogy between quantum information and the intentionality of mental states. For example, mental intentionality is *underived*, that is, it does not depend upon interpretation, convention or other derivative methods of assigning meaning. Presumably, the kind of informational connections lurking in the quantum world are similarly underived (this does not preclude quantum states having standard derived intentionality via our interpretation of them, as in the pioneering use of quantum systems to perform standard computations). However, it is difficult to provide much real content to the analogy, at least as things stand now. It is also conceivable that work on the measurement problem in quantum mechanics will implicate consciousness at the fundamental level (see Wigner 1962, Lockwood 1989).

Another argument in favour of panpsychism depends upon the idea of 'intrinsic nature'. This argument has close links to the genetic argument, but goes further in attempting to spell out what makes the emergence of consciousness seem so preposterous. Although the argument is far from novel, it has been recently revived and advocated in Rosenberg (2004) and Strawson (forthcoming)[4]. The argument assumes a distinction between relational and intrinsic properties, which although intuitively acceptable is notoriously difficult to spell out precisely, and in particular on the concept of dispositional properties (which are a species of the relational). For example, we say that an electron has a negative charge of about 1.6×10^{-19} coulombs, but what this means is that the electron is disposed to move in such-and-such a way in an electric field of such-and-such a strength. The intrinsic nature of electric charge remains utterly mysterious. And yet it seems reasonable to think that every dispositional property stems from underlying intrinsic properties. Of these, with respect to the fundamental physical constituents of the world, we know absolutely nothing, since physics deals only with the dispositional properties of matter. This is a long standing position. Both Eddington and Russell, among others, agree that 'science has nothing to say as to the intrinsic nature of the atom' (Russell called the dispositional properties of matter 'mathematical properties'). This led Eddington to assert further that we know nothing of atoms which 'renders it at all incongruous that they should constitute a thinking object' (1927, 259 [both quotations]) and to adopt a panpsychist understanding of matter.

We might put the argument in another way, as follows. Matter must have an intrinsic nature to ground its dispositional properties. We know nothing of this nature, and in fact the *only* intrinsic nature with which we are familiar is consciousness itself[5]. It is arguable that we cannot conceive of any other intrinsic nature because our knowledge of the physical is entirely based upon its dispositions to produce certain

4 Rosenberg argues further that we must accept a more radical revision of our metaphysical views than stems just from the intrinsic nature argument and revamp our conception of causality itself.

5 Russell put the point with characteristic bluntness: 'everything we know of [the world's] intrinsic character is derived from the mental side' (1927, 402).

conscious experiences under certain conditions. Of course, we can *assert* that matter has a non-experiential intrinsic nature which is utterly mysterious to us, but this would seem to make the problem of emergence yet more difficult. An emergentism which made the generation of consciousness intelligible would be one that showed how experience emerged from what we know about matter, that is, from its dispositional properties. But it seems impossible to see how the dispositions to move in certain directions under certain conditions could give rise to or constitute consciousness, save by the kind of brute and miraculous radical emergence discussed above. If granting some kind of experiential intrinsic aspect to the fundamental physical entities of the world eliminates this problem, it might be worth the cost in initial uncomfortable implausibility.

Before turning to argument opposed to panpsychism, its worth noting that the arguments advanced so far do not establish the ubiquity principle of panpsychism, even if it was granted that they made the case for fundamentality. Strawson (forthcoming) argues that the most economical viewpoint endorses ubiquity in the absence of any reason to withhold mental properties from just *some* of the fundamental physical entities (why, after all, if we go so far as to grant electrons some kind of mentalistic aspect would we balk at making a similar grant to neutrinos). And, in the absence of any alternative intrinsic nature to assign to putatively non-mentalistic fundamental physical entities, it would seem reasonable to assign them all a mental nature.

4. Arguments Opposed to Panpsychism

The simplest, and for most quite compelling, argument against panpsychism is that it is intuitively absurd to suggest that electrons, atoms, rocks, planets etc. have minds or any kind of consciousness. Our experience with everyday physical objects gives no hint that they might possess hidden psychological depths. But panpsychism is by no means obliged to grant mind or experience to all such things. As we have seen, even if the fundamental entities that constitute the world (which are physical) have a mentalistic aspect, it does not follow that every composite made from them is similarly endowed. Leibniz's distinction between mere aggregates and 'organic unities' can stand the panpsychist in good stead here to deflect the first onslaught of incredulity. But what of the fundamental features themselves? They do not show any very noticeable signs of a mental life. In reply to this, the panpsychist can note that the sort of primitive and extremely simple sort of consciousness which the fundamental entities presumably enjoy is something of which we have little understanding, so it is not clear what would count as revealing their mental aspects. More important, why should we expect that the fundamental entities should show any sign at all of a mental attribute? Gravitation is taken to be a fundamental feature of all physical things and yet we do not expect that an individual electron will provide the slightest evidence that it generates a gravitational field.

A more serious objection turns the aggregate/unity distinction against the panpsychist. A natural interpretation of the deployment of this distinction assumes that there is some combinatory principle by which the simplest psychological features come together to form the kind of complex minds we are familiar with. Of course, this is the problem of emergence re-appearing. William James, though eventually endorsing a panpsychist philosophy, presented this objection to good effect:

> Take a sentence of a dozen words, and take twelve men and tell to each one word. Then stand the men in a row or jam them in a bunch, and let each think of his word as intently as he will; nowhere will there be a consciousness of the whole sentence ? Where the elemental units are supposed to be feelings, the case is in no wise altered. Take a hundred of them, shuffle them and pack them as close together as you can (whatever that might mean); still each remains the same feeling it always was, shut in its own skin, windowless, ignorant of what the other feelings are and mean. There would be a hundred-and-first feeling there, if, when a group or series of such

> feeling were set up, a consciousness *belonging to the group as such* should emerge. And this 101st feeling would be a totally new fact; the 100 original feelings might, by a curious physical law, be a signal for its *creation*, when they came together; but they would have no substantial identity with it, nor it with them, and one could never deduce the one from the others, or (in any intelligible sense) say that they *evolved* it (1890/1950, p. 160, original emphasis).

This is a powerful objection, but it's worth noting that Leibniz would not have been troubled by it. For him, each mind is a separate, self-standing entity which is not *composed* of sub-minds, even though the material object to which it corresponds can be thought of as, in a certain sense, thus composed. Nonetheless, most panpsychists accept that there is mental emergence. Whitehead embraced this, as explained by Charles Hartshorne, one of his most prominent followers and an important panpsychist of the later 20th century: 'it is the destiny of the many to enter into a novel unity, an additional reality' which means that Whitehead makes the 'admission not merely of emergence, but of emergent or creative synthesis as the very principle of process and reality' (1972, p. 162).

The panpsychist however, can deny that this emergence is of the incoherent radical sort discussed above. For it is not so hard to see mind as becoming more complex via organization of already mentalistic features. After all, could we not parody James's remark thus: take 10^{23} molecules of H_2O and then jam them in a bunch and let them each vibrate and move as intently as they will: nowhere will there by any liquidity ...? Yet we know, more or less, how liquidity does emerge from the ceaseless jostling of the individual molecules. This is merely epistemological emergence, and arguably it cannot explicate the relation between an insensate sort of matter and mind. But the emergence of complex minds from the joint activity of already experiential components is perhaps easier to understand, especially in light of the fact that the simple part-whole reductionism which James seems to be presupposing has been undercut with the introduction of the superposition principle in quantum mechanics. Some emergentists have seen this as a way to revive the idea of radical emergence (see Silbertstein and McGeever 1999), but superpositions seem to be no more than rather special combinations of the preexisting properties of motion, mass, spin, etc. Nonetheless, the idea might point to a way to understand the combinatory powers of intrinically mentalistic fundamental features of the world (see Seager 1995).

Another complaint against panpsychism arisesfrom what is called the causal *closure* of the physical (see Kim 1998 for extensive discussion of this concept and its implications). The physical world seems to be causally complete in the sense that every event has a purely physical determining cause (or, if indeterminism is allowed, a cause which fully determines the statistics of possible effects). The addition of mentalistic features to the fundamental entities of the physical world would thus be causally otiose and consign mentality to the status of epiphenomena (see note 3 above). But, in the first place, this argument threatens to make all emergent features epiphenomenal since their 'effects' can be completely explained in terms of the underlying fundamental physics. One might reply here that the emergent properties retain efficacy because these properties simply *are* compositions of certain fundamental, and efficacious, features. If so, the panpsychist can adapt this reply. The fundamental *dispositional* properties of matter are just a reflection of its mentalistic intrinsic nature; calling them physical with the implication that they are entirely non-mental comes close to begging the question.

Finally, there is a methodological problem with panpsychism. It is a purely metaphysical doctrine with no distinctive empirical consequences. As Nagel put it, panpsychism has 'the faintly sickening odor of something put together in the metaphysical laboratory' (1986, p. 49). The methodology of the physical sciences is of course to put together empirical hypotheses that can be tested in experiment and which explain and predict empirical findings. Within philosophy, there has grown up a kind of shadow of this empirical methodology which is often labeled 'naturalism', which is the game of providing answers to philosophical problems using conceptual material drawn from and acceptable to the natural sciences. To advance a panpsychist understanding of the mind-matter relationship is thus against the rules of

naturalism. Now, I think naturalism is a great game and that it is important to see how far we can get in our understanding of the world within its confines. To embrace panpsychism would be to give up on the game and this would be, given our current exploding but still very rudimentary understanding of the neurological conditions underlying mental activity, dangerously premature.

But there is no real danger of that, as the empirical sciences of the mind have never been healthier and, in itself, panpsychism does not in any undercut these sciences or want to impose on them any methodological strictures. The philosophy of mind also remains in a very healthy, extremely unsettled state, which will not suffer from the occasional expedition into the metaphysical wilderness. Panpsychism reminds us of certain very difficult problems that beset naturalism and it stands as a perennially interesting metaphysical position which may yet turn out to be the best way of understanding the fundamental nature of mind and matter.

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