

PANEXPERIENTIALIST PHYSICALISM AND THE MIND–BODY PROBLEM

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Abstract: The intractable (not merely hard) mind–body problem, which involves accounting for freedom as well as conscious experience, is created by the assumption that the brain is comprised of insentient things. Chalmers is right, accordingly, to suggest that we take experience as fundamental. Given this starting-point, the hard problem is twofold: to see sufficient reason to adopt this long-despised approach, and to develop a plausible theory based on it. We have several reasons, I suggest, to reject the notion of ‘vacuous actuality’ and to adopt, instead, the view that all true individuals have experience and spontaneity. After suggesting criteria for an acceptable theory, chief among which are ‘hard-core common-sense notions’, I point out why dualism and materialism have been unable to fulfil these criteria. The strength of dualism has been its organizational duality, the strength of materialism its rejection of ontological dualism. I suggest that panexperientialist physicalism, by allowing for ‘compound individuals’ and thereby a ‘nondualistic interactionism’ that combines these strengths, can provide a theory that overcomes the problems of materialist physicalism.

I: The Conceptual Dimension of the Problem

As pointed out by David Chalmers (1995, p. 200), the ‘mind–body problem’ or the ‘problem of consciousness’ is not simply one problem but many, and to make progress it is essential to get clear on exactly which problem we are addressing. The fundamental distinction to be made, I suggest, is that between the various scientific or empirical problems, on the one hand, and the strictly philosophical or conceptual problem, on the other. The conceptual problem can be formulated neutrally as the question, ‘How is it conceivable that conscious experience arises from the brain?’ This problem, however, is not usually understood merely in this neutral way, but in terms of the ‘brain’ under a particular construal: especially since the time of Galileo and Descartes, the brain has been understood to be composed of insentient (non-experiencing) entities. Having said that consciousness is ‘the hard nut of the mind–body problem’, Colin McGinn (1991, p. 1) provides an example of this nonneutral construal of the problem, asking: ‘How could the aggregation of millions of individually insentient neurons generate subjective awareness?’ This speculative presupposition, which is shared by materialists and dualists alike, is what turns the mind–body *relation* into the mind–body *problem* as usually understood, namely: how could (conscious) experience conceivably arise out of that which is totally devoid of experience? Given this nonneutral, speculative formulation, the mind–body problem is intractable. In Thomas Nagel’s (1979, pp. 188–9) terms: ‘One cannot derive a *pour soi* from an *en soi*. . . . This gap is logically unbridgeable.’

The distinction between the empirical and the conceptual problems corresponds closely to Chalmers’ distinction between the ‘easy’ problems and the ‘hard’ problem. The latter, furthermore, seems divisible into neutral and nonneutral aspects. The first aspect is simply the (neutral) question as to why we (and evidently other organisms) have conscious experience. This question is rightly said to be different in kind from all the empirical questions, which are ‘problems about the observable behaviour of physical objects’ (1995, pp. 203, 209). This aspect of the problem is said to make it

‘hard’ in the sense that it is not ‘directly susceptible to the standard methods of cognitive science’ (p. 200). It is the second aspect of the conceptual problem, however, that seems to lie behind Chalmers’ claim (p. 200) that ‘there is nothing harder to explain’: after endorsing Nagel’s characterization of states of experience (‘there is something it is like to be them’), Chalmers (p. 201) asks: ‘Why should physical processing give rise to a rich inner life at all? It seems objectively unreasonable that it should.’ That statement seems to presuppose (for the sake of stating the *really* hard problem) the speculative view of McGinn (and almost everyone else) that brain activity consists of processes that are ‘physical’ in the sense of being wholly insentient, completely devoid of any inner, experiential reality. That assumption does indeed make it ‘objectively unreasonable’ that conscious experience should arise.

Chalmers is absolutely right that the empirical and conceptual dimensions of the problem of consciousness are different in kind, and that much confusion and wasted effort have resulted from the failure to recognize that methods appropriate to the former dimension are in principle not sufficient to deal with the latter. No amount of empirical data can by itself solve a conceptual problem. I would not agree, however, with Chalmers’ characterization of the two dimensions as (respectively) the ‘easy’ and the ‘hard’ problems. On the one hand, some of the empirical problems will surely prove to be extremely difficult: Even Chalmers’ (p. 201) statement (in relation to his caveat that ‘easy’ is a relative term) that some of these problems ‘will probably take a century or two’ may well turn out to be optimistic — and this point is in addition to the fact that, as E.J. Lowe (1995) has argued, these problems are not really separable from the problem of phenomenal experience. On the other hand, the basic conceptual problem, if soluble at all, can be solved from the armchair (although empirical discoveries may help suggest the key to the basic problem and may even, when it comes to working out the details of a constructive position, prove to be essential). Whether it *is* soluble depends, as it were, upon the perspective allowed by one’s particular armchair. In other words, the conceptual problem, rather than being hard, is either *relatively easy* or *completely intractable*, depending upon the philosophical assumptions with which it is approached.

The idea that the conceptual problem is intractable, given the hitherto dominant assumptions, has been gaining ground. Dualists and materialists have, of course, always held the problem to be intractable from each others’ starting-point. Recently, however, the apparent intractability of the problem from their own perspective as well has been confessed by some representatives of both materialism (McGinn, 1991, pp. 1–2, 7; Robinson, 1988, p. 29) and dualism (Lewis, 1982, pp. 38–9; Madell, 1988, pp. 2, 140–1), including epiphenomenalism (Campbell, 1984, p. 131). If the problems of mental causation and freedom are considered integral to the mind–body problem (as they should be), then more names are on the list of those speaking of intractability (Kim, 1993, p. 367; Nagel, 1986, pp. 110–7, 123; Searle, 1984, pp. 86, 98). In formulating this more inclusive version of the problem, John Searle (1984, p. 13) succinctly brings out the presupposition that makes it intractable (although *he* considers this presupposition an established scientific fact, not a metaphysical speculation): ‘We think of ourselves as conscious, free, mindful, rational agents in a world that science tells us consists entirely of mindless, meaningless physical particles.’ My position is that these philosophers (along with the eliminativists) are correct: given the (Cartesian) assumption, shared by dualists and materialists alike, that the ultimate

units of nature are wholly devoid of experience and spontaneity, it is impossible to make sense of consciousness and freedom.

II: A New Approach and its Problems

I agree, accordingly, with Chalmers (1995, p. 204) and others (McGinn, 1991, pp. 2, 104; Nagel, 1986, pp. 8–10; Searle, 1992, pp. 26, 49) that a constructive solution, if possible at all, will require a radically new approach. I also agree with Chalmers with regard to the basic direction that this new approach must take: while holding to a position that is still recognizably physicalist, we should ‘take experience itself as a fundamental feature of the world’ (p. 210). Given this ontological hypothesis (I add), the conceptual aspect of the mind–body problem could be solved far more readily than most of the empirical problems. There is, interestingly enough, agreement on this point by the philosopher who has most forcibly declared the problem of consciousness permanently insoluble: McGinn (1991, p. 28n) has said that, if we could suppose them to have proto-conscious states, it would be ‘easy enough to see how neurons could generate consciousness’. While not endorsing this approach himself, McGinn (p. 81) has cited a passage in Kant that provides a possible starting-point for it. In this passage, Kant (1965, p. 381/B428) said of the problem of the communion of soul and body:

The difficulty peculiar to the problem consists . . . in the assumed heterogeneity of the object of inner sense (the soul) and the objects of the outer senses. . . . But if we consider that the two kinds of objects thus differ from each other, not inwardly but only in so far as one appears outwardly to another, and that what, as thing in itself, underlies the appearances of matter, perhaps after all may not be so heterogeneous in character, this difficulty vanishes.

The apparently insuperable problem would disappear, suggested Kant, if we held that mind and body are in themselves of the same nature, and that the idea that they are different in kind results from observing them from different vantage points: mind from within, matter from without. Whatever the status of this proposal within Kant’s own thinking, a solution to the mind–body problem can most likely be found, I propose, by beginning with this basic idea, while working it out in a way that differs greatly from the Leibnizian version with which Kant was familiar.¹

I have suggested, in fact, that with such a starting-point a solution to the basic conceptual problem is relatively easy. Like Chalmers, however, I stress the ‘relatively’. The hard problem from this perspective will be twofold. First, although the panexperientialist starting-point overcomes what has thus far been considered the heart of the mind–body problem, it has obviously not been easy for philosophers and scientists to see why we should adopt that starting-point. Second, even when the basic idea is accepted, it is far from obvious how to work out this idea in a plausible way (as illustrated by the failure of Leibniz, hardly a dimwit). That these are indeed severe difficulties is shown by the reception panexperientialism (usually called ‘panpsychism’) has received thus far. Although some version of it has been proposed by a number of first-rate philosophical and scientific minds (such as Leibniz, Fechner, Lotze, Peirce, Bergson, James, Whitehead, Hartshorne, Sewall Wright and David

¹ One of the central problems of Leibniz’s doctrine is alluded to in the final words of the above quotation from Kant (which were replaced by the ellipses): ‘the only question that remains being how in general a communion of substances is possible’. Kant was referring to the Leibnizian doctrine that all ‘monads’ are ‘windowless’, meaning that they cannot perceive or influence each other.

Bohm), it is scarcely considered in mainline discussions of the mind–body problem. Virtually everyone assumes that we must choose between some version of dualism (including epiphenomenalism) and some version of materialism. Thanks partly to Nagel — who believes that some version of panpsychist physicalism must be true but also suspects it to be ‘unintelligible’ (1979, pp. 181–2, 188–9; 1986, pp. 49–50) — some contemporary philosophers do mention it. But they usually dismiss it quickly as ‘implausible’ (Seager, 1991, p. 241n),² ‘extravagant’ (McGinn, 1991, p. 2n), or even ‘outrageous’ and ‘absurd’ (McGinn, 1982, pp. 31–2). Panexperientialism clearly has an uphill battle.

In the remainder of this essay, I will suggest one way of dealing with panexperientialism’s twofold problem. The next two sections will be devoted to the first part, namely: why should we suppose the ultimate units of nature to embody experience and spontaneity? The fifth section will discuss the failure of dualism and materialism with regard to some criteria that an acceptable theory should satisfy. In the final section, I will sketch out a theory that I call ‘panexperientialist physicalism’, seeking to show that panexperientialism, at least in this version, is far less implausible and far more helpful than has generally been supposed.

III: Why Should We Be Suspicious of Vacuous Actuality?

Dualists and materialists agree (against idealists) that ‘the physical world’ is actual, and they also agree on the nature of the actualities comprising that world. They both accept a materialistic analysis, according to which these actualities, at least the most elementary ones, are wholly devoid of experience. We can, following Whitehead (1978, p. 167), call this the idea of ‘vacuous actuality’.³ This idea has seemed so self-evident in the modern period, since the time of Galileo, Descartes and Newton, that no special name for it, beyond ‘realism’, has been deemed necessary. To be a realist, holding the physical world to exist apart from our perceptions and conceptions of it, has been virtually identical with accepting the reality of ‘matter’ understood as vacuous actuality. In the present section, however, I will mention seven reasons for at least entertaining suspicions about the reality of vacuous actualities. I will then, in the following section, suggest four positive reasons for adopting an alternative form of realism, according to which experience and its spontaneity, like the lady’s turtles, go all the way down.

To begin with a purely philosophical reason to be sceptical of vacuous actualities: In the foregoing discussion, I suggested that this idea of nature’s ultimate units is at least as speculative as the idea that these units experience. I now point out that it is even *more* speculative: we know from our own experience that experiencing actualities can exist, but we have no experiential knowledge that a vacuous actuality is even possible.

² I had completed this essay prior to the appearance of William Seager’s excellent article in this journal, in which he defends a version of panpsychism (albeit with ‘great diffidence’), providing various considerations that, he now believes, ‘ameliorate its implausibility’ (1995, pp. 279, 283n).

³ As will become increasingly evident, my position draws heavily on that of Alfred North Whitehead. While I have tried to keep this essay relatively free of Whiteheadian technical terms, I have developed my position much more fully *as* an explication of Whitehead’s philosophy in Griffin (1997).

Closely related is Berkeley's question: What does it *mean* to say that physical things exist? Berkeley pointed out that our immediate experience provides only two meanings of 'to be': to perceive (*percepere*) and to be perceived (*percipi*). Simply to be perceived, however, is not to be actual but to be merely an idea in the mind of some perceiver. Only 'being a perceiver' (which for Berkeley included the notion of being an active agent) gives us a meaningful notion of what it is to be an actuality. Berkeley, of course, used this argument for his idealist view, according to which the physical world exists only as perceived (by divine and finite minds); but Leibniz, by positing 'petite perceptions' in nature's elementary units, showed Berkeley's point to be compatible with realism. As Whitehead (1967a, p. 132) says, Leibniz 'explained what it must be like to be an atom' (now there's a title for an essay!). It can, of course, be pointed out that we cannot say *very* much about what it must be like to be a bat, let alone an atom. But to be able to say only a little bit about what we mean by believing that such things are actual, existing in themselves (apart from our perceptions and conceptions of them), is better than being able to say nothing at all.

A third reason is the recognition, recently emphasized by historians of science, that the 'mechanical philosophy of nature', according to which the units of nature are wholly devoid of experience, spontaneity, and the capacity for influence at a distance, was adopted in the seventeenth century less for empirical than for theological-sociological reasons, such as defending the existence of a supernatural deity, the reality of supernatural miracles, and the immortality of the soul (Easlea, 1980, pp. 100–15, 125–38, 233–5; Klaaren, 1977, pp. 93–9, 173–7). For example, this idea of nature's elementary units, according to which they were wholly inert and (in Newton's words) 'massy, hard, and impenetrable', proved (to the satisfaction of Boyle, Newton and their followers) that motion and the mathematical laws of motion had to have been impressed upon these particles at the beginning of the world by an external creator. The fact that this strategy eventually backfired, as this idea of matter eventually led to an atheistic, materialistic worldview, has long obscured the original theological motives. Now that we know them, however, we have an additional reason for suspicion.

The philosophy of science gives us a fourth reason, which is that science, like any other activity, abstracts from the things it discusses, focusing only on those aspects germane to the questions being asked. As Chalmers (1995, p. 217) says, 'physics characterizes its basic entities only *extrinsically*, in terms of their relations to other entities. . . . The intrinsic nature of physical entities is left aside' — which is reminiscent of Whitehead's (1967b, p. 153) 'physics ignores what anything is in itself. Its entities are merely considered in respect to their extrinsic reality'. This insight is ignored when Searle, for example, says that 'science tells us' what the ultimate units of nature are like in themselves. It does no such thing. It tells us about those aspects of those entities that its methods have been suited to reveal, and those aspects, for all 'science' knows, may well be abstractions from the full reality of those entities. Simply to equate those abstractions with the concrete entities themselves is to commit what Whitehead (1967b, p. 51) called the 'fallacy of misplaced concreteness'.

A fifth point is that our direct experience, phenomenologically analysed, also gives no evidence of vacuous actualities. Some dualists and materialists seem to consider it obvious that some actualities are devoid of experience. John Beloff (1994, p. 32), for example, says that, 'when it comes to unicellular organisms, I am confident that they are devoid of all consciousness whatsoever' (which seems to mean all experi-

ence whatsoever). Perhaps they think they can know this simply by looking; but, of course, our sensory perceptions do not tell us what things are in themselves. McGinn may seem to be giving such an argument when, to support his claim that the brain is 'utterly unlike' our experience, he describes the latter as 'damp grey tissue' (1991, pp. 100, 27). His argument, however, is more sophisticated. He is pointing out that our senses 'essentially present things in space with spatially defined properties' (p. 11), the relevance of which is that purely spatial entities cannot intelligibly be thought to have experience (pp. 13, 60, 79). McGinn is right about these matters, but his pessimism about the problem of consciousness is partly grounded in the further assumption that sensory perceptions constitute our most direct observations of nature. Our sensory percepts of nature, however, arise from an extremely complex, indirect process. When a surgeon, having cut open a skull, looks at and touches the patient's brain, the percepts symbolized by the words 'damp' and 'grey' result from chains of billions of neuronal (and in vision photonic) events, plus the mysterious process through which the data received from the neurons get transmuted into the sensory percepts. A far more direct experience of nature is the surgeon's experience of his or her own body, through which the perception of the patient's body is mediated — a point that I will develop below in providing positive reasons for thinking of nature's units as nonvacuous. The negative point here is that, given the fact that sensory perception is a very complex, constructive process, the fact that it presents us with a purely spatialized nature may tell us more about sensory perception than it does about the nature of nature itself.

At this point, however, one could well counter: 'True, we cannot directly perceive that physical entities do not have experience, or even that they do not have temporal duration. Another necessary basis for reasonably inferring that anything has experience, however, is that it appear to be capable of spontaneity or self-motion. Our paradigmatic examples of physical things, such as rocks, tables and planets, seem to be completely inert. The attribution of experience to them, therefore, would be baseless.' The answer to this problem illustrates the way that empirical discoveries can be very relevant to the conceptual dimension of the mind-body problem. The relevant discoveries here, such as those resulting in cellular and atomic theories, have shown that things devoid of signs of spontaneity are not simply individuals but large clusters, or aggregational societies, thereof. For a considerable time, of course, it was assumed that the more ultimate units were to be understood by analogy with those visible things: atoms were essentially like billiard balls, only a lot smaller. The chief philosophical implication of quantum physics, however, has arguably been to show the falsity of that assumption (Capek, 1991). A sixth reason to be sceptical about vacuous actualities, accordingly, is that science has increasingly undermined what had probably been the main basis in everyday experience for inferring their existence, the assumption that the ultimate units of nature must be analogous to the 'solid material bodies' that Popper & Eccles (1977, p. 10) take as 'the paradigms of reality'.

Because it is so crucial to the issue of plausibility, I should emphasize a point implicit in the previous paragraph: that to affirm some version of panpsychism or panexperientialism does *not* necessarily entail attributing experience to things such as sticks and stones as such (as distinct from their unitary constituents). The idea that this conclusion *is* entailed has provided the primary grounds for dismissing it out of hand. For example, the charge by McGinn (1982, p. 32) that panpsychism is 'absurd'

is based on his assumption that it implies that ‘rocks actually have thoughts’, and the similar charge by Popper & Eccles (1977, p. 55) that it is ‘fantastic’ follows from his assumption that it attributes feelings to things such as telephones. There have, to be sure, been versions of panpsychism, such as those of Spinoza, Fechner and Schiller, that did take the ‘pan’ to mean literally everything, so that experience (perhaps even consciousness) was attributed to all identifiable objects. Leibniz, however, distinguished between true individuals (‘monads’) and aggregational societies of such, attributing experience only to the former, and many other panexperientialists, such as Whitehead and Hartshorne, have done the same. Being in this tradition myself, I would not follow Chalmers (1995, p. 217) in thinking that a thermostat might have even a ‘maximally simple experience’. Likewise, I would resist Seager’s conclusion (1995, p. 285) that anything with quantum coherence, such as liquid helium, must have a primitive state of consciousness (which seems to follow from Seager’s apparent assumption that quantum coherence would be a sufficient, not merely a necessary, condition for the emergence of a unified experience).

A seventh reason is provided by the mind–body problem itself. Given our conscious experience and a naturalistic worldview, one task of rational thought is to describe the ultimate units of nature in such a way that the emergence of creatures such as us is intelligible (apart from any appeal, even implicitly, to supernaturalism). The speculative assumption that these units are vacuous actualities allows for two possibilities: dualism (including epiphenomenalism) and materialism. The failure of both of these positions seems terminal. The mind–body problem can reasonably be taken, therefore, as a *reductio ad absurdum* of the view that the ultimate units of nature are vacuous actualities. As Seager says, because the problem of the generation of conscious experience is a real problem and so otherwise intractable, ‘one can postulate with at least bare intelligibility that [experience] is a fundamental feature of the universe’ (1995, p. 282).

IV: Why Should We Affirm Panexperientialism?

To see several reasons for being dubious of the hitherto dominant view of nature’s fundamental units is, of course, already to have some reason to move toward the alternative form of realism, according to which they are not vacuous. However, this idea may seem so counterintuitive, especially to minds conditioned by over three centuries of scientific and philosophical thought that has rejected this idea, as to lead to some other view, such as idealism, phenomenalism, or agnosticism. Accordingly, it would be helpful if there were also some positive reasons for affirming panexperientialism, which, in my version anyway, involves the dual notion that the genuine units of nature have both experience and spontaneity. I will suggest four such reasons.

One reason follows from the fact we human beings, with our consciousness and freedom, seem to be fully natural, if in important respects exceptional, members of the world. Our conscious experience is part of nature as much as anything else; for one thing, it clearly (prohibiting dogma aside) interacts with other parts of nature. The most plausible interpretation of our conscious experience, accordingly, is that it provides us a unique insight into the very nature of nature: it is the one place where we can observe what natural individuals are in themselves, as distinct from how they appear to others. Unless there is some good reason to prohibit it, then, we should generalize the results of our two-sided knowledge of human beings — from within

and from without — to all other beings that appear to be true individuals, meaning those whose behaviour seems to betoken an element of spontaneity, analogous to our own power of self-determination.

Adopting this method requires deciding, of course, just which dimensions of our own experience are generalizable to which other beings. Self-consciousness and the correlative anticipation of death, for example, seem to be limited primarily to our own species. Moral experience (at least under some construals) seems to extend a little further, and aesthetic experience considerably further (do not birds seem to sing at least partly for the sheer enjoyment of it?). How far down we would generalize consciousness itself (as distinct from full-blown self-consciousness) would depend partly on the definition. Whereas, like many others, Chalmers (p. 201) seems to equate ‘experience’ and ‘conscious experience’, I reserve the latter for that relatively high-grade experience in which contents are clearly discriminated and contrasted, at least implicitly, with other possibilities not present. Consciousness, in other words, involves negation, contrasting what *is* with what *is not*. With this definition, probably only relatively few types of individuals would experience consciously. Sensory perception would, of course, only be generalizable to beings having sensory organs. Deciding which aspects of our own experience are generalizable to *all* individuals would involve carrying out the suggestion by Nagel (1986, p. 21) that we try to ascertain ‘subjective universals’. In any case, carrying out the whole project is distinct from the first step, which is simply to agree that, given our status as fully natural entities, we should in some sense generalize our own experience to all other individuals.

A second reason to do this is that science, besides providing reasons to be suspicious of the idea of vacuous actualities, has also given positive support to thinking of all individuals as embodying spontaneity and experience. Whereas Descartes denied experience to all earthly creatures except humans, some leading ethologists now attribute it at least as far down as bees (Griffin, 1992). Going much further down, Stuart Hameroff (1994, pp. 97–9) has recently summarized a wide range of evidence suggestive of the idea that single-cell organisms, such as amoebae and paramecia, have a primitive type of consciousness (I would say ‘experience’), mentioning as well a few respectable scientists — including Sherrington and Darwin — who have accepted this interpretation. Going still further, to the prokaryotic level, some biologists have provided evidence for a rudimentary form of decision-making, based on a rudimentary form of memory, in bacteria (Adler & Tse, 1974; Goldbeter & Koshland, 1982). Furthermore, although DNA molecules were originally pictured in mechanistic terms, more recent studies have suggested a more organismic understanding (Keller, 1983). Going all the way down, quantum physics, as already mentioned, has shown entities at this level not to be analogous to billiard balls, and, as Seager has stressed, quantum theory implies that the behaviour of the elementary units of nature can only be explained by attributing to elementary particles something analogous to our own mentality (1995, p. 282–3; see also Bohm & Hiley, 1993, pp. 384–7). Also relevant to the issue of spontaneity is the convertibility of matter and energy: besides contradicting the early modern view of matter as wholly inert, it at least allows the belief that all individual events involve an element of *internal* spontaneity.

The physics of our century, furthermore, has suggested that the ultimate units of nature are (momentary) events, not enduring substances, and that these events are temporal as well as spatial. The old view of matter as purely spatial meant that, although matter was temporal in the sense that it endured through time, it did not require any lapse of time but could exist in a durationless 'instant'. That this is false is suggested not only by quantum physics (Capek, 1991, pp. 135, 205, 211) but also by relativity physics. By saying both that space and time are results of spatial and temporal happenings, not preexisting containers, and that they are inseparable, it seems to imply that the ultimate units of nature are *spatiotemporal events*. The only way to make sense of this, arguably, is to say that these events, like our own experience, have an inner duration (even if it be only a billionth of a second or less). Thinking of them as having temporal as well as spatial extensiveness removes the main basis, stressed by McGinn, for supposing them incapable of experience. Indeed, it is arguably impossible to conceive of inner duration *apart* from experience. In these various ways, in sum, recent science has given us bases for overcoming the (Cartesian) assumption that experience and spontaneity are not fully natural in the sense of characterizing the elementary units of nature.

A third basis for adopting panexperientialism is provided by our immediate experience of nature, which is not, as I suggested earlier, to be equated with our sensory perception of objects outside our bodies. Our most immediate experience of nature is our experience of our own bodies. By this I mean not our external sensory perception of it, as when we look at our hands, but our inner experience of our body's interaction with our conscious experience. Nature observed in this way gives us reasons, both direct and indirect, to suppose it to be permeated by experience.

An indirect reason is provided by sensory perception itself when considered in terms of its entire process, which involves a remarkable twofold fact. On the one hand, the body is a *self-sufficient* organ of sensory percepts: as we know from dreams and hallucinations, the body need not be currently receiving any causal influence from the outside world that corresponds to the sensory percepts it produces. On the other hand, our waking sensory percepts generally do, in some important respects, correspond to entities beyond our bodies. Whereas the first point undermines any naive realism, according to which sensory perceptions result directly from the causal influence of exterior objects, the second point suggests that the entities comprising the body's sensory system are *capable of incorporating into themselves and then passing on aspects of those exterior objects*. This observation reinforces our earlier point, that these entities are evidently not exhausted by their exteriors, but have an inside in which aspects of other entities can be incorporated before being passed on. This 'inside' could well be that earlier suggested inner duration, a necessary condition for supposing them to have experience.

Reflection upon the interaction between our experience and our bodies provides another reason to think of its components as analogous to our own experience. The supposed absolute difference between mind and matter can be couched in terms of the idea that the latter is, to use Whitehead's (1967b, p. 49) phrase, 'simply located'. To ascribe simple location to bits of matter is to say that they are just where and when they are, with no essential reference to other spatiotemporal locations — in other words, to the past or the future. This would make physical events different in kind from our own experience, given its essential relatedness to both the past, which we

remember, and the future, which we anticipate affecting. This Humean and materialist notion that physical events are simply located — which has, among other things, made the grounds for induction extremely problematic — is rooted in the idea that sensory perception of the world outside our bodies provides our best and only means for understanding the nature of nature. A less superficial empiricism, however, leads to another view. Our own immediate experience is internally constituted, in part, by its appropriation of influences from our bodies. When someone kicks my shin, my experience is partly constituted by the pain in my leg. The cellular activities in the leg, therefore, seem to have a twofold existence: an existence in themselves, there in the leg, and a subsequent existence in my experience. Likewise, when I make a decision to reach down to grab my leg, that moment of experience seems to have a twofold existence: first in and for itself and then in the nerve cells that take the decision to the appropriate muscles. If my experience is part of nature, furthermore, this mutual influence between it and my bodily cells should be generalized. Cellular events, accordingly, would not be merely externally related to other cellular events, as if causation between them should be understood by analogy with billiard-ball impacts, but each event would appropriate prior events into itself and then get itself appropriated in future events. Finally, we should generalize this account of unit-events to all of nature. Just as we interpret our bodies in terms of what we learn about nature by external methods, we should interpret the rest of nature in terms of what we learn from our immediate experience of our bodies. From the resulting notion — the (Buddhist and Whiteheadian) idea that all events are internally constituted by their appropriation of aspects of prior events — it is a short step to the conclusion that they must all have experience.

To move now from indirect to direct evidence. Although we cannot, by looking inside our bodily cells, see any experiencing, we can notice that they give every possible sign of having some type of experience. We derive pains, pleasures, and appetites from them. The natural interpretation, forbidding dogma aside, is that we are feeling *their* pains, pleasures, and appetites. Then again, on the assumption that entities within our bodies are not different in kind from those without, we can generalize some degree of experience to all units in nature, thereby arriving at Whitehead's description of nature as an 'ocean of feelings'. The essential point here is that this description, while involving some speculation, derives more naturally from a correct phenomenology than the alternative view. As Hartshorne (1991, p. 13) has put it:

The 'ocean of feelings' that Whitehead ascribes to physical reality is not only thought; so far as our bodies are made of this reality, it is intuited. What is not intuited but only thought is nature as consisting of absolutely insentient stuff or process. No such nature is directly given to us.

A fourth reason to adopt panexperientialism is that it is the one form of realism that allows for a solution to the mind–body problem. That this is so is the burden of the remainder of this essay. Before providing a sketch of my particular form of panexperientialism, I will discuss some criteria for an acceptable solution to the mind–body problem and the failure of dualism and materialism to fulfil them.

V: Some Criteria and the Failure of Dualism and Materialism

My own brief statement of the chief criteria for an acceptable solution to the mind–body problem — that it be (1) naturalistic, (2) parsimonious, (3) internally coherent, and (4) adequate to the relevant facts — corresponds closely to Chalmers’ brief list (1995, pp. 201, 211–12). His formulation of the fourth criterion, however, speaks not of ‘facts’ but of ‘coherence with theories in other domains’, which might be thought to reflect nervousness about the idea of theory-transcendent ‘facts’ to which a theory should be ‘adequate’. Chalmers does, however, seem to presuppose the reality of such facts in saying, against eliminativists, that experience ‘is the central fact that any theory of consciousness must explain’ and also in adding, as a further criterion, ‘overall fit with the dictates of common sense’ (pp. 206, 212). It is, in any case, this final criterion, under a particular construal, that I would make the *primary* aspect of ‘adequacy to the facts’.

Due in part to an ambiguity as to its meaning, common sense has fallen on hard times. As Searle (1987, p. 215) says, ‘the general form of the mind–body problem has been the problem of accommodating our common-sense and pre-scientific beliefs about the mind to our general scientific conception of reality’. This accommodation can often seem more plausible than it is, thanks to the aforementioned ambiguity. Two very different kinds of beliefs, Searle (1992, p. 48) points out, often get subsumed under the rubric of common-sense (or ‘folk’) beliefs, especially by eliminativists: ‘[T]hey claim that giving up the belief that we have beliefs is analogous to giving up the belief in a flat earth or sunsets’. To clarify and emphasize the distinction at issue, I employ a terminological contrast between *hard-core* and *soft-core* common-sense beliefs, only the latter of which can intelligibly be rejected in the name of science (or anything else, such as mystical experience or revelation, for that matter). *Hard-core* common-sense beliefs are those that we inevitably presuppose in practice, even if we deny them in our theories. Indeed, if we try to deny them, we presuppose them in the very act of doing so. If there are any such beliefs, they would be ‘common’ in the strongest possible sense, being common to all human beings of all times and places. If such beliefs exist, denials of them in our theories would involve us in violations of the law of noncontradiction: we would be simultaneously denying (explicitly) and affirming (implicitly) the propositions in question. Far from being candidates for elimination in favour of supposedly more certain ideas, accordingly, a cluster of such beliefs would itself provide the most fundamental criterion for judging other candidates for belief. *Soft-core* common-sense beliefs, by contrast, are beliefs that are considered commonsensical by some group but that are not necessarily presupposed universally and that *can* be explicitly rejected without pain of self-contradiction. Examples have already been given: the belief that the earth is flat, that the sun goes around the earth, that the ultimate units of nature are vacuous, and that these alleged vacuous actualities exert all the causal efficacy in the universe. To rephrase Searle’s statement: the mind–body problem has seemed hard, even intractable, because modern philosophers have tried to accommodate hard-core to soft-core common sense, rather than vice-versa.

Putting it this way, of course, presupposes that hard-core common-sense beliefs do indeed exist. Hume famously provided two examples. Although, thanks to his version of empiricism, he could provide no theoretical justification for belief in the external

world and causation (in the sense of real efficacy, not simply constant correlation), he pointed out that, in ‘practice’, he had to presuppose these beliefs. (Hume, of course, used these presuppositions of practice to *supplement* his theory, not, as I am advocating, to revise it.) Chalmers (1995, p. 206), saying that ‘[e]xperience is the most central and manifest aspect of our mental lives’, has pointed to a third. I would insist upon at least three more: our awareness of norms and mathematical truths, the efficacy of conscious experience for our bodily behaviour, and genuine freedom (in the sense of choice among alternative possibilities).

With regard to the first of these latter three, Jaegwon Kim (1993, p. 215) points out, against eliminativists, that our activities of deliberation and evaluation presuppose that ‘we regard ourselves as agents capable of acting in accordance with a norm’. The norms that we presuppose can be classified in terms of the traditional trinity of truth, beauty and goodness. With regard to truth, we presuppose that there is such a thing, that it is (generally) good to know and speak the truth, as distinct from falsehoods, and that there are various sub-norms (roughly, the rules of logic) for ascertaining truth, or at least detecting error. Closely related is our ability to perceive ‘the Platonic, mathematical world’, recently discussed by Roger Penrose (1994, pp. 22–3). With regard to beauty and goodness, no amount of awareness of the relativity of aesthetic and moral judgments can eliminate our presupposition that some things really are more beautiful than others, some actions and attitudes really better than others. Although much effort has been expended to try to portray all values, including logical and mathematical truths, as creations (rather than discoveries) of the human mind, we cannot live apart from presupposing otherwise — a fact that Nagel (1986, pp. 143–5) well brings out (in spite of holding a worldview that is doubtfully compatible with the genuine objectivity of normative values).

With regard to the efficacy of consciousness for bodily behaviour, William Seager (1991, p. 188) observes that ‘it presents the aspect of a datum rather than a disputable hypothesis’. Explicitly bringing out the hard-core common-sense status of the ‘axiom of the indispensability of the mental’, Ted Honderich (1987, p. 447) says that its main recommendation is ‘the futility of contemplating its denial’. In a phrase reminiscent of Charles Peirce’s criticism of ‘paper doubts’, Honderich says of epiphenomenalism, ‘Off the page, no one believes it’. Likewise Searle (1992), who includes ‘the reality and causal efficacy of consciousness’ among obvious facts about our minds (p. 54), endorses the ‘common-sense objection to eliminative materialism’ that it is ‘crazy to say that . . . my beliefs and desires don’t play any role in my behavior’ (p. 48).

More controversial is freedom, in the genuine (incompatibilist) sense. For example, McGinn (1991, p. 17n) says that ‘it is much more reasonable to be an eliminativist about free will than about consciousness’. Even Honderich (1993) and Searle, in spite of denying epiphenomenalism, affirm determinism. However, in Searle’s case at least, this affirmation is coupled with a recognition that it cannot be lived in practice. Pointing out that we *can* give up beliefs in a flat Earth and literal ‘sunsets’, Searle (1984, p. 97) says that ‘we can’t similarly give up the conviction of freedom because that conviction is built into every normal, conscious intentional action’. After saying that ‘[s]cience allows no place for the freedom of the will’, he adds that ‘we can’t act otherwise than on the assumption of freedom, no matter how much we learn about how the world works as a determined physical system’ (pp. 92, 97). Nagel’s (1986) position is similar. In spite of seeing no way to give a

coherent account of freedom (pp. 110–7), he says: ‘I can no more help holding myself and others responsible in ordinary life than I can help feeling that my actions originate with me’ (p. 123).

I turn now from the criteria themselves to the question of whether materialism or dualism can fulfil them, beginning with materialism. With regard to the issue of our awareness of norms, McGinn (1991, p. 23n) includes as one of the major problems of a (materialist) physicalist account of consciousness the question: ‘how a physical organism can be subject to the norms of rationality. How, for example, does *modus ponens* get its grip on the causal transitions between mental states’. The problem can be phrased in terms of causation: given the acceptance by McGinn (1991, p. 55) of billiard-ball causation as paradigmatic, it follows that ‘causal relations between . . . abstract entities and human minds. . . [would be] funny kinds of causation’ (p. 53). The problem can also be posed in terms of perception: from a materialistic perspective, we perceive only by means of our sensory organs, which can perceive only other physical things. Norms and other nonactual entities — whether they be called ideas, ideals, possibilities, abstract entities, conceptual entities, eternal objects, or Platonic forms — are clearly not physical. The ability to know moral, aesthetic, mathematical, and logical principles seems to presuppose that we have a nonsensory mode of perception, which materialism cannot allow.

To turn to the other issues: McGinn, Nagel and Searle all agree, as we have seen, that freedom is not consistent with materialism. Indeed, evidently the only materialists who think otherwise are those, like William Lycan (1987, pp. 113–14), who construe freedom to be compatible with determinism, which, as Nagel (1986, pp. 110–17) and Searle (1984, pp. 87, 92, 95) see, is *not* to speak of freedom as we presuppose it. With regard to the efficacy of conscious experience (which is a necessary condition for the affirmation of human freedom), the writings of Jaegwon Kim are revealing. At the end of a recent book containing essays devoted to this problem written over a period of nearly twenty years, Kim (1993, p. 367) concludes by saying that materialism seems ‘to be up against a dead end’. With regard to the very existence of consciousness, several materialists, as we have seen, are now admitting that they cannot explain how it could have arisen. McGinn (1991, p. 45), explicitly connecting the difficulty with the criterion of naturalism, says:

[W]e do not know how consciousness might have arisen by natural processes from antecedently existing material things. Somehow or other sentience sprang from pulpy matter, giving matter an inner aspect, but we have no idea how this leap was propelled. . . . One is tempted, however reluctantly, to turn to divine assistance: for only a kind of miracle could produce *this* from *that*. It would take a supernatural magician to extract consciousness from matter. Consciousness appears to introduce a sharp break in the natural order — a point at which scientific naturalism runs out of steam.

Searle, to be sure, thinks he has solved this problem, but, as pointed out by several fellow materialists, such as Seager (1991, pp. 179–80), there is no analogy between the unproblematic types of emergence (or supervenience) cited by Searle (1992, p. 14) and the (alleged) emergence of conscious experience out of wholly insentient matter. Besides the fact that the very existence of consciousness is problematic, furthermore, ‘the unity of consciousness’, says Nagel (1986, p. 50), ‘poses a problem for the theory that mental states are states of something as complex as a brain’, and

Searle (1992, p. 130) agrees. Nagel's statement points to the feature of materialism that most accounts for its distinctive problems: its equation of the mind with the brain.

By virtue of conceiving of the mind as a full-fledged actuality, dualists have several advantages over materialists. They are able to affirm the reality, unity, and self-determining freedom of conscious experience. The distinction between mind and brain also opens up the option of affirming the mind's capacity for nonsensory perception — an option exercised by some dualists (e.g., Beloff, 1962; 1994). Finally, dualism's (numerical) distinction between mind and brain provides a necessary condition for affirming causal interaction between them, which most dualists do affirm — both the causal efficacy of the body for the mind and (epiphenomenalists aside) the efficacy of the mind for the body.

However, due to the fact that this numerical distinction is also an ontological difference of kind, implying that the mind in the body is like a 'ghost in a machine', dualists *cannot* explain how this interaction is possible. For example, Geoffrey Madell (1988, p. 2) admits that 'the nature of the causal connection between the mental and the physical, as the Cartesian conceives of it, is utterly mysterious'. He also concedes the 'inexplicability' of the emergence of consciousness, both in the course of evolution and in the development of each embryo (pp. 140–1). Other dualists essentially agree (e.g. Lewis, 1982, pp. 38–9). Some dualists, in fact, use the impossibility of understanding mind–body interaction naturalistically as an argument for the existence of a supernatural deity (e.g. Swinburne, 1986, p. 198); but that, of course, is to violate the naturalistic criterion. Dualism, in sum, while not failing as completely as materialism, is far too inadequate to be considered an acceptable theory.

As suggested by this summary of the problems of the two hitherto dominant theories, an adequate theory would need to combine the strengths of each. Like dualism, it would affirm the (numerical) distinction of mind and brain, but, like materialism, it would not think of mind and brain as ontologically different kinds of actualities. The next and final section will briefly sketch such a position under the rubric of 'panexperientialist physicalism'. Although it has usually been assumed that materialism and physicalism are equivalent (e.g. Kim, 1993, p. 266n), or at least that physicalism entails materialism, I am here proposing a nonmaterialistic form of physicalism.

VI: Panexperientialist Physicalism

Panexperientialist physicalism portrays the world as comprised of *creative, experiential, physical-mental events*. I will lay out the basic ideas of this position by taking these four terms in reverse order.

All the world's actual entities in the fullest sense are momentary *events*. These are all spatiotemporal events with a finite inner duration, ranging perhaps from less than a billionth of a second at the subatomic level to a tenth or twentieth of a second at the level of human experience. All enduring individuals, such as electrons and minds, are temporal societies (sometimes called 'world tubes') of such events. There is no dualism, accordingly, between purely spatial and purely temporal actualities; all unit-events are spatially and temporally extensive.

Each such event has both *physical* and *mental* aspects, with the physical aspect always prior. The physical aspect is the event's reception of the efficient causation of prior events into itself. This receptivity can, with Whitehead, be described in terms

of a the notion of ‘physical prehension’, a mode of perception more basic than sensory. An event originates with a multiplicity of physical prehensions, each of which has two aspects: an *objective datum* (which corresponds to what Chalmers [1995, p. 216] calls the ‘physical aspect’ of information) and a *subjective form* (which corresponds to what he calls the ‘phenomenal [or experiential] aspect’). In its physical pole, then, an event repeats the forms of energy imposed upon it by the past universe, the only difference from materialist physicalism at this point being that these forms of energy have subjective as well as objective aspects. Another difference arises with regard to mentality. Every unit-event (as distinct from an aggregational event) has a mental aspect, and this mentality involves an element, however slight in the most elementary events, of spontaneity or self-determination. Although the event’s physical pole is given to it, its mentality is its capacity to decide precisely what to make of its given foundation. Its physicality is its relation to past actuality; its mentality involves its prehension of ideality or possibility, through which it escapes total determination by the past.

Each event is *experiential* from beginning to end, which means that, in distinction from usage reflecting dualism, the ‘mental’ is not equated with the ‘experiential’ nor the ‘physical’ with the ‘vacuous’: an individual’s mentality is simply its experience insofar as it is self-determining. Also, to say that all unit-events have (or are) experiences is not to say that they all have consciousness, which is a subjective form of experience that arises, if at all, only in a late phase of a moment of experience. Its arising requires an adequate content, the contrast between a proposition and an alternate possibility. To use the language of ‘intentionality’ (in the sense of aboutness): very elementary events, by virtue of synthesizing prior events and possibilities into rudimentary analogues to propositions, have incipient intentionality; somewhat higher-level events, complex enough to form propositions, have proto-intentionality; while only very high-level events are sophisticated enough to contrast propositions with alternative possibilities, thereby enjoying what Whitehead (1978, pp. 266–7) calls ‘intellectual prehensions’, which alone have the subjective form of consciousness.⁴

With regard to the remaining of the four terms in the opening definition, *creative*, I have already stated that each event is, in its mental pole, *self-creative*, deciding precisely how to respond to the efficient causation exerted upon it. The second dimension of an event’s creativity, which comes after its self-determination, is *its* efficient causation on subsequent events, by which it shares in the creation of the future. This position, it should be noted, prevents mental experience from necessarily being merely epiphenomenal or close to it (which is suggested by the statement by Chalmers [1995, p. 217] that experience might have only ‘a subtle kind of causal relevance’). The event does not necessarily simply pass on exactly what it had received from prior events. In the case of higher-level events with more mentality, the event’s efficient causation may be based significantly upon its self-determining mentality, as when our decision to raise a hand causes the hand to raise. In this version of panexperientialism (in distinction from that suggested by Chalmers, in which most of the causal efficacy seems to be exerted by a purely ‘physical’ [in the sense of ‘vacuous’] aspect of the basic processes), *all* causation is exerted by experience, with

⁴ This account, which agrees with the dictum that ‘consciousness is always consciousness of something’, is an account of ordinary consciousness. Whether there can be extraordinary states of consciousness that are contentless is another question.

distinctively mental experience playing a greater role in more complex experiences. We can thereby do justice to the power really manifested by human decisions.

In any case, the transition from self-creation to efficient causation betokens another distinction to be made with regard to each unit-event. Each such event exists first as a *subject* of experience, with its physical and mental poles. But then its subjectivity perishes and it becomes an *object* for subsequent subjects. In each enduring individual from electrons (or quarks) to human minds, accordingly, there is an oscillation between two modes of existence: subjectivity and objectivity. This idea provides a solution to one of the most vexing questions of modern philosophy and science: how can entities that are enmeshed in the universal causal nexus, both receiving and exerting efficient causation, be understood to have any degree of freedom? How, in other words, is final causation compatible with efficient?

In some forms of 'panpsychism', such as those of Leibniz, Spinoza and Bernard Rensch (1960; 1976), the mind with its final causation and the brain with its efficient causation are said to run along parallel with each other, without interacting. In the case of Spinoza and Rensch, this conclusion is required, because they regard the mind and brain as numerically identical. Panpsychism as such has sometimes been rejected by interactionists (Popper & Eccles, 1977, pp. 53–5, 71, 516) on the mistaken assumption that all forms of it imply this kind of parallelism. Indeed, one of the problems with the term 'panpsychism' is that, besides suggesting a too high-level form of experience to be attributed to all individuals, the term 'psyche' also suggests that the most fundamental entities of the world are enduring individuals. That doctrine makes it difficult to see how the various individuals, with their internal final causation or self-determination, could exert efficient causation on, and receive efficient causation from, other such individuals — as with the Leibnizian 'windowless monads', whose apparent interaction was explained in terms of supernatural coordination.

The idea that the ultimate individuals are momentary experiential events — which the term 'panexperientialism' better suggests — avoids parallelism and thereby any appeal, explicit or implicit, to a *deus ex machina*. Each event begins as an open window, as it were, into which stream the influences from the past world; this is its physical pole. Then the window is shut while the event exercises whatever capacity for self-determination it may have; this is its mental pole. At that point its moment of subjectivity comes to an end and it becomes an object, exerting efficient causation on others — or rather, *in* them, having aspects of itself prehended into them. (This is the way of explicating the twofold existence of events suggested earlier: rather than being 'simply located', each event prehends aspects of the past into itself and then gets aspects of itself prehended into future events.) In any case, this idea of momentary events, which are first subjects and then objects, allows for final causation, or self-determination, to be exercised *between* the reception and the subsequent exertion of efficient causation. Being fully enmeshed in the universal causal nexus does not render genuine self-determining activity impossible.

This same idea also provides a way of thinking of the relation between the temporal (or durational) aspect of the events and the purely spatial appearance of the world: as subjects, events enjoy an inner duration; as objects, however, they are purely spatial. An event cannot be prehended until its moment of subjectivity is finished, because it is nothing fully determinate until its moment of self-determination is completed. By

the time it can be perceived, accordingly, it *is* purely spatial. This is one reason, at least, why sensory perception presents us with a purely spatial world.

In the above sketch of the basic ontology of panexperientialist physicalism, I have referred to various levels of events, pointing out that consciousness can appear only in very high-level ones and suggesting that these would also have greater freedom. The obvious question, of course, is how, assuming physicalism, higher-level actualities could evolve. The answer to this question will bring out how this form of physicalism allows for downward causation based on self-determining freedom.

Materialist physicalism is unable to affirm freedom because it must regard all large things as analogous. Appearances to the contrary, humans and other animals must be thought by analogy with rocks, billiard-balls, and computers. Even if an element of ontological indeterminacy be allowed at the quantum level, accordingly, it cannot provide the basis for attributing any freedom to human behaviour: Just as, by the 'law of large numbers', all indeterminacy is canceled out at the level of the billiard ball, the same must be true in humans and other animals. The crucial role played by this idea is plain in some recent discussions of downward causation (Kim, 1993, pp. 77, 95, 96, 101, 103, 168) and freedom (Lycan 1987, pp. 113–4; Searle, 1984, pp. 86–7, 93–4).

The reason why materialist physicalists must think of all part–whole relations as analogous is that their basic entities or processes, being vacuous, are unable to give rise to higher-level actualities. Because these entities have no insides, all their relations to other things must remain external to them, so that all their associations must be thought to be merely aggregational collections. The idea that no higher-level actualities emerge lies behind the dictum that all causation in 'macro-objects', be they rocks or human beings, must be reducible in principle to the causality of the subatomic constituents (Kim, 1993, pp. xv, 96, 99; Searle, 1984, p. 93).

The elementary unit-events of panexperientialist physicalism, by contrast, are internally constituted by their appropriations (prehensions) of aspects of the other events in their environments. Certain combinations of enduring individuals allow for the emergence of higher-level individuals, with the resulting totality being what Hartshorne (1972) has called a 'compound individual'. The momentary events constituting the higher-level enduring individual have more mentality, thereby more capacity for self-determination, than the more elementary ones. They also have more power to exert efficient causation, allowing for the 'global control' of behaviour, to which Chalmers (1995, p. 212) refers, by virtue of which the higher-level series of experiences can be called the 'dominant' member of the compound society. The most obvious examples of compound individuals are animals with central nervous systems. But this kind of part–whole relation should also be attributed to any entity seeming to respond as a whole with a degree of spontaneity to its environment. Single-celled organisms, such as amoebae and neurons, accordingly, could be supposed to be compound individuals, having a unity of experience over and above that of their constituents. The same might be true of organelles, macromolecules, ordinary molecules, atoms, and even those enduring individuals that had, prior to quarks and gluons, been called 'elementary'. These are empirical matters; the important philosophical point is that, with the idea of compound individuals, we can lodge our evident consciousness, freedom, and power in a high-level, full-fledged actuality.

The notion that individuals have physical prehensions, by which they internally take account of their environments, means that sensory perception is a higher-level, derivative kind of perception. Although its products tend to be so overwhelming as to lead many to the conclusion that it is our only kind of perception, the nonsensory kind is (by hypothesis) going on all the time. On this basis, we can explain how we can perceive normative values and ‘Platonic mathematical truths’. Assuming the reality of this more primordial, presensory kind of perception also means that reports of religious and paranormal experiences need not be dismissed *a priori*.

A final difference between materialist and panexperientialist forms of physicalism is brought out by the way in which the latter allows for downward causation from the mind to the body. The difference in question can be approached by reflecting upon the recent statement by Penrose (1994, p. 23) that ‘somehow the structure of the physical world is rooted in mathematics’ and that this fact is ‘a very great mystery’. In some of the Renaissance naturalisms that resulted from the revival of mathematical Platonism, each unit of nature was understood in such a way — perhaps as a microcosm of the whole — as to be capable of embodying mathematical patterns. Although the so-called scientific revolution of the latter seventeenth century retained the emphasis on mathematics, its adoption of the Democritean view of matter made nature’s units seem intrinsically incapable of embodying mathematical patterns. This fact necessitated — or allowed — the aforementioned explanation of the ‘laws of nature’ in terms of supernatural imposition. With the transition to the fully materialistic worldview, the Divine Imposer was dropped, but the notion of vacuous bits of matter ‘obeying’ external laws was retained. Even Chalmers (1995, p. 210) seems to accept this view, referring to the universe as ‘a network of basic entities obeying simple laws’. Interestingly, he speaks of this position as ‘entirely naturalistic’, even though it is, we could say, implicitly supernaturalistic. In any case, materialist physicalists (e.g. Kim, 1993, p. xv) assume the bottom layer of nature — that studied by physics and chemistry — to consist of vacuous particles whose movements are totally governed by external laws.

It is the assumption that this bottom layer is entirely autonomous, closed to any influence (‘interference’) from higher layers, that makes it necessary to assume that, even if we had minds capable of an element of self-determination, our bodily behaviour could not be influenced by them: our bodily behaviour must (in principle) be fully understandable in terms of ‘the laws of physics and chemistry’. Even Chalmers (p. 210) believes it necessary to hold to this dogma, assuring his readers that his view does not allow experience to ‘interfere with physical laws’, which are said to ‘form a closed system’. (Chalmers’ acceptance of that dictum makes it puzzling how he can attribute to experience even ‘a subtle kind of causal relevance’, but it does explain why he thinks of this suggestion as irrelevant to a ‘scientific theory’ — as distinct from a more inclusive philosophical theory [p. 217]. One implication of my argument about hard-core common sense is that we cannot rest content with such a bifurcation: there is no higher criterion for any theory, whether it be called ‘scientific’ or ‘philosophical’, than adequacy to those beliefs that we inevitably presuppose in practice.) It is, in any case, this idea that has made it impossible for materialist physicalists, such as Kim and Searle, to reconcile ‘science’ with the obvious fact, which we cannot deny without presupposing, that our bodily movements *are* influenced by our partially free decisions.

In panexperientialist physicalism, by contrast, the regularities of nature are not due to externally imposed ‘laws’ but are — as suggested long ago by James, Peirce and Whitehead (Griffin *et al.*, 1993, pp. 67–8, 224–5) — nature’s most long-standing *habits* — the habits of its most elementary members, reflecting patterns that they have internalized. And, just as our habits do not fully determine our behaviour, neither do the habits of cells, DNA molecules, or electrons fully determine theirs. Because the physical poles of their constituent events are determined by the influences coming in from their environment, their behaviour is always determined in part by the particular environment they are in. When an electron in an inorganic environment gets taken into a living cell, it becomes subject to different influences. Likewise, if that cell is in the brain of a human body, it is subject to different influences if the body is alive and awake instead of a corpse. When we make decisions, therefore, they can affect the experience and thereby the behaviour of even the simplest constituents of our bodies (probably by first affecting the neurons and through them the individuals at increasingly elementary levels). The electron in the living human body, accordingly, will behave differently than it did in the inorganic environment, not because the ‘laws of electron behaviour’ have been ‘violated’ but because it is there subject to different influences. Part of the reason this idea will seem ‘anti-scientific’ to some is the widespread acceptance of the wholly unwarranted idea that the laws of physics and chemistry are sufficient by themselves to explain the behaviour of all ‘physical processes’. To explain the behaviour of the bodies of humans and other compound individuals, the downward causal influences from higher members, which may well reflect considerable spontaneity, must also be taken into account.

The relation of this panexperientialism to dualism and materialism can be expressed in the following terms. Dualism recognized an *organizational duality* between two kinds of physical bodies: those with a mind as a dominant member and those without. But it understood the relation between these minds and their bodies as an *ontological dualism*. Materialism, to avoid the resulting problems, dropped the minds so as to have an *ontological monism*. Given the conception of ‘matter’ that it had inherited from dualism, however, it was forced, against all appearances, also to affirm an *organizational monism*, which led to even more severe problems than dualism had. Panexperientialism allows us to return to the recognition of the *organizational duality* (between compound individuals and nonindividualized societies of individuals) while retaining an *ontological monism*. There is no ‘ghost in the machine’ because the body is no machine.

Panexperientialism can combine the best of both previous doctrines because of its different conception of the underlying ‘stuff’ of which the world is made. Dualism assumed that there were two kinds of basic stuff: (temporal) ‘consciousness’ and (spatial) ‘matter’ (later, ‘matter–energy’), with embodiments of the latter capable only of efficient causation. Materialism tried to work out an adequate worldview on the assumption that all things are embodiments of the latter kind of stuff. Panexperientialism (as espoused here) agrees with materialism that there is only one kind of stuff, but enlarges ‘energy’ to ‘experiential creativity’. Critics might be tempted to ask how the creativity and the experience arose. But, as Chalmers (pp. 209–10) points out, every position begins with some reality, or set of realities, assumed to be *fundamental*. Panexperientialism assumes that it lies in the very nature of things for events of experiential creativity to occur — for partially self-creative experiences to

arise out of prior experiences and then to help create subsequent experiences. The process by which our (sometimes partly conscious) experiences arise out of those billions of events constituting our bodies at any moment is simply the most complex example of this process of which we know — and the only one the results of which we can witness from the inside.

Should such a doctrine be called a species of physicalism? On the negative side, such a proposal may seem simply confusing, given the prior association of physicalism with materialism and therefore reductionism. On the positive side, however, is the fact that this form of panexperientialism shares many of the doctrines usually said to characterize physicalism. I will mention nine (which are based on Kim, 1993; see Griffin, 1997, Ch. 10). First, all events have a physical aspect; there are no purely mental events. Second, when events also have a mental aspect, the physical aspect is always prior. Third, some events (namely, aggregational, nonindividualized events) have no mentality whatsoever. Fourth, most events do not have consciousness. Fifth, all events are spatially as well as temporally extensive and have a determinate spatiotemporal location. Sixth, all events have energy that can interact with the energy embodied in the entities studied by physics. Seventh, all events exert efficient causation. Eighth, all events are causally conditioned by antecedent events, and some events (aggregational ones) are fully determined thereby. Ninth, all causal efficacy is exerted by physical events (as defined in the first, second, fifth, sixth, seventh and eight points), so that the ‘physical domain’ (as thus defined) is closed to outside influences; dualism and supernaturalism are thereby excluded.

Even with all these agreements, the differences with physicalism as hitherto understood are significant enough to make debatable the suggestion that this form of panexperientialism can be called a version of physicalism. What is not debatable is the propriety of the position’s name with regard to the mind–body relation in particular: *nondualistic interactionism*. It is interactionism, in that the mind is numerically distinct from brain, both influencing and being influenced by it. But it is *not* dualism, in that the mind is different only in degree, not in ontological kind, from the neurons comprising the brain (and the more elementary individuals comprising the neurons). If nothing else comes of this essay, I would hope to see an end to the twofold assumption that interactionism necessarily involves dualism, and that dualism and materialism, therefore, constitute the only forms of realism.

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