Is Nature Immaterial? The Possibilities for Environmental Education Without an Environment

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Abstract

Contemporary thinking is generally based on substance, as opposed to process, metaphysics: in other words, the belief that the world and the universe are best understood in terms of material rather than events. The environment, for example, is conceived of as substantial; nature as a web of interconnected, if often fragile entities. In this tradition, there is also a strong legacy of mind-body dualism: the belief that the (immaterial) human mind acts on the inert and mechanical "body" of nature. Process metaphysics, on the other hand, posits the world as events in which human beings are implicated. This paper adopts a process perspective in attempting to develop a posthumanist approach to education, rooted in the idea of living as semiosis.

Résumé

La pensée moderne s'inspire généralement de substance plutôt que de phénomènes, de métaphysique : en d'autres mots, la croyance veut que le monde et l'univers soient mieux compris si on parle d'éléments palpables de préférence à des événements. L'environnement, par exemple, est considéré comme important, et la nature, en tant que réseau d'entités interconnectées mais souvent fragiles. De cette tradition, nous vient un puissant dualisme de l'esprit et du corps : la croyance que l'esprit humain (l'immatériel) agit sur le « corps » inerte et mécanique de la nature. La métaphysique des phénomènes, d'un autre côté, dresse un portrait du monde où l'être humain est en cause dans des événements. Cet article, en tentant de développer une approche post-humaniste de l'éducation, adopte une optique de fonction-nement bien arrêtée à l'idée de vivre en état sémiotique.

Keywords: environmental education; process philosophy; environment; ecosophy

The Ontological Status of "The Environment": Assumptions

On those stepping into rivers staying the same other and other waters flow. (Heraclitus, cited in Graham, 2006, ¶ 9)

Environmental and sustainable development education[1] are both generally premised on ontological and epistemological realism and on substance metaphysics. That is to say, the non-human world is assumed to be

- independently real—i.e., independent of our perceptions of it,
- in key respects unchanging and predictable, and
- made of "stuff."

Without these assumptions, there would be no "nature" to "save," no planet to protect, and so on. On initial inspection, it seems that this is the only sensible way to proceed, for how could one be committed to ecological causes without believing there is a world to safeguard that is substantial?

One reason we hold these assumptions is simply that we grew up with them; they are themselves "natural." The sources of our dominant beliefs about the world around us can be traced back to certain key figures in Ancient Greece. These include Leucippus and Democritus, credited with the birth of atomism (the belief that all matter is composed of, and potentially reducible to, atoms—at that time assumed to be the smallest particle); Pythagorus (and subsequently Euclid and Plato), whose belief in the mysticality of number underpins modern faith in mathematics as the key to understanding the universe; and Aristotle, from whose systematic studies of that which revealed itself to his senses forms the basis of modern science. We also owe our modern view of reason, as something that contemplates the world from a position of detachment, to Plato, Aristotle, and others. In effect, atomic science is fundamentally Democritean, Pythagorean, and Aristotelian, while modern philosophy as a whole amounts to no more than "footnotes to Plato," according to Alfred North Whitehead (1929a, p. 63): particle physics, Stephen Hawking's cosmology, and the human genome project are all based on these ancient assumptions, as is the view of human scientific reason standing apart from brute, mechanical nature as developed through the more recent, but also seminal perspectives of Descartes and Newton.

Dominant as these perspectives are, they are neither universal nor inevitable. Not only are there alternative philosophical sources in the Greek canon—and that canon itself only represents a surviving written record, so cannot give us ultimate sources—there are also competing worldviews extant. Hindu and Buddhist atomic theories, for example, differ in emphasis from those in the West, while many traditional ways of knowing are not fundamentally atomic in any sense. Even within the dominant Western tradition, work at the leading edges of both sub-atomic and cosmological physics serves to problematize long-held assumptions: not only are atoms not the smallest particles, they are also not indivisible, while the elements that compose them are so elusive and unpredictable that it remains unclear whether they are best understood as particles, strings, or events.[2] The problems of quantum theory are illustrated by Niels Bohr's remark: "Whether an object behaves as a particle or as a wave depends on your choice of apparatus for looking at it" (cited in McEvoy & Zarate, 1996, p. 160).

At the level of thinking about the world around us, however, ingrained assumptions hold fast: the world is material, and the human mind, whether

immaterially or materially caused, observes it and is responsible for looking after it. Morality applies to people; machine-like predictability to animals and the rest of nature. This worldview is grounded in substance metaphysics and is deeply affected by a form of mind-body dualism developed through the Judaeo-Christian and Cartesian rationalist traditions. Its converse would be a process metaphysics that escapes mind-body substance dualism, and such a metaphysics is by no means unthinkable.

Process Philosophy and Environment

The roots of a process metaphysics can be found in the fragmentary surviving writings of Heraclitus, who is best known for asserting that a man cannot put his hand in the same river twice (though the written record only reveals Plato attributing this to him; the quotation at the opening of this paper is—perhaps confusingly—what Heraclitus is known to have written on the matter), and that fire is the primary element. In other words, Heraclitus puts forth a view of the world as united in its endless change and transmutation into opposites.

Perhaps the most influential modern Western philosopher to have developed process philosophy from this source is Whitehead, whose *Process and Reality* (1929a) remains strongly influential.

On this view, change takes precedence over substance; events and processes, rather than substances, are viewed as primal; and what we tend to regard as material existence can be understood in terms of the duration and repetition, or near-repetition, of events.[3] Whitehead states, "How an actual entity *becomes* constitutes what that actual entity is" (1929a: p. 31: my italics). As human beings, we are implicated in processes, and our experiences are how those processes feel to us from the inside. In Whitehead's terms, *apprehension*—the grasping of immediate experience—involves *prehension:* our residual knowledge (for want of a better term) of what seems to be (but is not) fixed and substantial. In other words, we understand (apprehend) new experiences in the light of previous experiences.[4] Thus, what we experience is certainly real, but the objects of our consciousness that we have tended to take as material are in fact elements of processes. This has significant implications for a number of key taken-for-granted concepts in the environmental lexicon, to which I shall return below.

To risk another simplification, the way we "pattern" the world, or are implicated in patterning it, emerges with experience and is not merely a mirroring of a fixed, substantial template. Indeed, physics now tells us, the smallest subatomic particles are not predictable in terms of space or time, at source are bursts of energy lacking complete predictability, and (to make the mathematics work, at any rate) most of the universe must comprise "dark matter" that we cannot detect at all. Unlike a pizza, an atom cannot be chopped into recognizable "atom slices," for "stuff" is not made of "stuff." Even our conceptions of space and time can be understood as abstractions

from process. Contra-Kant, we can at least conjecture, space and time may not lie behind the (other) human categories of sense-making but may themselves be part of (our?) pattern-making. Thus, not only is there no final cause that we can discover (as the positivists have always acknowledged), there may be no beginning or end. On this account, as Barbara Hardy (1977) has claimed (though probably not with this intention), narrative is "a primary act of mind."

It is not, on this account, possible for us to create or destroy nature as a whole, though we are implicated in its forms, processes, and events, and thus we can effect changes in those. Whitehead wrote that, "A living society … destroys … its food … life is robbery" (1929a, p. 146), by which is implied not that we destroy nature in any holistic sense, but that we appropriate it while we are part of it, and that the changes that happen to it and to us are inseparable. Life is thus endlessly both productive and consumptive. As the flower opens, the bud decays. As the seed ripens, the flower decays, and so on. Nothing is ever fixed in its identity, though both substance metaphysics and our own senses are inclined to lead us to believe the reverse.

How does "sustainability" relate to a world of forms and events, but without substance? What exactly are we trying to sustain?

On the process view, the immediate environment is not so much that which is *lying* around us as that which is *happening* around us, while the global environment is the sum total of cotemporaneous events. To take an example, let us consider the case of a rolling log. According to substance metaphysics, this is first—a log; second—in motion. According to process metaphysics, this is first—an event, second—involving duration of (a) movement and (b) a state of affairs recognized as a log (until it breaks up into splinters, or whatever).

On a process view, events are not arbitrary but neither are they entirely predictable: events/patterns recur, intermingle, and modify; ultimately nothing has only one cause. While this may urge scepticism concerning predictability, it does, however, offer real possibilities for the development of environmental ethics and environmental education. The reason for this is as simple as it is surprising (from a substance perspective): we experience reality directly; our experience is (of) reality and is not a reflection on or of it.

Process, Posthumanism, and Ethics

This realization immediately opens the way for the development of a posthumanist ethics and education, as suggested in Andrew Stables and William Scott (1999, 2001). Not to be confused with the cyborg forms of posthumanism evident in the writings of, for example, Donna Haraway (1991), and in a great deal of science fiction, this posthumanism is principally a broadening of the scope of humanist values and thinking into areas of relationship between the human and non-human worlds. It takes us beyond the limited deontological environmental ethics implied by Immanuel Kant

(1949), according to which our treatment of animals is ethical or not insofar as it reproduces our behaviour towards other people, and beyond Aristotelian-based virtue ethics, according to which environmentally responsible behaviour might arise as a result of the training of personal character.[5] It goes beyond traditional utilitarian ethics in attempting to valorize more than the specifically human interest. Insofar as deep ecological perspectives tend to mystify nature, a posthumanism developed from a process account also runs counter to deep ecological ethics; however, this by no means true of all deep ecology (e.g., Leopoldian land-ethics). Thus, a process-based posthumanist environmental ethic may or may not be at odds with strands in deep ecological thought.

The Kantian perspective is that cruelty to animals belittles the people who do it since it is unreasonable to be cruel. There is no sense in this Kantian approach of any relationship, discourse, or negotiation with the animals involved. Everyday life, however, tells a different story. Taken to extremes, the Kantian conception of the categorical imperative might lead one to conclude that kindness is the appropriate way to treat the dangerous animal that is charging at you, because kindness is a virtue, and what is virtuous is virtuous in all contexts, whereas in reality you will try either to escape or distract it, if necessary by hurting it. In other words, your actions will, indeed, be affected by both the animal's actions and the likely immediate consequences: it will be a two-way process—a sort of negotiation. Kantian ethics, by ignoring this inevitable interaction, takes us only so far. In such situations, absolute monological reason cannot be called upon to dictate human behaviour with respect to the rest of nature. However, if we abandon an absolutist view of reason, as part of abandoning a belief in the independence of the human mind from the materiality of the natural world, then rationality need not be divorced from consequentialism.[6] Specifically, if we acknowledge that the animal and oneself are engaged in the same complex process, then understanding and affecting our relationships with the non-human become of primary and immediate interest. Thus it is not ultimately irrational to either stop, or escape from, the animal; which is the more rational depends on the situation. In such situations, everybody known to this author would likely act out of a sort of enlightened self-interest, in avoiding harm from the animal (first priority) while attempting to avoid harm to it (second and lower priority). In other words, we would act as though at the centre of a process involving (in this case) non-human others.

By acknowledging our activity as part of a *nexus* (Whitehead, 1929a), we are also parting from all ethical systems based on the idea of moral (in this case, environmental) action as principally expressive of desirable traits of character or personality, including both Aristotelian virtue ethics and more recent conceptions of ecofeminist and care-based ethics other than those that explore the experiential human/non-human boundaries (such as Clayton, 1998): these latter conceptions appear much more process-friendly.

Partly analogously, a process-posthumanist view is necessarily at odds with all forms of utilitarianism, as traditionally conceived within a narrowly humanist framework. However, a form of utilitarianism that acknowledged greater than the human interest might well be more appealing from a process-posthumanist perspective, bearing in mind the strongly pragmatic orientation of any philosophy that judges in relation to real-world outcomes. (Note that Daniel Holbrook [1992] has argued that unreconstructed "qualitative utilitarianism" is already sufficient to deal with many, though not all, environmental concerns, though many environmentalists are strongly anti-utilitarian.)

Thus the adoption of a process perspective does not lead to an unequivocal preference for one existing body of environmental-ethical thought over another. Rather, it provides a lens for critiquing existing ethical models: in particular, by pointing to the limits of any scheme that sees either human or non-human nature as fixed or natural entities (including people), as mutually isolable. There is more than one existing model that could conceivably be modified to meet these objections.

Process, Poststructuralism, and *Semiosis*

A process view inevitably problematizes concepts critical to environmentalism such as evolution, entropy, environment, and sustainability (Corbeil, 2004), yet it also allows for bridges to be built between the often mutually suspicious fields of the ecologist and the poststructuralist.[7]

I have argued elsewhere that a theory of living and learning based on *semiosis* (response to signs) has the potential to resolve a number of problems arising from Cartesian mind-body dualism in education, ethics, and related fields (Stables, 2005). The argument at the core of the discussion can be summarized as follows. It is generally assumed that "intelligent" human beings respond to signs in their environments, while animals and other natural entities respond (merely) to signals. However, collapsing mind-body dualism results in collapsing the sign/signal difference, allowing us to posit all living as response to "sign(al)s." (The theoretical argument is made fully in Stables, 2005, Chapter 1.) The sign-signal, or sign(al) might, indeed, be regarded as a natural corollary of John Dewey's "body-mind" (Dewey, 1925), though Dewey did not take this step. However, while "body" (at least) is a substantive term, "sign" and "signal" are not. A sign(al) is more like a punch, a kick, or a charge than a "thing": like a word in a text, it moves us on. (The word as black ink on white paper appears, of course, substantial, yet this too is fading away, but too slowly for us to notice.)

This fully semiotic approach inevitably draws on concepts from the branches of theory deriving from the work of the founders of the modern discipline of semiotics: the American pragmatist philosopher Charles Sanders Peirce (Peirce, 1931-1935; 1938) and the Swiss linguist, Ferdinand de Saussure (de Saussure, 1966). Such developments include the poststruc-

turalist perspectives of philosophers such as Jacques Derrida (e.g., Derrida, 2001) and Emmanuel Lévinas (e.g., Lévinas, 1987). For present purposes, the concepts of justice promoted by both of these thinkers is of relevance, as are the specifically Derridean notions of *différance* and *trace*. However, such ideas have been little used in the specific field of environmental education or education for sustainable development.

To poststructuralists, as to process theorists (and to phenomenologists[8]), such as Edmund Husserl, Martin Heidegger, and Maurice Merleau-Ponty, experiential meaning is all-important, since living is something we are intricately implicated in, in relationships with others, human and non-human, rather than something objectified and abstracted and of which we are privileged a God's-eye view. Derrida's views on meaning can in some respects be easily squared with those of Whitehead (1929a), while in others they seem utterly opposed. Like Whitehead, Derrida has a view of the experiential world as in constant flux; each perception carries with it echoes of previous experiences. While Whitehead's idea of the "prehension" is one attempt to make sense of these echoes, another—less totalizing and predictable—is Derrida's *trace*. Derrida (1992) makes the point that each time we, for instance, read a text, we effectively "countersign" it; each act of meaning carries traces of the last.

While Whitehead and Derrida are both anti-essentialist in substance terms, Whitehead does not attempt the radical, deconstructive metaphysics of absence that characterizes Derrida. That is to say, Whitehead believes firmly in the present—that which is lived and experienced—as "present"; Derrida, by contrast, rejects all forms of Platonist essentialism and its implied assumptions of presence, instead arguing that all meaning is "deferred." Derrida's idea of *différance* combines that of "difference" with that of "deferment."[9] However, while this metaphysical gulf separates Whitehead and Derrida on one level, on another each points in the same direction: towards a study of experience as relational and as it is experienced, rather than in some idealized and abstracted form.

Finally, a relational view of living begs a conception of justice as strongly responsive to the not-fully-known—even ultimately unknowable—Other. Alterity makes relationships possible. Such a view of justice is put forward (albeit by rather different means) in various works by Derrida and by Lévinas, and its implications for education have been discussed by Gert Biesta and Denise Egea-Kuehne (2001) and Egea-Kuehne (2006). Put simply, Lévinas' particular line is that, on encountering the face of the Other, we have an initial desire to obliterate its alienness, yet we must overcome this desire and attempt, instead, to defer to the otherness. In other words, to live fully we must make the necessary efforts to relate. In effect, Derrida's musings on justice tend in the same direction. A universe characterized by process does not allow for fixed identities and thus guarantees (if nothing else) enduring alterity. We are never complete "of ourselves," nor can we act ethically without deference to the other. Within the human realm, we may not find this

a particularly radical idea, but our survival as humans depends on our relations with the non-human also, albeit neither Derrida nor Lévinas have any evident interest in this.

A view of justice as attending to the unknown other—and thus of inviting further ignorance and exploration, rather than knowledge as closure—runs counter to the instincts of most philosophers, but opens up exciting opportunities for education that I shall attend to briefly in the final section of this paper.

Some Practical Implications

In the space available, it is neither advisable nor feasible to attempt a set of comprehensive statements about the implications of a process view for either curriculum or the practice of teaching. I shall therefore limit myself to some general statements of principle, illustrated by a small number of possible examples.

It is a platitude to claim that life is experienced, and therefore that education should be "experiential." Learning certainly should be—indeed, must be—experiential. However, a process view differs from the dominant substance perspective in claiming that experiences and events *comprise* life: our experiences *are* our involvements in events. This forces us to reconsider subjectivity and objectivity. Most educational practice—particularly, I would argue, in the sciences and social sciences, but sometimes, and perhaps increasingly, in the humanities and language arts—is undertaken on the assumption that what is subjective ("feelings," "opinions," and the like) is a mere commentary on what is objective ("the world," "knowledge," "facts," etc.), and, as commentary, the subjective is of less value than the objective. On this account, what it is most important to learn is the way the world "really is," and the student's thoughts and feelings do not offer a path towards such understanding. Ironically, "empirical" science (i.e., science avowedly grounded in experience) has generally devalued "experience" to "observation"—and observation under highly constrained circumstances, at that (Rorty, 1980). Again, we have immaterial "mind" observing material "body": a highly impoverished conception of experience. In effect, therefore, encouraging children to "think scientifically" about what is going on entails asking them to switch off, or ignore, large parts of their personalities. To take a rather trivial example, a child's response of "the mixture exploded" might be a valid conclusion to a classroom experiment, but "this experiment scared me" would not, despite the potential educational opportunities (scientific and otherwise) offered by the latter reaction.

The results of this bifurcation are many, but some examples are particularly revealing. For example, there remain few examples of young people's creative writing being grounded in their excitement at what they have learnt about science, at least in my and my colleagues' experience. The proper mat-

ter of story, poetry, and drama remains, in common conception, the working out of relationships and the working through of subjectivity, the latter understood in a very limited way (actually much more limited than in René Descartes, for example), with little or no intellectual endeavour and often with respect to a very limited domestic ethical sphere.

By contrast, the key educational implication of the process view is that experience is life itself; it is not merely *of* life; we are not observing reality from an insulated space or a safe distance. Life is relational and we are part of what goes on. It follows that there really is a place for direct experience in science lessons, for example.

Everything we experience in day-to-day life potentially tells us something of educational value, while many—though not all—of the things we learn about in school can be experienced by us in daily life. Examples of the first might include a visit to a sick relative or a walk in a particular landscape; of the second, forces of acceleration and deceleration while travelling, or processes of decay and recycling at work in composting, or chemical change in cooking. The critical message for teachers is that the more connections drawn between daily living and scientific theory—not as abstracted connections, but through lived experience—the better the consequences for enrichment of each. In many instances relating to education for sustainable development, the potential benefits are clearly social as well as personal. To give one example, polluting behaviour that is often characterized as "thoughtless" can be carried out by educated people not because they do not understand the theory, but because they are not in the habit of associating the science with their daily practices; such are instances of an educational legacy of which we should be less than proud. We have come to believe that our lives and actions are somehow unreal: insubstantial in a substantial world. We should have learnt that our actions, thoughts, feelings, and so on are part of the energy of the real world unfolding, and that everything we do is part of changing that world—a world from which there is no retreat.

I have, in the past, argued for a very broad conception of environmental literacy, based on the assumption that we respond to the world around us much as we read a book (Stables & Bishop, 2001). Some have responded to this as a very partial and incomplete account of what education for sustainable development needs to achieve. My intention has always been, however, to convey literacy in terms of reading *and writing,* and in my later work I have attempted to avoid accusations of reductionism by making clear that by "literacy" I mean "semiotic engagement" or *semiosis* in the fullest possible sense (Stables, 2005). In this spirit, Derrida has argued that when we read or reread a text, we "countersign" it (Derrida, 1992). By the same token, when we take part in a natural event we are reading and countersigning a little bit of the book of the world, rewriting it as well as reading it, which is why environmental literacy, on the broad view, is as active as it is passive. It is a dualist and substantialist fallacy that thinking does not involve doing: to hold onto

this belief is to reject a great deal of recent philosophical thinking and to revert, rather, to the Cartesian position that the mind is immaterial while the world is material—and that, by implication, the mind can think about the world without affecting it. Surely education for sustainable development should never proceed on such a premise.

This is not the place to develop a detailed curriculum. Rather, let me illustrate this by referring to one possible teaching-and-learning activity related to each of the forms of environmental literacy (understood as *semiosis*) delineated in previous work: functional, cultural, and critical.

Functional literacy enables an individual to cope with day-to-day realities. Functional environmental literacy, therefore, might include an awareness of how household waste should best be disposed of: what can be recycled, composted, buried, or incinerated. There are many ways of teaching this that can involve active engagement by students as part of a broader set of initiatives connected with the "eco-school."

Cultural literacy refers to awareness of the cultural values placed on persons, places, and events. Active involvement in issues relating to the upkeep of national parks, for example, will give students insights into (and practical experience of) dealing with landscape, conservation, and sustainability issues that are richly "cultural" in their orientation.

Critical literacy relates to the ability to understand the ideological underpinnings of a text, including an "environmental text" (an area of landscape, for example, according to Stables & Bishop, 2001). Again, working actively within a forest, a farm, or a conservation area (or indeed an urban environment) will allow students to begin to understand—and, therefore, subsequently to counteract—economic and political forces that have helped to determine present patterns of land and resource use (for example). In the United States context, at least, where active political engagement is an expected part of a civics curriculum, such activities could relatively easily be extended to incorporate environmental and other sustainable development concerns.

We need to go further than this, however. Not only are we implicated in events: as we are defined by interactions, we are relational entities rather than Democritan atoms or Epicurean monads. Put alternatively, every system is an open system. We live among and between our prior conceptions of apparently discrete beings. Thus there is no fixed boundary between the human and the non-human (for example), just as there is no fixed boundary between "me as a child" and "me as an adult." As ancient ritual from around the world reminds us, we "take on" various attributes generally associated with other animals at different times; and as modern science has revealed, humans are not the only tool-users and do not have sole rights over language. Rather, we are always part of what we are experiencing. We are liminal creatures.

If human nature is fluid, then individual human experiences can never be entirely predictable. This is not to deny that the universe might be deter-

mined, or at least have a *telos*: rather that we shall never be able to take account of the myriad factors or influences that will come together in any particular place at any particular time. Thus, from the human point of view, outcomes are always unpredictable; patterns recur, certainly, but with variation. We are changing with the world that is changing as we are going along with it. This reveals two further senses in which we need to move education away from a view of trivial subjectivities engaged with important objectivities. We also need to move it away from overriding concern with "delivery" of standardized objectives, and we need to move it beyond humanism. Nothing ever achieved by human beings has been either entirely predictable or managed by human agency in isolation. Indeed, human agency is never in isolation: we need, at the very least, air to breathe and food to eat.

A consequence of the above is that there is absolutely no guarantee that the way any person helps to read and write the world is the way any educator, environmental or otherwise, wants them to. It is all too easy to convince ourselves that the world is a certain way and that prescribable actions will fix it for the future. To see the world in terms of infinite processes in which all people and all other forms are implicated is to recognize it as a text under constant revision and of bewildering richness and variety. To reread and rewrite a bit of such a world (we do not have "semiotic" equivalent terms for reading and writing) deserves not only talk and action but the full gamut of human experience and endeavour: physical, affective, cognitive, and ethical. It demands, on all fronts, response and responsibility. It demands an education that works from and to human experience in all its richness, and does not attempt to stabilize it, or the world of which it forms part.

Notes

1   Environmental education and education for sustainable development are clearly not synonymous. However, insofar as each (to a different degree) is concerned with the concept "sustainability," the present argument applies to both. It might further be noted that in the United Kingdom, whence this paper comes, neither environmental nor sustainable development education has ever been a formal part of the school curriculum; thus a British writer might have fewer qualms about combining the concepts for certain purposes than, say, a Canadian. Arguably, environmental education tends further towards a process view than education for sustainable development, insofar as the latter might place a greater emphasis on the environment (purely) as "resource." However, most environmental education also seems to move forward on the assumption that the natural world is substantial.

2   For an excellent introduction to quantum physics, including the issue of the wave properties of particles and that of whether particles can therefore validly be held to exist at all, see J.P. McEvoy and Oscar Zarate (1996).

Whitehead (1929a) was very aware of the early history of this debate when he wrote *Process and Reality*.
3   See also Stables (2005, pp. 48-50).
4   "Prehension is the basic, extrasensory awareness, or grasping, that all experiences have of all earlier experiences" (Anderson, 2002, ¶ 2, referring to Whitehead).
5   Note David Cooper and Simon James's (2005) reinvigoration of virtue ethics in relation to the environment.
6   See also Stables (2004).
7   See, for example, Michael Bonnett's (2000) dismissal of poststructuralist perspectives as "retreat from reality" (pp. 593-612).
8   For a useful introduction to these phenomenologists, and their particular value in environmental philosophy, see David Abram (1996).
9   *Différance* is a pun in French, used in the context of deconstruction. The pun arises out of two meanings of the French word *différer*: "to defer" (in the sense of *to postpone*) and "to differ." In the thought of Jacques Derrida, *différance* refers roughly to the fact that words and signs can never summon forth what they mean (the "absent signified," which Derrida called the *trace*) but can only be defined or explained in other words. Therefore, words and signs are always *different* from what they mean, and the actual things they refer to are always *postponed* by human language (Wikipedia, 2006).

Notes on Contributor

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