
IS THE CONCEPT OF "NATURE" DISPENSABLE?

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ABSTRACT. In response to the arguments of Bill McKibben and of Steven Vogel that nature is at an end and that the very concept of nature should be discarded, I argue that the concept of nature is indispensable. A third sense of "nature" besides the two distinguished by Vogel, that of the nature of an organism, is shown, through five arguments, to be vital for environmental philosophy and for ethics in general. It is no coincidence that the same term is used for all three senses of 'nature' in many languages. The indispensability of 'nature' in the third sense is used to suggest the indispensability of 'nature' in the other senses (needed if we are to understand species, to distinguish social systems from natural systems, and to be able to ask metaphysical questions about whether 'nature' in this sense and in the other two might have a creator).

KEY WORDS. Nature, McKibben, Vogel, environmental philosophy, ethics, senses of 'nature', species, artifacts, natural systems, supernatural explanations, givenness.

My objective is to defend the centrality of *the concept of nature* for environmental philosophy and ethics, and equally for medical and veterinary ethics and for ethics and philosophy in general. I attempt to do this by drawing attention to a sense of "nature" which may prove to be indispensable and to which other senses are closely allied. Such a defense is appropriate and timely because of recent claims that the end of nature has arrived, that the concept of nature is hopelessly ambiguous and should be discarded, and that ethics should proceed without it.

These claims are, of course, distinct and separate from each other. Nevertheless they comprise aspects of a tendency or movement of thought in which nature is declared either superannuated or unknowable or a mere construct. To cite one typical example, Anthony Giddens claimed recently in *Beyond Left and Right* that in our "post-traditionalist" culture "nature no longer exists!" (p. 11), that it has become "socialized" (p. 208), and that it has "dwindled away"¹ (p. 223) In a related tendency, words and texts are sometimes valorized at nature's expense, sometimes

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on the grounds that no reality can be known, as opposed to the textual lens or prism we inevitably use when seeking to refer to it. It was in response to such movements and tendencies that Michael E. Soulé and Gary Lease published their collection *Reinventing Nature?: Responses to Modern Deconstruction* (1995) ². In fairness to its authors and editors, the question-mark following the phrase “reinventing nature” should be stressed; they were not claiming to be inventing nature all over again after an interlude in which hearts had ceased to beat, neurons to fire, and nature to exist. However, I begin instead with the much more prominent arguments of Bill McKibben, who, echoing Francis Fukuyama’s phrase “the end of ideology,” not long ago saw fit to declare “the end of nature.” (Perhaps he was also echoing Carolyn Merchant’s title *The Death of Nature* ³.)

Bill McKibben argues in his book which actually bears the title *The End of Nature* ⁴ that nature, in the sense of entities or tracts unaffected by humanity, is nowhere to be found, granted global anthropogenic processes such as assaults on the ozone layer and global warming. Not even Antarctica is left unscathed (in either of these respects). Hence so-called “nature” is actually a *human artifact*. But if this were the full case for discarding the concept of nature, it would easily be answered. Firstly, our planet does not exhaust the realm of nature, nor our solar system; outside the latter there are countless stars and planets that remain natural in McKibben’s sense of the term. Secondly, if what is intended by “nature” is actually tracts of territory unaffected by human activity but inhabited by living organisms, there may easily be myriads of planets that remain natural in this sense.

But in any case, thirdly, it is both feasible and important to distinguish between organisms and ecosystems (such as forests and deserts, and most of their non-human inhabitants) that have been only marginally affected by human activity, and genuine artifacts such as cities, gasometers and motorways which have been not only molded by such activity but supplied by it with their very reason for existence. Thus, some entities and areas remain much *more natural* than others, in this sense of “natural”, which is close enough to McKibben’s to have a bearing on his claim that nature is at an end. I draw no normative conclusions about behavior from this distinction between the natural and the anthropogenic, and recognize the dangers of seeking to derive such conclusions from it, but point out that there is no incoherence involved in drawing the distinction itself. Thus if human beings have responsibilities for conserving natural resources or preserving natural species, they are unaffected by McKibben’s case.

However, Stephen Vogel, in an article entitled “Environmental ethics after the end of nature,” maintains that the very concept of nature is so ambiguous as to be unfit for use and fit only to be discarded; in this regard,

the end of nature “*has always already occurred*,” and environmental ethics, while it still has a role, should perform it without any reference to nature⁵. For “nature” means either everything that is not supernatural, obviously including humanity and whatever we may think or do, or it means whatever is not artificial or anthropogenic; and in neither of these senses can it supply us with guidance. For in the former sense, nothing short of *everything* is natural; while in the latter sense *nothing* is natural, whether for McKibben’s reasons, or because, as Vogel believes, natural objects are human constructs, since, despite their independent existence, we can only ever think of them through human concepts. Nature in itself is supposedly inaccessible, and thus profitless for our thinking.

Vogel seems more recently to have abandoned some of these conclusions, to judge from his paper “The nature of artifacts” in a 2003 issue of *Environmental Ethics*, in which he maintains that sometimes ecological reconstructions can partake of naturalness⁶. It may also be significant that his title employs the word “nature”; the sense in which he now uses it, a sense in which things *have* a nature, will be given prominence shortly. Nevertheless it remains important to explain why his earlier conclusions are misguided and untenable, since it is possible that others might find his earlier thoughts preferable to those of 2003, and since yet others almost certainly share in adherence to those thoughts.

To return to Vogel’s “End of nature” article, his last-reported argument, the one about human concepts, probably proves too much, for it implies by parity that even if God exists and reveals truths to human beings (something we ought to be able to suppose to be at least a conceivable possibility), our thinking about him or her as beyond humanity is in any case futile simply because thinking has to be done through human concepts. While Vogel might actually endorse this reasoning, the conclusion seems to require a stronger premise that the one supplied, for hardly anyone has ever supposed that our concepts are not human concepts, and yet this leaves worshippers and believers in general completely undeterred from thinking about God as beyond humanity, and atheists undeterred from treating such beliefs as coherent but false, even though Vogel’s reasoning represents such a belief as an *inconceivable* non-starter. As will be seen later, there are parallel arguments for rejecting Vogel’s reasoning as it would apply to the weather (which would also have to be considered as having no reality beyond that of humanity), and also to human sensations.

Michael Soulé has further replied to this argument. He warns of a movement skeptical of the claims of science to knowledge of nature, and aiming to “demystify and dethrone the ‘hegemonic dominance’ of science and replace it in the public’s ranking of authority with a level field that does not privilege any single approach.” If this approach were adopted,

how, asks Soulé, could we, the public in general and public authorities in particular avoid falling into the hands of astrologers and all manner of quacks⁷? Justified skepticism about some kinds of claims to knowledge of nature, he could go on to say, does not warrant skepticism about all such claims. Besides, there is something wrong with an epistemology that disowns (as some theorists do) knowledge of anything *beyond the text* (any text, that is), and seems to deny us knowledge even of paper and of printers' ink. How can we be supposed to perceive or grasp texts if nature and reality are altogether inaccessible?

Before I say more in reply to Vogel, I want to acknowledge the value of an earlier contribution of his on a related topic. In an article in *Social Theory and Practice* entitled "Marx and alienation from nature⁸," Vogel contested the view of many environmentalists that our problems lie in alienation from nature resulting from attempts to dominate it, and that solutions lie in recognizing that we are part of nature, and letting nature be, or rather letting the other parts of nature be. This, he argued, following Marx, misrepresents our position, as if human beings had no potential to make our world more human, and is prone to make us regard as natural much of our environment that in fact has anthropogenic origins and that ought to be changed rather than left alone. Besides, alienation is not from nature but from our *humanity* and our capacity to make the world truly human. In one part, Vogel was expounding Marx, and this aspect is well beyond our current theme. In another, he was employing Marxist themes to criticize environmentalists, and here I suggest that (although he overplays his hand at times, as when he suggests that no one is alienated from the natural world) there is much of value in what he says. Vogel explains that he is not criticizing all environmentalists, but more particularly Deep Ecologists and ecofeminists such as Carolyn Merchant. Such writers, he feels, in different ways encourage *misplaced identifications* of what is natural, and are prone to underrate human possibilities for building a democratic and decent society. However, it is a big step from objecting to widespread understandings of nature to proposing that the concept of nature, in either of the senses mentioned so far, be discarded as either useless or incoherent.

But rather than argue immediately about whether nature in itself (in one or other of the two senses mentioned) can be studied and understood, I want to draw attention to a *third* sense of "nature" which cannot be discarded without serious loss, and which also seems closely related to the other two. I will return after that to the first and second concepts of nature, the first being the one in which the natural contrasts with the supernatural, and the second the one in which the natural contrasts with the artificial or the anthropogenic.

In this third sense, “nature” is used of the nature of an organism or creature (that is, its inherited or evolutionary *make-up*, or more generally what makes anything to be the thing that it is or of the sort to which it belongs). I am not thinking of what people call “second nature”, but of what might be called the nature that “second nature” resembles or approximates to (a thing’s primary nature, as it were). For each kind of living being, whether cat or cactus, beaver or barnacle, it makes sense to speak of *its nature*, and, as I shall be arguing, it is highly important that this possibility is open to us. After a version of this paper was first presented, I discovered that the theologian and former Archbishop John Habgood had also compared and contrasted this sense of “nature” with others in his book *The Concept of Nature*, although not with the same other senses⁹. Here is his account of this same sense of “nature”, based, in part, on the concepts of Aristotle: “To ask about the ‘*natur*’ of something is to ask what kind of a thing it is, what are its essential characteristics. Those who enjoy tracing links between words can note how ‘kind’ comes from ‘*kin*’, and ‘nature’ from ‘*natus*’ or birth. Thus, according to this meaning, the nature of a thing is what is innate to it, what makes it what it is.” On the next page he adds that in this sense, the word “nature,” “can carry the meaning ‘the way things are by virtue of their coming to be’¹⁰”. (Some comparable reflections on the etymology of “nature” can be found in Holmes Rolston’s *Genes, Genesis and God*¹¹, but Habgood is more cautious than Rolston about avoiding the fallacy of origins.)

Further, and perhaps surprisingly, *the same word* is used in most languages to express this sense as well as to express the two distinguished previously. Here are some possible explanations of this pervasive tendency to use the same word for these three senses. This phenomenon could arise because such primary natures are given and beyond human control (or were until selective breeding and genetic engineering came along), and the use of “nature” (and its equivalents in other languages) conveys their *givenness*. (Habgood seems to have thought of this first: “It seems to me that the common thread running through all the meanings of nature I have been describing is a sense of givenness¹².”) Or it could arise because these natures are regarded as the outcome of natural rather than supernatural processes. Or possibly it arises for both these reasons; this would help explain the continuing use of a term that in other senses contrasts both with the artificial and with the supernatural.

Indeed the qualification about “until selective breeding and genetic engineering came along” may be unnecessary. For both these processes are subject to various constraints, whether molecular or genetic, that have to be regarded as *given*. This is a point made (implicitly, and in some ways well in advance of what could have been understood at the time) in Shakespeare’s *A Winter’s Tale*. Perdita speaks of “stripèd gillivors” (which

may have been the scented plants that we call stocks or may have been wallflowers), calling them “nature’s bastards,” and refuses to grow them, explaining this with the lines:

For I have heard it said.
There is an art which in their piedness shares
With great creating nature.

If we set aside this further sense of nature as “*natura naturans*,” the reply she receives from Polixenes returns us to more relevant senses of “nature”:

Yet nature is made better by no mean
But nature makes that mean. So, over that art
Which you say adds to nature, is an art
That nature makes. You see, sweet maid, we marry
A gentler scion to the wildest stock
And make conceive a bark of baser kind
By bud of nobler race. This is an art
Which does mend nature—change it rather—but
The art itself is nature¹³.

Among the many meanings implicit here there is the claim that even the amendments to nature produced by selective breeding are themselves natural in the sense of being an expression of possibilities that are natural to creatures of whatever kind and thus *given*. Additionally, the art of cultivation and of selective breeding is also held, not unreasonably, to be natural itself. (Perdita still refuses to grow gillivors, but that is another matter.)

To return to the three senses of nature discussed above, *physis* in Ancient Greek, *natura* in Latin and Italian, *Natur* in German and *nature* in French are just a few examples of words used in all these neighboring and related roles. (Habgood points out that Aristotle never quite used *physis* in the related sense of the entire natural order, as opposed to a force behind it; but some of his ancient successors undoubtedly did¹⁴. Cicero certainly used *natura* in this sense in the text of *De Natura Deorum*, according to Lewis’ and Short’s *Latin Dictionary*¹⁵.) I would in fact be grateful for readers’ comments on whether the use of the same word in all these languages for these three senses of nature is a coincidence, or reflects some necessary connection between them, or has some kind of intermediate explanation. It would also be interesting to know of any languages in which the same word is not used in these senses, despite the relevant concepts being current in the relevant linguistic communities. This would probably have to be tested on ancient languages; in the modern world,

translations of the word "nature" would be likely to be used of all three senses in any case, so as to match the European languages translated.

Polish is a possible exception; for while the word *przyrodzenie* has (or used to have) all three meanings, plus others, the modern Polish word *przyroda* means (roughly) "the natural environment", and more strictly all the living organisms at a given location, as opposed to the natural order or the nature of humanity¹⁶. Yet in Russian, Czech and Serbo-Croat the term *priroda* means both the natural world and character¹⁷; and the distinction just remarked in Polish may correspond more closely to the difference between "nature" and "natural environment" than to a distinction between the different senses of "nature" mentioned here. So Slavic languages could comprise the exception that proves the rule. In any case, my tentative view is that the use of the same word in the languages cited previously suggests some kind of *strong links between the concepts* in question.

Further, for most species there is no problem of accessibility to the inherited nature of the species, not, at least, for natural historians, gardeners and farmers; and in these contexts the argument that these natures are inaccessible because they have to be conceptualized through human concepts appears unconvincing. You might as well say that this consideration makes rain, hail or snow inaccessible, or even pain and suffering. But it would be ludicrous to suggest that we can only access the word "rain" but never rain *itself*, nor tooth-ache itself, but only the *word* "tooth-ache."

It is now time to present some reasons why the concept of nature in the third sense is indispensable. My first reason is that the *good* and equally the *harm* of a living organism depend on its nature. If we did not know the nature of an organism, we could not tell what constituted its good or its harm. This is not just to say that the concepts of good and harm are species-specific; it is to say (unsurprisingly enough) that grasping the good or harm of a creature involves some grasp of its inherited constitution or make-up. If so, and if ecological ethics is partly concerned with promoting the good of species, and preventing their being harmed, then this discipline must also engage with the concept of a creature's *nature*, whether or not this is understood, in Aristotelian fashion, in terms of the creature's capacities and potentials. Equally, insofar as veterinary ethics is concerned with the good and harm of individual animals, it too must engage with this concept. For this conceptual connection applies to domesticated species as well as to wild ones. Problems certainly arise for genetically modified species, since we are less clear what their nature is; yet their derivation from genetically *unmodified* species makes it likely that to a considerable degree they too inherit a nature, just as, in the eyes of Shakespeare, cultivated kinds inherit much of the nature of their pre-domesticated kin.

And by parity with veterinary ethics, it is difficult to persuade oneself or others that medical ethics, insofar as it is concerned with the good and harm of individual human beings, can avoid being concerned with the *nature* of human beings in a corresponding sense.

My second argument is related and runs as follows. What goes for the good of organisms also goes for their well-being or *flourishing*, something that also depends on their nature. But it is often argued that the flourishing of living creatures has intrinsic value, in the sense of being desirable in itself, even in the absence of ulterior reasons. This conclusion cannot simply be assumed, and needs an argument, such as that of Kenneth Goodpaster's celebrated paper "On being morally considerable" or of the late Richard Routley's "Last Man" thought-experiment in "Is there a need for a new, an environmental ethics ^{18?}"; but there is insufficient space to argue this conclusion here. However, it is interesting to see what follows if it is granted; so let us grant it for present purposes. If it is granted, then axiology or value-theory will also need the concept of nature, so as to discover what *has* intrinsic value, and thus to make well-grounded judgments about what contributes to such value, which can then be put to use or given application in further kinds of reasoning, whether prudential, ethical or aesthetic.

My third reason is related to the first. Without the concept of "nature" in the sense of the inherited (probably evolutionary) constitution or make-up of human beings, human nature and needs are liable to be treated as infinitely *flexible*, and thus as adjustable to the pattern intended by the local political authorities, and to be treated accordingly. (This point is due to Mary Midgley, in *Beast and Man: The Roots of Human Nature* ¹⁹.) But, as the late Geoffrey Warnock remarked, it is not good for people to be starved or tortured. Indeed Warnock went further: "That it is a bad thing to be tortured or starved, humiliated or hurt, is not an opinion: it is a fact. That it is better for people to be loved and attended to, rather than hated or neglected, is again a plain fact, not a matter of opinion ²⁰." Thus a robust concept of human nature turns out to be indispensable to sustain our rejection of unlimited human flexibility. (Incidentally, by "human nature" I mean no more than "what it is to be human" and not what is sometimes meant by this phrase, along the lines of "predominant patterns of human motivation." I have not made any claims about human nature in this latter sense concerning what people predominantly want, and I am therefore neither entitled nor inclined to draw any conclusions about it here.)

My fourth reason relates to the previous one. The *nature/nurture debate* was not about nothing, but concerned whether behavior is sometimes influenced by non-environmental factors, implicit in the make-up of humanity or of particular persons. Merely to express this question involves introducing the third sense of "nature," whether explicitly or implicitly.

Whether the answer is that this influence is great, small or non-existent, the significance of the question suffices to show that the relevant concept is indispensable. If we go along with Midgley's view in *Beast and Man*, the answer has to be that this influence is great; but there is no need for present purposes to adopt any particular answer to this important question.

My fifth reason relates to the third and fourth. If we had no concept of the nature of human beings, then no sense could be made of "alienation". Some may suggest that sense could still be made of being alienated from nature or from fellow-humans. However, as the same Steven Vogel argues in "Marx and alienation from nature," the concept of alienation in Marx concerns fundamentally alienation from our own humanity, which happens when we treat as natural factors and forces that could be humanized but are allowed to distort our humanity²¹. This crucial concept, then, presupposes that of human nature, although this is not Vogel's point; indeed his point about treating as natural aspects of the environment that could be otherwise helps explain his subsequent crusade against the very concept of nature. Relatedly, we may add, if alienation can be overcome, people must have a nature from which they can be estranged and with which they can be reunited, or at least with respect to which they can be rehabilitated, or (if their nature consists in capacities) to the fulfillment of which they can turn, develop or return.

In the context of alienation and claims to identify ways in which people become alienated from nature, it is instructive to bear in mind a passage cited by Habgood, which ends with the sentence: "This theory now gradually falls to pieces, as is the fate of all ideas that are estranged from nature." The theory turns out to be Einstein's theory of relativity, and the source is a Nazi newspaper of 1933, seeking to expose "the dangerous influence of Jewish circles on the study of nature²²." This passage underlines the real dangers of misidentifying nature when diagnosing apparent evil; such evidence could be used in favor of the more plausible aspects of the constructivist's case, for all kind of conceptions of nature and of human nature are prone to be concocted, not always on such a flagrant ideological basis, and then used to derive bogus conclusions, whether about women or gays, or human greed or aggression. However, neither this passage nor anything else detracts from the importance of the concept of nature itself.

The joint force of these five reasons upholds the indispensability of the concept of *the nature of organisms, creatures and species*. We cannot divest ourselves of the concept of inherited endowments unaffected (or in cases of selective breeding largely unaffected) by human action. The main importance of this concept is that it facilitates arguments, not draw to conclusions about natural and thus (as some think) right behavior, but to conclusions about states and conditions in which creatures function well and are healthy, something that is vitally important if these states and

conditions should be aimed at (whether prudentially, aesthetically or ethically). This concept is thus vital for ethics in general.

But if the third sense of “nature” proves indispensable, the second, that of the *sphere unaffected or relatively unaffected by human action* is likely to be valuable too. How can we even understand the flourishing of wild creatures without the concept of their natural environment? Is not understanding of the flourishing of domesticated creatures partly dependent on grasp of both the behaviors and the natural environment of their undomesticated counterparts?

Besides, if we discard the second sense of “nature”, and the distinction between natural systems and social systems, how are we to understand systems such as the global climate, affected, as it certainly is, by human action? For human action has impacted on systems that existed prior to humans, and much of the character of which is independent of human action, and which cannot be understood on any other basis. Tackling the problem of global warming would be hopeless if the weather were regarded as simply a by-product of the global economy and of nothing else. Thus the *second* concept of nature is important irrespective of one’s position regarding the view, taken by some environmental philosophers, that intrinsic value resides in the natural in this sense. (It could not reside *only* in the natural in this sense, if the flourishing of human beings itself also has intrinsic value, since no one supposes that this is unaffected by human action.)

Further, part of the background explanation of natural processes such as weather systems (“natural” in the second sense) is found in *natural laws* (“natural” in the first sense) such as the laws of thermodynamics. As Vogel says, these laws in fact hold good whether human beings act or remain inactive. “Nature” in this, the first sense, shares the givenness of nature in the third sense, and indeed of nature in the second sense. Yet on occasion we need to reflect on whether natural laws operate always and necessarily; whether they admit of exceptions; whether they could have been different; and what makes them as they are. The theories that theists advance and that atheists reject must remain expressible, for the possibility remains that nature (in at least the second and third senses) has a creator. And this shows that, for the purposes of philosophy of science and for the purposes of metaphysics, we need the *first* sense too, to apply to natural laws and processes that might or might not have been otherwise and might or might not have been created by God. As far as this conclusion is concerned, it does not matter whether human beings are parts of nature, plausible as this is, or even nothing but parts of nature, implausible as that is.

Thus all three of these related concepts of nature prove indispensable, at least for the proper purposes of ethics and of philosophy. But since nearly *everyone* needs to consider the good of living beings from time to

time, the concept of nature turns out, at least on this count, to be indispensable not only for philosophers but for nearly everyone. I say "nearly everyone," because not all humans are moral agents, and some moral agents disregard some of the crucial concepts. If these scruples could be set aside, I could instead conclude that this concept is indispensable for everyone²³.

NOTES

- 1 Anthony Giddens, *Beyond Left and Right*, Cambridge: Polity Press, 1994, cited in Michael Bonnet, "Retrieving nature: education for a post-humanist age", *Journal of Philosophy of Education* 37(4), 2003, pp. 550-730, at p. 557.
- 2 Michael E. Soulé and Gary Lease (eds.), *Reinventing Nature?: Responses to Modern Deconstruction*, Washington, DC and Covelo, CA: Island Press, 1995.
- 3 Carolyn Merchant, *The Death of Nature: Women, Ecology and the Scientific Revolution*, San Francisco: HarperCollins, 1980.
- 4 Bill McKibben, *The End of Nature*, London: Viking, 1990.
- 5 Stephen Vogel, "Environmental philosophy after the end of nature", *Environmental Ethics* 24, 2002, pp. 23-39.
- 6 Stephen Vogel, "The nature of artifacts", *Environmental Ethics* 25, 2003, pp. 149-168.
- 7 Michael Soulé, "The social siege of nature", in Soulé and Lease, pp. 137-170, at p. 149. The inner quotation is from N. Katherine Hayles, "Searching for common ground", Soulé and Lease, pp. 47-63.
- 8 Stephen Vogel, "Marx and alienation from nature", *Social Theory and Practice* 14(3): 367-388, 1988.
- 9 John Habgood, *The Concept of Nature*, London: Darton, Longman and Todd, 2002
- 10 Habgood, pp. 2f.
- 11 Holmes Rolston, *Genes, Genesis and God, Values and their Origins in Natural and Human History*, Cambridge: Cambridge University Press, 1999.
- 12 Habgood, p.14.
- 13 William Shakespeare, *A Winter's Tale*, IV, iv, 86-97.
- 14 Habgood, p.14.
- 15 Charlton T. Lewis and Charles Short, *A Latin Dictionary*, Oxford: Clarendon Press, 1879, pp. 1189-1190.
- 16 Teresa Kwiatkowska, "The concept of nature", in Tom Robinson and Laura Westra (eds.), *Thinking about the Environment*, Lexington Books, 2002.
- 17 Ibid.
- 18 Kenneth E. Goodpaster, "On being morally considerable," *Journal of Philosophy* 75, 1978, 308-325; Routley, Richard, "Is there a need for a new, an environmental ethics?", *Proceedings of the Fifteenth World Congress of Philosophy* (Varna, 1973), pp. 205-210.
- 19 Mary Midgley, *Beast and Man: The Roots of Human Nature*, Hassocks, Sussex: The Harvester Press, 1978, e.g. at pp. 19-24.
- 20 Geoffrey Warnock, *Contemporary Moral Philosophy*, London: Macmillan and New York: St Martin's Press, 1967, p. 60.
- 21 Steven Vogel, "Marx and alienation from nature" *Social Theory and Practice* 14 (3): 367-388, 1988.
- 22 Habgood, p.17.
- 23 I am grateful to Cardiff University and to the UK Arts and Humanities Research Council for making possible the preparation and completion of this article, in connection with the preparation of a related book entitled "Creation, Evolution and Meaning", for which each of these bodies granted one semester of research leave. This book is due to be published by Ashgate (at Aldershot, UK) during the second half of 2006.