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Natural Capital

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Essay 2

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Abstract

Interest in the concept of natural capital stems from its key role in certain attempts to elucidate the concept of sustainability. It is commonly suggested that the environmental interest in nature can be secured by interpreting sustainability as requiring that the level of natural capital be sustained. Usually this requirement is understood in what is here called a 'social scientific' sense, for example as the requirement that the flow of services yielded by the stock of natural capital should not decline. It is argued here that such a requirement is dependent on and vulnerable to fluctuations in technology, social arrangements and human needs. It is argued, further, that the concern for justice across generations which motivates the pursuit of sustainability is not guaranteed to coincide, in policy terms, with the environmental interest in nature. The conclusion reached is that the environmental interest will only be secured by conserving nature in an historical and physical, rather than a functional, sense, and some defence is offered of the desirability of conserving natural capital understood in this sense.

Keywords: sustainability; natural capital; manmade capital; justice

Natural Capital

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Interest in the concept of natural capital stems from the key role which this concept plays in certain attempts to elucidate the goal of sustainable development - a goal which currently preoccupies environmental policy-makers. My purpose in this paper is to examine the viability of what, adapting an expression of Bryan Norton's (1993, p.97), may be termed the 'social scientific approach' to natural capital. This approach largely determines the way in which environmental concern is currently being represented in the environmental policy community.

I

On any account of sustainability - and these are now legion - something or other is supposed to be kept going, or at any rate not allowed to decline, over time. In *Blueprint for a Green Economy* (Pearce, 1989), which I shall treat as epitomising the social scientific approach, sustainable development (or sustainability – I shall not trouble over the distinction) is construed as requiring that each generation leave its successor a stock of capital assets no less than it receives. In other words, the requirement is that capital explained also as capital wealth or productive potential - be constant, or at any rate not decline, over time. A distinction is drawn between natural and manmade capital, generating two possible versions of the sustainability requirement, each with variations:

- (i) that overall capital- the total comprising both natural and manmade capital should not decline, or
- (ii) that natural capital in particular should not decline (Pearce, 1989, p.34). Included under manmade capital are physical items such as machines, roads and buildings; but also 'human capital' such as knowledge, skills and capabilities. Included under natural capital are naturally occurring organic and inorganic resources construed in the widest possible sense to cover not just physical items but also genetic information, biodiversity, ecosystemic functions and waste assimilation capacity.

Natural resources can be further divided into renewables and non-renewables. If one continues to use non-renewables, e.g. fossil fuels, one will eventually use them up; renewables, on the other hand, e.g. forests, can be used indefinitely, although they can also be used up if they are over-exploited. A class of 'cultivated natural capital', or 'agricultural capital', is sometimes recognised, which straddles the categories of natural and manmade capital (Pearce, 1989, p.3).¹ This chiefly comprises cultivated plants and domesticated animals, but also associated soils, landscapes, etc.. Despite its appearing almost as an afterthought in the conceptual scheme outlined, this category is, of course, of enormous importance.

As the references to 'genetic information', 'waste assimilation capacity' and the like reveal, this approach to sustainability is centred firmly around the needs of human society- which is why we are referring to it as the 'social scientific' approach. Indeed, in the very first sentence of *Blueprint 2* (Pearce, 1991, p.1), in a passage outlining the 'central messages of *Blueprint 1*',

we see this clearly acknowledged: 'sustainable development is readily interpretable as non-declining human welfare over time'. In taking this view the authors are following the well-known prescription of the Brundtland report (1987, p.43), which stipulates that sustainability allows for present people's needs to be satisfied subject only to the constraint that this does not compromise the ability of future people to meet their needs.

II

A leading variation which is offered of the first version of the sustainability requirement ((i) above) is that, while not allowing total capital to decline, one should also avoid - so far as possible - instigating any irreversible developments (Pearce, 1989, p.36). It must be said at once that the thinking behind this constraint is a little curious. It is suggested that the effect of introducing the constraint will be to protect natural capital, since it is this, rather than manmade capital, which is most susceptible to irreversible loss: we can recreate the bronze axe, but not the Irish Elk. But no explanation is given of why this is important in the context of a theory dedicated to maintaining the level of human well being. *If*, despite an irreversible loss, overall capital does not decline then why, from the point of view of the theory, should this matter? *Critical* irreversibilities will no doubt inevitably affect total capital adversely - indeed, this might constitute a definition of 'critical' in this context - but, in that case, they will not be allowed under the basic requirement, and should not need to be singled out for separate mention. What we seem to have here is the first inkling of a failure of nerve - a failure to stick by the declared interpretation of the principle of sustainability, and perhaps a recognition that there is something of importance which it fails to capture.

As regards the second version of the requirement of sustainability, which stipulates that natural capital in particular should not decline, two variations are offered. One variation stipulates that natural capital in the simple physical sense - physical stock - should not decline. Among preliminary difficulties with this suggestion (to which we shall return), three might be noticed at this point. One is that working out a criterion for non-declining physical stock turns out to be a less simple matter than might first appear, particularly where living things are involved, because of the constantly changing relations between them. A second is that, whatever criterion is used, it would seem *prima facie* to rule out the use of non-renewable resources, unless their use can be compensated for by an increase in renewable resources. A third is that the criterion of constant physical stock does not seem to answer too well to the needs of the theory under consideration, because not all physical capital is equally useful to humans, and some perhaps is of no use at all. So the reason for attempting to maintain the level of physical stocks, in an indiscriminating sense, remains somewhat obscure.

The other variation stipulates that what should be held (at least) constant is not the natural assets themselves but their economic value: it requires, in other words, that there should be no reduction in the flow of services yielded by the stock of natural capital. This variation immediately allows for more flexibility: it would seem, for example, to sanction some use of non-renewables, provided that technology was at the same time opening up new possibilities for exploitation. It also restores the rationale for preserving natural capital, which now refers to those aspects of nature which are used or usable in human social and economic systems (Clayton, 1991, p.14). This would appear to be the approach favoured by Pearce and his colleagues: 'in the rest of this report we tend to adopt the 'constant natural capital' approach to sustainable development' (Pearce, 1989, p.48). At the same time they appear to contemplate

combining this with a vestige of the purely physical criterion so as not to permit certain physical stocks to fall below some 'critical minimum' (Pearce, 1989, p.44).

III

A first point to notice about the preferred interpretation of sustainable development is the 'fickleness' which it introduces into the attempt to describe what counts as maintaining the constancy of natural capital, understood as constancy of economic value. There are two aspects to this, both of which stem from the fact that the ability of a given generation to meet its needs or, in Pearce's terms, the flow of services yielded by a given stock of natural capital, is a function, first, of the technology, second, of the social arrangements and, third, of the human needs which pertain at the time.

1) In the first place, whilst the authors of *Blueprint for a Green Economy* claim that knowledge is rarely lost (Pearce, 1989, p.43), this is already a questionable and ambiguous claim. For example, the ancient Cretan script known as 'Linear B' has not been lost, but the Linear B language itself, although it has as a matter of fact been recovered, might well not have been. In that event, would we or would we not count this as a case of 'lost' knowledge? But the more important point is that technology, which is the understanding of how to apply knowledge, together with the social arrangements which enable such applications to be carried into effect, certainly can be lost. Recent events in the Soviet Union, for example, illustrate how both these institutions might begin to unravel, with respect, say, to the capacity of a society to sustain its nuclear installations. Thus, the economic value of natural capital is only as secure as the technology, social conditions and cultural needs which enable that value to be realised, and these can be quite fragile.

2) In the second place, technology and social arrangements in particular are aspects of manmade capital. To point to the dependency of the economic value of natural assets on technology and social arrangements is to draw attention to the symbiotic relationship between natural and manmade capital. To a profound extent, the relation between them is a complementary one (Daly, 1991, p.16). What this means, for example, is that an explosion in technology coupled with a relatively static physical stock of natural assets must be judged, on this view, to constitute a dramatic rise in natural capital, i.e. in the economic value of the natural assets. Some would say that this is precisely what has been happening in human societies over the past 6,000 or so years since settled agriculture took hold. Somewhat counter-intuitively, then, the period of human civilisation must be judged to coincide not with a decline in natural capital, as the usual scenario would have it, but with an increase. Which raises the further question of the level at which we should seek to maintain natural capital, understood in the social scientific sense. For on this understanding, it becomes fairly arbitrary where we set the level at which natural capital should be maintained. Why, for example, should we seek to maintain current and no doubt ephemeral levels of natural capital, rather than simply sit back and enjoy the windfall which 'civilisation' has brought about? Equally counter-intuitively, we may well be obliged to judge that driving a road through a wilderness area is justified, not simply on the grounds of the social benefits which might accrue, but on the grounds that it actually constitutes an increase in natural capital, because it renders an otherwise indifferent portion of nature serviceable to human needs. Conversely, because of technological progress, constant levels of natural capital could be maintained despite rapidly dwindling stocks of natural assets. Thus the criterion of constant economic value does little to protect natural assets. Indeed, so fickle does the social scientific concept of natural capital

prove to be that, in the last analysis, it is hard to see how there can any longer be any difference between the two versions of sustainability introduced at the start, one in terms of total capital, the other in terms of natural capital; for the criterion of the constancy of natural capital effectively dissolves into the criterion of the constancy of total capital.

Alongside the fickleness in its application, the other point which arises in connection with the social scientific account of sustainability concerns the question of motivation: what has the thinking behind sustainability to do with the thinking behind environmentalism? It cannot be denied that the notion of sustainability under discussion is the generally prevailing notion. Moreover, the prescription to pursue sustainability, understood in this way, can both readily and plausibly be derived from just two premises. The first premise is a statement prescribing the extension of the general obligation of justice to future peoples. The second premise is a statement describing the actions which must be undertaken in order to discharge that obligation. It turns out that respect for the environment is the instrument – no more – by which we are to secure justice for all peoples, including future ones. Now it is unlikely that environmentalists will have any quarrel with justice, and they would no doubt think that the more of it there was, the better. But I also venture to say that the ideal of justice, however worthy, fails to capture, and even misrepresents, what it is that many environmentalists thought they were about.

To this reflection there is a natural rejoinder: if the planet is saved, what does it matter how? In particular, what does it matter if this was the purpose of our actions, or if it was simply the means to some further purpose, such as securing the human future?

IV

But is it in fact true that the actions required to secure justice for future people coincide with those which are required to secure the environmental interest in nature? As we have seen, the *Blueprint* authors fight shy of endorsing the 'total capital' version of sustainability which permits indefinite trade-offs between natural and manmade capital. In attempting to do justice to the environmental interest, they endorse instead the version which requires the constancy of natural capital. But the question which then arises is whether this restriction can plausibly be represented as the logical outcome of a theory of sustainability based exclusively on the aim of securing justice for future generations. And it is far from obvious that it can. The point is that if it cannot, then the focus of the social scientific interpretation upon the constancy of natural capital in particular is being driven at least in some small measure by considerations which the authors of the 'Blueprints', at any rate, are refusing to acknowledge.

An attempt is indeed made in *Blueprint 1* (p.37) to show that the focus on natural capital is a logical outcome of considerations internal to a theory of justice; but the attempt seems to me unsuccessful. Four such considerations are cited: non-substitutability; uncertainty; irreversibility, and equity (pp.37-38). We shall best pursue the cause of justice across generations, it is argued, if we take care to preserve assets for which no substitute can be found, if in circumstances of uncertainty we adopt a policy of minimising risks, if we avoid irreversible losses and if, in general, we work to decrease inequities. Pursuing each of these causes is thought, in turn, to point towards a policy of preserving natural capital in particular .

Of these considerations the last is perhaps the most persuasive. The livelihoods of the poor tend especially to be directly dependent on the availability of natural resources (pp.38, 40). So, measures to conserve these resources will tend to benefit the poor in particular and thus serve the cause of increasing equity between peoples. None of the other considerations,

however, seems to draw a line at the required spot.

Taking the case of non-substitutability, it is generally agreed that some manmade capital is non-substitutable and some natural capital is substitutable. This is indeed openly – if questionably – acknowledged by the *Blueprint* authors: 'tom up hedgerows [given as an example of natural capital] can just as easily be replanted'; 'Built 'heritage' cannot, of course, be reconstructed' (p.36). However, the appropriate conclusion is not drawn, which is that operating with a prescription to save the non-substitutable will simply not deliver the preservation of natural capital, specifically. What is more, some non-substitutable natural items may be a matter of complete indifference so far as human interests are concerned; and there are by now familiar examples of natural items which are actually inimical to those interests – notably the AIDS and small-pox viruses, but also athlete's foot and sundry other life-forms. Not being serviceable from the point of view of human interests, we have to suppose that these items do not count as natural capital; yet they will merit protection under the prescription to save the non-substitutable. Exactly the same points apply in the case of irreversibility which, as Pearce and his fellow authors say, is but an extreme form of non-substitutability (p.38).

So far as the consideration of uncertainty is concerned, it is no doubt true that uncertainty as to the importance of various features of our natural environment and about whether we shall ever find man-made substitutes for them points to the wisdom of preserving them intact. But at the same time there *are* natural substances whose properties are perfectly understood and for which we do have man-made substitutes. From the point of view of a theory aimed at securing justice across generations, their fate should be a matter of complete indifference.

In general, since all man-made capital has to derive ultimately from natural capital, it has to be true that from the point of view of human needs and welfare man made capital is relatively more dispensable than natural capital. But not all and only natural capital is indispensable, and in any case, dispensability is a matter of degree and so, once again, does not provide a reason why natural capital specifically should be held constant.

In similar vein it is worth mentioning briefly the discussion in *Blueprint* 1 of resilience, or the ability of a system - whether 'natural' or man-managed – to maintain its structure and patterns of behaviour in the face of external disturbance. It seems to be assumed that a resilient system in which humans are involved is one which delivers non-declining human welfare. It is then argued that since resilience is enhanced by diversity which in turn requires the avoidance of irreversible effects, and since natural capital is particularly vulnerable to irreversible effects which also carry a very high risk because essential life-support systems are involved, then resilience requires the protection of natural capital. However, even if a connection between resilience and natural capital is established it does not follow that a connection between sustainability (in the sense of justice for all peoples) and natural capital is established. The reason is that it is hard to see what grounds there are for supposing that resilience and justice for humans will necessarily go hand in hand. Perhaps the most resilient system will require that some humans go to the wall; alternatively, perhaps a system slanted towards securing non-declining human welfare will lack resilience as, arguably, many existing agricultural systems seem to do.

A possible response to this line of argument is to say that if it proves to be true that the criterion of sustainability understood in terms of justice across generations fails to match up with the criterion of constant natural capital, then i) it is arguably a preferable criterion and ii) it in fact answers to the environmental interest in nature better than does the criterion of constant natural capital. For, how many environmentalists does one hear defending the AIDS virus? I want to suggest that both these claims are false, but also to air the suspicion that this

view is in fact shared by Pearce and his colleagues.

V

It has been argued that an account of sustainability in terms of non-declining human welfare will not necessarily yield a defence of natural capital. Conversely, in so far as the latter notion figures prominently in the working out of the notion of sustainability in *Blueprints I & 2*, it would seem to be an accretion to the 'pure' theory of those works and to represent on the part of the authors the interpolation of other considerations and values than the ones which are explicitly avowed - perhaps, even, some recognition of the 'value in things' which is anathema to the official position of those works. If so, there would be some irony in the situation. Referring to claims to detect intrinsic value in the natural world, *Blueprint 2* declares: 'As yet, no operational rules for decision-makers seem to have emerged from the 'value in things' literature'(Pearce, 1991, p.4). The irony is that, on my reading, that is exactly what the Blueprints *have* provided.

A similar conclusion is suggested by the strategy with which the authors officially seek to incorporate the 'value in things' point of view into their social scientific framework. This they do through the device of 'existence value', which amounts to recognising a 'disinterested interest' in nature, failure to satisfy which will detract from the aggregate of human welfare. Nature thus secures a vicarious representation - vicarious, but also precarious, since its representation depends entirely upon the vicissitudes of human interest. However that may be, in a more recent article (Turner, 1993) David Pearce and Kerry Turner develop their position further by giving 'loss aversion' as a reason, of equal standing with - for example - considerations about irreversibility, for protecting natural capital. In explanation they refer to 'strong evidence in economics and psychology that people are highly averse to environmental losses, i.e. they feel a natural right to their existing endowment of natural assets' (p.6). Now it may well be that in taking such interests seriously and counting them in as components of human welfare, a more adequate level of environmental protection will result. But the idea that these results will have been achieved without getting involved in 'debatable ethical implications' (p.7) is an illusion. The authors affect a position aloof from the debate about values; but such a stance is simply untenable. In the first place, their very advocacy of a version of preference utilitarianism as a method of addressing environmental issues involves a quite contentious evaluative commitment. In the second place, their proposal to set some store by people's aversion to environmental loss implies a fairly particular evaluative commitment. For it cannot plausibly be supposed that they would, or should, count in any aversion (or preference), whatever its nature, since some aversions and preferences might be quite disgraceful. The decision to 'count in' this particular aversion suggests an evaluative endorsement of its content. There is, I am suggesting, an implicit commitment by the Blueprint authors to the protection of natural capital in something other than the purely social scientific sense which they explicitly avow. But what sense is that?

VI

In a further attempt to accommodate the environmental interest in nature, Bryan Norton (1992) purports to strike out in a new direction by proposing what he terms a 'scientific contextual' approach to sustainability. Whilst still firmly centred on human welfare and the

recognition of an obligation to 'perpetuate the conditions necessary for the continuation of the human species and of its culture' (p.103), this approach involves a shared rather than an individualistic value system and, above all, recognises how deeply embedded is human culture in larger natural systems and therefore how necessary is a scientific understanding of the impact of human activities on these larger systems. Such an approach, Norton believes, will result in the recognition of non-negotiable obligations regarding our use of certain resources. This is said to represent a departure from the social scientific approach; but only, however, because Norton characterises the latter as committed to a belief in the unlimited substitutability of resources - i.e. as roughly equivalent to the total capital version of sustainability identified by Pearce. In effect, Norton IS position turns out to be very close to that of Pearce, with critical natural capital equating to the sphere of non-negotiable obligations.

However, there is one departure from that position which is highly significant. This emerges when Norton turns to clarifying the Leopoldian notions of 'health' and 'integrity' as applied to ecosystems. Here he makes the interesting suggestion that we should understand 'integrity' as the stronger term, to denote not simply the capacity of the system to maintain autonomous functioning (its health) but also the retention of 'total diversity..., the sum total of the species and associations that have held sway historically' (p.107 - my underlining). I propose to build on this suggestion.

The more constrained social scientific interpretation of sustainable development, which requires the maintenance of natural capital specifically or the recognition of non-negotiable obligations, was supposed to secure the environmental interest in nature. But this, in its 'pure' form, I have argued, it does not do. Maintaining equivalence of function, flow of services or ecosystem health is not enough. What is as important, I now suggest, is maintaining enough of the historically particular forms of association and their historically particular components – all the better if they have the marks of nature upon them. Admittedly there are difficulties in making this approach workable, but a useful approach to this problem is to recognise that what is handed down and maintained does need to retain in the process something of its original form and something of its identity: there need to be continuities of form, which constitute what may be called 'units of significance' for us, as well as continuities of matter. The ashes of one's dear ones are not enough. More pertinently, perhaps, gene banks are not enough to constitute the preservation of biological diversity. And here, no doubt, a human perspective shows through, even if the human interest is muted. What is missing from the social scientific approach is the recognition that nature, and all its various component events and processes, is a particular historical phenomenon and to be valued as such. What this means, in turn, is that the simple 'physical stock' interpretation of natural capital is not some crude interpretation which we have to transcend, but it actually captures something at the heart of environmental concern.

VII

It is implied, however, in *Blueprint 1* that a pure 'physical stock' interpretation of natural capital is unworkable because it would be incompatible with any use whatsoever of non-renewable resources. But how does the social scientific approach handle this type of natural capital?

One suggestion is that the use of non-renewables does not impinge upon the

policy of sustainable development at all. The reasoning is that, by their nature, non-renewables can only be used once and might as well be used now as at any time -whenever 'now' may be (Bowers, 1990, p.10). Moreover, if the rationale for sustainable development rests on considerations of intergenerational justice, and we assume a Rawlsian account of justice, then using up non-renewables will seem not to be unjust. For, saving the fact that the use of exhaustible resources will create waste products, which may, however, be compensated for by the artificial capital deriving from the use of those resources, no generation will be worse off; and at least one generation will be better off.

But this suggestion seems counter-intuitive and would probably be unwelcome to most environmentalists. A more plausible position to take is that, even if substitute resources can be found for some given resource which is used up, in the sense that they render the same service, to exhaust any resource is still to affect subsequent generations adversely by virtue of narrowing the options which are open to them. If this is accepted, then the social scientific approach to natural capital, as much as the 'physical stock' approach, will be committed to an 'unworkable' embargo on the use of non-renewables. This cannot then be cited as a specific objection to the physical stock approach.

In arguing that conserving nature 'cannot be a simple matter of conserving what currently exists', Michael Jacobs seems to have somewhat different considerations in mind (1990, p.63). Nature, he argues, has evolved not simply of its own accord but in conjunction with human development. The natural environment is 'as much 'produced' as the more obviously human-made structures of our towns and cities'. Therefore, we have no clear idea what constitutes nature any more and 'the environment cannot provide its own answers'. These remarks, however, seem to express a one-dimensional view of the distinction between what is natural and what is not. Conservationists, for example, would not agree that there is nothing to choose between an ancient hay meadow and a weed-free field of wheat, in view of the prevalence of native species in the former (NCC, 1989, p.11). Probably no very sensible answers are forthcoming to the general and context-free question, What constitutes the natural? But ask: What is natural to *this* place? , and answers are usually forthcoming, determined partially by climate and geophysical factors. Even global answers are not as hard to come by as Jacobs makes out. We know that there has naturally come to be an ozone-layer, around the earth and that the notorious 'hole' is a debit so far as natural capital is concerned. Moreover, he himself seems to provide the answer to his own question, What is the natural rate of methane emission? , when observing that although it is naturally emitted by animals, such emissions are significantly boosted by concentrations of domestic livestock. His point that carcinogenic hydrocarbons are emitted naturally from vegetation and microbial decomposition reveals not that there is any difficulty in deciding what counts as the conservation of nature in the physical sense, but only that what is natural is not always good for humans.

VIII

Clearly, much more remains to be said concerning the workability of a 'physical stock' interpretation of natural capital; but probably the biggest obstacle to its acceptance concerns the desirability of conserving natural capital understood in this sense. Whereas the social scientific account provides an obvious incentive for not allowing natural capital to decline, namely, justice and the welfare of future generations, such an incentive is notably absent from the 'physical' stock account. Even friends of the natural seem to feel obliged to concede

that: 'It will not do to argue that what is natural is necessarily of value' (Elliot, 1982, p.86).

Let us take the claim under discussion to be the simple claim that 'nature is good'. This claim may be interpreted in two ways. First, it may be interpreted as a conceptual claim - as the claim that whatever is natural is good, by virtue of the meaning of the term 'natural'. Second, it may be interpreted as a moral claim - as a simple ascription of value to nature. Taken in the first way, the claim is indefensible. For if we assume as a possibility that nature might have been otherwise, we would be committed to the view that all possible (natural) worlds are good. But some possible (natural) worlds might be indistinguishable from, say, the more hideous medieval depictions of hell, which we would shrink from describing as good. Moreover, the claim commits the most obvious form of 'naturalistic fallacy', of deducing a value judgement from a factual judgement.

But the claim may also be construed as a straightforward value judgement – a simple and unqualified affirmation of the goodness of nature. Rather than construe the term 'nature' in this context as an implicit universal – as designating any nature that might possibly exist, we may construe it instead as a 'rigid designator' – as designating the real and unique historical nature of which we form a part. Taken in this way, the claim is, I believe, defensible. For, returning, first, to the objection raised by Robert Elliot, he continues the passage cited by averring: 'Sickness and disease are natural...and are certainly not good'. Such examples are indeed commonly thought to present a problem for the claim that nature is good. This objection faces a simple dilemma. Either he is using 'good' in an unqualified sense, or he is using it a qualified sense. If he is using it in an unqualified sense, then he is not producing an objection to the original claim, but simply issuing a counter-claim. If, on the other hand, he is using it in a qualified sense, i.e. as claiming that sickness and disease are not good for those whom they afflict, then he has not produced an objection at all, since this claim is perfectly compatible with the truth of the original claim.

As has been suggested, there are possible (natural) worlds which one might judge to be bad. There are also possible (natural) worlds which one might judge to be better than the actual natural world.² Both of these possibilities are compatible with, and should not inhibit, the simple affirmation that the actual natural world as we know it is good.³ It should be observed, and sometimes is not, that this affirmation, in turn, does not imply that human modification of nature is bad, or that natural processes are always and everywhere to be preferred to humanly modified ones; nor is it incompatible with the recognition that many naturally occurring processes are bad for humans. Construed in the simple and basic way which I have described, it seems to me eminently defensible. Its justification lies mainly in the manifest perversity of complaining about the conditions which have made one's life possible, and in supposing that there might have been a choice about which bits of nature should have existed. But the claim is not only defensible. It also seems to me true that no defence of the environment is ultimately secure which does not embody such an affirmation.

Notes

1. See also *Blueprint 2*, pp.22-23.
2. Hence I am not simply reiterating the theological defence against the problem of evil, which claims that this is the best of all possible worlds.
3. The judgement is simple. The reasons for making it are complex, and nowhere more eloquently elaborated than in Holmes Rolston's *Environmental Ethics* 5 (1988).

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