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ANTHROPOCENTRISM AND DEEP ECOLOGY

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The intellectual history of the past few centuries can be characterized as pedestal bashing: a succession of successful demolitions of comforting myths through which we have sought to locate ourselves in the world. Freud pointed out that Copernicus was only the first in a line of innovative thinkers who overturned the comforts of a traditional world-view. First, Copernicus effectively displaced humanity from the *physical* centre of the universe. A few centuries later Darwin pointed out that humanity occupied no *biologically* privileged position. Then Freud claimed that one of our fondly cherished distinctive characteristics — *rationality* — was mostly a sham.

This progressive displacement of humanity from the predominant position in the physical, temporal and biological stage during the last few centuries is partly a consequence of spectacular discoveries of the physical and temporal magnitude of the universe. We have found that the universe is much larger, and its history much longer and more varied, than was previously imagined. In fact the spatial and temporal magnitudes are far beyond those of experiential familiarity, and we can grasp them only by the use of scaling metaphors, such as the cosmic day or the cosmic kilometre. The last two centuries, for example, are equivalent to less than half a second when mapped on to the 'cosmic year'. In this paper I evaluate the impact and explore some of the implications which these expansive perspectives have on our attitudes to the environment.

One strand of environmental thinking provides a challenge to a further alleged bastion of anthropocentric parochialism — anthropocentrism or human chauvinism. Just as we have abandoned our geocentric cosmology, our anthropocentric biology, and related conceits, so, it is claimed, we should give up our anthropocentric morality. Indeed the search for a credible non-anthropocentric basis for value in nature has been the central preoccupation of environmental philosophy. Anthropocentrism is the focal issue of this paper. Part of the challenge is to find an appropriate *scale* for concern about our biotic fellow citizens, a concern which extends across species and across time.

My aim, however, is not to bury anthropocentrism, but to defend it, at least in a qualified form. My claim is that if we attempt to step too far outside the scale of the recognizably human, rather than expanding and enriching our moral horizons we render them meaningless, or at least almost unrecognizable. The grand perspective of evolutionary biology provides a *reductio ad absurdum* of the cluster of non-anthropocentric ethics which can be found under the label 'deep ecology'. What deep ecology seeks to promote, and what deep ecologists seek to condemn, needs to be articulated from a distinctively human perspective. And this is more than the

perspectives, values and judgements. Within the moral world we do occupy a privileged position.

I. Environmental Philosophy

Moral philosophy aims to provide a rational critique or justification of the principles which guide or govern human conduct. In this inquiry it is of course assumed that these principles are accessible to reason. Human activity, particularly when amplified by sophisticated science-based technologies, now extends far beyond the stone age boundaries which constrained our actions for most of human history. The chain saw and the drift net have transformed biological systems far more rapidly and violently than the neolithic axe and spear. The rapid and accelerating technologically-driven modification of our natural surroundings has changed them beyond the wildest neolithic dreams. It is these changes which have prompted the question whether constraints on human conduct should take into consideration more than purely human interests.

Environmental philosophers have proposed a critique of traditional Western moral thought, which, it is alleged, is deficient for providing a satisfactory ethic of obligation and concern for the nonhuman world. This concern, it is claimed, needs to be extended, in particular, toward nonhuman individuals, wilderness areas, and across time and species. The project of extending our concern in the latter two cases — over time and over species — is a central concern of this paper.

The dissatisfaction with the parochialism of traditional Western moral thought has motivated a critique by 'deep ecologists'.[1] Their strictures have been directed in particular against thinkers like John Passmore [20] and Garrett Hardin [9], whose environmental concern has been dismissed as 'shallow'. Deep ecology has been repudiated by some as fundamentally misguided,[2] while others have attempted to develop compromise positions.[3] In this paper I raise some misgivings about deep ecology from a different direction. These concerns arise when we consider our predicament from the expansive perspective of evolutionary biology. I will suggest that while stepping outside the human scale of experience provides an enriching and expansive perspective for reflection, it is neither relevant nor helpful for human action.

A complex assortment of 'deep' positions have been proposed, and I do not attempt to address them all here. It is part of an enthusiastically pursued research program, with an expanding literature, much of it in the journal *Environmental*

[1] See, in particular, Leopold [13], Naess [16, 17], R. and V. Routley [26, 27]; Rodman [23, 24], Devall and Sessions [3], Rolston [25], Callicott [2], Taylor [30]. Not all of these thinkers identify themselves as 'deep ecologists', though each has developed arguments which support some deep ecology's characteristic claims. For an comprehensive inventory of the deep ecology pantheon see Fox [5]. It is of course a mistake to equate non-anthropocentric ethical theory with deep ecology. While deep ecologists reject anthropocentrism, a non-anthropocentric ethic need not embody the central principles of deep ecology. Although deep ecology provides a convenient starting point, my concern is with anthropocentrism in general and not just its manifestation in deep ecology.

[2] See Mannison [15], Thompson [31]; Williams [32].

Ethics.[4] However a common thread which unites most of the 'deep' positions is the concern to provide some rationale for the claim that nonhuman individuals merit the same consideration (not treatment) which Kant [10, p.90] thought should be extended only to rational beings, viz., that they are 'something whose existence has in itself an absolute value'. Much attention has also been devoted to a complementary issue: the problematic metaethical concern about the ascription (or recognition) of intrinsic values.

II. The Concerns of Deep Ecology

Deep ecology has been stimulated largely, as the name 'ecology' suggests, by discoveries in natural science. For it is the biological sciences, and the science of ecology in particular, which have revealed a complex web of interdependencies in the biological world which support the life of individuals and populations. And it is the extravagant and reckless interference with these life support networks which has motivated many of the writers mentioned above to call for a new set of moral constraints to curtail our destructive behaviour with respect to the natural world. It is precisely the failure of traditional moral constraints to curtail human behaviour, and to allow intricate biological interdependencies to be compromised, that exposes a profound deficiency in the received moral view. Or so it is widely claimed. It is therefore natural to think of deep ecology as the ethical impact of contemporary biology.[5] In fact biologists have been calling for substantial changes in our treatment of nature for several centuries: the roots of Western environmental concern can be traced back to seventeenth and eighteenth century European naturalists [8].

There are several very plausible elements in the concerns of deep ecology. First, there is the worry about the effects of unconstrained human interference in natural systems impoverishing and degrading them. Human interference and human action is often contrasted with the wisdom of natural cycles and natural development. Contrast the violence of a strip-mined hillside, or a clear-felled forest with the tranquil majesty of a climax ecosystem such as a tropical rain forest or a coral reef. 'Nature knows best', it is said.

A second worry focuses on the way that we tend to treat humans and human activity in isolation from, rather than as a part of nature. This is often characterized as an atomistic conception of humans as discrete and separate interacting units, in contrast to the holistic organic conception of organisms as nodes in complex biotic webs. The sharp separation between humanity and nature is said to be one of the characteristic deficiencies of shallow thought, which is often accompanied by the denial that the nonhuman world possesses intrinsic value.

A third common worry concerns the extremely short-term view which people commonly take about the consequences of their actions.

[4] For useful bibliographies see Katz [11, 12]. Sessions [28] provides a survey of the early development of deep ecology.

[5] My own views about these issues were also prompted by writings in biology, in particular the fascinating history of multicellular life presented in Gould [7]. The relevance — or rather, the *irrelevance* — of the the majestic billion-year geological perspective of evolutionary biology

There is an obvious tension which arises when attempting to rectify the first two worries at the same time. For extolling the virtues of the natural, while at the same time vilifying the man-made or artificial, depends on a distinction between the natural and the artificial which the stress on a continuity between human and nonhuman (the focus of the second worry) undermines. On the one side there is emphasis on continuity and dependency, and on the other on distinctness and separation. It seems that, while we are a part of nature, our actions are nevertheless unnatural.

This is one of the points where deep ecologists often risk lapsing into an incoherence, from which they are able to save themselves (as I will illustrate) with the help of a little covert anthropocentrism. Or putting the point another way, a suitably enriched (non-atomistic) conception of humans as an integral part of larger systems — that is, correcting the misconception of humanity as distinct and separate from the natural world — means that anthropocentric concern for our own well-being naturally flows on to concern for the nonhuman world. If we value ourselves and our projects, and part of us is constituted by the natural world, then these evaluations will be transmitted to the world.

That we habitually assume characteristically anthropocentric perspectives and values is claimed by deep ecologists to be a defect. And as a corrective to this parochialism, we are invited to assume an 'ecocentric' [2, 25] or 'biocentric' [30] perspective. I am not persuaded, however, that it is intelligible to abandon our anthropocentric perspective in favour of one which is more inclusive or expansive. We should certainly abandon a crude conception of human needs which equates them (roughly) with the sort of needs which are satisfied by extravagant resource use. But the problem with so-called 'shallow' views lies not in their anthropocentrism, but rather with the fact that they are characteristically short-term, sectional, and self-regarding. A suitably enriched and enlightened anthropocentrism provides the wherewithal for a satisfactory ethic of obligation and concern for the nonhuman world. And a genuinely non-anthropocentric view delivers only confusion.

III. The Distant Future and Distant Relatives

Consider some extreme cases: should we be concerned about the fate of the planet several billion years hence, or about the welfare of bacteria? I think not. Such concern would be pointless and misdirected for the simple reason that there's nothing we can do to affect the fate of the planet in the very long term, or to seriously disrupt the welfare of single-celled creatures. Bacteria have been the dominant life form on the planet for more than three billion years — about five sixths of evolutionary history — and will almost certainly continue long after the demise of our species. It is often said that we live in the Age of Mammals; but, as Gould has pointed out, it is now, as it has always been, the Age of Bacteria. There are more *e. coli* in every human intestine than there have ever been *homo sapiens*. Multicellular life is a comparatively recent arrival in the biosphere, having evolved only within the last half billion years or so.

It is instructive to pause and reflect on life on the planet from the expansive bil-

but a blink of geological time. Some have concluded after ruminating on our comparatively modest spatial and temporal occupancy of the world, that we are, after all, not very significant in the scheme of things. If in the long run time overwhelms all, does not that reduce our concerns to insignificance? The billion-year perspective troubled some thinkers, such as Russell, but as Frank Ramsey [22, p.291] pointed out, it should not have. Ramsey conceded that the scale of stars and galaxies is impressive, but pointed out that for all their size celestial objects were, on the whole, rather boring, since they lack interesting properties like the capacity to think and to love. The billion year time frame and the galactic spatial perspective are the wrong scale for judgements about importance; and one of the things wrong with them is that they are not recognizably human.

The thought that nothing we do now will have any significant impact on the distant future is not relevant for the assessment of present significance. The confusion underlying this thought has been nicely pinpointed by Thomas Nagel [19], who has argued that if nothing matters in a million years, then by the same token nothing that will matter in a million years matters now. And in particular, the fact that in a million years nothing will matter, does not matter now. That is to say, the (alleged) future insignificance of the present entails the present insignificance of the future, and hence the present insignificance of the future insignificance of the present.

Likewise, if nothing matters from a cosmic point of view, the fact that nothing matters from a cosmic point of view does not, from that point of view, matter. We cannot validly infer our cosmic insignificance, but only our cosmic non-significance; that is we can infer only the irrelevance of such a perspective for considerations of significance. And that does nothing to undermine the fact of significance from our more parochial temporal (and anthropocentric) perspective.

The sweeping geological perspective is I think a fascinating and enriching one, but one which is not relevant for reflections about (or the regulation of) human conduct. Yet while we should dismiss the relevance of the billion year time scale, it does not follow that we should limit our concern to the interests of our species and our immediate descendants. We should certainly consider the impact of our actions beyond our immediate circumstances, and beyond the interests of our immediate descendants; the limit of concern for Passmore.[6]

Such extension of concern nevertheless is intelligible only as long as it relates to a scale which is recognisably human, and to that extent, anthropocentric. Australia's Great Barrier Reef will probably disappear altogether and reform again several times over within the next ten thousand years; but that fact seems quite irrelevant to our concern to preserve it *now*. Passmore may be right in claiming that we can extend concern only to a world that we can rationally conjecture to be recognizably human, or at least relate to recognizably human concerns. But that should lead us to extend our concern over centuries, rather than years or decades. The fact that we cannot specify a determinate number of centuries or generations does not matter. The problem with Passmore's claim that concern can be extended only to immediate posterity is a consequence of his view that concern can be extended only to what we can recognize and love. It isn't the *anthropocentrism* in Passmore's

[6] At least in Passmore [20]. His views have been qualified in subsequent writings.

view that is objectionable, but the limited and short-term vision of what constitutes human well-being.

IV. Naess on the Need for Deep Ecology

'Deep ecology' is a phrase coined by Arne Naess [16] to encapsulate a perceived problem about the impact of human populations and technology on the natural environment. It was originally articulated, in Naess's words, by seven 'rather vague generalizations' [16, p.94]. Deep ecology was the name for a complex set of problems, as well as a political manifesto for change in the rather vaguely delineated directions of global harmony and ecological wisdom. Deep ecology calls for a substantial reduction of human populations, and change to our high energy consumption and profligate resource use.

In drawing the distinction between shallow and deep, Naess laid great stress on a distinction between the short term and the long term. Shallow views are unsatisfactory because short term considerations can distract from the important longer term issues and because they incline one too much towards compromise positions. Deep ecology, in contrast to shallow positions, is concerned to treat causes, not symptoms. The attempt to articulate Naess's 'vague generalizations' with greater clarity and precision has not however produced an integrated and unified conception of deep ecology, but a discordant clamour of competing conceptions. 'Deep ecology' is a resonant phrase which has generated a lot of muddle. The task of tracing the complex web of alternative conceptions however is not germane to the present argument.[7] For a critical survey of deep ecology see Richard Sylvan [29].

A great deal of hyperbole has been deployed in articulating the claims of deep ecology. It is common, for example, to encounter claims that destructive human activity — and in particular human technology — is threatening life on the planet; that we are disrupting the delicate fabric of the ecosphere, and driving it towards collapse. Such claims are exaggerated. There have been far more traumatic disruptions to the planet than any we can initiate. From a long-term planetary perspective, this is alarmist nonsense. However from an anthropocentric point of view such fears may be well founded.

If the concerns for humanity and nonhuman species raised by advocates of deep ecology are expressed as concerns about the fate of the planet, then these concerns are misplaced. From a planetary perspective, we may be entering a phase of mass extinction of the magnitude of the Cretaceous. For planet Earth that is just another incident in a four and a half billion year saga. Life will go on — in some guise or other. The arthropods, algae and the ubiquitous bacteria, at least, will almost certainly be around for a few billion years more. And with luck and good management, some of the more complex and interesting creatures, such as ourselves, may continue for a while longer as well. Of course our present disruptive and destructive activities are, or should be, of great concern to us all. But that is a quite properly human concern, expressing anthropocentric values from an anthropocentric perspec-

[7] Alternative articulations of deep ecology are developed in Naess [17, 18], Devall and Sessions [3], and Fox [5].

tive. Life will continue; but we should take steps to maintain and preserve our sort of living planet; one that suits us and, with a few exceptions, our biotic co-existents.

I will illustrate the way that allegedly non-anthropocentric points of view incorporate a covert anthropocentrism with some representative examples which, I believe, reveal the inevitability of anthropocentrism and show that it is not necessarily something to be deplored. Anthropocentrism is natural and inevitable, and when properly qualified turns out to be perfectly benign. The first illustration concerns a proposal to develop a non-anthropocentric basis for value by grounding it in the naturalness of an historical process.

V. A Naturalistic Basis for Value?

Robert Goodin has proposed a 'moderately deep' theory of value, according to which what imparts value to an outcome is the naturalness of the historical process through which it has come about [6, p.74]. Putting aside the problem, mentioned above, that the distinction between what is natural and what is cultural (or technological, or artefactual) is problematic, the deliverances of natural historical processes are not necessarily benign, nor ones which should command our approval. The traumatic disruptions to the planet brought about by natural forces far exceed anything which we have been able to effect. Consider, first, what Lovelock [14] has called the worst atmospheric pollution incident ever: the accumulation of that toxic and corrosive gas oxygen some two billion years ago, with devastating consequences for the then predominant anaerobic life forms. Or the Cretaceous extinction 65 million years ago, which wiped out the large reptiles, the then dominant life forms. Or the Permian extinction some 225 million years ago, which eliminated an estimated 96 per cent of marine species. Like the eruption of Mt St Helens, these were natural events, but it is implausible to suppose that they are to be valued for that reason alone.

There is of course an excellent reason for us to retrospectively evaluate these great planetary disruptions positively from our current position in planetary history, and that is that we can recognise their occurrence as a necessary condition for our own existence. But what could be more anthropocentric than that? However, as Gould has pointed out, mass extinctions are awful for those who are caught up in them.

Suppose that astronomers detect a modest asteroid or comet, say five or ten kilometres diameter, on collision course with planet Earth.[8] The impending collision would be perfectly natural all right, and cataclysmic enough to do to us what another one rather like it probably did to the dinosaurs. Such periodic disruptive events are natural all right, though they probably destroy most of the then extant large life forms. These times of renewal provide opportunities for smaller, flexible organisms to radiate opportunistically into vacated niches, and life goes on. From a biocentric or ecocentric perspective there is little doubt that our demise would provide comparable opportunities for development which we currently prevent. Should we, in

[8] Some recent (late 1992) reports suggested that this example may be less fanciful than I supposed

such circumstances, step aside so that evolution can continue on its majestic course? I think not, and I think further that interference with the natural course of events, if it could be effected, would be no bad thing — at least from our point of view and in terms of our interests, which it is quite legitimate to promote and favour.

Suppose again that we are entering one of the periodic epochs of reduced solar energy flux. An ice age is imminent, with massive disruptions to the agriculturally productive temperate zones. However suppose further that by carefully controlled emissions of greenhouse gases it would be possible to maintain a stable and productive agriculture. No doubt this would be to the detriment of various arctic plant and animal species, but I do not think that such interference, though 'unnatural' would be therefore deplorable. Nature in and of itself is not, I suggest, something to be valued independently of human interests. It could be argued moreover that in thus modifying our natural environment, we would be following the precedent of three billion years of organic evolution, since, according to the Gaia hypothesis of Lovelock [14], the atmosphere and oceans are not just biological products, but biological constructions.

Other natural properties — such as biodiversity, beauty, harmony, stability, and integrity — have been proposed to provide a non-anthropocentric basis for value. But unless we smuggle in some anthropocentric bearings, they fare no better than the property of being the outcome of a natural process in providing an intuitively plausible ordering of better and worse states of the world. For example, if biodiversity is taken as a basic value-giving characteristic, then the state of the planet just after the Cambrian explosion (about 570 million years ago) would be rated much more highly than the world of the present, as it was far richer in terms of the range and diversity of its constituent creatures. Most biology textbooks recognize between twenty and thirty extant animal phyla — the phylum being the fundamental design plan of an organism (and the second broadest classification, following 'kingdom', in biological taxonomy). Yet the Burgess Shale, one small quarry in British Columbia dating back some 530 million years, contains the remains of fifteen to twenty organisms so unlike one another, or anything now living, as to each constitute a separate phylum [7]. In terms of basic diversity, a far greater range of radically different anatomical types existed at that epoch of evolutionary development.

These examples disclose a serious difficulty for a view such as Goodin's which seeks a non-anthropocentric naturalistic basis for value.[9] The fundamental problem is that we can rank preferences only given some anthropocentric bearings. An austerely ecocentric or biocentric perspective delivers no determinate answer as to which of the abundant and wonderfully various unfolding planetary biotas should be preferred.

VI. The Value of Autonomy

Another suggested avenue through which a non-anthropocentric account of value might be developed is through the notion of autonomy. A representative example of this approach is Rodman's proposal that:

one ought not to treat with disrespect or use as a mere means anything that has a *telos* or end of its own — anything that is autonomous in the basic sense of having a capacity for internal self-direction and self-regulation [24, p.90].

Plumwood also favours this autonomy-based approach. Moral consideration, she suggests, should be extended to anything which has an *interest* or *good of its own,* that is to anything 'having a good, or end, or direction, to which it tends or which it strives, and which is its own' [21, p.147]. There are many natural systems, including inorganic ones, which have a natural directedness, and on this basis, as Plumwood goes on to observe, the net of moral consideration will be cast very wide indeed.

To the extent that rocks and mountains, in particular or in general, are expressions of ongoing processes which have directions, they may satisfy this condition, and ecosystems clearly do possess broadly teleological properties [21, p.147].

There are a number of problems with such a permissive criterion of moral considerability. One is that there are conflicts of interest between goal-directed entities, and something needs to be said about how these are to be resolved. Smallpox and HIV no doubt have their own viral autonomy (as well as being the products of natural historical processes), but for all that it is perfectly legitimate to disregard their interests when they conflict with our own. Yet it is hard to see how a decision to deny them a place in the scheme of things can be defended except by appeal to a value system which favours human interests. Plumwood allows that in casting the moral net widely we will have to 'make distinctions for appropriate treatment within each class of items' [21, p.147]. It seems reasonable to suspect that *human* standards of appropriateness will be brought to bear to settle cases where such conflicts arise.

Another difficulty with this approach is that goal-directedness is a very general and very pervasive characteristic of both organic and inorganic systems. It is implausible to suppose that we have any obligation to respect the equilibrium states of inorganic systems, goal directed though they may be. Energy moves in the direction of increasing entropy (downhill all the way); planets have stable and predictable paths which are the outcomes of continuing processes. Teleology is just too pervasive and too indiscriminate a characteristic to provide a plausible foundation for moral considerability. It may be prudent to reflect on the consequences of perturbing inorganic systems which have a natural direction, but it is not at all plausible to construe this as an obligation *to* those systems.

Moreover as Thompson [31, pp.152ff] has pointed out, the criterion of goal-directedness is problematic even when restricted to the organic world. Parts of organisms, such as kidneys, as well as populations of organisms, can be characterized teleologically, but it is implausible to suppose that this fact carries any moral clout. Plumwood is right in responding to Thompson to say that what is wrong is that this objection ignores the importance of different organic levels of organization [21, p.146], but choosing the *right* level of organization is an interest-sensitive matter.

VII. Callicott's Anthropocentric Ecocentrism

Finally, I consider the 'ecocentric' approach advocated, for example, by J Baird Callicott [2], which is another attempt to develop a non-anthropocentric basis for value. This 'deep' approach, inspired by Aldo Leopold [13], on examination also reveals covert anthropocentrism. For example, in 'On the Intrinsic Value of Nonhuman Species' Callicott explores various grounds on which we might extend moral consideration to nonhuman individuals. One particular line which he explores, and revealingly rejects is 'holistic rationalism'. Goodness, on this view, is identified above all with the objective harmony of the biosphere as a whole, which 'exemplifies or embodies the Good' [2, p.142]. Since species serve the good of the biotic whole (which is quite independent of human interest) we have a non-anthropocentric justification for species preservation. But individual species, from this perspective, are transitional components of developmental stages of the planet's evolutionary odyssey:

> The Age of Reptiles came to a close (for whatever reason) to be followed by the Age of Mammals. A holistic rationalist would not regret the massive die-off of the late Cretaceous because it made possible our yet richer mammal-populated world. The Age of Mammals may likewise end. But the 'laws' of organic evolution and of ecology (if any there be) will remain operative. In time speciation would occur and species would radiate anew. Future 'intelligent' forms of life may even feel grateful, if not to us then to their God (or the Good), for making their world possible. The new Age (of Insects, perhaps) would eventually be just as diverse, orderly, harmonious and stable and thus no less good than our current ecosystem with its present complement of species.
>
> With friends like the holistic rationalists, species preservation needs no enemies. [2, p.142]

This passage is revealing. Note the characterization of the Age of Mammals as 'richer' than the Age of Reptiles. As mammal chauvinists we might agree, but it is not clear on what grounds Callicott can justify the claim. It is also easy to agree that our demise, and the demise of the ecosystem which currently supports us, would be a matter of regret. But clearly it would be regrettable because of a decidedly anthropocentric set of values, interests and perceptions — if Callicott really eschews such concerns entirely, the grounds on which his regret is based are deprived of any foundation.

There are various levels of description for any natural system, and the level which we adopt is inevitably interest relative. From a perspective which ascribes special value to living systems, Venus and Mars are pretty disappointing planets. However from a purely physical point of view it may be that they are, like Earth, complex equilibrium systems with energy cycles operating through the energy flux of our local star. The reason that the purely physical descriptions are unhelpful for characterizing what makes this planet better than the others in some important

are conducive to the flourishing of creatures like us. It is, once again, interest relative. Conceivably a silicon-based life form would find the temperature and atmosphere of Venus congenial, and of Earth execrable. As carbon chauvinists we should feel free to dissent from that judgement.

VIII. Conclusion

The attempt to provide a genuinely non-anthropocentric set of values, or preferences seems to be a hopeless quest. Once we eschew all human values, interests and preferences we are confronted with just too many alternatives, as we can see when we consider biological history over a billion year time scale. The problem with the various non-anthropocentric bases for value which have been proposed is that they permit too many different possibilities, not all of which are at all congenial to us. And that matters. We should be concerned to promote a rich, diverse and vibrant biosphere. Human flourishing may certainly be included as a legitimate part of such a flourishing.

The preoccupations of deep ecology arise as a result of human activities which impoverish and degrade the quality of the planet's living systems. But these judgements are possible only if we assume a set of values (that is, preference rankings), based on *human* preferences. We need to reject not anthropocentrism, but a particularly short term and narrow conception of human interests and concerns. What's wrong with shallow views is not their concern about the well-being of humans, but that they do not really consider enough in what that well-being consists. We need to develop an enriched, fortified anthropocentric notion of human interest to replace the dominant short-term, sectional and self-regarding conception.

Our sort of world, with our sort of fellow occupants is an interesting and engaging place. There is every reason for us to try to keep it, and ourselves, going for a few more cosmic seconds.[10]

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MONEY-PUMPS, SELF-TORTURERS AND THE DEMONS OF REAL LIFE

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Preference theory is concerned with the relations 'better than', 'equal in value to', and their union 'better than or equal in value to'. It is a common assumption that these relations are *transitive*, i.e., that if x is better than (equal in value to) y, and y to z, then x is better than (equal in value to) z.

Although transitivity of both preference and indifference is a standard assumption in economics and decision theory, compelling arguments in its favour are not easily constructed. In this essay, I am going to analyse and evaluate some of the major arguments on transitivity that can be found in the literature. It will turn out that a surprising number of them, although they have been put forward as independent arguments, are all based on one and the same underlying construction. In this paper, the construction is uncovered, and some of its its philosophical presuppositions are discussed.

P denotes strict preference ('better'), R weak preference ('better than or equal in value to'), and I indifference ('equal in value to'). Thus, xPy denotes 'x is better than y', etc. Chains of preferences will be contracted, i.e., I will write $xPyPz$ instead of xPy & yPz.

I. Money-pumps of the First Kind

Probably the most famous argument for transitivity of strict preference originates with F.P. Ramsey [16, p.182]. Ramsey pointed out that if a subject's relation of preference violates transitivity, then '[h]e could have a book made against him by a cunning better and would then stand to lose in any event'. The non-probabilistic version of this argument, the 'money-pump', runs as follows:

> Suppose an individual prefers y to x, z to y, and x to z. It is reasonable to assume that he is willing to pay a sum of money to replace x by y. Similarly, he should be willing to pay some amount of money to replace y by z and still a third amount to replace z by x. Thus, he ends up with the alternative he started with but with less money. [19, p.45]

For a practical example, suppose that a stamp-collector has cyclic preferences with respect to three stamps, denoted a, b, and c. She prefers a to b, b to c, and c to a. Following Ramsey, we may assume that there is an amount of money, say 10 cents, that she is prepared to pay for exchanging b for a, c for b, or a for c. She comes into the stamp shop with stamp a. The stamp-dealer offers her to trade in a for c, if she pays 10 cents. She accepts the deal.