Symbiosis and the Ecological Role of Philosophy[1]

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It has now been nearly 25 years since Richard Routley (1973) argued persuasively, at the 15th World Congress of Philosophy, that we can discern a need for a "new, an environmental, ethic." And yet, students of environmental ethics still sometimes feel that we have to defend our discipline as serious philosophy. My purpose here is to revisit, from a somewhat different direction, the ground covered by Routley, and argue that environmental philosophy (which I consider to be a broader enterprise than the ethics that flows out of it) is not "pop" metaphysics or a trivial branch of applied ethics, but something that, if done well, could be a whole new approach to philosophy — one which could revitalize our discipline and re-establish its relevance in a troubled time when nothing might be more valuable for humanity than a careful rethinking of first principles.[2]

Philosophers of both analytic and continental persuasions are fond of telling us that we have to see things in "context". However, what that means is not always clearly specified. There is usually an implication that context is defined along lines of economic class, gender, ethnicity, or other broad groupings and divisions that can be picked out within human society — and of course it is often claimed or suggested that these "contexts" are equivalent to divisions within linguistic practice, as if, absurdly, all human activity (including music, technology, sexuality, warfare, mathematics, art, architecture, etc.) were fundamentally linguistic.

This kind of thinking has led to some startlingly inane remarks by many philosophers, and may even supply further ammunition to the budget-cutters, who are all too happy to find anything to suggest that the humanities are irrelevant. Here is one of Richard Rorty's more fatuous pronouncements:

> ...there are no constraints on inquiry save conversational ones — no wholesale constraints derived from the nature of objects, or of the mind, or of language, but only those retail constraints provided by the remarks of our fellow-inquirers...[I]t is useless to hope that objects will constrain us to believe the truth about them, if only they are approached with an unclouded mental eye, or a rigorous method, or a perspicuous language (1980, p. 125).

Rorty's remarks could perhaps be explicated (although hardly defended) by appealing to his notion of "truth" as that which the linguistic community finds most commendable.[3] However,

I'm afraid I have little patience with this line of thought. His statement is, on the face of it, absurd. In plain fact, most of what happens to us in our lives consists of objects constraining us to believe the truth about themselves, whether we approach them with unclouded minds or not. These "objects" are as much or more a constituent of the "context" any one of us experiences than the often ephemeral and vaguely definable "linguistic community" to which we happen to belong (or "linguistic communities", since most of us belong to more than one).

The broadest context of human inquiry is not some suppositious linguistic community, but is nonlinguistic, partially or wholly non-artifactual, and largely non-human. This is surely not to say that the human contextual fabric is not important, but only to place it in perspective. The largest context of human life is a vast, ancient, and in many ways implacably hostile physical universe, which in spite of its harshness somehow, amazingly, in some times and places, functions in such a way as to allow life to bootstrap itself into existence and then to modulate local conditions in such a way as to create for itself a sustaining environment.[4]

In essence, environmental or ecological philosophy is an attempt to take account of this extraordinary fact, with particular attention to acknowledging (i) our physical dependency on the broad planetary supporting ecosystem, and (ii) the fact that this supporting ecological "context" is a living thing, or interconnected matrix of living things (an ecosystem, so-called), which may have a radically different *agenda* than do we talking hominids — but an agenda to which we nevertheless must answer if we expect to be around to keep up all our chatter for much longer.

Hence to describe environmental philosophy as applied ethics is a huge over-simplification, if not just a sheer mistake. It would be more accurate to describe it as an attempt to clarify the real-life foundations of ethics itself; that is, to show how ethics is grounded in and conditioned by the nature and constitution of the world we live in and from which we have evolved.

Environmental philosophy has a special relevance today, since there is every evidence that the large mortgage the human species has taken out on the global ecosystem is in danger of being foreclosed. This is not without precedent. Many cultures in the past have destroyed their ecological base, literally eaten themselves out of house and home — although never before on the present scale. Furthermore, the histories of these events indicates an alarming pattern that we may be in danger of repeating; and certain features of this pattern ought to be of special concern to philosophers.

First, we can note a curious tendency toward turning inward as Rome burns, manifested in a preoccupation with symbol, ritual, and bureaucratic or priestly authority. The classic example is Easter Island (Diamond, 1995) but this trend is found in other cultures with similar ecological history such as early Malta,[5] possibly the Mayan culture, and possibly old Kingdom Egypt. In

these histories one often sees a pattern of obsessive monument-building, intensifying and consuming more and more of the dying culture's resources, right up to the collapse at the bitter end.

A second feature of ecologically stressed cultures — and one I wish to especially comment on here — is the frequent dominance of the lifeboat ethic and the culture of the lifeboat, with all that it implies. A lifeboat is a conveyance to which one repairs in extreme emergency, and it can be very handy when you really need it. However, one does not want to spend an indefinite amount of time in a lifeboat; one wishes to be rescued as quickly as possible. Until that happy moment, however, one is almost inevitably forced to practice authoritarianism, rationing, exclusion, and triage (that is, the brutal cutting of losses).

The lifeboat regime, and the authoritarian ethic of exclusion and triage that goes with it, seems to be an almost automatic response to conditions of scarcity.[6] (Incidentally, we lack an adequate theoretical analysis of the lifeboat ethic. It is sternly consequentialist — focussed exclusively on the survival of *at least some* of the crew of the lifeboat — but definitely not concerned with the maximization of any sort of utility defined in terms of pleasure, happiness, fulfilment or the like.) It is very important to emphasize that the lifeboat is a pathological emergency condition. It is not a state that is either desirable or even *possible* to maintain on an on-going basis. Furthermore, there are certain alternatives to it, alternatives that emerge (as I will attempt to show) from a consideration of exactly what environmental ethics is or can be.

The key lies in a linkage noted by Aldo Leopold between *ethics* and *symbiosis*. His *Sand County Almanac* (1949) contains his statement of the famous "Land Ethic", one of clearest formulations of an environmental ethic. "A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise" (Leopold 1949, p. 225).

This is an example of so-called "holistic" ethic; it treats the biotic community as a whole as an object of regard, above and beyond the welfare of its members.

Although very influential, Leopold's ethical theory is in many ways sketchy and incomplete, and has been severely criticized by several philosophers[7] for a variety of reasons. I am tempted to defend Leopold by pointing out the he was not a professional philosopher himself but a farmer and professor of forestry, and as such he did not do too bad a job of framing a new ethic. However, the doctrine has to be evaluated on its own merits. The salient point is that certain crucial aspects of Leopold's theory have been misunderstood or ignored by his critics and sometimes even by his supporters.[8]

Earlier in the essay in which he enunciates the Land Ethic, Leopold tells us that an ethic

> has its origin in the tendency of interdependent individuals or groups to evolve modes of cooperation. The ecologist calls these symbioses. Politics and economics are advanced symbioses in which the original free-for-all competition has been replaced, in part, by cooperative mechanisms with an ethical content.

And further:

> An ethic, ecologically, is a limitation on freedom of action in the struggle for existence. An ethic, philosophically, is a differentiation of social from anti-social conduct. These are two definitions of one thing.

So Leopold is making an extraordinary if not outrageous claim: *all* ethics is ecological! — and (this is the point that is so often ignored) arises out of the tendency toward, or sheer necessity of, biological symbiosis.

I fear that some professional ethicists just think that this is too far-fetched to be taken seriously, and environmental ethicists who advocate this line may well be accused of a sort of professional imperialism, as if we wanted to take over the rest of philosophy. But it will look like a wild overstatement only if we continue to insist that human society can function in miraculous isolation from the living ecology that supports it.

Here it is again: all ethics, environmental or otherwise, flows from the recognition of *symbiotic* interdependency. Much in Leopold's thought is debatable, but this is a very important insight — simply because it is the obvious conclusion that follows from accepting humans as biological beings interdependent with a much larger biophysical context, instead of as entities defined merely as linguistic interlocutors, economic units, pure volitional intelligences, utility maximizers, or in terms of some other typically rationalistic abstraction.

Leopold also said that we can think of an ethic as "a kind of community instinct in-the-making" (1949, p. 212). That is, we can think of an ethic — which is a cultural construct — as a surrogate set of instincts, finely-tuned habit standing in for hard-wiring. Humans have an exceptionally high learning capacity, but we are proportionately less guided by instinct compared to other species. (This remark may not apply to cetaceans, whose language and behaviour we may aspire to understand before we kill them all.) One might say that the capacity to learn also implies the capacity to forget.[9] This implies that we have a greater potential for going wrong; beavers, for instance, more or less automatically know how to be good beavers, but humans do not automatically know how to be good humans. That takes years of training, constant reinforcement,

and polishing of skills (for the capacity to be ethical is, as Aristotle realized, a learned skill), when it "takes" successfully at all. In other words, we have to have an ethic, which Leopold defined as "a mode of guidance for meeting ecological situations so new or intricate, or involving such deferred reactions, that the path of social expediency is not discernible to the average individual.[10] (1949, p. 212).

Implicit also in Leopold's vision is the realization that an ethic will be an evolving thing, expanding in scope and effectiveness (we hope) as our collectively shared experience grows — and always a bit tentative even when it must guide us in life-and-death situations.

Some biological terminology will prove useful. One can distinguish symbioses which are *obligate* from those which are *facultative*. A facultative relationship is one which a member organism can back out of; those that are obligate are not optional or reversible, usually because of an outright physiological dependency of one symbiote upon the other. Any human/Gaian symbiosis will unavoidably be facultative so long as we remain human; it will thus require ongoing *choice* and thus a suitable *ethic* for its maintenance. This might look something like Leopold's Land Ethic, although I expect we would want to make room in it for an explicit statement of our obligations to other human begins as such, not merely implicitly *qua* their role as organelles, as it were, of the biotic community.

The Land Ethic is often taken to imply that we should treat the "land" (i.e., the environment, broadly speaking) as having intrinsic value. But what can we mean by talk of the "intrinsic" value of wilderness, rocks, whales, etc? I suspect that talk of the "intrinsic" value of an entity or thing is an attempt to make a monadic predicate do work it cannot do, and many of the paradoxes of ethical theory probably stem from this mistake. In the biological context we are using here, the old Greek notion of virtue, *arete*, characteristic excellence in the service of a *telos*, an end, seems to be a much more natural and accessible conception. Life itself generates and constantly redefines its own ends, just by its efforts to transcend any particular given limits to survival. This automatically generates a scale of values, or more precisely defines a set of virtues. For we humans these virtues could be described (rather clinically) as "instrumental", but only if one were to ignore the emotional colouring and intensity they derive from their basis in those drives toward survival, self-definition and symbiotic transcendence which are at the centre of our being.[11] (Still, I am not sure that any of this entirely explains that inexpressible thrill one feels when coming unexpectedly upon a waterfall in the woods....) I suspect that environmental ethics, if thought through carefully enough, will be seen to be a kind of virtue ethic, even though it is often useful to couch it in deontic or utilitarian forms for certain purposes.[12]

However we might analyse the notion of intrinsic value, it is certainly possible for us to treat the nonhuman — even the nonliving — with ethical regard and respect.[13] This leads us

directly into the "locus of value" problem. Many would agree that ethical regard should not be reserved purely for humans. But even the idea that value is located only in the sentient is far too narrow. It is entirely possible, and in fact unavoidable, for people to hold artifacts, mountains, forests, oceans, and other nonhuman and even nonliving entities in at least some degree of ethical regard ─ precisely as Leopold insists that we must.

An instructive example is the regard sometimes felt by mariners for their ships. In 1936 an exceptionally beautiful four-masted barque named the *Herzogin Cecilie* was driven aground on the Devon coast due to incompetent ship-handling (Greenhill and Hackman 1991; Newby 1956). No lives were lost, but the vessel was destroyed. In reading old accounts of this incident one can clearly feel the grief of hard-bitten professional sailors at the loss of this magnificent ship. I see no reason in principle why a sufficiently sensitive and aware person cannot rejoice, grieve, or undertake actions costly to self over a forest, a mountain, or an ecosystem just as well as over a ship. It all depends upon having a sufficient *imaginative grasp* of the relevant webs of interdependency.

We should say something about the much-maligned concept of stewardship — for this is entailed by Leopold's notion of human-land symbiosis. The notion of stewardship is sometimes charged with being a sort of anthropocentric and self-serving rationalization for exploitation.[14] Sometimes the term may be abused in that way, but there is much more ethical substance to it than that. It is *not* as if some Deity is supposed to have given the keys to the ecosystem to Adam and Eve, like a parent surrendering the family car to over-indulged teenagers. Stewardship is more like the relationship of a violinist to his or her instrument. A fine violin may be passed on from generation to generation. Its purchase and care is a serious (and expensive) matter, and the violinist who possesses it (for a time) will tend to feel that he or she is holding in a relationship of trust something that must be passed on in at least as good condition as when it was received. This is in spite of the fact that a professional violinist may spend hours a day for decades on end in very intimate contact with the instrument.

Can we say, then, that the violinist *identifies* with the instrument? Arne Naess (1988) is well known for his argument that we will acquire ethical regard for nature as we come to identify with it. A colleague who is both violinist and ethicist insists that it is not like this. The instrument is not a prosthesis. The entire relationship is predicated on the basis of *respect* for the violin as "significant other". To be sure, the musician benefits enormously from the possession and use of the instrument, but to coax a rich sound from it one must understand *its* needs, cooperate with *it*. One does not command it, but neither is it transparent to one's intentions like a portion of one's own body. And I think that this notion of respect is very close to what Leopold had in mind for the sort of respect in which we must hold the land if we hope to achieve that symbiosis that is

almost certainly necessary for our survival. Again, we find an ethical pressure directing us away from the narcissistic solipsism that permeates so much of modern philosophy, both analytic and postmodernist.

The concept of symbiosis could offer the key to another major problem, which is to define *sustainability*, that infamous environmental buzzword that means so many different things to different people (Peacock, 1995). In 1987 the Brundtland Report (Worlsd Commission on Environment and Development [WCED] 1987) famously called for "sustainable development", which it said should be "development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs" (p. 43). The intention behind this definition — or slogan perhaps — is that we should find some means of economic development that would relieve the enormous poverty in the world, and go on providing a basis for a suitable prosperity, in an ecologically sustainable manner. That is, we humans should find a way of getting what we need from the ecosystem that would not be ultimately self-defeating as are so many of our present, exploitive methods of resource extraction and land use.

Many have concluded that the term "sustainable development" is simply an oxymoron, like "military intelligence" or "undergraduate education". Clearly, it has a typically political flavour of wanting to have one's cake and eat it, too — like McKenzie King's infamous pronouncement in WWII that Canada would have "conscription if necessary, but not necessarily conscription." But I don't think that we should give up on the notion just yet. If we subject it to a *biological* analysis we might be able to give it a substantive meaning.

What, if anything, would be a sustainable biological relationship between different species or groups of organisms? Clearly, it would have to be a relationship that was in some sense symbiotic — involving, at the very least, a tolerable mutual accommodation, if not an arrangement that was actually mutually beneficial. And this brings us back to Leopold and ethics again.

The question therefore is, can humans coexist with the general ecology in a symbiotic fashion? That, surely, would be a truly sustainable state if anything could be. In fact, something like this has been advocated by a number of writers, such as ecologist Eugene Odum (1996b), and it seems to make a great deal of sense from a biological point of view. However, it runs into two significant sorts of objections.

First, the notion of symbiosis itself is not clearly enough defined. As Sapp's fine study (1994) has recently shown, symbiosis has been scientifically controversial, with a few biologists of an especially reductionistic cast of mind still insisting that there is really no such thing. Even accepting the more or less obvious if not pervasive fact of biology that organisms frequently evolve modes of cooperation or mutual accommodation, it still remains scientifically unclear just

how it works and how far it goes. Without careful explication, the call for symbiosis sounds all too much like a platitudinous and vague plea for "cooperation" with nature, just the kind of fuzzy thinking that has tended to discredit environmental philosophy.

Second, there is a very influential trend of thought within current ecological thinking which implies that a human/ecosystem mutualism would be physically impossible for certain *thermodynamic* reasons.[15] The argument offered in favour of this view is spurious but superficially persuasive, and many people who perhaps should know better unquestioningly take it for granted. It is well worth pausing to dwell on this question briefly; it turns out to have quite a lot to do with understanding the potential ecological role of philosophy itself. Furthermore, it is quite impossible (although many wish it were otherwise) to think effectively about environmental ethics and policy-making without a sensitive appreciation of just how things actually do seem to work.

The argument of the lifeboat thermodynamicists goes roughly like this: all organisms can be divided into heterotrophs (such as humans) and autotrophs, such as the photosynthetic organisms and various chemosynthetic bacteria. Autotrophs can live directly on inorganic sources of energy such as sunlight or geothermal energy, and produce useful byproducts (such as free oxygen) which are useful for the rest of the ecosystem. Thermodynamically, one says that they supply "negentropy" to the system. Heterotrophs can only live on organic sources of energy and are thus entirely dependent upon the autotrophs for their sustenance. Heterotrophs are thus necessarily in a state of dependency upon the global ecosystem, and can never contribute negentropy; all they can do is run the system down. They could thus never be mutualistic with the ecosystem. On this view, the Second Law of Thermodynamics is decisive. As William Rees says,

> The Second Law states that in any closed isolated system, available energy and matter are continuously and irrevocably degraded to the unavailable state. Since the global economy operates within an essentially closed system, the Second Law (the entropy law) is actually the ultimate regulator of economic activity (1990, p. 19).

"Low entropy," according to the noted economist Herman E. Daly, "is the ultimate resource which can only be used up and for which there is no substitute" (1985, p. 90). And again, as Rees says, "The thermodynamic interpretation of the economic process therefore suggests a new definition of sustainable development ...: sustainable development is development that minimizes resource use and the increase in global entropy" (1990).

So it would seem that the austere authority of none other than the Laws of

Thermodynamics dictates that we are, in fact, in a lifeboat forever; the achievement of sustainability is strictly a question of the management of scarcity and appropriate rationing, and environmental ethics can be little more than a lifeboat ethic. If right, this would imply that any notion of sustainability as symbiotic is out of the question, if not meaningless.

This bleak picture is dead wrong, but wrong for very interesting reasons. First, note the glaring *non sequitur* in the first passage from Rees. He states that the Second Law ("entropy shall always increase to a maximum") applies to a closed, isolated system. This is correct. But he then leaps to the statement that *since* the human economy operates within a closed system, the entropy law applies to it, too, without qualification. This doesn't follow, because the human economy operates within a planetary ecosystem which, while approximately closed (little input of matter)[16] is certainly not isolated. In fact, the ecosystem is subjected to a luxuriant flow of solar energy (and a not-inconsiderable amount of geothermal energy), and this makes an enormous difference from the thermodynamic point of view.

The lifeboat thermodynamicists seem to have simply confused equilibrium systems with nonequilibrium systems. In fact, living organisms and the ecosystems they can comprise belong to the class of thermodynamic objects called dissipative systems — systems very far from thermal equilibrium, which can utilize the flows of energy which drive them to form very complex, stable structures. This sort of physical system has very different thermodynamic properties than an insulated canister of gas!

Let's go back and consider what a typical photosynthesizer such as an algae cell actually does — not in detail (which would require a course in biochemistry) but in principle. Our algae does indeed contribute mutualistically to the ecosystem. To be sure, it has its own humble metabolism to run as well, but it still manages to produce a generous surplus of carbohydrates and free oxygen which help to power the rest of the ecosystem. What is it actually doing?

In essence, the algae intercepts a luxuriant flow of low-entropy radiation supplied by the sun — *far more* than it requires for its own metabolism — and *diverts* that solar energy through a complex and elegant biochemical pathway in such a way that some of the energy becomes trapped in stable structures, namely molecules of oxygen and carbohydrate. The algae is really functioning precisely like a *valve*, modulating and redirecting an externally supplied flow of energy, and expending in the process only a small fraction of the energy it can store.

An analogy might help to make this clear. Suppose there is a powerful river flowing by, and we wish to store some of the water for later use. We could dig a reservoir beside the river and divert some of the water into the reservoir through a pipe or channel. Later on the water could be released from the reservoir at our leisure and allowed to complete its journey downhill, doing work for us in the process. Some energy would have to be expended in order to dig the reservoir

and operate the diversionary channel, but this can be very small in comparison to the amount of useful energy that can be trapped in the reservoir.

From the point of view of energetic dynamics, this is precisely what our little algae cell is doing. The fact that its diversion-and-storage mechanism happens to be within its own body is incidental to the dynamics of the process. Any organism capable of manipulating flows of mass-energy, most certainly including humans, could in principle do this sort of thing. In other words, there is a *non sequitur* in the lifeboat thermodynamicist's argument stated above; the fact that an organism is not *itself* autotrophic does not imply that it cannot contribute negentropy to the ecosystem it belongs to.

We can thus glimpse the outlines of a thermodynamic analysis of a mutualistic ecosystem. An ecosystem can be thought of as a device for trapping and storing externally supplied free energy.[17] Such systems are possible because organisms like algae and humans can modulate and redirect flows of energy. The system becomes dynamically self-sustaining ("regenerative" is the technical term) when the organisms in the system redirect and store the energy in such a way that it becomes available for the use of *other* organisms within the system; the system thus tends to run itself, the way an internal combustion engine will keep itself going so long as it is supplied with fuel and air.

Lest this all seem too abstract, all I am saying is that even though we humans do not happen to be photosynthetic ourselves, we can do quite a lot to encourage the occurrence of photosynthesis. We can, for instance, plant trees, and do many other things (such as soil cultivation) which contribute directly or indirectly to ecosystem function. We do not have to be photosynthetic or chemoautotrophic in our own bodies in order to function as if we were, in effect, autotrophs; human ingenuity will do the trick. Thus, according once again to Eugene Odum "if understanding of ecological systems and moral responsibility among mankind can keep pace with man's power to effect changes, the present-day concept of 'unlimited exploitation of resources' will give way to 'unlimited ingenuity in perpetuating a cyclic abundance of resources' " (1996a, p. 142). In other words, the real issue in the attainment of sustainability is not merely conservation of resources (although, to be sure, there are some resources which should be carefully conserved), but the sustenance and maintenance of the regenerative capacity of the ecosystem. It is the human capacity to sensitively modulate external flows of energy which makes this sort of sustainability possible, however far from this desirable state we might presently be.

This brings us back again to the problem of culture, ethics, and the role of the philosopher. For if I have the *physical* picture right, then very subtle characteristics of human culture could be literally amplified by human manipulation so as to echo through the whole ecosystem, the way the minute quiverings of a phonograph needle can be amplified into a hundred-decibel blast of

sound. And this might mean that those of us in the humanities who at first glance seem to be farthest back from the front lines of practical endeavour might have a surprisingly responsible role to play in the quest for a more vital and life-sustaining way of life for our species and the many other forms of life whose futures are inextricably entangled with ours.

I therefore go farther than Leopold, who said that all ethics is ecological. I say that all philosophy is ultimately ecological, if not in its explicit subject-matter then in its effect. If philosophy is the attempt to construct and work out the implications of the biggest possible pictures of the world, and if imaginative conceptualization is the adaptation that permits us humans our present overwhelming (though possibly temporary) dominance of the global ecosystem, then how could the character of our philosophies not be utterly decisive in shaping the artifactual ecology that must painfully emerge from the head-on collision between the human irruption and Gaia?

Ecological history has two specific messages for the philosophers of our time. First, be aware that a sign of ecological breakdown seems to be this odd tendency of a culture to turn inward, to become obsessed with the ritualistic, mythical, and symbolic. I'm not saying we philosophers should utterly give up thinking about such things as Bell's Inequalities, collocations of vocables, and so forth; far from it. But lets be careful; let's be a lot more aware of the *real* "context". John Ralston Saul remarks pointedly:

> ...philosophy has always been central to the public debate over the human condition.... Suddenly, the great philosophical voice of humanist decency is absent from the public debate. Why? Because its exponents are caught up in the complexities of philosophical professionalism — a world of narrow specializations and impenetrable dialect. A corporation of philosophy. They have left the field of debate wide open to the more cynical forces on the other side (1995, pp. 161–62).

This is an observation which we may not like, but dare not ignore.

Second, beware of the culture of austerity. It is an almost automatic, unthinking assumption that signs of ecological stress mandate a turn to austerity. But this need not be the case, until we really have exhausted all options and are finally up against an ecological wall. The real issue is to do whatever we can to sustain and regenerate the vitality of the system, so that this catastrophe does not happen. Concepts like sufficiency, wholeness, health, participation, diversity, possibility, creativity, become the keywords — instead of privation, rationing, authority, centralization, rationalization, downsizing, inevitability, and management.

Any long-term or wide-scale application of the lifeboat regime is terribly dangerous, however necessary for survival it might be on a strictly emergency basis. First, such regimes suppress innovation and criticism because these things seem risky and threaten authority. Second, the assumption that one is operating under emergency conditions is often taken to justify the abandonment of long-term investment in ecological, technological and cultural renewal. Third, authoritarian regimes often tend to deliberately maintain scarcity, either because doing so weakens the opposition or because it was scarcity in the first place that apparently legitimized the authority of the regime. (The Ukraine Famine is an especially horrific but by no means unique example of this phenomenon.) Our current obsession with deficit reduction and budget cutting, for instance, is largely a pretence designed to reinforce corporate authority.[18]

The lifeboat régime tends, therefore, by condoning parasitical authoritarianism, to lock into place the very conditions of austerity which brought it about; and thus ultimately is a great threat not merely to sustainability, but even to the survival of the society or even perhaps the species.

Richard Rorty, whom I earlier excoriated, has commented that philosophy should not think of itself as a "pedestal" of civilization (1993, pp. 444–45). Unfortunately, he has offered little positive role for philosophy, suggesting instead that philosophy should resign itself to a realization that it consists largely of exercises in rhetorical posturing. In the context of the ecological considerations I indicate here, this is an irresponsible act of abdication. If we follow recommendations like these, we will end up like children playing intellectual dress-up while our culture and ecology crumbles around us.

Perhaps we can take a cue from a remark by Grant Whatmough: "Our real difficulty so far as ecological symbiosis is concerned is not a matter of some lack of technical ingenuity — that is hardly possible — but rather the entrenchment of socio/political authority" (Whatmough 1996, p. 420). Accordingly, I recommend that if we philosophers can think of nothing more positive or creative to do (and we certainly can), we should at the very least hark back to the advice of Socrates, who long ago styled himself the "gadfly" of his society.[19] Criticism has a direct *ecological* role, in that it is by far the most effective weapon against parasitical authority. But perhaps it is not too much to ask that we also try to provide some positive visions of what might be possible. Earlier I sought a biological basis for ethics; but it is impossible to fully understand human ethics without recognizing that as much as it may be pushed by biological imperatives, it is pulled by imaginative idealism. As a proverb says, "Where there is no vision, the people perish" (Prov. 29:18). There can be no green future without a vision of a green future.

Contrary to the confused thermodynamic arguments of some ecologists, and the solemn self-serving rhetoric of austerity and restraint proffered by corporate authority, we are not

foredoomed to a lifeboat future (though we certainly face many hard choices and much hard work). While many practical details remain unclear, a very different kind of future, a future of vital participation in a flourishing ecosystem, is a real possibility. And how clearly we in the humanities grasp the enormous *physical* difference that the quality of our work could make may have everything to do with realizing that possibility.[20]

Notes

[1] This was published in *Dialogue* 38 (1999), 699–717. I thank Prof. Eric Dayton for his kind permission to use the paper on this Web site, and Dawn Collins for her help in reformatting the document.

[2] I thank Barry Allen for having provoked me to this undertaking. He must not be blamed for the form it finally took.

[3] See Rorty 1982, or 1993, especially pp. 456–457.

[4] For a fascinating and detailed argument that the emergence of life in the universe is a natural and expectable consequence of the tendency of biophysical systems to self-organize, see Kauffman 1995. This point has also been pressed by Bookchin 1982. See also de Duve 1996.

[5] Malone et al. 1993 cite evidence for a "debilitating fixation" with religious ritual and symbol as the ancient island culture of Malta (ca. 2500 BC) suffered from increasing environmental degradation.

[6] Garrett Hardin (1968, 1974) has been one of the most explicit and outspoken advocates of the lifeboat régime.

[7] See Sumner 1986, for instance, and Kheel 1993. Sumner excoriates Leopold for his holism, which Sumner says is "not only nonsense, but dangerous nonsense"; Sumner feels that holistic views such as Leopold's will encourage the trampling of the individual. Kheel criticizes Leopold for his endorsement of hunting, and because she feels that Leopold's ethic was too narrowly focussed on the "restraint of aggression".

[8] For instance see Callicott 1987.

[9] I am indebted to Lorna McAdam for this observation.

[10] One of my students objected bitterly to the elitism he felt was implicit in this remark. Precisely *who* are these superior persons who *can* discern the path of social expediency, and who will lead the rest of us as we stumble through the mud? But the plain fact remains that we are often guided and inspired by men and women of unusual vision —

such as Leopold himself. Key insights rarely, if ever, arise by a sort of telepathic consensus among the greater mass of a society.

[11] A remark by Jonas Salk is very helpful: "I believe that the fundamental relationship in all living things is the relationship between the organism's biological potential and its environment. The organism's potential is revealed and developed only under environmental influence. The environment educes, draws out, causes the potential to be expressed — if the relationship is appropriate" (Carter 1967, p. 117). What we must add to this is that the organism symbiotically recreates its environment and thus, indirectly, the way in which its own potential will be expressed — and thus, ultimately, recreates its own potential. The way we treat our environment will therefore result in our own self-transcendence — or degradation.

[12] For example, environmental ethics as set forth for professional engineers will naturally take a deontic form. For a very well thought out instance of this, see PEO (1994).

The ethic I sketch here has some parallels to the evolutionary naturalism outlined by Collier and Stingl (1992). It is beyond the scope of this paper to give this point the attention it deserves. Their central claim is that morality "is contingent on the general facts governing evolution.... [it] evolves as a motivational structure in response to contingent needs felt by highly evolved, intelligent social creatures. This evolution is imperfect, and subject to cognitive correction through consideration of what would be optimal for our sort of creature" (1992, p. 59). This could be quite consistent with the picture I outline here, so long as one got clear on the "general facts governing evolution." There is increasingly good evidence for the claims that fitness is to be defined in terms of cooperative as well as competitive ability, and that symbiogenesis is one of the important sources of evolutionary novelty (see Margulis and Sagan 1995). It would be very interesting to develop a version of the Collier-Stingl thesis that was set in the context of a Darwinism revised according to these two precepts.

[13] William Leiss (in Peacock 1996, p. 249) argues that we cannot meaningfully have an environmental ethic, because any notion of ethics involves "for the most part, a reciprocal mutual recognition by moral agents of the rights and obligations shared by them..." — i.e., a contract! This seems to be a hopelessly shallow, although sadly not uncommon, view of the basis of ethics.

[14] Carolyn Merchant (1992, pp. 70–74) states that the concept of stewardship is "homocentric" — focussed on the aims of humans — as opposed to what she calls "ecocentric", focussed on the intrinsic good of the environment, and she implies that practitioners of the stewardship ethic would not worry about "ecological changes such as salinity build-up in farming soils..." (p. 74). Surely this is a misunderstanding of the concept of stewardship, which implies among other things that the steward is expected to return that which was used in trust in at least as good condition as when it was received.

[15] This line of argument has been advocated by several authors; for instance, Daly (1985), Georgescu-Roegen (1977, 1989), Lee (1989), Rees (1990), and Rifkin (1989). These authors have mounted very cogent critiques of the growth economy, and I do not mean to reject their conclusions wholesale. Rees, in particular, has done a great service in articulating the concept of the "ecological footprint". See Wackernagel and Rees 1996. However, I also believe that they are guilty of certain dangerous misconceptions which should not go unchallenged.

[16] Well, in fact, Earth accrues a few hundred thousand tons of meteoritic matter every year, and steadily loses a small amount of the lighter components of its atmosphere. Do we really know that these losses and gains are not ecologically significant?

[17] "Free energy" is a technical term that refers to energy available to do work. An example is the chemical energy stored in a fresh battery. After the battery has run down the energy it contained has not disappeared, but has been spread out and mixed more or less uniformly with the surroundings (with a net gain of entropy) so that it is no longer free. An ecosystem is thus, thermodynamically, a sort of battery; and two ecosystems that were dissipating energy at the same net rates could be storing it with very different efficiencies.

[18] An anonymous reviewer of this paper commented that this remark "is rather an intemperate claim that even many corporation-bashers would not agree with or at least not regard as an obvious 'for instance'." Perhaps. But consider how things are going these days in the province of Ontario, where the directors of community hospitals are being paid salaries between $500,000 and $1,000,000 per year (plus "performance" bonuses), amidst ward closures, layoffs of medical staff, and solemn pronouncements that we are in a "crisis."

[19] See Saul's provocative explanation (1995, pp. 54–59) of why the elder Plato would have been among those voting for the death penalty for Socrates.

[20] I thank Barry Allen, Michael Stingl, and Grant A. Whatmough for valuable discussions, and two anonymous referees for insightful comments; of course, none of these people are responsible for any misconceptions of mine that remain. The research discussed in this paper was generously supported in its early stages by the Social Sciences and Humanities Research Council of Canada; in addition, I am grateful to the University of Lethbridge for financial support.

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