

THE NATURE OF ENVIRONMENT: THE DIALECTICS OF SOCIAL AND ENVIRONMENTAL CHANGE*

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I Prologue

Around 'Earthday' 1970, I recall reading a special issue of the business journal *Fortune* on the environment. It celebrated the rise of the environmental issue as a 'non-class issue' and President **Nixon**, in an invited editorial, opined that future generations would judge us entirely by the quality of environment they inherited. On 'Earthday' itself, I attended a campus rally in Baltimore and heard several rousing speeches, mostly by middle class white radicals, attacking the lack of concern for the qualities of the air we breathed, the water we drank, the food we consumed and lamenting the materialist and consumerist approach to the world which was producing all manner of resource depletion and environmental degradation. The following day I went to the Left Bank Jazz club, a popular spot frequented by African-American families in Baltimore. The musicians interspersed their music with interactive commentary over the deteriorating state of the environment. They talked about lack of jobs, poor housing, racial discrimination, crumbling cities, culminating in the claim, which sent the whole place into paroxysms of cheering, that their main environmental problem was President **Richard Nixon**.

What struck me at the time, and what continues to strike me, is that the 'environmental issue' necessarily means such different things to different people, that in aggregate it encompasses quite literally everything there is. Business leaders worry about the political and legal environment, politicians worry about the economic environment, city dwellers worry about

*This text was first presented in embryo at the Havens Center in the University of Wisconsin and as **Ida Beam** Visiting Fellow in the University of Iowa in March, 1991. It was subsequently presented at the School of Architecture and Urban Planning in UCLA, at **Rutgers** and Johns Hopkins Universities, as well as at Cambridge, **Leiden**, London, Oxford and Bristol Universities before being presented as the York University Lecture in Political Science in Canada in October, 1992. I want to thank the many people who, by way of criticisms and comments, have helped to both deepen and clarify my thinking on these occasions.

the social environment and, doubtless, criminals worry about the environment of law enforcement and polluters worry about the regulatory environment. That a single word should be used in such a multitude of ways testifies to its fundamental incoherence as a unitary concept. Yet, like the word 'nature', the idea of which 'contains, though often unnoticed, an extraordinary amount of human history . . . both complicated and changing, as other ideas and experiences change' (Williams, 1980, 67), the uses to which a word like environment is put prove instructive. The 'unnoticed' aspect of this poses particular difficulties, however, because it is always hard to spot the 'incompletely explicit *assumptions*, or more or less *unconscious mental habits*, operating in the thought of an individual or generation,' but which define 'the dominant intellectual tendencies of an age.' Lovejoy (1964, 7-14) continues:

It is largely because of their ambiguities that mere words are capable of independent action as forces in history. A term, a phrase, a formula, which gains currency or acceptance because one of its meanings, or of the thoughts which it suggests, is congenial to the prevalent beliefs, the standards of value. the tastes of a certain age, may help to alter beliefs, standards of value, and tastes, because other meanings or suggested implications, not clearly distinguished by those who employ it, gradually become the dominant elements of signification. The word "nature," it need hardly be said, is the most extraordinary example of this.

The contemporary battleground over words like 'nature' and 'environment' is more than a matter of mere semantics, but a leading edge of political conflict, albeit in the realm of ideology where 'we become conscious of political matters and fight them out.' The fight arises precisely because words like 'nature' and 'environment' convey a commonality and universality of concern that is, precisely because of their ambiguity, open to a great diversity of interpretation. 'Environment' is whatever surrounds or, to be more precise, whatever exists in the surroundings of some being that is *relevant* to the state of that being at a particular moment. Plainly, the 'situatedness' of a being and its internal conditions and needs have as much to say about the definition of environment as the surrounding conditions themselves, while the criteria of relevance can also vary widely. Yet each and everyone of us is situated in an 'environment' and all of us therefore have some sense of what an 'environmental issue' is all about.

Over recent years a rough convention has emerged, however, which circumscribes 'environmental issues' to a particular subset of possible meanings, primarily focusing on the relationship between human activity and (a) the condition or 'health' of the bio or ecosystem which supports that activity (b) specific qualities of that ecosystem such as air, water, soil and landscapes and (c) the quantities and qualities of the 'natural resource base' for human activity, including both reproducible and exhaustible assets. But even mildly biocentric interpretations would quite properly challenge the implicit division between 'nature' and 'culture' in this convention. The consequent division between 'environmentalists' who

adopt an external and often managerial stance towards the *environment* and 'ecologists' who view human activities as embedded in *nature*, is becoming politically contentious (see Dobson, 1990). In any case, there is increasing public acceptance of the idea that much of what we call 'natural', at least as far as the surface ecology of the globe and its atmosphere is concerned, has been significantly modified by human action (Marsh, 1965; Thomas, 1956; Goudie, 1986). The distinction between built environments of cities and the humanly-modified environments of rural and even remote regions then appears arbitrary except as a particular manifestation of a rather long-standing ideological distinction between the country and the city (Williams, 1973). We ignore the ideological power of that distinction at our peril, however, since it underlies a pervasive anti-urban bias in much ecological rhetoric.

In what follows I shall try to establish a theoretical position from which to try and make sense of 'environmental issues' in the rather circumscribed sense which we now attribute to that term.

II The Issue

I begin with two quotations.

We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect. (Aldo Leopold, *The Sand Country Almanac*)

Where money is not itself the community, it must dissolve the community . . . It is the elementary precondition of bourgeois society that labour should directly produce exchange value, i.e. money; and similarly that money should directly purchase labour, and therefore the labourer, but only insofar as he alienates his activity in the exchange . . . Money thereby directly and simultaneously becomes the *real community*, since it is the general substance for the survival of all, and at the same time the social product of all. (Karl Marx, *Grundrisse*, pp. 224-6).

From Marx's perspective the land ethic that Leopold has in mind is a hopeless quest in a bourgeois society where the community of money prevails. Leopold's land ethic would necessarily entail the construction of an alternative mode of production and consumption to that of capitalism. The clarity and self-evident qualities of that argument have not, interestingly, led to any immediate rapprochement between ecological/environmentalist and socialist politics; the two have by and large remained antagonistic to each other and inspection of the two quotations reveals why. Leopold defines a realm of thinking and action outside of the narrow constraints of the economy; his is a much more biocentric way of thinking. Working class politics and its concentration on revolutionising political economic processes comes then to be seen as a perpetuation rather than a resolution of the problem as Leopold defines it. The best that socialist politics can achieve, it is often argued, is an environmental (instrumental and managerial) rather than ecological politics. At its worst, socialism

stoops to so-called 'promethean' projects in which the 'domination' of nature is presumed both possible and desirable.

My concern in this essay is to see if there are ways to bridge this antagonism and turn it into a creative rather than destructive tension. Is there or ought there to be a place for a distinctively 'ecological' angle to progressive socialist politics? And, if so, what should it be? In what follows I will concentrate on how *values* are assigned to 'nature' as the beginning point for consideration of how 'nature' and the environment can be socially used and construed as an aspect of socialist politics.

III Money Values

Can we put money values on 'nature' and if so how and why? There are three arguments in favour of so doing:

(1) Money is *the* means whereby we all, in daily practice, value significant and very widespread aspects of our environment. Every time we purchase a commodity, we engage with a train of monetary and commodity transactions through which money values are assigned (or, equally importantly, *not* assigned to zero-priced 'free goods') to natural resources or significant environmental features used in production and consumption. We are all (no matter whether we are ecologically minded or not) implicated in putting monetary valuations on 'nature' by virtue of our daily practices.

(2) Money is the only well-understood and *universal* yardstick of value that we currently possess. We all use it and possess both a practical and intellectual understanding (of some sort) as to what it means. It serves to communicate our wants, needs, desires as well as choices, preferences and values, including those to be put specifically upon 'nature', to others. The comparability of different ecological projects (from the building of dams to wild-life or biodiversity conservation measures) depends on the definition of a common yardstick (implicit or acknowledged) to evaluate whether one is more justifiable than another. No satisfactory or universally agreed upon alternative to money has yet been devised. Money, as Marx noted, is a leveller and cynic, reducing a wondrous multidimensional ecosystemic world of use values, of human desires and needs, as well as of subjective meanings, to a common objective denominator which everyone can understand.

(3) Money in our particular society is *the* basic (though by no means the only) language of social power and to speak in money terms is always to speak in a language which the holders of that power appreciate and understand. To seek action on environmental issues often requires that we not only articulate the problem in universal (i.e. money) terms that all can understand, but also that we speak in a voice that is persuasive to those in power. The discourse of 'ecological modernisation' is precisely about

trying to represent environmental issues as profitable enterprise (Hajer, 1992; Weale, 1992). Environmental economics is also a useful and pragmatic tool for getting environmental issues on the agenda. I cite here E. P. Odum's struggle to gain wetland protection **legislation** in his home state of Georgia, which fell upon deaf ears until he put some plausible but rather arbitrary money values on the worth of wetlands to the state economy (see Gosselink, Odum and Pope, 1974). This persuaded the legislature to formulate, at a relatively early date, extensive wetland protection legislation. There are enough parallel instances (e.g. Margaret Thatcher's sudden conversion to a shade of green politics in 1988) to make it quite evident that political clout attaches to being able to articulate environmental issues in raw money terms.

Exactly how to do that poses difficulties. Pearce, *et al* (1988), for example, operationalise the widely-accepted Brundtland Report (1987) view that 'sustainable' development means that present actions should not compromise the ability of future generations to meet their needs, by arguing that the value of the total stock of assets, both humanly **produced** (e.g. roads and fields and factories) and given in 'nature' (e.g. minerals, water supplies, etc.), must remain constant from one generation to another. But how can this stock be quantified? It cannot be measured in non-comparable physical terms (i.e. in actual or potential use values), let alone in terms of inherent qualities, so money values (exchange values) provide the only common (universal) denominator.

The difficulties with such a procedure are legion.

1. What, for example, is money? Itself dead and inert, it acquires its qualities as a measure of value by means of a social process. The social processes of exchange which give rise to money, Marx concluded, show that money is a **representation** of socially necessary labour time and price is 'the money name of value'. But the processes are contradictory and money is therefore always a slippery and unreliable representation of value as social labour. Debasement of the coinage, extraordinary rates of inflation in certain periods and places, speculative rages, all illustrate how money can itself be seriously unstable as a representation of value. Money, we say, 'is only worth what it will buy' and we even talk of 'the value of money' which means that we vest in whatever is designated as money some social qualities inherent in everything else that is exchanged. Furthermore, money appears in multiple guises – gold and silver, symbols, tokens, coins, paper (should we use dollars, pounds, sterling, yen, cruzeiros, **deutschmarks**?). There have, furthermore, been **historical** instances when formal moneys have been so discredited that chocolate, cigarettes, or other forms of tangible goods become forms of **currency**. To assess the value of 'nature' or 'the flow of environmental goods and-services' in these terms poses acute problems that have only partial recompense by way of sophisticated methods of calculation of 'constant prices', 'price deflators' and noble

attempts to calculate constant rates of exchange in a world of remarkable currency volatility.

2. It is difficult to assign anything but arbitrary money values to assets independently of the market prices actually achieved by the stream of goods and services which they provide. As Sraffa long ago observed, this condemns economic valuation to a tautology in which achieved prices become the only indicators we have of the money value of assets whose independent value we are seeking to determine. Rapid shifts in market prices imply equally rapid shifts in asset values. The massive devaluation of fixed capital in the built environment in recent years (empty factories, warehouses, and the like) to say nothing of the effects of the property market crash illustrates the intense volatility of asset valuation depending upon market behaviours and conditions. This principle carries over into valuing 'natural' assets in market economies (consider the value of a Texas oil well during the oil scarcity of 1973-5 versus its value in the oil glut of 1980). The attempt to hand on a constant stock of capital assets (both humanly constructed and naturally occurring) measured in such money terms then appears an unreliable enterprise.

3. Money prices attach to particular things and presuppose exchangeable entities with respect to which private property rights can be established or inferred. This means that we conceive of entities as if they can be taken out of any ecosystem of which they are a part. We presume to value the fish, for example, independently of the water in which they swim. The money value of a whole ecosystem can be arrived at, according to this logic, only by adding up the sum of its parts, which are construed in an atomistic relation to the whole. This way of pursuing monetary valuations tends to break down, however, when we view the environment as being constructed organically, ecosystemically or dialectically (Norgaard, 1985) rather than as a Cartesian machine with replaceable parts. Indeed, pursuit of monetary valuations commits us to a thoroughly Cartesian-Newtonian-Lockean and in some respects 'anti-ecological' ontology of how the natural world is constituted (see below).

4. Money valuations presume a certain structure to time as well as to space. The temporal structure is defined through the procedure of discounting, in which present value is calculated in terms of a discounted flow of future benefits. There are no firmly agreed-upon rules for discounting and the environmental literature is full of criticism as well as defences of discounting practices in relation to environmental qualities. Volatility in actual interest rates and the arbitrariness of interest rates assigned on, for example, public projects makes valuation peculiarly difficult. Such valuation, furthermore, only makes sense if assets are exchangeable so that discounting the future value of, say, the state of energy fluxes in the ocean or the atmosphere is totally implausible. The multiple and often non-linear notions of time which attach to different ecological processes also pose

deep problems. While, for example, it might be possible to discover something about human time preferences (or at least make reasonable assertions about them), the multiple temporalities at work in ecosystems are often of a fundamentally different sort. **McEvoy** (1988, 222) cites the case of the (non-linear) reproductive cycle of sardine populations in Californian waters – the sardines adapted to 'ecological volatility' by individually 'living long enough to allow each generation to breed in at least one good year.' The stock suddenly collapsed when fishing 'stripped the stock of its natural buffer'. Of course, sensible policies and practices with respect to risk and uncertainty might have avoided such an outcome, but the point remains that the temporality defined by such ecological behaviours is antagonistic to the linear, progressive and very Newtonian conception of time we characteristically use in economic calculation. But even supposing some sort of valuation can be arrived at, profound moral questions remain for while it may be, as **Goodin** (1992, 67) points out, 'economically efficient for us to shortchange the future' it might well be 'wrong for us to do so' because it 'would amount to unjust treatment of future generations.' For this, and other reasons, 'green value theory' (as **Goodin** calls it) is deeply antagonistic to discounting practices. 'The concern for the future should add up towards infinity,' writes the deep ecologist **Naess** (1979, 127).

5. Property arrangements can be of various sorts. They look very different under conditions of, say, strong wetland preservation or land use controls. It is the task of much of contemporary environmental policy to devise a regulatory framework with which to cajole or persuade those holding private property rights to use them in environmentally benign ways, perhaps even paying attention to rather longer time horizons **than** those which the market discount rate dictates. Challenging though this theoretical, legal and political problem may be, it still presumes the environment has a clear enough structure so that some kind of cost-benefit argument concerning the relation between environmental goods and individualised property rights can be constructed. Appeal to money valuations condemns us, in short, to a world view in which the ecosystem is viewed as an 'externality' to be internalised in human action only via some arbitrarily chosen and imposed price structure or regulatory regime. This is precisely the mode of thinking which allowed **Hardin** (1986) to articulate the thesis of 'the tragedy of the commons' in which individual users of some common resource, seeking to maximize their individual utility, ultimately destroy that resource through overuse. Persuasive though that argument is on the surface, it breaks down not only when the model of individual utility maximizing behaviour is inappropriate, but also as soon as the sharp dichotomy between internal and external disappears, as occurs within ecosystems as well as in societies in which what we now rather patronisingly call 'respect for nature' is internalised in customary usages, religious beliefs, taboos, and the like (**McCay** and **Acheson**, 1987).

6. It is hard in the light of these problems not to conclude that there is something about money valuations that makes them inherently *anti-ecological*, confining the field of thinking and of action to instrumental environmental management. While the **point** of environmental economics (in both its theory and its practice) is to escape from a too-narrow logic of **resource/environmental** valuations and to seek ways to put money values on otherwise unpriced assets, it cannot escape from the confines of its own institutional and ontological assumptions (which may well be erroneous) about how the world is ordered as well as valued.

7. Money, lastly, hardly satisfies as an appropriate means to represent the strength or the manifold complexity of human wants, desires, passions and values. 'We see in the nature of money itself something of the essence of prostitution,' says **Simmel (1978, 377)** and Marx (1973) concurs. Freud took things even further, picking up on our penchant to describe money as something dirty and unclean ('filthy lucre' and 'filthy rich' are common expressions). 'It is possible the contrast between the most precious substance known to men and the most worthless . . . has led to the specific identification of gold with faeces,' he wrote, and shocked his Victorian readers by treating gold as transformed excrement and bourgeois exchange relations as sublimated rituals of the anus. Money, wrote his friend Ferenzci, 'is nothing other than odourless, dehydrated filth that has been made to shine' (Borneman, 1976, 86). We do not have to go so far as Freud and Ferenzci to recognise that there is something morally or ethically questionable or downright objectionable to valuing human life in terms of discounted lifetime earnings and 'nature' (for example, the fate of the grizzly bear and the spotted owl as species allowed to continue to dwell on earth) in monetary terms.

Capitalism is, from this **last** standpoint, beset by a central moral failing: money supplants all other forms of imagery (religion, traditional religious authority and the like) and puts in its place something that either has no distinctive image because it is colourless, odourless and indifferent in relation to the social labour it is supposed to represent or, if it projects any image at all, connotes dirt, filth, excrement, and prostitution. The effect is to create a moral vacuum at the heart of capitalist society – a colourless self-image of value that can have zero purchase upon social identity. It cannot provide an image of social bonding or of community in the usual sense of that term (even though it is the *real* community in the sense that Marx meant it) and it fails as a central value system to articulate even the most mundane of human hopes and aspirations. Money is what we aspire to for purposes of daily reproduction and in this sense it does indeed become the community; but a community empty of moral passion or of humane meanings. The sentiment that Leopold tried to articulate is, from this standpoint, correct.

At this point, the critic of money valuations, who is nevertheless deeply concerned about environmental degradation, is faced with a dilemma:

eschew the language of daily economic practice and **political power** and speak in the wilderness, or articulate deeply-held non-monetisable values in a language (i.e. that of money) believed to be inappropriate or fundamentally alien. There is, it seems to me, no immediate solution to the paradox. Zola hit it right in *L'Argent* when he has Madame Caroline say that:

Money was the dung-heap that nurtured the growth of tomorrow's humanity. Without speculation there could be no vibrant and fruitful undertakings any more than there could be children without lust. It took this excess of passion, all this contemptibly wasted and lost life to ensure the continuation of life . . . Money, the poisoner and destroyer, was becoming the seed-bed for all forms of social growth. It was the manure needed to sustain the great public works whose execution was bringing the peoples of the globe together and pacifying the earth . . . Everything that was good came out of that which was evil.

Although the ultimate moral of Zola's novel is that acceptance of that thesis leads to speculative farce and personal tragedy, no less a theorist than Max Weber sternly and quite properly warned that it was an egregious error to think that only good could come out of good and only evil out of evil. Money may be profoundly inadequate, soulless and 'the root of all evil', but it does not necessarily follow that social and by extension all ecological ills result from market coordinations in which private property, individualism and money valuations operate. On the other hand, we also have sufficient evidence concerning the unrestrained consequences of what Kapp called *The Social Costs of Private Enterprise* to know that it is equally illusory to believe the Adam Smith thesis that good automatically arises out of the necessary evils of the hidden hand of market behaviours. Left to its own devices, Marx (1967, 474-5) argued capitalistic progress 'is a progress in the art, not only of robbing the labourer, but of robbing the soil,' while capitalist technology develops 'only by sapping the original sources of all wealth – the soil and the labourer.'

The conclusion is, then, rather more ambiguous than many might want to accept. First, all the time we engage in commodity exchanges mediated by money (and this proposition holds just as firmly for any prospective socialist society) it will be impossible in practice to avoid money valuations. Secondly, valuations of environmental assets in money terms, while highly problematic and seriously defective, are not an unmitigated evil. We cannot possibly know, however, how good the arbitrary valuations of 'nature' are (once we choose to go beyond the simple idea of an unpriced flow of goods and services) unless we have some alternative notion of value against which to judge the appropriateness or moral worth of money valuations. Nor can we avoid a deep **connection** between a Newtonian and Cartesian view of the biosphere (a view which many would now seriously challenge as inappropriate to **confront** ecological problems) and the very basis of economic thinking and capitalistic practices. It is important to stress that the Newtonian-Cartesian view is not in itself wrong, any more than is the parallel Smithian model of atomistic individualism, market

behaviours, and property rights. But both are severely limited in their purchase and we are now wise enough to know that there are many spheres of decision and action, such as quantum theory and ecological issues, which cannot be captured in such a format. Newtonian mechanics and Smithian economics may be adequate to building bridges, but they are totally inadequate in trying to determine the ecosystemic impact of such endeavours.

IV Do Values Inhere in Nature?

There has been a long history within bourgeois life of resistance to and search for an alternative to money as a way to express values. Religion, community, family, nation, have all been proffered as candidates, but the particular set of alternatives I here wish to consider are those which in some manner or other see values residing in Nature – for romanticism, environmentalism and ecologism all have strong elements of that ethic built within them. And the idea is not foreign to Marxism either (at least in some of its renditions). When **Marx** (1971) argued in *The Jewish Question* that money has 'robbed the whole world – both the world of men and nature – of its specific value' and that 'the view of nature attained under the dominion of private property and money is a real contempt for and practical debasement of nature,' he comes very close to endorsing the view that money has destroyed earlier and perhaps recoverable intrinsic natural values.

The advantage of seeing values as residing in nature is that it provides an immediate sense of ontological security and permanence. The natural world provides a rich, variegated, and permanent candidate for induction into the hall of universal and permanent values to inform human action and to give meaning to otherwise ephemeral and fragmented lives (cf. **Goodin**, 1982, 40). 'It is inconceivable to me,' writes Leopold (1968, pp. 223-4), 'that an ethical relation to land can exist without love, respect and admiration for the land, and a high regard for its value. By value, I of course mean something far broader than mere economic value; I mean value in the philosophical sense' so that '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.' But how do we know and what does it mean to say that 'integrity, stability and beauty' are qualities that inhere in nature?

This brings us to the crucial question: if values reside in nature, then how can we know what they are? The routes to such an understanding are many and varied. Intuition, mysticism, contemplation, religious revelation, metaphysics, and personal **introspection** have all provided, and continue to provide, paths for acquiring such understandings. On the surface, at least, these modes of approach contrast radically with scientific enquiry. Yet, I shall argue, they all necessarily share a commonality. All versions of

revealed values in nature rely heavily upon particular human capacities and particular anthropocentric *mediations* (sometimes even upon the charismatic interventions of visionary individuals). Through deployment of highly emotive terms such as love, caring, nurturing, responsibility, integrity, beauty, and the like, they inevitably represent such 'natural' values in distinctively humanised terms, thus producing distinctively human *discourses* about intrinsic values. For some, this 'humanising' of values in nature is both desirable and in itself ennobling, reflecting the peculiarities of our own position in the 'great chain of being' (Lovejoy, 1936). '*Humanity is nature becoming conscious of itself*' was the motto that the anarchist geographer Reclus adopted, clearly indicating that the knowing subject has a creative role to play at least in translating the values inherent in nature into humanised terms. But if, as Ingold (1986, 104) notes, 'the physical world of nature cannot be apprehended as such, let alone confronted and appropriated, save by a consciousness to some degree emancipated from it,' then how can we be sure that human beings are appropriate agents to represent all the values that reside in nature?

The ability to discover intrinsic values depends, then, on the ability of human subjects endowed with consciousness and reflexive as well as practical capacities to become *neutral* mediators of what those values might be. This often leads, as in religious doctrines, to the strict regulation of human practices (e.g. asceticism or practices like yoga) so as to ensure the openness of human consciousness to the natural world. This problem of anthropocentric mediations is equally present within scientific enquiry. But here too the scientist is usually cast in the role of a knowing subject acting as a *neutral* mediator, under the strictest guidelines of certain methods and practices (which sometimes put to shame many a Buddhist), seeking to uncover, understand and represent accurately the processes at work in nature. If values inhere in nature, then science by virtue of its objective procedures should provide one reasonably neutral path for finding out what they might be.

How neutral this turns out to be has been the subject of considerable debate. Consideration of two examples provide some insight into the nature of the difficulty.

(1) *The Fable of the Sperm and the Egg*

Feminist work has, over the years, revealed widespread resort to gendered metaphors in scientific enquiry. The effect is often to write social ideas about gender relations into scientific representations of the natural world and thereby make it appear as if those social constructions are 'natural'. Merchant (1980) highlights, for example, the gendered imagery with which Francis Bacon approached nature (in essence as a female body to be explored and a female spirit to be dominated and tamed by ruse or force) in his foundational arguments concerning experimental method (an imagery

which sheds great light on what is happening in Shakespeare's *The Taming of the Shrew*). These are not, however, isolated or singular examples. Haraway, in an insightful essay on 'Teddy Bear patriarchy' in the New York Museum of Natural History, points out how 'decadence – the threat of the city, civilization, machine – was stayed in the politics of eugenics and the art of taxidermy. The Museum fulfilled its scientific purpose of conservation, preservation, and production of permanence in the midst of an urban world that even at the turn of this century seemed to be on the border of chaos and collapse.' It opposed to this world of troubled sociality a visual technology of exhibits deployed in part as a means to communicate to the outside world a sense of the true organicism of the natural order (founded on hierarchy, patriarchy, class and family) which ought to be the foundation of stability for any social order. In so doing, it explicitly used and continues to use primatology as a means to produce or promote race, class and gender relations of a certain sort.

Martin's (1991) example of the fable of the egg and sperm as depicted in the extensive medical and biological literature on human fertility is particularly instructive. Not only is the female reproductive process (particularly menstruation) depicted as *wasteful* compared to the immensely *productive* capacity of men to generate sperm, but the actual process of fertilization is depicted in terms of a passive female egg, tracked down, captured and claimed as a prize by an active, dynamic, and thrusting male sperm after a difficult and arduous journey to claim its prize. The sperm sounds oddly like an explorer looking for gold or an entrepreneur competing for business (cf Zola's parallel image cited above of financial speculation as the wasteful lust necessary to produce anything). It transpires, however, that the metaphor deployed in scientific studies of human fertility was fundamentally misleading; the sperm is by no means as directed, energetic and brave as it was supposed to be (it turns out to be rather listless and aimless when left to itself) and the egg turns out to play an active role in fertilisation. But it took time for researchers to lay their gendered predilections aside, and when they did so it was mainly by turning the egg into the equivalent of the aggressive *femme fatale* who ensnares, entraps and victimises the male (sperm) in an elaborate spider's web as 'an engulfing, devouring mother.' New data, Martin (1991, 498) suggests, 'did not lead scientists to eliminate gender stereotypes in their descriptions of egg and sperm. Instead, scientists simply began to describe egg and sperm in different, but no less damaging terms.' We plainly cannot draw any inferences whatsoever as to the values inherent in nature by appeal to investigations and enquiries of this sort.

(2) *Darwin's Metaphors*

Consider, as a second example, the complex metaphors that play against and alongside each other in Darwin's *The Origin of Species*. There is,

firstly, the metaphor of stock breeding practices (about which Darwin was very knowledgeable by virtue of his farm background). This, as Young (1985) points out, took the artificial selection procedures which were well understood in stock breeding and placed them in a natural setting, posing the immediate difficulty of who was the conscious agent behind natural selection. There is, secondly, the Malthusian metaphor which Darwin explicitly acknowledged as fundamental to this theory. Entrepreneurial values of competition, survival of the fittest in a struggle for existence then appeared in Darwin's work as 'natural' values to which social Darwinism could later appeal and which contemporary 'common sense' continues to deploy. Todes (1989) in a detailed examination of how Darwin's ideas were received in Russia shows, however, that the Russians almost universally rejected the relevance of the Malthusian metaphor and downplayed intra-specific struggle and competition as an evolutionary mechanism:

This unifying national style flowed from the basic conditions of Russia's national life – from the very nature of its class structure and political traditions and of its land and climate. Russia's political economy lacked a dynamic pro-laissez faire bourgeoisie and was dominated by landowners and peasants. The leading political tendencies, monarchism and a socialist-oriented populism, shared a cooperative social ethos and a distaste for the competitive individualism widely associated with Malthus and Great Britain. Furthermore, Russia was an expansive, sparsely populated land with a swiftly changing and often severe climate. It is difficult to imagine a setting less consonant with Malthus's notion that organisms were pressed constantly into mutual conflict by population pressures on limited space and resources . . . This combination of anti-Malthusian and non-Malthusian influences deprived Darwin's metaphor of commensensical power and explanatory appeal . . . (Todes, 1989. 168).

Though a great admirer of Darwin, this aspect of his work was not lost on Marx. 'It is remarkable,' he wrote to Engels, 'how Darwin recognises among beasts and plants his English society with its divisions of labour, competition, opening up of new markets, inventions and the Malthusian "struggle for existence."' (Marx and Engels, 1965, 128)

Had Darwin (and Wallace) not been so struck, as were many Englishmen of that era, by the extraordinary fecundity of tropical environments and oriented their thinking to the sub-Arctic regions, and if they had been socially armed with images of what we now call 'the moral economy of the peasantry,' they might well have downplayed, as the Russian evolutionists of all political persuasions did, the mechanisms of competition. They might have emphasised cooperation and mutual aid instead. When Prince Kropotkin arrived in London from Russia, armed with his theories of mutual aid as a potent force in both natural and social evolution, he was simply dismissed as an anarchist crank (in spite of his impressive scientific credentials), so powerful was the aura of social Darwinism at the time. But there is another interesting metaphor which flows into Darwin's work, to some degree antagonistic to that of competition and the struggle for existence. This had to do with species diversification into niches. The guiding metaphor here seems to have been the proliferation of the

divisions of labour and the increasing roundaboutness of production occurring within the factory system, about which Darwin was also very knowledgeable given that he was married to Emma, the daughter of industrialist Josiah Wedgewood. In all of these instances, the interplay of socially grounded metaphors and scientific enquiry is such as to make it extremely difficult to extract from the scientific findings any non-socially tainted information on the values that might reside in nature. It is not surprising, therefore, to find Darwin's influential and powerful scientific views being appropriated by a wide range of political movements as a 'natural' basis for their particular political programmes (see Gerratana, 1973). Nor should we be surprised that others, such as Allee and his ecologist colleagues at the University of Chicago in the inter-war years, could use their scientific work on (in this case) animal ecology as a vehicle to support and even promote their communitarian, pacifist and cooperative views (Mitman, 1992).

The conclusion, it seems to me, is inescapable. If values reside in nature we have no scientific way of knowing what they are independently of the values implicit in the metaphors deployed in mounting specific lines of scientific enquiry. Even the names we use betray the depth and pervasiveness of the problem. 'Worker bees' cannot understand the *Communist Manifesto* any more than the 'praying mantis' goes to church; yet the terminology helps naturalise distinctive social power relations and practices (cf Bookchin, 1909b). The language of 'the selfish gene' or 'the blind watchmaker' provide equally vivid social referents of scientific arguments. Rousseau (1973, 65), interestingly, spotted the ruse long ago when he wrote of 'the blunder made by those who, in reasoning on the state of nature, always import into it ideas gathered in a state of society.' Ecologists concerned, for example, to articulate conceptions of equilibrium, plant succession and climax vegetation as properties of the natural world, have reflected as much about the human search for permanence and security as the quest for an accurate and neutral description or theorisation of ecological processes. And the idea of harmony with nature not as a human desire but as a nature-imposed necessity likewise smacks of the view that to be natural is to be harmonious rather than conflictual and contradictory both of which are quickly dubbed as artificial, the result of 'disturbance' and the like. We have loaded upon nature, often without knowing it, in our science as in our poetry, much of the alternative desire for value to that implied by money.

But the choice of values lies within us and not in nature. We see, in short, only those values which our value-loaded metaphors allow us to see in our studies of the natural world. **Harmony** and equilibrium; beauty, integrity and stability; cooperation and mutual aid; ugliness and violence; hierarchy and order; competition and the struggle for existence; turbulence and unpredictable dynamic change; atomistic causation; dialectics and **princi-**

ples of complementarity; chaos and disorder; fractals and strange attractors; all of them can be identified as 'natural values' not because they are arbitrarily assigned to nature, but because no matter how ruthless, pristine and rigorously 'objective' our method of enquiry may be, the framework of interpretation is given in the metaphor rather than in the evidence. From contemporary reproductive and cell biology we will learn that the world is necessarily hierarchically ordered into command and control systems that look suspiciously like a Fordist factory system while from contemporary immunology we will conclude that the world is ordered as a fluid communications system with dispersed command-control-intelligence networks which look much more like contemporary models of flexible industrial and commercial organisation (Martin, 1992). When, therefore, it is claimed that 'nature teaches', what usually follows, Williams (1980, 70) remarks, 'is selective, according to the speaker's general purpose.'

The solution, here, cannot be to seek scientific enquiry without metaphors. Their deployment (like the parallel deployment of models) lies at the root of the production of all knowledge. 'Metaphoric perception,' say Bohm and Peat (1989, 35-41), is 'fundamental to all science' both in extending existing thought processes as well as in penetrating into 'as yet unknown domains of reality, which are in some sense implicit in the metaphor.' We can, therefore, only reflect critically upon the properties of the metaphors in use. And then we find that the values supposedly inherent in nature are always properties of the metaphors rather than inherent in nature. 'We can never speak about **nature**,' says Capra (1985.77) 'without, at the same time, speaking about ourselves.'

V The Moral Community and Environmental Values

Deep ecologists have tended to abandon the idea of values purely intrinsic to nature in recent years (cf Dobson, 1990, 57-63). They have in part done so because of their readings in quantum theory and the translation of the ideas of Bohr and Heisenberg into a distinctive form of ecological discourse in Capra's highly influential *Tao of Physics* and *The Turning Point*. The parallel turn to metaphysics, hermeneutics and phenomenology as means to present and discover the values that should attach to nature emphasizes the powers of the knowing subject. Fox, for example, writes:

The appropriate framework of discourse for describing and presenting deep ecology is not one that is fundamentally to do with the value of the non-human world, but rather one that is fundamentally to do with the nature and possibilities of the self, or, we might say, the question of who we are, can become and should become in the larger scheme of things.

The word 'should' here suggests that values do attach to the broader biotic community of which we are a part, but the means by which we discover them depend fundamentally on the human capacity for 'Self-

realization' (as opposed to the narrower sense of 'ego-fulfilment' or 'self-realization' as understood in bourgeois society) within rather than without nature. The 'deep ecology' literature here tacitly appeals to the notion of a 'human essence' or a 'human potentiality' (or in Marx's language, a 'species being' whose qualities have yet to be fully realized) from which humanity has become fundamentally alienated (both actually and potentially) through separation from 'nature'. The desire to restore that lost connection (severed by modern technology, commodity production, a promethean or utilitarian approach to nature, the 'community' of money flows, and the like) then lies at the root of an intuitive, contemplative and phenomenological search for 'Self-realisation'. If values are 'socially and economically anchored,' Naess (1989, 45) argues, then the philosophical task is to challenge those instrumental values which alienate. **Through** 'elaboration of a philosophical system' we can arrive at a 'comprehensive value clarification and disentanglement,' so as to spark a collective movement that can achieve 'a substantial reorientation of our whole civilisation.'

All sorts of philosophical, metaphysical, and religious 'clarifications' are here available to us. Heidegger, for example, offers considerable sustenance to contemporary ecological thinking (Steiner, 1992, 136). Interestingly, his fundamental objections to modernity echo not only Marx's arguments against the fetishism of commodities, but also capture much of the sensibility that informs a broad spectrum of ecological metaphysics:

the object-character of technological dominion spreads itself over the earth ever more quickly, ruthlessly, and completely. Not only does it establish all things as producible in the process of production: it also delivers the products of production by means of the market. In self-assertive production, the humanness of man and the thingness of things dissolve into the calculated market value of a market which not only spans the whole earth as a world market. but also. as the will to will, trades in the nature of Being and thus subjects all beings to the trade of a calculation that dominates most tenaciously in those areas where there is no need of numbers (Heidegger, 1971, 114-15).

Heidegger's response to this condition, as indeed is characteristic of much of this wing of the ecological movement, is to withdraw entirely into a metaphysics of *Being* as a way of *dwelling* that unfolds into a form of *building* that cultivates, cherishes, protects, preserves and nurtures the environment so as to bring it closer to us. The political project is to recover that 'rootedness' of 'man' which 'is threatened today as its core.' Instead of nature becoming 'a gigantic gasoline station' it must be seen as 'the serving bearer, blossoming and fruiting, spreading out in rock and water, rising up into plant and animal.' Mortals, Heidegger concludes, 'dwell in that they save the earth' but 'saving does not only snatch something from danger. To save really means to set something free into its own **presencing**.' The slogans of *Earth First* (e.g. 'set the rivers free!'), while they do not derive from Heidegger appeal to exactly such sentiments. All genuine works of art, Heidegger (1966, 47-8) goes on to argue, depend upon their rooted-

ness in native soil and the way in which they are constructed in the spirit of dwelling. We are, he says, 'plants which – whether we like to admit it to ourselves or not – must with our roots rise out of the earth in order to bloom in the ether and bear fruit.' Dwelling is the capacity to achieve a spiritual unity between humans and things. Place construction should be about the recovery of roots, the recovery of the art of dwelling with nature.

Heidegger's 'ontological excavations' focus attention on 'a new way to speak about and care for our human nature and environment', so that 'love of place and the earth are scarcely sentimental extras to be indulged only when all technical and material problems have been resolved. They are part of being in the world and prior, therefore, to all technical matters' (Relph, 1989, 27-9). The relationship proposed here is active not passive. 'Dwelling,' writes Norberg-Schulz (1980, 15-21) 'above all presupposes *identification* with the environment' so that the 'existential purpose of building (architecture) is therefore to make a site become a place, that is to uncover the meanings potentially present in the given environment.' Human beings 'receive' the environment and make it focus in buildings and things that 'explain' it and 'make its character manifest' in a place that simultaneously acquires and imprints back on us a particular *identity*.

Heidegger's ideas are paralleled by movements in North America towards a bioregional ethic, in which Leopold's recommendation that we enlarge the boundaries of community 'to include soils, waters, plants, and animals, or collectively: the land,' is taken quite literally as a programme for living with nature in place. The ideals of a place-bound environmental identity are strong. Berg and Dasmann (cited in Alexander, 1990, 163) say this means:

learning to live-in-place in an area that has been disrupted and injured through past exploitation. It involves becoming native to a place through becoming aware of the particular ecological relationships that operate within and around it. It means understanding activities and evolving social behaviour that will enrich the life of that place, restore its life-supporting systems, and establish an ecologically and socially sustainable pattern of existence within it. Simply stated it involves becoming fully alive in and with a place. It involves applying for membership in a biotic community and ceasing to be its exploiter.

Bioregionalism as a cultural movement therefore 'celebrates the particular, the unique and often indescribable features of a place. It celebrates this through the visual arts, music, drama and symbols which convey the feeling of place.' (Mills, cited in Alexander, *ibid*).

We arrive here at the core of what Goodin (1992, chapter 2) calls a green theory of value. It is a set of sentiments and propositions which provides a 'unified moral vision' running, in various guises, throughout almost all ecological and green political thinking. It has radical, liberal and quite conservative manifestations as we shall shortly see. And by virtue of its strong attachment of moral community to the experience of place, it frequently directs environmental politics towards a preservation and enhancement of the achieved qualities of places.

But the notion of a moral community also proves problematic. Consider, for example, how it plays in the work of an otherwise thoroughly liberal commentator like Sagoff (1988). While individuals often act as purely self-interested and atomistically constituted economic agents selfishly pursuing their own goals, he argues, they not only can but frequently do act in completely different ways as members of a 'moral community' particularly with respect to environmental issues. In the American case he concludes that:

'Social regulation most fundamentally has to do with the identity of a nation – a nation committed historically, for example, to appreciate and preserve a fabulous natural heritage and to pass it on reasonably undisturbed to future generations. This is not a question of what we want; it is not exactly a question of what we believe in; it is a question of what we are. There is no theoretical way to answer such a question: the answer has to do with our history, our destiny, and our self-perception as a people' (Sagoff, 1988, 17).

There are a variety of points to be made here. First, this is a strongly communitarian version of the 'Self-realization' thesis advanced by Fox (see above). Secondly, it has as much to say about the construction of a nation's identity as it does about the environment. And here we immediately hit upon a difficulty with the moral suasion and political implications of distinctively green values. For they are inevitably implicated in the construction of particular kinds of 'moral community' that can just as easily be nationalist, exclusionary and in some instances violently fascist as they can be democratic, decentralised and anarchist. Bramwell (1989), for example, points out the Nazi connection, not only via Heidegger (whose role is more emblematic than real) but also via the building of a distinctively fascist tradition around German romanticism, themes about 'Blood and Soil' and the like, incidentally noting the extensive and often innovative conservation and afforestation programmes that the Nazis pursued. Even if Bramwell overstates the case, it is not hard to see how distinctive attitudes to particular environments can become powerfully implicated in the building of any sense of nationalist or communitarian identity. Sagoff's insensitivity in using the term America when he means the United States and his tendency to depopulate the continent of indigenous peoples and to ignore its class, gender and racial structure in his account of the nation's encounter with the environment contains many of the same disturbing exclusions.

Environmental politics then becomes caught up in handing down to future generations a sense of national identity grounded in certain environmental traits. Put the other way round, nationalism without some appeal to environmental imagery and identity is a most unlikely configuration. If the forest is a symbol of German nation, then forest die-back is a threat to national identity. This fact played a key role in sparking the contemporary German Green movement but it has also posed considerable difficulty for that movement in pointing up the way contemporary ecological sensibilities have their roots in traditions that also prompted the Nazis to be

the first 'radical environmentalists in charge of a state' (cited in Bramwell, 1989, 11). Even an ecological radical like Spretnak (1985, 232) is then forced to recognize that 'the spiritual dimension of Green politics is an extremely charged and problematic area in West Germany.'

The point here is not to see all ideas about 'moral community,' bio-regionalism or place-bound thinking (e.g. nationalism and imagined community) as necessarily exclusionary or neo-Nazi. Raymond Williams, for example, builds elements of such thinking into his socialism. In his novels the whole contested terrain of environmental imagery, place-bound ideals, and the disruption of both by contemporary capitalism become meaningful arguments about the roots of alienation and the problematics of the human relation to nature. The task, then, is to try and articulate the social, political, institutional and economic circumstances that transform such place-bound sentiments concerning a special relation to 'nature' into exclusionary and sometimes radical neo-Nazi directions. The evocation of the Nazi connection by Bramwell (though itself a manifestation of conservative hostility to the Greens as 'new authoritarians antagonistic to free-market liberalism') is here very helpful, since it raises the question of the degree to which strong leanings towards reactionary rather than progressive trajectories might always in the last instance be implicated in green theories of value. In any case, it quickly becomes apparent that environmental values drawn from a moral community have as much to say about the politics of community as they do about the environment.

Political Values and Environmental-Ecological Issues

One of the more interesting exercises to undertake in enquiring into the environmental-ecological debate, is to inspect arguments not for what they have to say about the environment, but for what it is they say about the 'community' and political-economic organisation. In so doing, an impressive array of alternative forms of social organisation are invoked as seemingly 'necessary' to solve the issues at hand, along with an extraordinary display of disparate culprits and villains needing to be overthrown if our present ecodrama is to have a happy rather than tragic ending. 'Environmentalists,' notes **Paehlke** (1989, 194), not only 'occupy almost every position on the traditional right-to-left ideological spectrum,' but also can adapt to diverse political positions while simultaneously claiming they are beyond politics in the normal sense. Yet, again and again, 'the authority of nature and her laws' is claimed either to justify the existing condition of society or 'to be the foundation stone of a new society that will solve ecological problems.' (Grundmann, 1991b, 114). What is often at stake in ecological and environmentalist arguments,' Williams (1980, 71) suggests, 'is the ideas of different kinds of societies.'

Part of the problem here is that environmental-ecological arguments, precisely because of their diversity and generality are open to a vast array of uses to which environmentalists and ecologists would almost certainly object. Their rhetoric gets mobilized for a host of special purposes, ranging from advertisements for Audi cars, tooth pastes and supposedly 'natural' flavours (for foods) and 'natural' looks (mainly for women) to more specific targets of social control and investment in 'sustainable development' or 'nature conservation.' But the other side of that coin is that ecologists and to some degree even environmentalists of a more managerial persuasion, tend to leave so many loopholes in their arguments, litter their texts with so many symptomatic silences, ambiguities and ambivalences that it becomes almost impossible to pin down their socio-political programmes with any **precision even though** their aim may be 'nothing less than a **non-violent** revolution to overthrow our whole polluting, plundering and materialistic industrial society and, in its place, to create a new economic and social order which will allow human beings to live in harmony with the planet.' (Porritt and Winner, cited in Dobson, 1990, 7).

My intention in what follows is not to provide some firm classification or indeed to engage in critical evaluation of any particular kind of politics (all of them are open to serious objections), but to illustrate the incredible political diversity to which environmental-ecological opinion is prone.

A. Authoritarianism

Ophuls (1977, 161) writes: 'whatever its specific form, the politics of the sustainable society seem likely to move us along the spectrum from libertarianism towards authoritarianism' and we have to accept that 'the golden age of individualism, liberty and democracy is all but over.' Faced with escalating scarcities, Heilbroner (1974, 161) likewise argues, there is only one kind of solution: a social order 'that will blend a "religious" orientation and a "military" discipline (that) may be repugnant to us, but I suspect it offers the greatest promise for bringing about the profound and painful adaptations that the coming generations must make.' While their personal commitments are overtly liberal (and in Heilbroner's case socialistic) both authors reluctantly concede the necessity of some kind of centralised authoritarianism as a 'realistic' response to natural resource limits and the painful adaptations that such limits will inevitably force upon us. In the case of the strongly Malthusian wing of the ecological movement, and Garrett Hardin is probably the best representative, the appeal to authoritarian solutions is explicit as the only possible political solution to the 'tragedy of the commons.' Most of the writing in this genre presumes that resource scarcities (and consequent limits to growth) and population pressure lie at the heart of the environmental-ecological issue. Since these issues were paramount in the early 1970s, this style of argument was then

also at its height. In recent years, however, authoritarian solutions to the environmental crisis have been abandoned by the movement (Dobson, 1990.26). But there is always an authoritarian edge somewhere in ecological politics.

B. Corporate and State Managerialism

A weak version of the authoritarian solution rests upon the application of techniques of scientific-technical rationality within an administrative state armed with strong regulatory and bureaucratic powers in liaison with 'big' science and big corporate capital. The centerpiece of the argument here is that our definition of many ecological problems (e.g. acid rain, the ozone hole, global warming, pesticides in the food chain, etc.) is necessarily science-led and that solutions equally depend upon the mobilization of scientific expertise and corporate technological skills embedded within a rational (state-led) process of political-economic decision-making. 'Ecological modernization' (Hajer, 1992; Weale, 1992, chapter 3) is the ideological watchword for such a politics. Conservation and environmental regulation (at global as well as at national scale) would here be interpreted as both rational and efficient resource management for a sustainable future. Certain sectors of corporate capital, particularly those who stand to benefit from providing the technology necessary for global monitoring of planetary health, find the imagery of global management or 'planetary medicine' which can be derived from Lovelock's (1988) *Gaia* thesis very attractive, for example. It is perhaps no accident that Hewlett Packard funded much of Lovelock's research and that IBM has taken the lead in the 'greening' of corporate politics, since both corporations will likely play a leading role in providing the technology for global monitoring. 'Sustainability' here applies, however, as much to corporate power as to the ecosystem.

C. Pluralistic Liberalism

Democratic rights and freedoms (particularly of speech and opinion) are sometimes regarded as essential to ecological politics precisely because of the difficulty of defining in any omniscient or omnipotent way what a proper environmental-ecological policy might be. Open and perpetual negotiation over environmental-ecological issues in a society where diverse pressure groups (such as Greenpeace) are allowed to flourish is seen as the only way to assure that the environmental issue is always kept on the agenda. Whoever wants to speak for or about 'nature' can, and institutions are created (such as environmental impact statements and environmental law) to permit contestation over the 'rights of trees and owls. Consensus about environmental issues, and therefore the best bet for environmental protection, can best be reached only after complex negotiation and power plays between a variety of interest groups. But consensus is at best only a

temporary moment in a deeply contested and pluralistic politics concerning the values to be attributed to nature and how to view ecological change.

D. Conservatism

In some of the ecological literature the principle of prudence and respect for tradition plays a leading role. Human adaptations to and of natural environments have been arrived at over centuries and should not be unnecessarily disturbed. Conservation and preservation of existing landscapes and usages, sometimes argued for by explicit appeal to aesthetic judgements, give such a framework a conservative ring (see e.g. Collingwood, 1960). But arguments of this sort have a radical edge. They can be strongly anti-capitalistic (against development) and, when placed in an international setting, they can also be strongly anti-imperialistic. Tradition ought presumably to be respected everywhere, so that all-out modernisation is always regarded as problematic. Considerable sympathy can then be extended towards, say, indigenous peoples under siege from commodification and exchange relations. All of this has its romantic side, but it can also produce a hard-headed politics of place that is highly protective of a given environment. The issue is not non-intervention in the environment, but preservation of traditional modes of social and environmental interaction precisely because these have been found in some sense or other to work, at least for some (usually but not always elite) groups. The preservation of the political power and values of such groups is just as important here, of course, as environmental considerations.

E. Moral Community

The complex issues which arise when ideals of 'moral community' are invoked have already been examined. Many 'communities' evolve some rough consensus as to what their moral obligations are with respect to modes of social relating as well as to ways of behaving with respect to the 'rights of nature' (see Nash, 1989). While often contested, by virtue of the internal heterogeneity of the community or because of pressure towards social change, these moral precepts concerning, for example, the relation to nature (expressed increasingly in the field of 'environmental ethics') can become an important ideological tool in the attempt to forge community solidarities (e.g. nationalist sentiments) and to gain empowerment. This is the space *par excellence* of moral debate (see, e.g. Attfield, 1991) on environmental issues coupled with the articulation of communitarian politics and values that centre on ideals of civic virtues that carry over to certain conceptions of a virtuous relation to nature.

F. Ecosocialism

While there is a definite tendency in socialist circles to look upon environmentalism as a middle class and bourgeois issue and to regard proposals for

zero growth and constraints on consumption with intense suspicion (see Benton, 1989, 52, for a good summary) there are enough overlaps in enough areas to make ecosocialism a feasible political project (though it is still a relatively minor current within most mainstream socialist movements). Some environmental issues, such as occupational health and safety, are of intense concern to workers, while many ecological groups accept that environmental problems can be 'traced back to the capitalist precept that the choice of production technology is to be governed solely by private interest in profit maximization of market share' (Commoner, 1990, 219). 'If we want ecological sanity,' assert Haila and Levins (1992, 251). 'we have to struggle for social justice.' This means social control of production technology and the means of production, control over the 'accumulation for accumulation's sake, production for production's sake' capitalist system which lies at the root of many environmental issues, and a recognition that 'the future of humanity simply cannot build on pleasant life for a few and suffering for the majority' (Haila and Levins, 1992, 227). This places the environmental issue firmly within the socialist orbit. Those socialists (see O'Connor, 1988) who accept that there is an ecological crisis, then argue that a second route to socialism is available; one that highlights the contradiction between the social organisation of production and the (ecological) conditions of production, rather than class contradictions. The necessity for socialism is then in part given because only in such a society can thorough, enduring and socially just solutions be found to the environmental crisis.

G. Ecofeminism

The nature-nurture controversy has been nowhere more thoroughly debated than in the feminist movement and in ecofeminism we find a diverse set of opinions on how to connect the environmental-ecological issue with feminist politics. In radical ecofeminism, for example, the devaluation and degradation of nature is seen as deeply implicated in the parallel devaluation and degradation of women. The political response is to celebrate rather than deny the web-like interrelations between women and nature through the development of rituals and symbolism as well as an ethic of caring, nurturing and procreation. In this equation, the feminism is as prominent, if not more so, than the ecology and solutions to ecological problems are seen as dependent upon the acceptance of certain kinds of feminist principles.

H. Decentralised communitarianism

Most contemporary ecological movements, Dobson, (1990, 25) argues, eschew authoritarian solutions on principle and 'argue for a radically participatory form of society in which discussion takes place and explicit consent is asked for and given across the widest possible range of political

and social issues.' Their politics generally derive inspiration from 'the self-reliant community modelled on anarchist lines' (O'Riordan, 1981, 307) and writers like Bookchin, Goldsmith and a host of others (including the German Green party) have tried to articulate the form of social relations which should prevail within such self-reliant communities that could become, by virtue of their scale, 'closer' to nature. Egalitarianism, non-hierarchical forms of organisation and widespread local empowerment and participation in decision-making are usually depicted as the political norm (Dauncey, 1988). Decentralisation and community empowerment, coupled with a certain degree of bioregionalism, is then seen as the only effective solution to an alienated relation to nature and alienation in social relationships.

The array of ecological politics I have here outlined must be supplemented, however, by an ever vaster and much more complex array of special pleading, in which environmental/ecological issues or requirements are invoked for very particular social purposes. Scientists, for example, hungry for funding as well as for attention, may create environmental issues that reflect as much about the political-economy and sociology of science as they do about the condition of the environment. Robert May (1992), a Royal Society Research Professor writing on the evident urgency of taking measures to conserve biological diversity, focuses, for example, as much on the underfunding of taxonomy (relative to physics) as on how to define the importance of, or deal with, the issue. While on the one hand scientific ignorance is clearly a barrier to proper identification of what the relevant issues or solutions might be, the perpetual claims for more funding sometimes deservedly provoke scepticism.

Jacks and Whyte (1939, 261-2) provide another and even more insidious example. Writing in 1939, these two highly respected soil scientists, deeply concerned about soil erosion in Africa, argued that:

A feudal type of society in which the native cultivators would be to some extent tied to the lands of their European overlords seems the most generally suited to meet the needs of the soil in the present state of African development. Africa cannot be expected to accept feudalism without a struggle: in parts of British Africa it would mean jettisoning the promising experiment of Indirect Rule, everywhere it would mean denying to the natives some of the liberty and opportunities for material advancement to which their labours should entitle them. But it would enable the people who have been the prime cause of erosion and who have the means and ability to control it to assume responsibility for the soil. Self-interest, untrammelled by fears of native rivalry, would ensure that the responsibility was carried out in the ultimate interests of the soil. At present, humanitarian considerations for the natives prevent Europeans from winning the attainable position of dominance over the soil. Humanity may perhaps be the higher ideal, but the soil demands a dominant, and if white men will not and black men cannot assume the position, the vegetation will do so, by the process of erosion finally squeezing out the whites.

Both blunt and startling, this statement illustrates how, in the name of the environment, all kinds of restrictions should be put upon the rights of 'others' while conferring rights (and obligations) on those who supposedly have the knowledge and the high technology to control the problem. While

few would now dare to be so blatant, there is a strong strain of this kind of thinking in World Bank arguments and even in such a seemingly progressive document as the Brundtland report. Control over the resources of others, in the name of planetary health, sustainability of preventing environmental degradation, is never too far from the surface of many western proposals for global environmental management. Awareness of precisely that potentiality stimulates a good deal of resistance in developing countries to any form of environmentalism emanating from the West.

Similar issues arise whenever the environmental-ecological issues get converted into a purely aesthetic question. The special issue of *Fortune* devoted to the environment in 1970, for example, contained a strong argument for the redevelopment of the downtowns of the U.S.A., along what we would now call 'postmodern' lines, invoking environmental quality (usually depicted as user-friendly and as tree-lined or waterfront spaces) as its primary goal. The whole contemporary 'culture of nature' as Wilson (1992) calls it, is a very cultivated and hard-sold taste.

A cynical observer might be tempted to conclude that discussion of the environmental issue is nothing more than a covert way of introducing particular social and political projects by raising the spectre of an ecological crisis or of legitimising solutions by appeal to the authority of nature-imposed necessity. I would want, however, to draw a somewhat broader conclusion: all ecological projects (and arguments) are simultaneously political-economic projects (and arguments) and vice versa. Ecological arguments are never socially neutral any more than socio-political arguments are ecologically neutral. Looking more closely at the way ecology and politics interrelate then becomes imperative if we are to get a better handle on how to approach environmental/ecological questions.

VIII Historical-Geographical Materialism and the Political-Economy of Socio-Ecological Projects

There is an extraordinarily rich record of the historical geography of socio-ecological change that sheds much light on the ways in which socio-political and ecological projects intertwine with and at some point become indistinguishable from each other. The archive of such materials from archaeology (see, e.g. Butzer, 1982), anthropology (see e.g. Bennett, 1976; Ellen, 1982; Ingold, 1986), geography (Thomas, 1956; Goudie, 1986) and more recently history (cf. the debate in *Journal of American History*, 1990) is extensive indeed. Yet much of the contemporary debate on environmental-ecological issues, for all of its surface devotion to ideals of multidisciplinary and 'depth', operates as if these materials either do not exist or, if they do, exist only as a repository of anecdotal evidence in support of particular claims. Systematic work is relatively rare and that which does exist (e.g. Butzer, 1982) has not been anywhere near as central

to discussion as it should. The debate now arising within Marxism – between, for example, Benton (1989; 1992) and Grundmann (1991a and b) – operates at a level of historical-geographical abstraction that is most un-Marxist. Even a journal like *Capitalism, Socialism, Nature*, set up to explore green issues from a socialist perspective, is long on theory and anecdotal evidence and short on attempts to systematise across the historical-geographical record.

An impressionistic survey illustrates well how societies strive to create ecological conditions for themselves which are not only conducive to their own survival but also both manifestations and instantiations 'in nature' of their particular social relations. Since no society can accomplish such a task without encountering unintended ecological consequences, the contradiction between social and ecological change can become highly problematic, even from time to time putting the very survival of the society concerned at risk. This latter point was made long ago by Engels:

Let us not, however, flatter ourselves overmuch on account of our human victories over nature. For each such victory nature takes its revenge on us. Each victory, it is true, in the first place brings about the results we expected, but in the second and third places it has quite different, unforeseen effects which only too often cancel the first . . . Thus at every step we are reminded that we by no means rule over nature like a conqueror over a foreign people, like someone standing outside of nature – but that we, with flesh, blood and brain, belong to nature, and exist in its midst, and that all our mastery of it consists in the fact that we have the advantage over all other creatures of being able to learn its laws and apply them correctly.

This implies the sheer necessity of *always* taking the duality of social and ecological change seriously. The historian Cronon (1983, 13-14) argues, for example, that:

An ecological history begins by assuming a dynamic and changing relationship between environment and culture, one as apt to produce contradictions as continuities. Moreover, it assumes that the interactions of the two are dialectical. Environment may initially shape the range of choices available to a people at a given moment but then culture reshapes environment responding to those choices. The reshaped environment presents a new set of possibilities for cultural reproduction, thus setting up a new cycle of mutual determination. Changes in the way people create and re-create their livelihood must be analysed in terms of changes not only in their *social relations* but in their *ecological* ones as well.

All of which is another way of stating Marx's and Engels' (1976, 55) adage that the 'antithesis between nature and history is created' only when 'the relation of man to nature is excluded from history.' Cronon's study of colonial settlements in New England raises another issue, however. It shows how an environment that was the product of more than 10,000 years of Indian occupation and forest use (promoting, through burning, the forest edge conditions which tend to be so species diverse and rich) was misread by the settlers as pristine, Virginal, rich and underutilised by indigenous peoples. The implantation of European (i.e. Lockean) institutions of governance and property rights (coupled with distinctively European aspirations towards accumulation of wealth) wrought, furthermore,

an ecological transformation of such enormity that indigenous populations were deprived of the ecological basis for their way of life. The annihilation of that way of life (and thereby of Indian peoples) was, therefore, as much an ecological as military or political event. In part this had to do with the introduction of new disease regimes (smallpox in particular) but changes in and on the land also make it impossible to sustain a nomadic and highly flexible indigenous mode of production and reproduction.

One path towards consolidation of a particular set of social relations, therefore, is to undertake an ecological transformation which requires the reproduction of those social relations in order to sustain it. Worster (1985b) doubtless exaggerates in his flamboyant projection onto the American West of Wittfogel's theses on the relation between large-scale irrigation schemes and despotic forms of government, but his basic argument is surely correct. Once the original proposals for a communitarian, decentralised, 'bio-regional', river-basin-confined settlement system for the American west, drawn up by the geologist John Wesley Powell at the end of the nineteenth century, were rejected by a Congress dominated by large-scale corporate interests (Powell being thoroughly vilified in the process), those interests sought to assure their own reproduction through construction of dams, mega-water projects of all sorts and vast transformations of the Western ecosystem. Sustaining such a grandiose ecological project came to depend crucially upon the creation and maintenance of centralised state powers and certain class relations (the formation and perpetuation, for example, of large scale agribusiness and an oppressed landless agrarian proletariat). The consequent subversion of the Jeffersonian dream of agrarian democracy has ever since created intense contradictions in the body politic of states like California (see e.g. Gottlieb 1988 or Polanski's film *Chinatown*). But here another implication (notably absent in much of Cronon's work) follows: contradictions in the social relations (in Worster's case of class, but gender, religion, etc. can also be just as significant) entail social contradictions on the land and within ecosystemic projects themselves. Not only do the rich occupy privileged niches in the habitat while the poor tend to work and live in the more toxic and hazardous zones, but the very design of the transformed ecosystem is redolent of its social relations. Conversely, projects set up in purely ecological terms – one thinks of the so-called 'green revolution' for example – have all manner of distributive and social consequences (in the green revolution case the concentration of land holdings in a few hands and the creation of a landless agrarian proletariat).

Created ecosystems tend to both *instanciate* and reflect, therefore, the social systems that gave rise to them, though they do not do so in non-contradictory (i.e. stable) ways. This simple principle ought to weigh much more heavily than it does upon all angles of environmental-ecological debate. It is a principle which Lewontin (1982) argues has been forgotten as much in biology as in social science:

We cannot regard evolution as the "solution" by species of some predetermined environmental "problems" because it is the life activities of the species themselves that determine both the problems and solutions simultaneously . . . Organisms within their individual lifetimes and in the course of their evolution as a species do not *adapt* to environments; they construct them. They are not simply objects of the laws of nature, altering themselves to the inevitable, but active subjects transforming nature according to its laws.

It is pure idealism, for example, to suggest that we can somehow abandon in a relatively costless way the immense existing ecosystemic structures of, say, contemporary capitalistic urbanization in order to 'get back close to nature'. Such systems are a re-worked form of 'second nature' that cannot be allowed to deteriorate or collapse without courting ecological disaster for our own species. Their *proper* management (and in this I include their long-term socialistic or ecological transformation into something completely different) may require transitional political institutions, hierarchies of power relations and systems of governance that could well be anathema to both ecologists and socialists alike. But this occurs because, in a fundamental sense, there is in the final analysis nothing *unnatural* about New York City and sustaining such an ecosystem even in transition entails an inevitable compromise with the forms of social organisation and social relations which produced it.

To term urbanization a 'created ecosystem' may sound somewhat odd. But human activity cannot be viewed as external to ecosystemic projects. To view it so makes no more sense than trying to study pollination without bees or the pre-colonial ecosystem of the northeastern USA without the beaver. Human beings, like all other organisms, are 'active *subjects* transforming nature according to its laws' and are always in the course of adapting to the ecosystems they themselves construct. It is fundamentally mistaken, therefore, to speak of the impact of society on the ecosystem as if these are two separate systems in interaction with each other. The typical manner of depicting the world around us in terms of a box labelled 'society' in interaction with a box labelled 'environment' not *only* makes little intuitive sense (try drawing the boundary between the boxes in your own daily life) but it also has just as little fundamental theoretical and historical justification.

Money flows and commodity movements, for example, have to be regarded as fundamental to contemporary ecosystems, not only because of the accompanying geographical transfer of plant and animal species from one environment to another (see Crosby, 1986), but also because these flows form a coordinating network that keeps contemporary ecosystems reproducing and changing in the particular way they do. If these flows ceased tomorrow, then the disruption within the world's ecosystems would be enormous. And as the flows shift and change their character, so the creative impulses embedded in any socio-ecological system will also shift and change in ways that may be stressful, contradictory or harmonic as the case may be. Here, too, Cronon's (1992) consideration of Chicago as a city

operating as a fundamental exchange point between and transformative influence within the ecosystems of North America provides an interesting case study. It in effect translates and extends Smith's theses (see Smith, 1990 and O'Keefe and Smith, 197) concerning 'the production of nature' through commodity exchange and capital accumulation into a detailed historical-geographical narrative.

The category 'environmental or ecological movement' may also for this reason be a misnomer particularly when applied to resistances of indigenous peoples to ecological change. Such resistances may not be based, as many in the West might suppose, upon some deep inner need to preserve a distinctive and unalienated relation to nature or to keep intact valued symbols of ancestry and the like, but upon a much clearer recognition that an ecological transformation imposed from outside (as happened in colonial New England or as has more recently happened to rubber tappers in the Amazon) will destroy indigenous modes of production. Guha (1989, xii), for example, in his study of the Chipko 'tree-hugging' movement in the Himalayas against commercial logging and high-tech forest yield management, shows that the 'most celebrated "environmental" movement in the Third World is viewed by its participants as being above all a *peasant* movement in defence of traditional rights in the forest and only secondarily, if at all, an "environmental" or "feminist" movement.' Yet, to the degree that a 'homogenizing urban-industrial culture' is generating its own distinctive forms of ecological and cultural contradictions and crises, the Chipko, precisely by virtue of their ecological practices, 'represent one of the most innovative responses to the ecological and cultural crisis of modern society' (Guha, 1989, 196).

Indigenous groups can, however, also be totally unsentimental in their ecological practices. It is largely a western construction, heavily influenced by the romantic reaction to modern industrialism, which leads many to the view that they were and continue to be somehow 'closer to nature' than we are (even Guha, it seems to me, at some point falls into this trap). Faced with the ecological vulnerability often associated with such 'proximity to nature', indigenous groups can transform both their practices and their views of nature with startling rapidity. Furthermore, even when armed with all kinds of cultural traditions and symbolic gestures that indicate deep respect for the spirituality in nature, they can engage in extensive ecosystemic transformations that undermine their ability to continue with a given mode of production. The Chinese may have ecologically sensitive traditions of Tao, Buddhism and Confucianism (traditions of thought which have played an important role in promoting an 'ecological consciousness' in the West) but the historical geography of de-forestation, land degradation, river erosion and flooding in China contains not a few environmental events which would be regarded as catastrophes by modern-day standards. Archaeological evidence likewise suggests that

late ice-age hunting groups hunted many of their prey to extinction while fire must surely rate as one of the most-far reaching agents of ecological transformation ever acquired, allowing very small groups to exercise immense ecosystemic influence (Sauer, 1956).

The point here is not to argue that there is nothing new under the sun about the ecological disturbance generated by human activities, but to assess what exactly is new and unduly stressful, given the unprecedented rapidity and scale of contemporary socio-ecological transformations. But historical-geographical enquiries of this sort also put in perspective those claims typically advanced by some ecologists that once upon a time 'people everywhere knew how to live in harmony with the natural world' (Goldsmith, 1992, xvii) and to view with scepticism Bookchin's (1985, 97) equally dubious claim that 'a relatively self-sufficient community, visibly dependent on its environment for the means of life, would gain a new respect for the organic interrelationships that sustain it.' Much contemporary 'ecologically-conscious' rhetoric pays far too much attention to what indigenous groups say without looking at what they do. We cannot conclude, for example, that native Indian practices are ecologically superior to ours from statements such as those of Luther Standing Bear that:

'We are of the soil and the soil of us. We love the birds and the beasts that grew with us on this soil. They drank the same water as we did and breathed the same air. We are all one in nature. Believing so, there was in our hearts a great peace and a willing kindness for all living, growing things.' (cited in Booth and Jacobs, 1990, 27)

Such an inference would require belief in either some external and spiritual guidance to ensure ecologically 'right' outcomes, or an extraordinary omniscience in indigenous or pre-capitalistic judgements and practices in a dynamic field of action that is plagued by all manner of unintended consequences. 'The possibility of over-exploitation of a resource is perfectly compatible with our notion of peoples living close to nature, observing and acting accordingly' (Haila and Levins, 1992, 195). Furthermore, 'comparative studies have suggested that all high civilizations that incorporated intensification strategies were metastable and that their growth trajectories can be interpreted as those of accelerating energy extraction, to the point that both the ecosystem and the socioeconomic structures were stretched to capacity, with steady or declining absolute caloric productivity and input-output ratios' (Butzer, 1982, 320). All societies have had their share of ecologically-based difficulties and, as Butzer goes on to assert, we have much to learn from studying them.

Indigenous or pre-capitalist practices are not, therefore, necessarily superior or inferior to our own just because such groups espouse respect for nature rather than the modern 'promethean' attitude of domination or mastery (see Leiss, 1974). Grundmann (1991a) is surely correct in his argument contra Benton (1989; 1992) that the thesis of 'mastery over nature' (laying aside its gendered overtones for the moment) does not

necessarily entail destructiveness; it can just as easily lead to loving, caring and nurturing practices. Uncritical acceptance of 'ecologically conscious' sounding statements can, furthermore, be politically misleading. Luther Standing Bear prefaced the thoughts cited above with the very political argument that 'this land of the great plains is claimed by the Lakota as their very own.' Native Indians may well have strong claims to land rights, but the creation of an 'ecologically conscious' rhetoric to support them is, as we have already argued, a familiar but dangerous practice.

We can, in the same vein, turn a critical eye upon the ideological, aesthetic and 'ecologically conscious' traditions through which the whole relation to nature is approached. Glacken's (1967) monumental *Traces on the Rhodian Shore* well illustrates some of the twists and turns that the history of the idea of nature has taken in a variety of historical-geographical contexts from the Greeks until the end of the eighteenth century. While he is not directly interested in how changes in such ideas connected to or might even have shaped the actual course of political-economic change, the connection is always tacitly present. In this regard even Marx was willing to countenance the way in which ideas could become a 'material force' for historical change when embedded in social practices. For this reason it appears vital to look upon ideas as well as practices in terms of the conflation of ecological and social projects.

In recent years, for example, we find Wordsworth at the centre of an interesting debate. On the one hand Bate (1992) interprets him as a pioneer of 'romantic ecology,' a purely 'green' writer whose concerns for restoring a relation to nature have been written out of discussion by those like McGann (1983) who see him solely as an apologist for certain class relations. In a sense, the debate misses the point. Wordsworth was seriously *both* at the same time. Even Bate is in no doubt as to the nature of the social relations Wordsworth sought to recover or reconstitute as part and parcel of his ecologism. And it was precisely because of the social relations he espoused in his ecologically-conscious literary project, that he pioneered in producing the kind of tourist guide genre of writing that invites nature to be consumed (in ultimately destructive ways, as contemporary visitors to the Lake District soon find) through what Urry (1991) calls 'the tourist gaze.' Contemporary British practices in relation to the consumption of nature as a cultural spectacle owe a great deal, therefore, to the ideas that Wordsworth pioneered.

Inspection of the historical-geographical record reveals much about why words like 'nature' and 'environment' contain 'such an extraordinary amount of human history' (Williams, 1980, 67). The intertwinings of social and ecological projects in daily practices as well as in the realms of ideology, representations, aesthetics and the like are such as to make every social (including literary or artistic) project a project about nature, environment and ecosystem, and vice versa. Such a proposition should not,

surely, be too hard for those working in the historical materialist tradition to swallow. Marx argued, after all, that we can discover who and what we are (our species potential, even) only through transforming the world around us and in so doing put the dialectics of social and ecological change at the centre of all human history. But how should that dialectic be understood?

IX Dialectics

There are manifest dangers of imposing, as **Engels** did, a simple dialectical logic upon 'nature.' Yet the contemporary ecological literature is full of dialectical and quasi-dialectical modes of argumentation that parallel those that Marx practised. For this reason, there is, as Eckersley (1992.53) points out 'a much greater potential for theoretical synthesis' between 'ecocentrism and communitarian and socialist political philosophies than there is between ecocentrism and individualistic political philosophies such as liberalism.' While I shall shortly dispute Eckersley's particular conclusions, I here want to explore briefly the implications of the vigorous denunciations within the ecological literature of the ontological presuppositions of Descartes, Newton and Locke and the reductionist (non-dialectical) forms of natural and social science (particularly economics) to which those ontological presuppositions give rise (see Capra, 1985). Ecological theory typically turns to quantum theory (Heisenberg, Bohr and David Bohm figure large in their writings) and various forms of ecological science for a quite different set of ontological propositions.

The Cartesian system to which ecologists object presupposes that there can be a strict separation between *res cogitans* and *res extensa* (between mind and body, fact and value, 'is' and 'ought') and that the materiality scientists study is no more affected by the scientific knowledge generated in the mind than the mind is affected in its capacity to represent 'objectively' by the materiality studied. Cartesianism, furthermore, builds a detailed picture of a universe structured according to certain basic principles. It presumes the existence of a 'natural' and self-evident set of entities (individuals or things) that 'are homogeneous within themselves, at least insofar as they affect the whole of which they are parts.' Such entities can be individuated (identified) in terms of an externally given and absolute space and time (this is the Newtonian presumption which carries over, as we have already seen, to the social theory of John Locke and contemporary economics). The entities are, furthermore, 'ontologically prior to the whole' and parts (individuals) 'have intrinsic properties, which they possess in isolation.' The whole (a **society** or an ecosystem) is nothing but the sum (or in complex cases a multiple) of its parts. Relations between entities are, furthermore, clearly separable from the entities themselves. The study of relations is then a study of the contingent way in which entities

(e.g. billiard balls or people) collide. This poses the problem of the 'prime cause' and leads to the Cartesian-Newtonian vision of the universe as a clock-like mechanism which God wound up and set in motion. In this mode of thought, 'causes are separate from effects, causes being the properties of subjects, and effects the properties of objects. While causes may respond to information coming from effects (so-called "feedback loops"), there is no ambiguity about which is causing subject and which is caused object' (Levins and Lewontin, 1985).

This Cartesian view is widespread and it has proved an extraordinarily powerful device for generating knowledge and understanding of how the universe works. It also has intuitive appeal. We encounter 'things' (e.g. individuals) and systems (e.g. transport and communication nets) which appear to have a stable and self-evident existence so that it appears perfectly reasonable to build knowledge upon categorisations of them and upon the pattern of causal relations between them.

From the dialectical point of view, however, this is to look at matters in an unduly restrictive and one-sided way. Levins and Lewontin call the Cartesian view 'alienated' because it depicts a world in which 'parts are separated from wholes and reified as things in themselves, causes separated from effects, subjects separated from objects.' Marx was similarly critical of the 'common sense' view which whenever 'it succeeds in seeing a distinction it fails to see a unity, and where it sees a unity it fails to see a distinction' (cited in Ollman, 1991, 44). He would, doubtless, be equally scathing about the atomistic and causative reasoning which dominates in contemporary economics and sociology, the methodological individualism which pervades much of current political (including Marxist) philosophy, and the like.

Perhaps the most characteristic form that Cartesian thinking takes in the environmental field is to view 'society' as a bounded system in interaction with another bounded system called the 'biosphere'. Our present sense of environmental problems is then defined broadly in terms of the complex and problematic relations between these two systems. It is, in practice, hard to see where 'society' begins and 'nature' ends (try looking around you and figuring where the boundary lies), but even as an act of abstraction this configuration of thought looks precisely to be the product of alienated reason, having no historical or well-grounded scientific justification. And there is a strong consensus in the ecological literature that this convention together with its basis in a Cartesian form of reasoning is not only profoundly anti-ecological in itself but also, through its effects on social practices, the root of many of our ecological problems. If this is so, then analytical and rational choice Marxism, methodological individualism and perhaps even Marxist realism (though Bhaskar is now seeking to incorporate dialectics into his arguments) are also profoundly anti-ecological by virtue of their broadly Cartesian ontology. The debate between

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mental units.' But this then poses a particular problem for enquiry: it is crucial to establish the *scale* (usually spatial and temporal) at which *processes, things* and *systems* are operative for what is relevant at one scale (e.g. the pond) may not be so at another (e.g. the continent). Secondly, if all 'things' are internally heterogeneous by virtue of the complex process (or relations) which constitute them, then the only way we can understand the qualitative and quantitative attributes of 'things' is by understanding the very processes and relations which they internalize. We here find a very strong identity between Ollman's (1971; 1993) construction of the Marxian dialectic as internal relations and the ecological arguments set out by Eckersley (1992, 49-55), Birch and Cobb (1981), Naess (1989, 79) and Zimmerman (1988). There is, however, a limitation to be put upon this argument. I as an individual, do not in practice internalize everything in the universe, but absorb mainly what is relevant to me through my relationships (metabolic, social, political, cultural, etc) to processes operating over a relatively bounded field (my ecosystem, economy, culture, etc). There is no fixed or *a priori* boundary to this system. Where my relevant environment begins and ends is itself a function of what I do and the ecological, economic, and other processes which are relevant to that. Here, too, setting boundaries with respect to space, time, scale and environment becomes a major strategic consideration in the development of concepts, abstractions, and theories.

3. Space and time are neither absolute nor external to processes but are contingent and contained within them. There are multiple spaces and times (and space-times) implicated in different **physical, biological** and social processes. The latter all *produce* – to use Lefebvre's (1991) terminology – their own forms of space and time. Processes do not operate *in* but *actively construct* space and time and in so doing define **distinctive scales** for their development (see below).

4. Parts and wholes are mutually constitutive of each other. There is more to this than a mere feedback loop between thing-like entities. As, for example, I capture powers that reside in those ecological and economic systems that are relevant to me, I actively reconstitute or transform them *within* myself even before I project them back to reconstitute or transform the system from which they were initially derived (again, to take a trivial example, I breathe in, I reconstitute myself by virtue of the oxygen I transform within me, and I breathe out and transform the atmosphere around me). Reductionist practices 'typically ignore this relationship, isolating parts as preexisting units of which wholes are then composed' while some holistic practices reverse the preferential treatment (Levins and Lewontin, 1985).

5. The interdigitation of parts and wholes entails 'the interchangeability of subject and object, of cause and effect' (Levins and Lewontin, 1985, 274). Organisms, for example, have to be looked at as both the subjects

and the objects of evolution in exactly the same way that individuals have to be considered as both subjects and objects of processes of social change. The reversibility of cause and effect renders causally specified models (even when endowed with feedback loops) suspect. In **practice**, dialectical reasoning, precisely by virtue of its embeddedness in and representation of the flow of continuous processes, makes limited appeal to cause and effect argument.

7. 'Change is a characteristic of all systems and all aspects of all systems' (Levins and Lewontin, *op. cit.*, 275). This is perhaps the most important of all dialectical principles and one which Ollman (1991; 1993) prioritises above all else. The implication is that change and instability are the norm and that the stability of 'things' or systems is what has to be explained. In Ollman's (1991, 34) words, 'given that change is always a part of what things are, (our) research **problem** (can) only be how, when, and into what (things or systems) change and why they sometimes appear not to change.'

8. Transformative behaviour – 'creativity' – arises out of the **complexities** and contradictions which attach both to the **internalised** heterogeneity of 'things' and out of the more obvious heterogeneity present within systems. It is therefore omnipresent within the physical, biological and social worlds. This does not mean, however, that all moments within some continuous process are equally significant at a particular scale for understanding change or stability. The theoretical and empirical research task is to identify those characteristic 'moments' and 'forms' (i.e. 'things') embedded within continuous flows which can produce radical transformations or, on the other hand, give a 'thing' or system qualities of identity, integrity and relative stability. The question of 'agency' in social and biological as well as in physical systems has to be formulated broadly in these terms.

9. Dialectical enquiry is not itself outside of its own form of argumentation but subject to it. Dialectical enquiry is a process that produces things in the form of concepts, abstractions, theories and all manner of **institutionalised** forms of knowledge which stand in their own right only to be supported or undermined by the continuing processes of enquiry. There is, furthermore, a certain relationship implied between the researcher and the researched, a relationship which is not construed in terms of an 'outsider' (the researcher) looking in on the researched as an object, but one between two subjects each of which necessarily internalises something from the other by virtue of the processes that operate. Observation of the world is, Heisenberg argued, inevitably intervention in the world, in much the same way that deconstructionists will argue that the reading of a text is fundamental to its production. Marx similarly insisted that only by transforming the world could we transform ourselves and that it is impossible to understand the world without simultaneously changing it as well as ourselves. It is this principle that renders the duality of anthropocentrism and

ecocentrism, turned into mutually exclusionary principles by Eckersley (1992) into a false opposition (in exactly the same way that feminist theory, perpetually forced back to discuss the relation between nature and nurture, has broadly concluded – see Fuss (1990) – that the supposed opposition between essentialism and *social constructivism* is false because both are essential to each other). Dialectics cannot be superimposed on the world as an act of mind over matter (this was Engels' critical mistake, unfortunately replicated by Levins and Lewontin). The underlying unity of theory and praxis can, it seems, never be broken, only attenuated or temporarily alienated. Here lies, I would suggest, the true path towards that transcendence of the anthropocentric/ecocentric opposition that Benton (1992, 72) seeks.

10. *Eduction* – the exploration of potentialities for change, for self-realisation, for the construction of new totalities (e.g. social ecosystems) and the like – rather than deduction or induction is, as Bookchin insists, the central motif of dialectical praxis. Dialectical enquiry necessarily incorporates, therefore, the building of ethical, moral and political choices into its own process and sees the constructed knowledges that result as discourses situated in a play of power. Values, for example, are not imposed as universal abstractions from outside but arrived at through a process of enquiry embedded in forms of praxis and plays of power attaching to the exploration of this or that potentiality (in ourselves as well as in the world we inhabit). To the degree that a distinctively 'green value theory' has arisen in recent years, it must be seen as the product of socio-ecological processes and plays of power.

There is, evidently, a remarkable commonality of the dialectics (as both ontology and epistemology) present in Marx's argumentation in, say, *Capital*, (and as set out by Ollman, 1993) and those proffered, in one form or another, across a fairly wide spectrum of ecological writings. This commonality has not passed unnoticed (Parsons, 1977; Lee, 1980), nor can it be regarded as unproblematic (Clark, 1989; Dickens, 1992, 190-5). But it has not been creatively worked upon. In the same way (see Harvey, 1982; 1989) that Marxian theory can be extended dialectically to understand the production of both space and time – fundamental attributes of 'nature' after all – so the theoretical task of constructing a fuller and more coherent Marxian theory of the production of nature (see Smith, 1990) cries out for attention. There is, plainly, nothing in principle anti-ecological about Marx's dialectics. The prospects for creating a political economic ecology are therefore good, provided the dialectical imagination can be restored to that central position in Marxian theory from which it has been dislodged by many countervailing neo-Marxist currents of thought.

X Towards an Ecosocialist Politics

Benton (1989, 55) has recently argued that 'the basic ideas of historical materialism can without distortion be regarded as a proposal for an ecological approach to the understanding of human nature and history.' The difficulty, he asserts, is that there is a hiatus, 'internal to' the mature writings between this general commitment and Marx's political-economic conception of the labour process. I want to propose that a more dialectical reading of Marx, in which the labour *process* is seen as 'a form-giving fire' perpetually modifying other *processes* while passing through and giving rise to distinctive '*things*', eliminates much of that hiatus. Not only does it then become possible to explore the commonalities between Marx's project and some sectors of contemporary ecological thinking, but it also allows us to begin to construct more adequate languages with which to reflect upon the nature of socio-ecological activities and projects.

It is at this point useful to reflect for a moment upon the multiple languages – scientific, poetic, mythic, moral and ethical, economistic and instrumental, emotive and effective – in which ecological issues are typically addressed. For it is often argued that some kind of *transdisciplinary* language is required to better represent and resolve ecological problems and that the very existence of multiple discourses about 'nature' is a fundamental part of the problem. On the other hand, there is a deep reluctance to try to cram everything we want to say about 'nature' and our relation to it into one singular and homogeneous language. I want here to argue that a limited case can be made for both positions.

On the one hand we certainly need a much more unified language for the social and *biological/physical* sciences than we currently possess. The question of the unity of science has, of course, been broached many times – not least by Marx (1964). But serious problems have arisen on the social theory side whenever a biological basis has been invoked (familiar examples include the way social Darwinism founded Nazism, the profound social antagonisms generated in the debate over sociobiology). The response on the social science side has often been to retreat from any examination of the ecological side of social projects and act as if these either did not matter or as if they had to be construed as something 'external' to enquiry. I want to argue that this is not a satisfactory way to go about things and that ways have to be found to create a more common language. This is, however, dangerous territory – an open field for organicist or holistic rather than dialectical modes of thinking – and it may require deep shifts in ontological and epistemological stances on both the social and natural scientific sides, if it is to succeed.

On the other hand, the heterogeneity of discourses about 'nature' has to be accepted as not only an inevitable but also a very constructive and creative feature of ecological argumentation, provided that it is read not as fragmented and separate modes of thought and action embedded in

isolated communities, but as the internalised heterogeneity, the play of difference, which all of us must surely feel and experience in our interaction with 'others' in both the human and non-human world. The pleasure of meaningful work and engagement with others is not irrelevant to the worker's life and the celebration of that in poetry and song has as much to convey as the more alienated representations of the world which science purveys.

Yet there is in this an omnipresent danger. Not only do different discourses lie uneasily side by side so that it becomes hard to spot the unity within the difference. But the careful analysis of the way power relations get embedded in distinctive discourses suggests that the vast conceptual muddle and cacophony of discourses is far from innocent in the reproduction of capitalism. Critical engagement with that is no trivial political task. If all socio-political projects are ecological projects and *vice versa*, then some conception of 'nature' and of 'environment' is omnipresent in everything we say and do. If, furthermore, concepts, discourses and theories can operate, when internalised in socio-ecological practices and actions, as 'material forces' that shape history (cf. Lovejoy, cited above; Ollman, 1971, 23-4), then the present battles being waged over the concepts of 'nature' and of 'environment' are of immense importance. All critical examinations of the relation to nature are simultaneously critical examinations of society. The incredible vigour with which ruling interests have sought to contain, shape, mystify and muddy the contemporary debate over nature and environment (for the most part within discourses of 'ecological modernisation', 'sustainability', 'green consumerism' or the commodification and sale of 'nature' as a cultural spectacle) testifies to the seriousness of that connection.

The danger here is of accepting, often without knowing it, concepts that preclude radical critique. Consider, for example, the way in which 'ecoscarcity' (and its cognate term of 'overpopulation') plays out in contemporary debate (see, for example, Benton, 1989, 1992). The emphasis is on the 'natural limits' to human potentialities. In Lee's (1989) case, the narrative proceeds as if the rules of human behaviour should be derived from the second law of thermodynamics and the inherent sustaining power of ecosystems (neither of which is helpful at all in explaining the shifting history of human social organisation let alone the genesis of life). But if we view 'natural resources' in the rather traditional geographical manner, as 'cultural, technological and economic appraisals of elements residing in nature and mobilised for particular social ends,' (see, e.g. Spoehr, 1956; Firey, 1960), then 'ecoscarcity' means that we have not the will, wit or capacity to change our social goals, cultural modes, our technological mixes, or our form of economy and that we are powerless to modify 'nature' according to human requirements (see Harvey, 1974). Even the short history of capitalism surely proves that none of these features are

fixed, that all of them are dynamic and changing. It is one thing to say that capitalism, given its narrow fixations and rules of capital accumulation, is encountering a condition of ecoscarcity and overpopulation. Indeed, it can be argued with some force, pace Marx, that capitalism as a mode of production produces scarcity so that to focus on universal limitations is to completely elide the political-ecological point. In this regard at least, Benton (1989, 77) has it right:

What is required is the recognition that each form of social/economic life has its own specific mode and dynamic of interrelation with its own specific contextual conditions. resource materials, energy sources and naturally mediated unintended consequences (forms of 'waste', 'pollution' etc). The ecological problems of any form of social and economic life . . . have to be theorized as the outcome of this specific structure of natural/social articulation.

Many of the terms used in contemporary environmental debates, it turns out, incorporate capitalist values without knowing it. While 'sustainability,' for example, means entirely different things to different people (see Redclift, 1987), the general drift of the term's use situates it against the background of sustaining a particular set of social relations by way of a particular ecological project. Imagine, for example, a highly simplified ecological-economic situation (along the lines of Lovelock's Daisyworld on Gaia) in which New York City has two species, international bankers and cockroaches. International bankers are the endangered species and so 'sustainability' gets defined in terms of organising the use of the earth (e.g. organising 'sustainable' agriculture in Malawi to facilitate debt repayments) to keep them in business. The model, though far-fetched in some ways, is also quite illuminating, since it indicates why and how it is that international finance, via the World Bank, is these days so interested in ecological sustainability. The duality of ecological and social projects here takes some interesting twists for while it is true that debt-repayment, as ecologists argue, is at the root of many ecological problems it is precisely the threat of debt default that forces international finance to recognise that such ecological problems exist.

But for exactly the same reasons that we cannot afford to limit options by internalising a capitalistic logic in which concepts of sustainability, ecoscarcity and overpopulation are deeply implicated, so socialists cannot simply be content to try and coopt the critical language of ecological discontent. The task is, rather, to both define and fight for a particular kind of ecosocialist project that extricates us from the peculiar oppressions and contradictions that capitalism is producing. Marx long ago summarised these succinctly enough:

In our days, everything seems pregnant with its contrary. Machinery, gifted with the wonderful power of shortening and fructifying human labour, we behold starving and overworking it. The new-fangled sources of wealth, by some strange weird spell, are turned into sources of want. The victories of art seem bought by the loss of character. At the same pace that mankind masters nature, man seems to become enslaved to other men or to his

own infamy. Even the pure light of science seems unable to shine but on the dark background of ignorance. All our invention and progress seem to result in endowing material forces with intellectual life, and in stultifying human life into a material force (cited in Grundmann, 1990b, 228).

It is then tempting, but not sufficient, to cite Engels' path towards an effective resolution to ecological as well as social dilemmas:

by long and often cruel experience and by collecting and analysing historical material, we are gradually learning to get a clear view of the indirect, more remote, social effects of our production activities and so are afforded an opportunity to control and regulate these effects as well . . . This regulation, however, requires something more than mere knowledge. It requires a complete revolution in our hitherto existing mode of production, and simultaneously a revolution in our whole contemporary social order.

I say this is insufficient because it leaves unresolved far too many dilemmas concerning the actual direction any ecosocialist project might take. And here the debate between Marxists and ecologists of all stripes has much to offer. That debate is largely a matter of articulating fixed positions, of course, but there are other, more dialectical ways, to go about reading it. 'One-sided representations are always restrictive and problematic,' Marx argued, and the best way to proceed when faced with a difficulty is 'to rub together conceptual blocks in such a way that they catch fire.' In that spirit I will conclude with the five key areas in which such a 'rubbing' might help ecosocialist conceptual politics catch fire:

1. Alienation, and Self-realisation

Ideals of 'self-realisation' are widespread in the ecological literature. They parallel in certain ways Marx's concerns, particularly in *The Economic and Philosophic Manuscripts of 1844* but also in later works such as the *Grundrisse*, for human emancipation and self-development through the working out of our creative powers. In the Marxist tradition, however, quite properly concerned as it has been with impoverishment and deprivation, the liberation of the productive forces came to be seen as the privileged and to some degree exclusive means towards the broader goal of human self-realisation (see Grundmann, 1990b, 54). As such, it became a goal in itself.

The ecologists' critique of socialist 'productivism' is here helpful, since it forces Marxists to re-examine the problematics of alienation (see, e.g., Meszaros, 1970; Ollman, 1971). Under capitalism, private property, class relations, wage labour, and the fetishisms of market exchange separate and alienate us from any sensuous and immediate contact (except in those fragmented and partial senses achievable under class-ordered divisions of labour) from 'nature' as well as from other human beings. But if 'man lives on nature' then 'that nature is his *body* with which he must remain in continuous interchange if he is not to die.' The health of that body is fundamental to our health. To 'respect' nature is to respect ourselves. To engage with and transform nature is to transform ourselves. This forms

one side of **Marx's** theses. But estrangement from immediate sensuous engagement with nature is an essential moment in consciousness formation. It therefore is a step on a path towards emancipation and self-realisation (cf. **Ingold**, 1986, cited above). But herein lies a paradox. This never-ending estrangement of consciousness permits reflexivity and the construction of emancipatory forms of knowledge (such as science); but it also poses the problem of how to return to that which consciousness alienates us from. How to recuperate an unalienated relation to nature (as well as unalienated forms of social relations) in the face of contemporary divisions of labour and technological-social organisation, then becomes part of a common project that binds Marxists and ecologists ineluctably together. Where they split asunder is in the way that such a recuperation might be sought. For Marxists, there can be no going back, as many ecologists seem to propose, to an *unmediated* relation to nature (or a world built solely on face-to-face relations), to a pre-capitalist and communitarian world of non-scientific understandings with limited divisions of labour. The only path is to seek political, cultural and intellectual means that 'go beyond' the mediations such as scientific knowledge, organisational efficiency and technical rationality, money, and commodity exchange, while acknowledging the significance of such mediations. The emancipatory potential of modern society, founded on alienation, must continue to be explored. But this cannot be, as it so often is, an end in itself for that is to treat alienation as the end point, the goal. The ecologists' and the early **Marx's** concern to recuperate the alienation from nature (as well as from others) that modern day capitalism *instanciates* must be a fundamental goal of any ecosocialist project. The quest for meaningful work as well as meaningful play (making sure, for example, that 'victories of art' are not bought by 'loss of character') becomes a central issue through which the labour movement can grasp the nettle of ecological argumentation concerning alienation from nature, from others and, in the last instance, from ourselves.

This does not deny the relevance or power of phenomenological approaches in exploring the potentialities of more intimate and immediate relations to nature or to others. The depth and intensity of feeling implicit even in Heidegger's approach is not irrelevant, any more than is the search for adequate poetic languages, representations, symbolic systems. Sartre's existentialism owes as much, after all, to **Marx** as to Heidegger. The danger arises when such modes of thought are postulated as the sole basis of politics (in which case they become inward-looking, exclusionary and even neo-fascist), when it was surely **Marx's** intent to search for unity within the duality of *existential* and *mediated* experiences of the world. Exploring that duality has to be at the centre of ecosocialist politics, implying an uncomfortable but instructive duality of values between the purely instrumental (mediated) and the existential (unmediated).

2. *Social Relations and Ecological Projects*

Explorations of our 'species potential' and our capacity for 'self-realisation' require that we take cognizance of the relation between ecological projects and the social relations needed to initiate, implement and manage them. Nuclear power, for example, requires highly centralised and non-democratic power relations coupled with hierarchical command and control structures if it is to work successfully. Objections to it therefore focus as much on the social relations it implies as on the ecological problems of health and long-term hazardous wastes. The nature of many of the ecological projects undertaken in the Soviet Union likewise required social relations that were fundamentally at odds with the theoretical project of constructing a new society founded on egalitarianism and democracy. But this sort of critique is the easy part. For if we turn the equation around, and state that the only kinds of ecological projects to be undertaken are those which are consistent with non-hierarchical, decentralised, highly democratic and radically egalitarian social relations, then the range of possible ecological projects becomes highly restricted, perhaps even life-threatening for substantial numbers of people. Adoption of such a stance certainly does not accord with the open exploration of our species potentiality and would probably militate against the alleviation of the tangible material misery in which much of the world's population lives.

There is, here, no resolution to what will always be a contradictory situation, save that of recognising fully the nature of the tension and seeking political ways to live with its effects. More immediately, we have also to recognise the effects that arise from the instantiation 'in nature' of certain kinds of social relations. If, for example, we view, as I think we must, contemporary ecosystems as incorporating the built environments of cities and the capital and commodity flows that sustain them, and if these ecosystems are instantiations of capitalist social relations, then what feasible (as opposed to catastrophically destructive) social and ecological transformations are available to us?

3. *The Question of Technology*

'Technology discloses man's mode of dealing with Nature, the process of production whereby he sustains his life, and thereby also lays bare the mode of formation of his social relations, and of the mental conceptions that flow from them' (Marx, 1967, 352). While it is plainly wrong to attribute any technological determinism to Marx ('discloses' cannot be read as 'determines'), the centrality of technology and of technological choices in embedding social relations in ecological projects (and vice versa) means that careful attention has to be paid to this issue. Grundmann (1990b) is here, surely on very strong grounds when he points to some of the deep tensions in Marx's own approach. If, for example, machinery not only dispossesses workers of their surplus value but also deprives them of

their skill and virtuosity while mediating their relations to nature in alienating ways, then self-realisation (however much we insist on the collectivity of the project) may be in jeopardy for technological reasons. Some kinds of technologies run counter even to the aim of exercising greater control over nature. But the problem goes even deeper. The technological mixes that capitalism bequeaths us (with its particular mixes of socio-ecological projects) either have to be roundly rejected (as many ecologists now suggest) or gradually transformed in ways that better accord with socialist social relations, and of the mental conceptions (such as those concerning the relation to nature) that flow from them. Arguments over 'appropriate technology' and 'small-is-beautiful' here come into play, not as necessary technological principles or trajectories for the construction of socialism, but as a set of questions marks over the future technological organisation of a socialist society (cf. Commoner, 1990).

4. The Dialectics of Commonality and Difference, of Centralisation and Decentralisation

Since much of the radical ecological critique now in vogue has its roots in anarchism, it has typically taken the path of emphasising community, locality, place, proximity to 'nature', particularity and decentralisation (deeply antagonistic to state powers) as opposed to the more traditional socialist concerns with the universality of proletarian struggles and the overthrow of capitalism as a world-historical system of domination. Any ecosocialist project has to confront that opposition. Here I think a more *geographical* historical materialism, one that is more ecologically sensitive, has much to offer, both in terms of analysis as well as in terms of prospective transformations. The *general* struggle against capitalist forms of domination is always made up of *particular* struggles against the specific kinds of socio-ecological projects in which capitalists are engaged and the distinctive social relations they presuppose (against commercial forestry and timber management in the Himalayas as against large scale water projects in California or nuclear power in France). The articulation of socialist principles of struggle therefore varies greatly with the nature and scale of the socio-ecological project to be confronted. And by the same token, the nature of the socialist transformation sought depends crucially upon the socio-ecological possibilities that exists in relation to particular projects, looking very different in Nicaragua or Zimbabwe from how it looks in Sweden and very different in terms of multinational finance from how it looks in terms of medical wastes dumped next to housing projects. But it is at this point that the *general* presumptions of the transition to socialism deserve to be reflected upon. Socialism is not necessarily about the construction of homogeneity. The exploration of our species potentiality can presumably also be about the creative search for and exploration of diversity and heterogeneity. Socio-ecological projects, much more in

tune with resolving questions of alienation and opening up diverse possibilities for self-realisation, can be regarded as fundamentally part of some socialist future. The failures of capitalism to produce anything other than the uneven geographical development of bland, commoditised, homogeneity is, surely, one of the most striking features of its failures.

The radical ecological literature that focuses on place construction, bioregionalism, and the like here has something creative to offer, partly as an excellent ground for the critique of capitalism's production of waste (do we really need to ship British beer to Australia and Australian beer to Britain?) as well as its production of serial conformity in urban design and the like. Mumford wishfully depicted the region, for example, 'like its corresponding artifact, the city, (as) a collective work of art' not found 'as a finished product in nature, not solely the creation of human will and fantasy.' Embedded in a socialist project of ecological transformation, such a way of thinking turns on the 'production of nature' as diverse localised works of art coupled with the creation of ecosystemic differences which can respect diversity as much of culture and of places as of ecosystems. The richness of human capacity for complexity and diversity in a context of the free exploration of the richness, complexity and diversity encountered in the rest of nature can become a vital part of any ecosocialist project. 'Each of us,' says a bioregionalist like Berg (cited in Alexander, 1990, 170) 'inhabits a "terrain of consciousness" determined in large part by the place we dwell in, the work we do, and the people with whom we share our lives.' And there is absolutely no reason not to follow him in arguing that 'the re-creation of caring and sustainable human cultures' ought to become 'part of the "real work" of our time.' In so doing he is echoing something that derives as much from Raymond Williams as from Heidegger.

But we also hit here the point of departure of ecosocialism from pure bioregionalist, place and local communitarian politics. The problem is that there is more than a hint of authoritarianism, surveillance and confinement in the enforced localism of such a decentralised politics and a naive belief that (1) respect for human diversity is compatible with the belief that all decentralised societies will necessarily construct themselves 'upon the (enlightenment!) values of democracy, liberty, freedom, justice and other such like desiderata' (Sale, 1985) rather than in terms of slavery, sexual oppression, and the like (see Dobson, 1990, 122), (2) that the 'impoverishment' which often attaches to communal autarky and strong restrictions on foreign trade can be overcome, and (3) that restrictions on population movements coupled with exclusions of disruptive 'foreigners' can somehow be squared with ideals of maximizing individual freedoms, democracy and openness to 'others.' Young's (1990) salutary warnings concerning the nightmare of communitarian politics in which community is defined as against others and therefore formulated in an entirely exclusionary, chauvinistic and racist way, is not that easily avoided. When Goldsmith

condescendingly writes (cited in Dobson, 1990, 97), for example, that 'a certain number of foreigners could be allowed to settle,' but that they would not 'partake in the running of the community until such time as the citizens elected them to be of their number,' the leaning towards a politics of exclusion that is neo-fascist becomes rather too close for comfort. The 'ecologism' of the right-wing Lombardy Leagues in Northern Italy, for example, shares exactly such a perspective not only with respect to the immigration of non-Italians but also with respect to movements from Southern Italy. Furthermore, there is in this thinking a presumption that bioregions are given, by nature or by history, rather than that they are made by a variety of intersecting processes operating at quite different temporal and spatial scales. In other words, bioregions get thought about, in a most undialectical fashion, as things rather than as unstable products of shifting processes. This then provokes the question: at what scale should a *bioregion, place, or human community* be defined?

Ecosocialist politics must, we can conclude, pay attention to a politics in which 'universality' has a dual meaning. This is best expressed in Young's (1990, 105) rule that 'universality in the sense of the participation and inclusion of everyone in moral and social life does not imply universality in the sense of adoption of a general point of view that leaves behind particular affiliations, feelings, commitments, and desires.' The perpetual negotiation of the relation between those two senses of universality, whether read across differences of gender, ethnicity or other social affiliation or across the diversity of socio-ecological projects that might be explored under socialism, must therefore remain at the heart of ecosocialist thinking.

5. *The Question of Temporal and Spatial Scales*

At first sight, the question of scale appears as a purely technical matter. Where, for example, do ecosystems (or socio-ecological projects) begin and where do they end, how does a pond differ from the globe, how is it that processes which operate with profound effect at one scale become irrelevant at another, and so on? 'Issues of appropriate scaling,' Haila and Levins (1992, 236) argue, 'are among the fundamental theoretical challenges in the understanding of society-nature interactions.' There is, they say, 'no single "correct" way' to define temporal and spatial scales: these are constituted by the organisms considered so that different scales are simultaneously present at any particular site in nature. If, as is the case in the dialectical view (see above), there are no basic units to which everything can be reduced, then the choice of scale at which to examine processes becomes both crucial and problematic. The difficulty is compounded by the fact that the temporal and spatial scales at which human beings operate as ecological agents have also been changing. Cronon (1983, 99) notes, for example, how even before colonial settlement began

in New England, long-distance trade from Europe was bringing two hitherto largely isolated ecosystems into contact with one another in such a way as to commercialise the Indians' material culture and dissolve their earlier ecological practices. If we think these days of the scale defined by the commodity and money flows that put our breakfasts upon the table, and how that scale has changed over the last hundred years, then immediately it becomes apparent that there is an instability in the definition of scale which arises out of practices of capital accumulation, commodity exchange, and the like (Harvey, 1989, 1990).

Yet, as Smith (1992, 72) remarks, 'the theory of the production of geographical scale' (to which I would add also the production of temporalities) – 'is grossly underdeveloped.' It seems to imply the production of a nested hierarchy of scales (from global to local) leaving us always with the political-ecological question of how to 'arbitrate and translate between them.' The ecological argument is incredibly confused on exactly this point. On the one hand the Gaian planetary health care specialists think globally and seek to act globally, while the bioregionalist and social anarchists want to think and act locally, presuming, quite erroneously, that whatever is good for the locality is good for the continent or the planet. But at this point the issue becomes profoundly political as well as ecological, for the political power to act, decide upon socio-ecological projects and to regulate their unintended consequences has also to be defined at a certain scale (and in the contemporary world the nation states mostly carved out over the last hundred years maintain a privileged position even though they make no necessary politico-ecological sense). But this also says something very concrete about what any ecosocialist project must confront. On the one hand there will presumably be continuing transformations in human practices that redefine temporal and spatial scales, while on the other hand political power structures must be created that have the capacity to 'arbitrate and translate between' the different scales given by different kinds of projects. Here, too, it seems that an ecosocialist perspective has enormous impact for socialist thinking on how human potentialities are to be explored and what kinds of political institutions and power structures can be created that are sensitive to the ecological dimensions of any socialist project.

XI Epilogue

'At the end of every labour process,' Marx (1967, 174) once observed, 'we get a result that already existed in the imagination of the labourer at its commencement.' The purpose of ~~the~~ kind of labour that I have here engaged in, is to try and produce conceptual clarifications that might enter into the political practices of socialism. But to be realized, as Eckersley so acutely points out, the aspirations released by analyses of this sort 'must be

critically related to one's knowledge of the present, thereby uniting desire with analysis and (lead on) to informed cultural, social, and political engagement.' To bring my argument full circle, that means developing ways to conceptualise and represent ecological issues in ways that speak to the aspirations of the working class movement, certain segments of the women's and ecologists' movements, as well as to those African-Americans who, in the Left Bank Jazz Club in Baltimore more than twenty years ago, quite correctly defined their main environmental problem as the Presidency of Richard Nixon.

REFERENCES

- Alexander, D.. 1990. 'Bioregionalism: Science or sensibility.' *Environmental Ethics*. 12. 161-73.
- Atfield, R. 1991 edition. *The ethics of environmental concern*. Athens. University of Georgia Press.
- Bennett, J., 1976. *The ecological transition: Cultural anthropology and human adaptation*, New York, Pergamon Press.
- Benton, T.. 1989. 'Marxism and natural limits: An ecological critique and reconstruction'. *New Left Review*. 178. 51-86.
- Benton, T., 1992. 'Ecology, socialism and the mastery of nature: A reply to Reinier Grunmann,' *New Left Review*, 194, 55-74.
- Birch, C. and Cobb, J., 1981. *The liberation of life: From the cell to the community*, Cambridge, Cambridge University Press.
- Bohm, D. and Peat, F., 1987. *Science, order and creativity*. London. Routledge.
- Bookchin, M., 1985. 'Ecology and revolutionary thought,' *Antipode*. 17, Nos 2 and 3, 89-97.
- Bookchin, M., 1990a. *The philosophy of social ecology: Essays on dialectical naturalism*, Montreal. Black Rose Books.
- Bookchin, M., 1990b. *Remaking society: Pathways to a green future*, Boston. South End Press.
- Booth, A. and Jacobs, H., 1990. 'Ties that bind: Native American beliefs as a foundation for environmental consciousness,' *Environmental Ethics*. 12, 27-43.
- Borneman, E. (ed.), 1976. *Thepsychoanalysis of money*. London. Urizen Books.
- Bramwell, A.. 1989. *Ecology in the twentieth century: A history*. New Haven. Yale University Press.
- Brundtland Report. 1987. *Our common future*, World Commission on Environment and Development. Oxford. Oxford University Press.
- Butzer, K.. 1982. *Archaeology as human ecology*. Cambridge, Cambridge University Press.
- Capra, F.. 1975. *The Tao of Physics*. Berkeley, Shambhala.
- Capra, F.. 1982. *The turningpoint: Science, society, and the rising culture*. New York. Simon and Schuster.
- Clark, J., 1989. 'Marx's inorganic body.' *Environmental Ethics*, 11. 243-58.
- Collingwood, R.. 1960. *The idea of nature*. Oxford. Oxford University Press.
- Commoner, B.. 1990. *Making peace with the planet*. New York. Pantheon.
- Cronon, W.. 1983. *Changes in the land: Indians, colonists, and the ecology of New England*, New York. Hill & Wang.
- Cronon, W.. 1991. *Nature's metropolis: Chicago and the Great West*. New York. Norton.
- Crosby, A.. 1986. *Ecological imperialism: The biological expansion of Europe. 900-1900*, Cambridge, Cambridge University Press.
- Dauncy, G., 1988. *After the crash: The emergence of the rainbow economy*. Basingstokc. Green Print.
- Dickens, P.. 1992. *Society and nature: Towards a green social theory*. London. Harvester Wheatsheaf.
- Dobson, A., 1990. *Green political thought*, London. Unwin Hyman.

- Eckersley, R.. 1992. *Environmentalism and political theory: Toward an ecocentric approach*. London. UCL Press.
- Ellen, R.. 1982. *Environment, subsistence and system: The ecology of small-scale social formations*. Cambridge. Cambridge University Press.
- Engels, F.. 1940. *The dialectics of nature*. New York. International Publishers.
- Engels, F., 1940. 'The part played by labour in the transition from ape to man.' in Engels. *The dialectics of nature*. New York. International Publishers.
- Enzensberger, H-M.. 1974. 'A critique of political ecology,' *New Left Review*, 84. 3-31.
- Firry, W.. 1960. *Man, mind and the land*. Glencoe. Illinois, Free Press.
- Fortune*. Special Issue on the Environment, February, 1970.
- Gerratana, V.. 1973. 'Marx and Darwin.' *New Left Review*. 82. 60-82.
- Glackn. C.. 1967, *Traces on the Rhodian Shore*. Berkeley, University of California Press.
- Goldsmith, E.. 1992. *The way: An ecological world view*. London. Rider.
- Goodin, R.. 1992. *Green political theory*. Cambridge. Polity.
- Gosslink, J., Odum, E. and Pope. R.. 1974, *The value of the tidal marsh*. Baton Rouge, Center for Wetland Resources, Louisiana State University.
- Gottlieb, R.. 1988. *A life of its own: The politics and power of water*. New York. Harcourt Brace Jovanovich.
- Goudie, A.. 1986, *The human impact on the natural environment*. Oxford. Basil Blackwell.
- Grundmann, R., 1991a, 'The ecological challenge to Marxism.' *New Left Review*, 187, 103-120.
- Grundmann, R., 1991b, *Marxism and Ecology*. Oxford. Oxford University Press.
- Guha, R.. 1989. *The unquiet woods: Ecological change and peasant resistance in the Himalaya*, Berkeley, University of California Press.
- Haila, Y. and Levins. R., 1992, *Humanity and nature: Ecology, science and society*, London. Pluto Press.
- Hajer, M., 1992. 'The politics of environmental performance review: Choices in design' in Lykke, E., (ed.) *Achieving environmental goals: the concept and practice of environmental performance review*. London. Belhaven Press.
- Haraway, D.. 1989, *Primate visions: Gender, race and nature in the world of modern science*. New York, Routledge.
- Hardin, G., 1968. 'The tragedy of the commons,' *Science*, 162. 1243-48.
- Harvey, D.. 1974. 'Population, resources, and the ideology of science,' *Economic Geography*, 50, 256-77.
- Harvey, D., 1982. *The limits to capital*. Oxford, Blackwell.
- Harvey, D., 1989, *The condition of postmodernity: An enquiry into the origins of cultural change*. Oxford. Basil Blackwell.
- Harvey, D., 1990, 'Between space and time: Reflections on the geographical imagination.' *Annals. Association of American Geographers*, 80, 418-34.
- Hcidcgger, M., 1971. *Poetry, language, thought*, New York. Harper and Row.
- Hcilbron, R.. 1974, *An inquiry into the human prospect*, New York. Norton.
- Ingold, T., 1986, *The appropriation of nature: Essays on human ecology and social relations*, Manchester. Manchester University Press.
- Jacks, G. and Whyte. R., 1939, *Vanishing lands*. New York. Doubleday.
- Journal of American History*. Vol. 76. (1990). 1087-1147.
- Kapp, K.. 1950. *The social costs of private enterprise*. New York. Schocken.
- Lec, D.. 1980. 'On the Marxian view of the relationship between man and nature,' *Environmental Ethics*. 2, 1-21.
- Lec, K.. 1989, *Social philosophy and ecological scarcity*, London. Routledge.
- Leiss, W.. 1974. *The domination of nature*, Boston. Beacon Press.
- Leopold, A., 1968. *A Sand County almanac*. New York. Oxford University Press.
- Levins. R. and Lewontin. R.. 1985. *The dialectical biologist*. Cambridge. Mass.. Harvard University Press.
- Lovejoy, A., 1964 edition. *The great chain of-being*. Cambridge. Mass.. Harvard University Press.
- Marsh. G.. 1965. *Man and nature*. Cambridge, Mass.. Harvard University Press.
- Martin. E.. 1991, 'The egg and the sperm: How science has constructed a romance based on stereotypical male-female roles.' *Signs*. 16. 485-501.

- Martin, E.. 1992. 'The end of the body?' *American Ethnologist*, 19, 121-40.
- Marx, K.. 1964, *The economic and philosophic manuscripts of 1844*. New York. International Publishers.
- Marx, K.. 1967. *Capital, Volume 1*. New York, International Publishers.
- Marx, K.. 1971. 'On the Jewish question.' in McClellan, D. (cd.), *Karl Marx: Early texts*, Oxford, Basil Blackwell.
- Marx, K.. 1973. *Grundrisse*. Harmondsworth. Middlesex. Penguin.
- Marx, K. and Engels, F.. 1965, *Selected Correspondence*. Moscow, Progress Publishers.
- Marx, K. and Engels, F.. 1975. *Collected works*, Volume 5, New York, International Publishers.
- May, R.. 1992. 'How many species inhabit the earth?' *Scientific American*. October. 1992, 18-24.
- McCay, B. and Aeheson, J.. 1987, *The question of the commons: The culture and ecology of human resources*. Tucson, The University of Arizona Press.
- McEvoy, A., 1988. 'Towards an interactive theory of nature and culture: Ecology, production and cognition in the California fishing industry,' in Worster, D. (ed.). *The ends of the earth*, Cambridge. Cambridge University Press.
- McGann, J., 1983, *The romantic ideology: critical investigation*. Chicago. University of Chicago Press.
- Merchant, C., 1980, *The death of nature: women, ecology and the scientific revolution*. New York. Harper & Row.
- Meszaros, I., 1970, *Marx's theory of alienation*. London, Merlin Press.
- Mitman, G.. 1992, *The state of nature: Ecology, community, and American social thought. 1900-1950*, Chicago. University of Chicago Press.
- Naess, A., 1989. *Ecology, community and lifestyle*, Cambridge, Cambridge University Press.
- Nash, R., 1989, *The rights of nature: A history of environmental ethics*. Madison. University of Wisconsin Press.
- Norberg-Schulz, C., 1980, *Genius loci: Towards a phenomenology of architecture*, New York, Rizzoli.
- Norgaard, R., 1985. 'Environmental economics: An evolutionary critique and a plea for pluralism,' *Journal of Environmental Economics and Management*, 12, 382-94.
- O'Connor, J., 1988. 'Capitalism, nature, socialism: A theoretical introduction,' *Capitalism, Nature, Socialism*, 1, 11-38.
- Ollman, B.. 1971, *Alienation: Marx's conception of man in capitalist society*. Cambridge, Cambridge University Press.
- Ollman, B., 1990. 'Putting dialectics to work: The process of abstraction in Marx's method.' *Rethinking Marxism*. 3. 26-74.
- Ollman, B.. 1993, *Dialectical Investigations*, New York, Routledge.
- Ophuls, W.. 1977. *Ecology and the politics of scarcity: A prologue to a political theory of the steady state*. San Francisco, Freeman.
- O'Riordan, T.. 1981. *Environmentalism*. London, Pion.
- Paehlke, R., 1989. *Environmentalism and the future of progressive politics*, New Haven, Yale University Press.
- Parsons, H. (ed.) 1977, *Marx and Engels on ecology*. Westport, Conn., Greenwood Press.
- Pearce, D., Markandya, A. and Barbier, E., 1989, *Blueprint for a green economy*, London. Earthscan.
- Redclift, M., 1987. *Sustainable development: Exploring the contradictions*. London. Methuen.
- Relph, E.. 1989. 'Geographical experiences and being-in-the-world: The phenomenological origins of geography,' in Seamon, D. and Muggerust, R.. (eds.), *Dwelling, place and environment: Towards a phenomenology of person and world*. New York. Columbia University Press.
- Rousseau, J-J.. 1973. *The social contract and discourses*. London, Everyman.
- Sagoff, M., 1988. *The economy of the earth: Philosophy, law, and the environment*, Cambridge. Cambridge University Press.
- Sale, K.. 1985. *Dwellers in the land: The bioregional vision*. San Francisco, Sierra Club Books.
- Sauer, C., 1956. 'The agency of man on earth.' in Thomas, W. (ed.). *Man's role in changing the face of the earth*. Chicago. Chicago University Press.

- Simmel, G.. 1978. *The philosophy of money*. London: Routledge and Kegan Paul.
- Smith, N.. 1990 (second edition). *Uneven development: Nature, capital and the production of space*, Oxford, Basil Blackwell.
- Smith, N.. 1992, 'Geography, difference and the politics of scale,' in Doherty, J., Graham, E. and Malek, M. (eds.). *Postmodernism and the social sciences*. London. Macmillan.
- Smith, N. and O'Keefe, P.. 1985, 'Geography, Marx and the concept of nature.' *Antipode*. 12, No. 2. 30-39.
- Spochr, A.. 1956, 'Cultural differences in the interpretation of natural resources,' in Thomas, W. (ed.). op. cit.
- Spretnak, C.. 1985. 'The spiritual dimension of Green politics.' in Spretnak and Capra. *Green politics: The global promise*. London. Paladin.
- Spretnak, C. and Capra, F., 1985, *Green politics: The global promise*. London, Paladin.
- Steiner, G.. 1992 edition. *Heidegger*. London, Fontana.
- Todes, D., 1989, *Darwin without Malthus: The struggle for existence in Russian evolutionary thought*, Oxford. Oxford University Press.
- Thomas, W. (ed.). 1956, *Man's role in changing the face of the earth*. Chicago, Chicago University Press (two volumes).
- Urry, J.. 1990, *The Tourist Gaze*, London, Sage.
- Weale, A., 1992, *The new politics of pollution*, Manchester, Manchester University Press.
- Williams, R., 1973, *The country and the city*. London, Chatto and Windus.
- Williams, R., 1980, *Problems in materialism and culture*, London, Verso.
- Wilson, A.. 1992, *The culture of nature: North American landscape from Disney to the Exxon Valdez*, Oxford, Basil Blackwell.
- Worster, D.. 1985(a), *Nature's economy: A history of ecological ideas*. Cambridge. Cambridge University Press.
- Worster, D., 1985(b), *Rivers of empire: Water, aridity and the growth of the American West*, New York. Pantheon Books.
- Young, I., 1990, *Justice and the politics of difference*, Princeton, NJ, Princeton University Press.
- Young, R., 1985, *Darwin's metaphor: Nature's place in Victorian culture*. Cambridge, Cambridge University Press.
- Zimmerman, M.. 1988. 'Quantum theory, intrinsic value, and pantheism,' *Environmental Ethics*. 10. 3-30.
- Zola, E.. 1967, *L'argent*, Paris. Pleiade.