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The Domination of Nature and its Discontents

I. 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 County 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 for 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, generated a 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 revolutionizing political economic processes appears to perpetuate rather than resolve the problem as Leopold defines it, because it offers at best an instrumental and managerial approach to nature. At its worst, socialism pursues "Promethean"

projects in which the "domination" of nature is presumed both possible and desirable.

In what follows I shall try to see if there are ways to bridge this antagonism and turn it into a creative rather than destructive tension. Can a progressive ecological politics be invented that does not in some way or other invoke some sense of superior understanding, dominion, and even domination? 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? And how did we arrive at this seeming impasse in which the struggle for emancipation from class oppressions appears so antagonistic to the struggle to emancipate human beings from a purely instrumental relation to nature?

II. The Domination of Nature

Contemporary ecological thought often traces the origins of such questions, as well as many of our contemporary environmental ills, back to the hubris and wrong-headedness of Enlightenment acceptance of the thesis that nature was there for the using and that the domination of nature was a feasible project. This argument is badly in need of scrutiny.

Philosophical arguments favoring the domination, "mastery," control, or "humanization" of nature, though they may have had ideological taproots in the Christian doctrine of dominion (White, 1967), came strongly into their own during the seventeenth and eighteenth centuries. Francis Bacon vigorously propounded such views and in a celebrated passage in the *Discourse on Method* Descartes argued that the "general good of all mankind" could best be pursued not by resort to speculative philosophy but by the attainment of "knowledge that is useful in life" so as to "render ourselves the masters and possessors of nature." Such views were implicated in the development of modern science and the rise of distinctively instrumental and capitalistic values with respect to the human use of the "natural" world. Descartes and Bacon, Marx (1967: 368) argued, "saw with the eyes of the manufacturing period." Animals were no longer viewed as living assistants as they were in the Middle Ages and construed instead as machines. This "anticipated an alteration in the form of production and the practical subjugation of Nature by Man as a result of the altered methods of thought." While Marx's judgment is a bit formulaic, I nevertheless think it important to see the articulation of ideas of domination as part of an overall package of thought, beliefs, sensibilities, attitudes, and practices which gained ascendancy in the political economy of western European society during the seventeenth and eighteenth centuries (see Cassirer, 1968; Leiss, 1974; Merchant, 1983).

The particular role of the "domination of nature" thesis can best be understood in relation to the twin Enlightenment ideals of *human emancipation* and

self-realization. *Emancipation* addressed a whole range of issues starting with problems of material wants and needs, physical, biological, and social insecurities, passing through varieties of oppression of the individual by state, dynastic, or class privileges and powers, through to emancipation from superstition, false consciousness, organized religion, and all-manner of supposedly irrational beliefs. *Self-realization* was an even vaguer proposition, but it certainly called for the release of the creative and imaginative powers with which humans are individually endowed and the opening up of entirely new vistas for individual human development, whether it be through production, consumption, artistic, scientific and cultural output, politics, or law. It was also accompanied by what Taylor (1994: 29) calls "the massive subjective turn of modern culture, a new form of inwardness in which we come to think of ourselves as being with inner depths." The "voice of nature within us" becomes a key component of action and understanding. Plainly, this massive subjective turn poses acute dangers when coupled with any philosophy of internal relations – it produces the very worst forms of what I have already dubbed "the Leibnizian conceit." But it also facilitates that useful though dangerous separation between "I" and "it" that grounds modern scientific enquiry into the processes at work "in nature." That separation was the key to unlocking the secrets of nature so as to facilitate emancipation and self-realization.

The twin aims of emancipation (often a collective project) and self-realization (for the most part individualized) were inseparable but frequently contradictory. Since the thesis of domination of nature attached to both, it, too, internalized contradictions. But it took time for them to become apparent. Initially, emancipation in the public sphere was quite properly viewed as a precondition for self-realization, while individual self-realization was viewed as a proper means to collective emancipatory ends. And it was presumed that reason could always unite the two. But:

The whole eighteenth century understands reason ... not as a sound body of knowledge, principles, and truths, but as a kind of energy, a force which is fully comprehensible only in its agency and effects. What reason is and what it can do, can never be known by its results but only by its function. And its most important function is to bind and to dissolve. It dissolves everything merely factual, all simple data of experience, and everything believed on the evidence of revelation, tradition, and authority; and it does not rest content until it has analyzed all these things into their simplest component parts and into their last elements of belief and opinion. Following this work of dissolution begins the work of construction. Reason cannot stop with the dispersed parts; it has to build from them a new structure, a true whole. (Cassirer, 1968: 13)

The outcome of this *process of creative destruction*, "of doubting and seeking, tearing down and building up" (Cassirer, 1968: ix) was by no means as homogeneous as many now depict it. But Enlightenment thought did share

the belief that the secrets of nature – including human nature – stood to be revealed and that knowledge – and self-knowledge – could be used not only to make human beings more at home with and comfortable in the world but also to open up a terrain of conscious political choice as to the trajectory of collective human development. The Enlightenment attributed to critical thought, furthermore, "not merely an imitative function but the power and task of shaping life itself" (Cassirer, 1968: vii). It is, Foucault (1984: 42) suggests, this critical attitude rather than any body of doctrinal elements that still binds us so strongly to Enlightenment practices. But the Enlightenment also tended to share a particular view of how the secrets of nature and human nature were to be uncovered. It departed in certain key respects from the grand systematic and deductive systems of the seventeenth century – as represented in the work of Descartes, Leibniz, and Spinoza – and looked to Newton (and Locke) as its guide. The beginning point of enquiry is phenomenal experience – *observation* – and the method applied to the data so acquired is *analysis* with the objective of uncovering the *universal principles and laws* embedded in the facts without recourse to any kind of transcendental explanation (such as the universal harmonies presumed by Leibniz as a manifestation of God's wisdom). It was only through discovery of the "true laws" of nature that we could learn "to work with nature as nature does" in ways beneficial to our species being.

These Enlightenment principles have powerfully shaped attitudes to the natural world in ways that have lasted to this day. They were, and continue to be, riddled, however, with their own particular "irrationalities." Presumptions were built into how the world was to be understood that could not themselves be subject to rational or inductive proof. We have already considered (see chapter 2) how Cartesian rationality, which continued in some respects to ground Enlightenment thought, was mired at a certain level in serious contradictions. And we will later take up (chapter 10) how Newton's conceptions of absolute space and time similarly entailed unwarranted *a priori* conceptions. Newton and his followers presumed there were universal laws governing the material world waiting to be uncovered and given their proper logical/mathematical expression. Hume exposed the transcendent presumptions in that and, in typical Enlightenment fashion tore apart Newton's mathematical empiricism to build up his own version of sceptical empiricism. Hume also reworked Descartes mind-body dualism in important ways such that Callicott (see chapter 7) can now appeal to it to ground ecological ethics. As the eighteenth century wore on, the conceptual tension between the mechanical systems that preoccupied Newton and the study of biological organisms and their history also became more and more apparent, in some ways presaging the more contemporary conflicts between philosophies of organism (such as those of Whitehead) and philosophies of mechanical systems. And the application of natural scientific method to the study of society produced a variety of schisms that persist to this day.

Enlightenment thinking was, in fact, remarkably heterogeneous. Vico and Rousseau, for example, supported the general view of emancipation and self-realization but differed radically from Descartes, Locke, Voltaire, and the encyclopedists on what to seek and how to get there. Both cast radical doubt upon the power of scientific knowledge to understand the meaning of nature (Vico insisted that this was outside of us and therefore impossible to understand whereas we could understand society because we had made it). While the twin aims of emancipation and self-realization might command broad support among all the dissenting classes and revolutionary-minded elements in society, the exact meaning attached to each differed markedly from place to place and group to group. Enlightenment thought was in fact riddled with practical biases with respect to race, gender, geography, and class. But beyond these obvious and very damaging blind spots, radically different choices of preferred means (and their ultimate embedding in social practices) had, furthermore, strong implications both for the definition of preferred objectives and for the developmental path actually proposed.

Classical political economy, child of the Enlightenment in the hands of Locke, Hume, and Adam Smith and further elaborated on by Ricardo and Mill, looked to the freedom of the market as well as its hidden hand – a hidden hand which forced technological change and the mobilization of science to the art of production – as a means to couple the increasing productivity which would free society from want and need, with a capacity for individualized self-realization through market choice. This is not to imply that *any* kind of production or consumption would do, for it was the profound belief and hope of more than just marginal thinkers within this tradition that freedom of choice in consumption would be accomplished by a refinement of taste, a cultivation of leisure and civilized values and behavior, that would endow society with a degree of civilization heretofore unknown (this continued to be a fervent belief even as late as John Maynard Keynes). Freedom from excessive state interference, from aristocratic and dynastic privileges, were powerful elements in liberal rhetoric. Yet it remained either silent or troubled with respect to the dispossessed peasantry and the working classes which were flooding into urban centers across Europe, as well as with respect to the fates of women and colonized peoples. This liberal strain of thinking is, of course, still with us, both philosophically and practically in terms of the vast flood of privatization schemes and free-market rhetoric that now dominates economic reform programs (for example, in what once used to be the Soviet bloc). Let the market do its work and emancipation and self-realization will follow, is the philosophy of most of the world's major capitalistic powers and institutions (such as the World Bank and the IMF).

This tends, however, to breed a highly instrumental view of nature as consisting of capital assets – as resources – available for human exploitation. One side-effect of eighteenth century political economy was that the domina-

tion of nature was viewed as a necessary prerequisite to emancipation and self-realization. Sophisticated knowledge of nature was required in order to manipulate the natural world to human purposes, to exploit it for market exchange, even to humanize it (and sell its qualities) according to human design. But the thesis of domination never deliberately embraced the destruction and despoliation of the natural world. Prudence would require the protection and enhancement of natural assets as a form of capital except under conditions of such abundance that free and unchecked depletion made rational sense. If destruction and depletion could be found, then it was a sign of such immense abundance that it did not matter. When it mattered the price system would adjust to indicate a condition of scarcity that required attention. And if gross despoliation could be found, then the fault lay with the imprudent practices of a rapacious and uncaring merchant and agrarian capitalism that came into its own during this period, rather than with Enlightenment thought itself.

Enlightenment thinkers embraced, however, a vaster panoply of proposals than those voiced by the liberal theorists. Some of these were so perverse and oppositional that there is room to debate whether they deserve to be even looked upon as part of the Enlightenment corpus *sensu strictu*. They included the specific views of self-realization and emancipation set out by the Marquis de Sade as well as those of Jacobean revolutionaries like Babeuf. But if there is one other major attractor within this chaos of possibilities, it lies in the communitarian tradition which always saw, and continues to see, emancipation and self-realization as a collective rather than individualistic concern. Communitarians of all sorts, Utopian socialists, anarchists, and proto-Communists, as well as a host of democratic moral theorists had at least this in common: that the free market cannot provide the appropriate means for emancipation and self-realization for the mass of the population either in part or in whole and that some alternative form of political-economic organization – a truly public realm or a “moral economy” of some sort – must be found to deliver on Enlightenment promises. From this perspective, it is even possible to see the doctrine of self-realization now made so much of by deep ecologists such as Naess (and implicitly articulated by Aldo Leopold) as a particular version of the Enlightenment impulse projected across a conception of community which embraces the whole biosystem in which human life is embedded (see chapter 7).

Marx's nineteenth-century version of the Enlightenment project is in polar opposition to that of liberal theory, yet it is also at odds with most versions of communitarian doctrines. He was, of course, just as deeply interested in questions of emancipation and self-realization as his opponents and in this sense fully subscribed to Enlightenment aims. But in *Capital* he shows how freedom of the market, the hidden hand, necessarily delivers equality in the realm of exchange but oppression and exploitation of the working class in production and it is therefore a fatally flawed mechanism for making good on

Enlightenment promises. The emancipation of the working class has as its precondition at the very least strict social and political control over market operations and, if possible, the radical transformation of power relations in the realm of production as well as in the discursive and institutional spheres. Marx argued that self-realization should be detached entirely from individual selfishness and greed and be seen as a project of realization of self through relations with others in collective or communistically organized society. Emancipation from social want in general led Marx certainly to accept that some version of the idea that the domination of nature was a necessary condition for human emancipation and in this regard he, too, accepts a broadly instrumentalist, anthropomorphic and controlling attitude towards natural environmental conditions. The realm of freedom, he wrote (Marx, 1967: Vol. 3, p. 820), consists:

in socialized man, the associate producers, rationally regulating their interchange with nature, bringing it under their common control, instead of being ruled by it as a blind power, and achieving this with the least expenditure of energy and under conditions most favorable to, and worthy of, their human nature.

But the exact meaning of this is, as Grundmann (1991b) has recently noted, somewhat ambiguous in part because of the peculiarly dialectical way in which Marx conceptualized the interaction between the social and natural worlds, but also because Marx's politics of self-realization rested strongly on the recapture of an unalienated relationship not only to fellow human beings but also to that creative and sensuous experience of nature which capitalist industry had rendered so distant and opaque. Exactly what the conditions were that rendered the relation to nature "most worthy" of our human nature remains unspecified. And how this was to be done in the face of modern science, technology, and industrial organization poses a whole host of practical difficulties for the Marxian theory.

Some way had to be found to achieve the aims of emancipation and self-realization without abandoning the Enlightenment view that modern science, industry, and technology provide the means to emancipate human beings from the natural limits which confined them to a state of perpetual want, insecurity of life-chances and absence to the full belly so necessary for the exercise of creative powers. These are significant conundrums to which I shall subsequently return. For the moment I simply want to establish that Marx in no way objected to overall Enlightenment aims, including a particular version of the domination of nature thesis, but that he did have wide-ranging and strong objections to the way in which the liberal and communitarian theorists of the day interpreted those aims and by what means. He also meant something rather special when he connected the ideas of domination, science, and progressive liberation of the productive forces to achieve foundational goals of a future

communistic society. For Marx what really mattered was the development of conscious powers for the continuous production of nature in ways that would undermine class privileges and oppressions and liberate the creative powers of individuals to produce themselves through the production of nature.

If liberal and Marxian theory accept albeit conflicting versions of the domination of nature thesis as fundamental to their emancipatory projects, then two of the major currents of thought which have shaped politics over the past two centuries appear to have at least this common base. Dissent from the domination view has not been lacking, however, and the main lines of dissent were already well-defined within the Enlightenment itself. It was, to begin with, entirely possible that "nature's laws" would ultimately show that human beings were prisoners of nature rather than masters of it. This formed, as we shall see, the Malthusian basis for opposition to Enlightenment Utopianism as regards the perfectibility of "man." But there were a number of other ways in which uncovering "nature's laws" had troubling consequences for Enlightenment optimism.

1. Montesquieu in his famous text on *The Spirit of the Laws* applied something loosely akin to scientific method to the comparative study of societies. He set out to uncover the fundamental causes that underlie the seeming chaos of human history and the enormous diversity of governmental forms. And one of the fundamental causes identified was soil and climate. "If it is true," he wrote, "that mentalities and passions are extremely different in different climates, then the laws must correspond to the difference of passions and to the difference in mentality." This environmental foundation to the geography of difference did not lead him to pure environmental determinism, for it was the task of good government to bring about an adjustment of laws, and of moral order, to prevailing physical circumstances (Cassirer, 1968: 214; Glacken, 1967: 572-81). But this meant that laws and systems of governance must vary according to environmental constraints, thus opening up the whole question of environmental influences on human behavior as well as the Pandora's box of cultural and moral relativism based on environmental difference. Rousseau followed down this path, recognizing that law "should recognize local cultural environmental conditions." While this plainly challenged the idea of any simple or easy domination of nature, it also laid the groundwork for later theories of environmentally based racial difference and environmentally determined cultural superiority. Rousseau likewise argued that "despotism is suited to hot climates, barbarism, to cold, and good government, to temperate regions" (cited in Glacken, 1967: 592).
2. If the Enlightenment proposed an attack upon enslavement through a certain scientific "disenchantment" of the world (as Max Weber was later to put it), then there was an immediate response of searching for "re-enchantment." The sense of a loss of contact with the natural world - alienation from

nature – produced a variety of responses across the spectrum of the class system. Those being divorced from access to their means of production – land – launched movements of protest that became widespread (the eighteenth-century diggers and levelers in England being a classic case). Similar movements continue to be found in peasant societies throughout the world, indicative of an intense resistance to the idea that the penetrations of the free market and of modern science are the only vehicles for emancipation and self-realization. Those in the upper classes of a more traditional frame of mind increasingly sought what Weber (1991: 142) called “redemption from the intellectualism of science in order to return to one’s own nature and therewith to nature in general.” The “romantic reaction” had its roots in the eighteenth century – with the Rousseau of the second Discourse and the *Nouvelle Héroïse* pioneering the way. The “voice of nature within us” that Rousseau released when coupled with the “massive subjective turn” had all manner of consequences for how nature was to be construed and thereby rendered conflictual the relationship between an ideology of domination on the one hand and a politics of emancipation and self-realization on the other. This spawned a tradition – incorporating later figures like Wordsworth, Schiller, and Thoreau – that is powerfully present, particularly in the deep ecology movement.

3. Even in the absence of clear protest movements of this sort, Enlightenment thinkers had to confront clearly the question of exactly what “the humanization of nature” might mean and to exactly what effect the newly found powers of science and rational enquiry, of autonomous moral judgment, might be used. This question became a central preoccupation of esthetic theory, also a child of Enlightenment thought. Baumgarten, drawing heavily upon Leibniz, led the way in Germany and the Earl of Shaftesbury pushed an analogous project in Britain. The effect was to move towards a definition of “culture” and “the relation to nature” which would have been quite extraordinary to preceding generations. The transformation of nature – its humanization through landscape gardening, for example – became one privileged means of not only regaining what seemed to be lost elsewhere, but of defining a future for humanity in which self-realization could only be achieved by liberating the human senses to the sublime and transcendental experience of being at one with the world. But if the liberation of the senses became a crucial aspect of the Enlightenment project through the rise of esthetics, then the effect was not only to achieve what Eagleton (1990: 42, 49) calls “a massive introjection of abstract reason by the life of the senses” but to produce an internal opposition to the very provenance of reason itself:

Reason, having spun off with Baumgarten the subaltern discourse of esthetics, now appears to have been swallowed up by it. The rational and

the sensuous, far from reproducing one another’s inner structure, have ended up wholly at odds.

So while it was Baumgarten’s ambition to bring the understanding of poetry, art, landscapes within the realm of reason, such a project defied the techniques of reduction that played such a key role in science. To reduce the impact of the color red upon our senses to its purely physical concept was to lose something in exactly the same way that the reduction of a landscape’s meaning to a description of its geological components was to lose the essence of what esthetic experience was about. Esthetics therefore had to remain at the level of surface appearance, immediate impact and, most important of all, at the level of the totality. And esthetic knowledge was very hard to come by without resort to something akin to the Leibnizian conceit. The result was to transform the concept of domination of nature:

It was Baumgarten who made the pregnant and happy statement that dominion over all inferior powers belongs to reason, but that this rule must never degenerate into tyranny. The subject shall not be deprived of its own nature, nor shall it renounce its peculiar character; it is rather to be understood and protected in both these aspects. (Cassirer, 1968: 347)

4. Finally, there is the question of the nature of the human nature for which self-realization is meaningful. Even at its very inception, Enlightenment thinking was plagued with the question of the supposed “natural goodness” and “perfectability” of “man” and those who ventured too simplistically down that path met a chorus of dissenting voices. Rousseau (1973: 60), for example, while he conceded the vigorous power of self-improvement saw this as a double-edged virtue lying at the source of “[man’s] discoveries and his errors, his vices and his virtues, makes him at length a tyrant both over himself and over nature.” He began to sound much more like other conservative political commentators of his period when he argued that too much liberty, like too much good wine, could all too easily:

ruin and intoxicate weak and delicate constitutions to which they are not suited. People once accustomed to masters are not in a condition to do without them. If they attempt to shake off the yoke they will more estrange themselves from freedom, as, by mistaking it for unbridled licence to which it is diametrically opposed, they nearly always manage, by their revolutions, to hand themselves over to seducers, who only make their chains heavier than before. (pp. 33–4)

This was, of course, the fear that led Edmund Burke to argue passionately against the French revolution. The conservative case tended to the view that the inherent baseness and evil in human beings could be constrained only

by the strictest of institutional arrangements and that, in the absence of such arrangements, all forms of society and civility would disintegrate. The problem was, then, to find ways to create good out of inherent evil and it was Adam Smith's genius to suggest (quite plausibly) that the base instincts of greed and avarice could be mobilized into a social system that would operate to the benefit of all only in a free market in which the "hidden hand" would guide society as a whole in profitable directions. And what if (and this was perhaps Marx's main contribution) human nature was itself malleable, transformable, and, hence, an unstable set of qualities that were there for the making? The aims of self-realization and emancipation could not then be held as stable trajectories based on an essentialist reading of human wants, needs, capacities and powers. Deprived of such essentialist readings the whole idea of "alienation from nature" becomes suspect.

In all of these respects, Enlightenment thought uncovered contradictions within itself and raised issues that permeate current environmental debate. We should, Foucault (1984: 43) correctly argues:

refuse everything that might present itself in the form of a simplistic and authoritarian alternative: you either accept the Enlightenment and remain within the tradition of its rationalism ...; or else you criticize the Enlightenment and then try to escape from its principles of rationality (which may be seen ... as good or bad). And we do not break free of this blackmail by introducing "dialectical" nuances while seeking to determine what good and bad elements there may have been in the Enlightenment.

There has probably never been a historical period and geographical concentration of such free discursive play of the human imaginary as that which the Enlightenment produced. To be sure, many of the discursive adventures bore little relation to existing political-economic practices but that disjuncture was as inevitable as it was deliberate. The science of nature as of society was meant to reveal not just what existed but what stood to be created. If thought was supposed "no longer to imitate but to acquire the power and task of shaping life itself," then the exploration of possible worlds and of the limits to human possibilities became a mandatory aspect of what all discourses were supposed to be about. And there is no doubt that all of this discursive ferment had its role to play in the tumultuous politics that led into the American and French revolutions.

But it was in another not entirely disassociated respect that Enlightenment thought began to find a more material basis for its discursive exercises. As market relations and monetization consolidated their hold, that aspect of Enlightenment thought that created the liberal theory to accompany market exchange began to make inroads into political power and institutional forms. Eighteenth-century political economy, inspired above all by

Locke, was constantly seeking a rapprochement between state policies and politics (particularly with respect to the currency and foreign trade), the production of wealth, and the proper valuation of whatever political economists of the period understood as the primary sources of all wealth – bullion, labor, and the land being the prime candidates. But this meant that the domination of nature, as well as the domination of human nature (particularly in the figure of the laborer) became subsumed within the logic of the market. The genius of eighteenth-century political economy was this: that it mobilized the human imaginary of emancipation, progress, and self-realization into forms of discourse that could alter the application of political power and the construction of institutions in ways that were consistent with the growing prevalence of the material practices of market exchange. It did so, furthermore, while masking social relations and the domination of the laborer that was to follow, while subsuming the cosmic question of the relation to nature into a technical discourse concerning the proper allocation of scarce resources (including those in nature) for the benefit of human welfare.

III. Political Economy, Environment, and Saccard's Dream

The practice and theory of capitalistic political economy with respect to the environment has consequently become hegemonic in recent world history. Within that history, it has been capital circulation that has made the environment what it is. The complex dialectic in which, as Marx has it, we make ourselves by transforming the world, gets radically simplified into a rather simple one-track affair, even allowing for the ways in which esthetic judgments, romantic reactions, nature tourism, vegetarianism, animal rights movements, and monetized protections of nature through wilderness and habitat preservation surround the crass commercialism of our use of nature and so give it a veneer of accountability and respectability. The prevailing practices dictate profit-driven transformation of environmental conditions and an approach to nature which treats of it as a passive set of assets to be scientifically assessed, used and valued in commercial (money) terms.

It is not fashionable these days, of course, to evoke directly a triumphalist attitude to nature. But I think it important to understand that this is what both the theory and practice of capitalistic political economy entails. This is what daily practice is all about, whether we care to acknowledge it or not, whenever the circulation of capital is let loose upon the land. It has also been the focus of Utopian visions. In the 1830s the Saint-Simonians announced, for example, the end of exploitation of man by man by virtue of the associated capitals of the world undertaking the rational exploitation of the globe: the exploitation of "external nature becomes henceforth the sole end of man's physical activity"

(cited in Leiss, 1974: 82). The consequent radical simplification of the dialectic through which we make ourselves by making our world, does not, as is sometimes thought, reduce the capitalist approach to nature to an unimaginative or bloodless affair, in which cold calculation drives out worldly passions. Indeed, the evidence suggests that it is precisely the power of money to give vent to all manner of human passions that gives such extraordinary power to the capitalistic approach to and over nature. As Simmel (1978: 251) notes, "money enlarges the diameter of the circle in which our antagonistic psychic drives flourish," and it often does so to the degree that money dissolves "into pure desire for it." Here, for example, is how Saccard, Zola's nineteenth-century anti-hero in his novel *Money*, sees the issue as he builds his Universal Bank to finance innumerable projects for the transformation of the Levant:

"Look here," cried Saccard ... "you will behold a complete resurrection over all those depopulated plains, those deserted passes, which our railways will traverse — Yes! fields will be cleared, roads and canals built, new cities will spring from the soil, life will return as it returns to a sick body, when we stimulate the system by injecting new blood into exhausted veins. Yes! money will work these miracles. ..." (Zola, 1991)

Zola's language here is instructive. The circulation of money is assimilated to the circulation of the blood and the biological metaphors of the circulation of the blood and sexual desire are then put to work so strongly that it seems less and less to be metaphor than expressive of a deep continuity:

You must understand that speculation, gambling, is the central mechanism, the heart itself, of a vast affair like ours. Yes, it attracts blood, takes it from every source in little streamlets, collects it, sends it back in rivers in all directions, and establishes an enormous circulation of money, which is the very life of great enterprises.

Speculation — why, it is the one inducement that we have to live; it is the eternal desire that compels us to live and struggle. Without speculation, my dear friend, there would be no business of any kind. ... It is the same as in love. In love as in speculation there is much filth; in love also, people think only of their own gratification; yet without love there would be no life, and the world would come to an end.

Saccard's vision, his love of life, seduces all around him. Even Mme Caroline, the cautious sister of the engineer who will be the practical agent of Saccard's schemes (and who will in the end be ruined by them), is seduced by both Saccard and his vision. She, who knows the Levant well, is struck by the desolate and unharmonious present state of the land in relation to human potentialities:

She became angry, and asked if it was allowable that men should thus spoil the work of nature, a land so blest, of such exquisite beauty, where all climates were to be found — the glowing plains, the temperate mountain-sides, the perpetual snows of lofty peaks. And her love of life, her ever-buoyant hopefulness, filled her with enthusiasm at the idea of the all-powerful magic wand with which science and speculation could strike this old sleeping soil and suddenly reawaken it. ... And it was just this that she saw rising again — the forward, irresistible march, the social impulse towards the greatest possible sum of happiness, the need of action, of going ahead, without knowing exactly whither ... and amid it all there was the globe turned upside down by the ant-swarm rebuilding its abode, its work never ending, fresh sources of enjoyment ever being discovered, man's power increasing ten-fold, the earth belonging to him more and more every day. Money, aiding science, yielded progress.

That formula — "money, aiding science, yielding progress" — has ever been at the center of capitalist culture and its Promethean historical geography of environmental transformations. And Zola was not inventing: he based his whole novel on the activities of the Pereire brothers, finance capitalists *extra-ordinaire*, who schooled in the principles of Saint-Simonian thought converted that Utopian vision into a practical politics of financial monopolization, speculation, and construction that dominated Second Empire France until their bankruptcy in 1867 engineered by the opposition of Rothschild (the model for the "bloodless jew" Gundermann in Zola's novel).

IV. The Frankfurt School Critique of Domination

While there were plenty of currents of thought (romanticism, organicism, Darwinian biology, Nietzschean philosophy, to name a few) opposed to the core ideas of the Enlightenment we owe the frontal assault upon the ideology of domination of nature to the Marxists of the Frankfurt School. The distinctive train of thought has subsequently been kept very much alive (though in a transformed state) by some feminists, particularly of an eco-feminist persuasion as well as by a variety of thinkers in the ecological movement. And even though many now hold that the Frankfurt School's analysis failed, it opened up a proliferating trail of thought that has been both persistent and influential.

The story of the Frankfurt School has been thoroughly told and evaluated elsewhere (Jay, 1973; Leiss, 1974, Eckersley, 1992). It sought to replace the Marxist emphasis on class struggle as the motor of history with what it saw as the far larger conflict "between man and nature both without and within." This was viewed as "a conflict whose origins went back to before capitalism and whose continuation, indeed, intensification, appeared likely after capitalism would end" (Jay, 1973: 256). The Enlightenment was considered a key moment in the history of that conflict, a moment of reformulation of beliefs,

practices, and discourses in which the idea of domination and mastery of nature became paramount. In *The Dialectics of the Enlightenment* Horkheimer and Adorno undertook a dialectical analysis of the consequences of the shifting terms of the struggle between "man and nature." Sharing as they did the Enlightenment objectives of emancipation and self-realization, the question they clearly posed was this: how is it that those objectives have been frustrated ("negated" was their preferred term) by the very philosophical and political-economic shifts and practices designed to realize them? Given the rise of fascism and totalitarianism this was a pressing political problem rather than an abstract concern. The continuing elaboration and proliferation of weapons and delivery systems of mass destruction keeps that concern very much alive. Horkheimer and Adorno chose not to see such negative politics as an aberration or betrayal of Enlightenment principles but as a distinctive product of the contradictions implicit in Enlightenment thoughts and practices.

In formulating their argument they appealed to a particular version of the theory of internal relations. Descartes had construed nature as "the other" and in so doing reified nature as a thing – a purely external other – entirely separate from the world of thought. While Descartes himself still clung strongly to religious meanings, the effect was to make it seem as if nature had no meaning in itself. Deprived of any autonomous life force, nature was open to be manipulated without restraint according to the human will. Nature became, as Heidegger later complained, "one vast gasoline station" for human exploitation. What this analysis elided, according to the Frankfurt School, was the dialectics of internal relations in which nature was both "something external to man but also an internal reality" (Jay, 1973: 267). Domination of the external "other" could and would become internalized, Horkheimer (1947: 94) argued, creating "a dialectical reversal of the principle of domination by which man makes himself a tool of that same nature which he subjugates." Mastery over external nature required and produced an oppressive mastery over internal nature. Worse still:

Mastery over nature inevitably turns into mastery over men. A vicious circle results, imprisoning science and technology in a fateful dialectic of increasing mastery and increasing conflict. The attractive promises of mastery over nature – social peace and material abundance for all – remain unfulfilled. The real danger that the resulting frustration may be turned against the instruments of mastery themselves (science and technology) must not be underestimated. As integral factors in the ascending spiral of domination over internal and external nature, they are bound to an irrational dynamic which may destroy the fruits of their own civilizing rationality. (Leiss, 1974: 194)

What Horkheimer and Adorno called "the revolt of nature" (the return of the repressed and a rebelliousness manifest as "violent outbreaks of persistently

repressed instinctual demands") was not necessarily a positive force for change. The effect may be "to fetter rather than to free nature," with fascism – "a satanic synthesis of reason and nature" – seen as one distinctive outcome (Jay, 1973: 272).

The purpose of mastery over nature is the security of life – and its enhancement – alike for individuals and the species. But the means presently available for pursuing these objectives encompass such potential destructiveness that their full employment in the struggle for existence would leave in ruins all the advantage so far gained at the price of so much suffering. (Leiss, 1974: 163–4)

It is not my purpose here to undertake any deep elaboration, critique or defense of the Frankfurt School's achievements. But I do think it important to distill from their critique of the domination of nature some key questions for environmental-ecological politics:

1. The role of scientific enquiry as a liberatory force is called into question. Horkheimer and Adorno did not abandon science (though they did provide a reasonably compelling way to understand why so many in the ecological movement – particularly the nature romanticists – do). They took it as the key task of critical enquiry to reform science itself, to try and recapture some sense of humanity and purpose and to internalize within science itself some effort at a "re-enchantment" with the world (sometimes depicted as overcoming "alienation from nature") as opposed to the "disenchantment" embedded in that creation of nature as "other" in Enlightenment thought. They fought against positivism and the scientific method as usually construed in Newtonian/Cartesian terms but held open the possibility for the construction of an alternative science.
2. This question was tightly coupled with considerations of rationality/irrationality. The Frankfurt School challenged the hegemony of instrumental rationality and sought in its place an alternative rationality that had the power to give a deeper sense of meaning to life, to recuperate a sensuous and open dialogical relation between human beings and external nature without giving in to what they saw as the blind forces of romantic fury, religious ideology, nature idolatry and satanic myth. How to do that is still, of course, a very open question.
3. To do this, the Frankfurt School chose to pay very close attention to the esthetic tradition. But what kind of esthetic was possible after Auschwitz, asked Adorno? That question is also put to the test and the answer is as nuanced as it is problematic. It is all very well to liberate the life of the senses to foster the return of all that had been repressed by instrumental rationality and Enlightenment reason. But what if the result was fascism? What if it was a dynamic but thoroughly banal mass culture of consumerism in which

every fetishism under the sun was put up for sale? What kind of esthetic was possible after Henry Ford as well as after Auschwitz? Adorno's response was to construct a legendary elitism and purism on the esthetic front. Purity in art was the only guarantee against cooption and corruption. But this was all too easy to construe as a noble but futile gesture that in any case brought the esthetic appreciation of nature very close to traditional bourgeois taste and in some ways reinforced the idea of art for art's sake. Adorno, it is tempting to argue, withdrew into his own version of the Leibnizian conceit in the face of the "noisy chaos" and distressing circumstances of the political world in which he found himself. But even if the esthetic gesture of the Frankfurt School's most respected esthetic analyst is found wanting, the question broached of what kind of esthetic and in whose name is a persistent refrain within ecological/environmental arguments.

4. None of these questions could be answered without at some point turning to psychoanalysis and the issue of human repressions, desires, and needs. The confrontation between Marx and Freud was conjoined in Frankfurt School analysis, sometimes with positive but more often with confusing results. But here, too, the Frankfurt School broached a terrain of discussion that simply will not go away, both in the sense of understanding how, for example, sexual drives and repressions, maternal longings and macho desires (everything, in short, that we construe as "human nature") become built into arguments for a certain relation to nature (including that expressed in Saccard's vision). Put more broadly, who is this "self" that is struggling to be realized and which of the innumerable struggles that result can be understood as emancipatory and in what way?
5. While they called into question the separation between "man and nature" and sought to reintegrate the two sides via appeal to a dialectics of internal relations, the Frankfurt School nevertheless instanced rather than undermined the simple binary division "man/nature." In ecological circles it is a standard line of criticism of them that they never rose above the anthropomorphism of that separation and could not therefore move towards a genuinely ecocentric viewpoint (see Eckersley, 1992: chapter 5). They replicated Descartes in the very act of criticizing him. But this is a rather more general problem than many ecological thinkers presently recognize. While the dialectical formalism (Hegelianism) of the Frankfurt School in the end got in the way of its powers of historical materialist analysis, thus illustrating the limits of a certain kind of application of the philosophy of internal relations, the question of how and under what circumstances it is valid to resort to such a binary form of analysis (as opposed to submerging everything in some ecocentric soup) has to be confronted. For while it is very much the case that the "man-nature" dichotomy has no fixed boundary and that it is, as Haraway (1990, 1991) again and again argues, being transgressed all the time in modern science and technology as well as in

our daily practices, we end up in our discourses speaking to and trying to persuade only that part of the ecological world to which we distinctively belong. And this is true for even the most wildly ecocentric analyst.

6. The internal relation between the domination of nature as "other" and the domination of "others" opened up by the Frankfurt School is a continuing concern. This is a theme that has been extremely important within feminist politics since the mid-1960s. The thesis that the domination of nature (usually construed as a woman) is inherently connected to the domination of women has been converted by ecofeminists [such as Shiva (1989)] into a politics that rests upon the idea that nurturing the environment depends upon rescuing the feminine principle as paramount in human affairs. Only in that way, the argument goes, could the rapaciousness of, say, Saccard's sexual drive to dominate and possess the world be counteracted. The depiction of nature as feminine, however, did not only license an oppressive male politics of domination and oppression. It also connected, as Soper (1995) observes, to a rather more complicated set of masculine emotions varying from that of desire for outright possession (rape) through patriarchal benevolence and Oedipal guilt to longing to return to the womb-like comfort of a nurturing mother earth. So while, in the highly gendered and oppressive metaphors of Francis Bacon, abundant evidence could be culled for the linkage between domination of nature and domination of women, and while, in the colonial literature (particularly of geographic discovery) abundant support can be found for the domination of nature being rendered equivalent to the domination of "natives" (usually depicted as very "natural" beings), the straight equation of such attitudes to all forms of masculine desire is suspect. Nevertheless, a cogent argument supported by abundant evidence can be constructed that connects a certain kind of masculinity with certain forms of scientific enquiry and technological practices of domination, mastery and control both of external and internal "nature."

But this connection between the domination of nature and the domination of others has a further dimension. "Nature-transforming" projects of any sort have distributional consequences and the patent inequity of many of these has been the source of powerful conflicts. These are now the focus of struggle in the environmental justice movement and within a polyglot group of movements known as "the environmentalism of the poor" (see chapter 13). This was not a theme that the Frankfurt School explicitly explored, but it is always latent in their critical analysis. And some of these conflicts take a curious turn. There is little ambiguity when, say, massive ecological destruction is visited on an impoverished population – such as that of Bhopal – through the breakdown of a modern industrial technology that has all the hallmarks of the domination of nature imprinted on it. But when the World Wildlife Fund presses to create

a nature reserve in a developing country and insists on the eviction of indigenous populations who have long used that habitat as their resource base, then this suggests that the World Wildlife Fund has acquired just as severe and draconian ideal of the domination of nature in all of its senses as anyone in the World Bank or, for that matter, in the Enlightenment ever did. Is it ever possible, then, entirely to avoid some version of the dominion/domination/control thesis and, if not, is it ever possible for that not to convert into some version of the dominion/domination/control over others? That question is never far from the heart of all ecological politics.

The failings of the Frankfurt School's approach reflect in certain respects the fecundity of the questions opened up. While it opens up a terrain of investigation into "repressed nature" it does so by hypothesizing "instinctual urges" (a thoroughly essentialist idea) for which it is very hard to find independent evidence outside of the very technologies of enquiry which are being subjected to criticism. While it draws attention to the potential for rebellion against the instrumentalities of domination of nature (and of human nature) including the techniques of consumerism and management of mass culture, against the processes of globalization and colonization of the life world by a homogenizing instrumental rationality and market commodification, it provides very little vision as to how such rebelliousness might channel into productive and emancipatory directions as opposed to self-destructive nihilism.

But in all of this, there are two specific lines of difficulty that are of particular import for my own enquiry. The first concerns the limits and power of a philosophy of internal relations. To varying degrees, the Frankfurt School appealed to this mode of thought and Adorno's work was particularly strong in this regard — his *Negative Dialectics*, as we have seen, was a particularly trenchant exploration of the power of internal relations as a revelatory device. But Whitehead's critique of a mode of analysis in which "everything relates to everything else" so as to lead to nothing is here appropriate. Indeed, Habermas' judgment that "negative dialectics leads nowhere" is cast in the same mold. In effect, the danger always inherent in application of a dialectics of internal relations is precisely that everything so mirrors everything else that there is no room for radical change, no moment of leverage that permits an exit from processes of domination that totally occupy beliefs, discourses, institutions, power structures, material practices, and social relations.

Secondly, there is the related problem of agency. Having laid aside the working class as the agent of contemporary history, the Frankfurt School had difficulty in finding an alternative locus of action. To be sure, several of them found some sort of alternative — Marcuse put his faith in youthful rebellion (powered by Eros) and Habermas in new social movements dedicated to the construction of an ethics of communicative action. But for the most part the Frankfurt School could not identify any coherent or meaningful agency of social change that was not already thoroughly corrupted, coopted,

and trapped in the mechanics of domination of nature, self, and others. Here, too, a more open conception of internal relations across diverse moments of the social process (as outlined in chapter 4) could have helped open up the dialectical form of analysis into a more historical and less purely logical mode.

It was for these two fundamental reasons that the reputation of "pessimism" became firmly attached to the work of the Frankfurt School. But there were far more powerful and persuasive arguments for pessimism available within the main currents of western thought and these did not in any way require coming to terms with Marxism, dialectics, or internal relations. For if ever there was a cause for pessimism as regards our relation to nature, it surely lay with Parson Malthus and his doctrines.

V. Ecoscarcity and Natural Limits: The Malthusian Tradition

Initially formulated at the end of the eighteenth century as a straight antidote to Enlightenment optimism, the Malthusian and neo-Malthusian arguments concerning ecoscarcity and natural limits have operated as a perpetual jeremiad refrain within the dominant progressive humanism of the western pro-capitalist tradition. Passion between the sexes (a self-realization argument) produced population growth beyond the natural capacities of the earth's larder and emancipation from poverty, war, and disease was necessarily frustrated as a result. The drive for self-realization automatically thwarted any hopes for emancipation from material want. But the ecoscarcity argument has, as Glacken (1967) also shows, a long pre-history, that includes a whole series of eighteenth-century thinkers, confronted as they all were with the obvious facts of periodic famines and deadly epidemics. And while most hoped that the domination of nature might cure such ills, there were many who recognized that this had to be in clear acknowledgement of what the limits in nature were. The perpetual return of that argument, and its periodic ascendancy, now even within some currents of Marxism, testifies to the grumbling persistency of the problem of ecoscarcity.

Benton (1989: 55) argues 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 of Marx between this general commitment and Marx's political-economic conception of the labor process. I want to propose that a more dialectical reading of Marx, in which the labor *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 and conflicts 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.

The danger here is of accepting, often without knowing it, concepts that preclude radical critique. One of the most pervasive and difficult to surmount barriers, as I shall show in later chapters, is that which insists on separating out "nature" and "society" as coherent entities. What is surprising here, is that even the deepest and the most biocentric of ecologists at some level accepts this distinction (or worse still directly appeals to it by depicting society, for example, as a "cancer" let loose upon the planet). By insisting upon a prior dissolution of the problem into freely flowing socio-ecological processes, I do not mean to imply that the particular kind of "permanence" we call "society" has no meaning discursively or practically or that situations do not arise in which it makes sense to isolate that particular permanence for analysis. But I do want to insist that radical critique keep open precisely the way in which this entity (if such it is) gets constituted out of socio-ecological processes.

To press home this point, I shall examine the role played by ideas of "natural limits" and "coscarcity" (and its cognate term of "overpopulation") in contemporary debate. In ecological thinking the issue of natural limits is often in the forefront of discussion. Lee (1989), for example, creates a narrative in which it seems that the rules of human behavior should be derived from the second law of thermodynamics and the inherent sustaining power of ecosystems. Anything that violates these two principles is unsustainable and thereby doomed to produce ecocatastrophe. We must, therefore, learn to live within the limits of these two natural laws. The difficulty here, of course, is that neither principle is helpful at all in explaining the shifting history of human social organization, or even the genesis of life itself. It is one thing to argue that the second law of thermodynamics and the laws of ecological dynamics are necessary conditions within which all human societies have their being, but quite another to treat them as sufficient conditions for the understanding of human history. To propose the latter would imply that the whole of human history is an exercise in unsustainability in violation of natural law. This is so grand an assertion as to be pointless.

Benton (1989, 1992) has insisted that even Marxists, who have traditionally been hostile to the idea, should clearly recognize the "natural limits" to human potentialities while Perelman (1993), even more bravely, asserts that a close study of Marx's writings shows that he was much more of a Malthusian than he cared to admit. This is a sufficiently serious argument to warrant a return to its origins in the work of Malthus himself.

It is sometimes forgotten that Malthus wrote his first *Essay on the Principle of Population* in 1798 as a political tract against the Utopian socialist anarchism of Godwin and Condorcet and as an antidote to the hopes of social progress embodied in Enlightenment thought as well as in the French revolution. In

his introduction, Malthus lays down principles of enquiry which ought, he argues, to govern discourse concerning such an important subject as the perfectibility of man:

A writer may tell me that he thinks a man will ultimately become an ostrich. I cannot properly contradict him. But before he can expect to bring any reasonable person over to his opinion, he ought to show that the necks of mankind have been gradually elongating, that the lips have grown harder and more prominent, that the legs and feet are daily altering their shape, and that the hair is beginning to change into stubs of feathers. And till the probability of so wonderful a conversion can be shown, it is surely lost time and lost eloquence to expatiate on the happiness of man in such a state: to describe his power, both of running and flying, to paint him in a condition where all narrow luxuries would be condemned, where he would be employed only in collecting the necessaries of life, and where, consequently, each man's share of labour would be light, and his portion of leisure ample.

Malthus engages in two tactics here. One is to insist that all discussion of future possible social orders be subjected to the rules of sceptical empirical enquiry into existing reality. The second is to float easily across the social-biological divide so as to use the latter as a means to confound the former. Yet the first edition of the *Essay* is strongly colored by deduction from *a priori* universal principles: namely that food is necessary to the existence of man and that the passion between the sexes is necessary and constant. He places these two postulates in the context of a world of finite resources and deduces the famous "natural law" in which population growth (a geometric series) places pressure on the means of subsistence (an arithmetic expansion) inevitably producing poverty, disease, famine, war, and a general tendency towards "overpopulation." In subsequent editions of the *Essay* Malthus sought to give much more empirical substance and scientific respectability to his deductive arguments by furnishing as much empirical information as he could muster. He also went on to elaborate somewhat on the preventive checks (delay of marriage, for example) through which population is kept in balance with the means of subsistence, without resort to the violence of famine, disease, and war. The subsequent evolution in Malthus' ideas on the subject is too well known to warrant repetition here, as is the neo-Malthusian "adjustment" in which it is understood that technological change and social adaptation can create a dynamic balance in what still remains a fundamental race between population growth (society) and the availability of resources "in nature." But what is usually forgotten is the class character of Malthus' argument. And since this particularly pernicious aspect of his argument is still very much with us it deserves careful consideration.

Malthus (1970: 82) recognizes that "misery" has to fall somewhere and maintains that the positive checks of famine, disease, and poverty will necessarily

be the lot of the lower classes. Their miserable condition is the result of a natural law which functions "absolutely independent of all human regulation." Their distress is to be interpreted as "an evil so deeply seated that no human ingenuity can reach it" (Malthus, 1970: 101). On this basis Malthus arrives, "reluctantly," at a set of policy recommendations: providing welfare to the poor merely increases the aggregate of human misery because freeing the lowest classes from positive checks only results in an expansion of their numbers, a gradual reduction in their standard of living, a decline in the incentive to work, and a diminished contribution to wealth creation as waged laborers. Increasing subsistence levels to "a part of society that cannot in general be considered as the most valuable part diminishes the shares that would otherwise belong to more industrious and worthy members, and thus forces more to become dependent" (Malthus, 1970: 97). From this Malthus draws a moral:

Hard as it may appear in individual instances, dependent poverty ought to be held disgraceful. Such a stimulus appears to be absolutely necessary to promote the happiness of the great mass of mankind, and every general attempt to weaken this stimulus, however benevolent its apparent intention, will always defeat its own purpose. ... I feel no doubt whatever that the parish laws of England have contributed to raise the price of provisions and to lower the real price of labour. They have therefore contributed to impoverish that class of people whose only possession is their labour. It is also difficult to suppose that they have not powerfully contributed to generate that carelessness and want of frugality observable among the poor, so contrary to the disposition to be remarked among petty tradesmen and small farmers. The labouring poor, to use a vulgar expression, seem always to live from hand to mouth. Their present wants employ their whole attention, and they seldom think of the future. Even when they have an opportunity of saving, they seldom exercise it, but all that is beyond their present necessities goes, generally speaking, to the ale-house. The poor laws of England may therefore be said to diminish both the power and the will to save among the common people, and thus to weaken one of the strongest incentives to sobriety and industry, and consequently to happiness.

This argument sounds all too familiar. Substitute welfare for the poor laws, drugs for the ale-house, teenage pregnancy for carelessness and want of frugality, and we here find written the familiar litany of complaints that has increasingly dominated the discussion of welfare policies towards the lower classes in Britain and the United States these last 20 years.

But this must all be offset by Malthus' approach to the upper classes – principally those of the industrial and landed interests whose roles are more closely analyzed in *The Principles of Political Economy*. Here, he recognizes a difficulty in accounting for the continued accumulation of capital in society. The capitalist saves, invests in productive activity, sells the product at a profit, ploughs back the profit as new investment, and commences the cycle of

accumulation once more. But the capitalist has to sell the product to someone if a profit is to be had and the capitalist is saving rather than consuming. If the capitalist saves too much and the rate of capital accumulation increases too rapidly, then long before subsistence problems are encountered, the capitalist will find expansion checked by the lack of effective demand for the increased output. Consequently, "both capital and population may at the same time, and for a period of great length, be redundant, compared to the effective demand for produce" (Malthus, 1968: 402). Malthus' solution to this effective demand problem (a problem that was to be central to Keynes' reformulation of the theory of capitalist crises in the 1930s) is to rely upon the proper exercise of the power to consume on the part of those unproductive classes – the landlords, state functionaries, etc. – who were outside of the production process. Malthus took pains to dissociate himself from any direct apologetics for conspicuous consumption on the part of the landed gentry. All he wanted to do was to pin down where the effective demand might come from that would keep capital accumulation stable:

It is unquestionably true that wealth produces wants; but it is a still more important truth that wants produce wealth. Each cause acts and reacts upon the other, but the order, both of precedence and importance, is with the wants which stimulate industry. The greatest of all difficulties in converting uncivilized and thinly peopled countries into civilized and populous ones, is to inspire them with the wants best calculated to excite their exertions in the production of wealth. One of the greatest benefits which foreign commerce confers, and the reason why it has always appeared an almost necessary ingredient in the progress of wealth, is its tendency to inspire new wants, to form new tastes, and to furnish fresh motives for industry. Even civilized and improved countries cannot afford to lose any of these motives. (Malthus, 1968: 403)

Effective demand, located in the unproductive classes of society and stimulated by need creation and foreign trade (the contemporary arguments around GATT and NAFTA are exemplary in this regard) plays a vital role in stimulating both the accumulation of capital and the expansion of employment. Labor, it may then be argued, will be unemployed if the upper classes fail to consume as much as possible or if there are any restrictions on foreign trade (again, put in contemporary terms, the United States does a favor to the world by redistributing spending power to the affluent classes, consuming to the hilt, and insisting upon open world trade).

This theory of effective demand does not sit easily with the theory of population. For one thing it appears illogical (if not downright obscene) to assert that the power to consume be withheld from the lowest classes in society in the name of controlling the pressure of population on resources, while asserting via the theory of effective demand that the upper classes should consume as

much as possible. Within the advanced capitalist countries this obscenity is now rampant as we find "consumer confidence" (and the penchant for debt financing of consumption) of the upper classes depicted as fundamental to sustaining the accumulation of capital, while all forms of welfare for the lower classes are slashed because they are regarded as a pernicious drain on growth. Internationally, this same opposition arises as advanced capitalist countries preach to the rest of the world about how the latter's population growth is putting pressure on resources while urging their own upper classes on to an orgy of conspicuous consumption as a necessary contribution to "sustainable" growth.

Malthus was (unlike many contemporary analysts) at least aware of the contradiction. He sought to resolve it by arguing that the upper classes do not increase their numbers according to natural law but regulate their numbers by prudent habits generated out of a fear of decline in their station in life. Only the lower classes are caught within the immutable law of nature such that they imprudently breed. The law of population is in effect disaggregated into one law for the poor and another law for the rich. But Malthus also has to explain why an effective demand cannot be generated by an increasing power to consume on the part of the laboring classes. Such a possibility is dismissed as illogical because "no one will ever employ capital merely for the sake of the demand occasioned by those who work for him" (Malthus, 1968: 404), which is another way of saying that profit necessarily arises out of the exploitation of the working classes.

But if production is controlled by capitalists, then is it not also possible that "the laws of private property, which are the grand stimulants to production, do themselves so limit it as always to make the actual produce of the earth fall very considerably short of the power of production?" (Malthus, 1970: 245). To this question Malthus replies with a qualified "yes" quickly finding a moral rationale:

It makes no difference in the acute rate of increase in population, or the necessary existence of checks to it, whether the state of demand and supply which occasions an insufficiency of wages to the whole of the labouring classes be produced prematurely by a bad structure of society, and an unfavourable distribution of wealth, or necessarily by a comparative exhaustion of the soil. The labourer feels the difficulty in the same degree and it must have nearly the same result, from whatever cause it arises.

So the property-owning classes do the laborers a favor by creating artificial scarcity before natural scarcities hit home. The control of effective demand by the propertied interest prevents the visitation of misery on all sectors of mankind, the premature exhaustion of resources, and "secures to a portion of society the leisure necessary for the progress of the arts and sciences" — a phenomenon

that "confers on society a most signal benefit." Thus is the Enlightenment project reserved for a small elite while everyone else is condemned to live by natural law. This is an appalling instance of that awful habit of denying one section of our species the right to be considered human.

Classical political economy frequently invoked natural scarcity and diminishing marginal returns as the root cause of crises and persistent poverty. Ricardo, for example, adopted much of what Malthus had to say about overpopulation and ecoscarcity, attributing the falling rate of profit under capitalism to diminishing returns on land (or on all resources) to the point where the rent on increasingly scarce resources would absorb all profit. This prompted Marx to observe that when faced with a crisis all Ricardo could do was to take refuge in organic chemistry. Marx, of course, would have no truck with the ecoscarcity argument. Poverty and lack of well-being as well as the crisis tendencies of capitalism had to be explained through the internal dynamics of the capitalist mode of production rather than by resource scarcities or by so-called "natural laws" of population. What Marx comes up with is a thorough explanation of the production of impoverishment, of unemployment, of misery and disease among the lower classes as a necessary outcome of how *laissez-faire* free-market capitalism works, no matter what the rate of population growth. There is a specific rule of overpopulation under capitalism that relates to the need to produce an industrial reserve army, a relative surplus population, for the expansionary dynamics of a capitalist mode of production.

Yet Marx also recognized that resource endowments had a key role to play in generating *wealth* (a concept quite different from value), insisting by resort to a highly gendered metaphor that the earth was its mother and labor its father (1967: 50). He also insisted that the "metabolism" with nature was a universal and perpetual condition of human labor (1967: 50) and that disruption of that metabolism for any reason (and he saw capitalism providing abundant causes for complaint) could spell disaster. Furthermore, we could only ever work with nature through nature's own laws. It is hard to read this without inferring that Marx, at least, had a profound respect for the qualities of nature and the relational-dialectical possibilities inherent within it as well as within ourselves. Furthermore, his more detailed discussions on Malthus indicate that he thought there were many situations in which population dynamics might have either positive or negative relations to the reproduction of a particular mode of production. Capitalism, he argued, requires a growing population as a real foundation for capital accumulation (see Harvey, 1982: 161). "Very complicated and varying relations" of production to population could be found in different epochs and places. Even the category of overpopulation could sometimes make sense:

In different modes of social production there are different laws of the increase of population and of overpopulation. ... Thus what may be overpopulation in

one stage of social production may not be so in another, and their effects may be different. ... The amount of overpopulation posited on the basis of a specific production is thus just as determinate as the adequate population. Overpopulation and population, taken together, are *the* population which a specific production basis can create. (*Grundrisse*, pp. 604–5)

The Marxist tradition subsequently paid most attention to his outright rejection of the ecoscarcity arguments of Malthus and Ricardo. And it sometimes went on to draw the unwarranted implication that all forms of the overpopulation or ecoscarcity argument are merely a product of apologetic bourgeois reasoning. Even worse, it was sometimes assumed that nature could be dominated by society and totally transformed to meet human needs, and that the humanization of all nature was an unproblematic project in principle (though fraught with technical and economic difficulties). Stalin took over not only a simplistic language of the “mastery” of nature but, in his celebrated support of Lysenko, gave such an exhibition of hubris towards the natural world that even some otherwise convinced Marxists shuddered. It was only when it became clear that Lake Baikal was turning into an ecological disaster to parallel Lake Erie that serious questions began to be raised concerning the proper ecological perspectives to be built into socialism.

As Grundmann complains, Marx, at times, seems to assume that growth of productive forces implies an increasing power to dominate nature, when “there may be productive forces which do *not* lead” in that direction “but, rather, to an increasing uncertainty, risk, and uncontrollability as well as to unnecessary oppression in the production process.” This does not imply that concern for the natural environment is incompatible with a Promethean view. Indeed, “anthropocentrism and mastery over nature, far from *causing* ecological problems, are the starting-points from which to address them.” Nevertheless, Marx’s expectation that “science and technology would create an intelligible and controllable world as well as the expectation that only capitalist relations stand in the way” of a rational regulation of our metabolism with nature, have to be questioned. And this implies a challenge to some of the presumptions of historical-geographical materialism.

It is in this context that some Marxists have returned to the ecoscarcity and natural limits argument as being in some sense far more fundamental than Marx (or more importantly Marxists) have been prepared to concede. Unfortunately, the manner of that return by Benton (1989, 1992), Perelman (1993), and O’Connor (1988) often appears as a sad capitulation to capitalistic arguments. Not, of course, that any of them would in any way support the class distinctions that Malthus used (and latterday neo-Malthusians continue to use) to such vicious effect. But the universality of “natural limits” and the deeper appeal to “natural law” as inherently limiting to the capacity to meet human desires, is now increasingly treated as an axiomatic limiting condition

of human existence. So what, then, would a dialectical-relational formulation of the problem look like?

Consider, to begin with, a key term like “natural resources.” In what sense can we talk about them as being “limited” and in what ways might we reasonably say they are “scarce?” The definition of these key terms is evidently crucial, if only for the whole science of economics which usually defines itself as “the science of the allocation of scarce resources.” So let me offer a relational definition of the term “natural resource” as a “cultural, technical and economic appraisal of elements and processes in nature that can be applied to fulfill social objectives and goals through specific material practices.” We can unpack the terms in this definition one by one. “Appraisal” refers to a state of knowledge and a capacity to understand and communicate discursively that varies historically and geographically. The long history of capitalism itself shows that technical and economic appraisals can change rapidly and the addition of the cultural dimension makes for even greater fluidity and variability in the definition. Social objectives and goals can vary greatly depending upon who is doing the desiring about what and how human desires get institutionalized, discursively expressed, and politically organized. And the elements and processes in nature change also, not only because change is always occurring (independent of anything human beings do), but because material practices are always transformative activities engaged in by human beings operating in a variety of modes with all sorts of intended and unintended consequences. What exists “in nature” is in a constant state of transformation. To declare a state of ecoscarcity is in effect to say that we have not the will, wit, or capacity to change our state of knowledge, our social goals, cultural modes, and technological mixes, or our form of economy, and that we are powerless to modify either our material practices or “nature” according to human requirements. To say that scarcity resides in nature and that natural limits exist is to ignore how scarcity is socially produced and how “limits” are a social relation within nature (including human society) rather than some externally imposed necessity.

Even the short history of capitalism surely proves that resources are not fixed, that all of them are dynamic and changing. It is one thing to say that capitalism in a given state is encountering a condition of ecoscarcity and overpopulation of its own distinctive making. Indeed, it can be argued with some force, *pace* Marx, that capitalism as a mode of production necessarily must always do that, so that to translate this particular circumstance into a set of universal limitations is to completely elide the political-ecological point. In this regard at least, Benton (1989: 77), after pursuing the holy grail of natural limits to its own limit, 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.

But many of the terms used in contemporary environmental debate incorporate capitalistic values without knowing it. Consider, for example, the most favored term in much contemporary discussion – "sustainability." That term means entirely different things to different people (see Redclift, 1987), but it is very hard to be in favor of "unsustainable" practices so the term sticks as positive reinforcement of policies and politics by giving them the aura of being environmentally sensitive. The general drift of the term's use (and in particular its promotion through the Brundtland Report on *Our Common Future*) situates it against the background of sustaining a particular set of social relations by way of a particular set of ecological projects. It is not hard to satirize that idea:

Imagine 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. The ecosystem is quite symbiotic since bankers produce masses of waste paper (now the primary physical export of New York City) and that is the favored food of cockroaches. International bankers are the endangered species and so "sustainability" gets defined in terms of organizing the use of the earth (e.g. organizing "sustainable" agriculture in Malawi to facilitate debt repayments) to keep them in business.

The model, though far-fetched, is 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 (see chapter 8) 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 recognize that such ecological problems exist. What is then evident is that all debate about ecoscarcity, natural limits, overpopulation, and sustainability is a debate about the preservation of a particular social order rather than a debate about the preservation of nature *per se*.

Ideas about environment, population, and resources are not neutral. They are political in origin and have political effects. Once, for example, connotations of absolute limits come to surround the concepts of resource, scarcity, and subsistence, then an absolute limit is set on population. And the political implications of a term like overpopulation can be devastating. Somebody, somewhere, is redundant and there is not enough to go round. Am I redundant? Of course not. Are *you* redundant? Of course not. So who is redundant? Of course! It must be *them*. And if there is not enough to go round, then it is only right and proper that they, who contribute so little to society, ought to

bear the brunt of the burden. And if we are told that there are certain of us who, by virtue of our skills, abilities, and attainments, are capable of "conferring a signal benefit upon mankind" then it is our bounden duty to protect and preserve ourselves for the sake of all mankind, for the sake of civilization.

Whenever a theory of overpopulation seizes hold in a society ruled by a dominant class, then the subservient classes invariably experience some form of material, political, economic, and social repression. This was, of course, a result entirely predictable in the terms set up by the Frankfurt School. The difference, however, is that we here arrive at an understanding of the same outcome directly through class analysis.

VI. Conclusion

Western discourses regarding the relation to nature have frequently swung on a pendulum between cornucopian optimism and triumphalism at one pole and unrelieved pessimism not only of our powers to escape from the clutches of naturally imposed limits but even to be autonomous beings outside of nature-driven necessities at the other pole. It is, I think, a standing and deep embarrassment within the tradition of western thought that so few indications can be found of escaping from the stasis of a swinging pendulum of opinion and converting that motion into a learning spiral. To reject all talk of dominion, of "powerful understanding," and of scientific rationality is as foolish as to accept the wilder propositions of some Enlightenment thinkers. We are, whether we like it or not, inheritors of the Enlightenment tradition and the only interesting question is what we make of it and what we do with it. The positive side of the Frankfurt School contribution lay, I think, in its Utopianism, its belief that somewhere, somehow it might be possible to have "dominion without tyranny," rationality that was something more than purely instrumental and a science that was of higher order than that which we have currently constructed. What it could not come to terms with (and here its understandable obsessions with fascism coupled with its commitments to a Hegelian dialectics got in the way), were the class forces and powers that have kept and continue to keep the pendulum of thought swinging in ways convenient to the day-to-day and hence short-term perpetuation of class privilege and power. There is, in short, nothing more ideologically powerful for capitalist interests to have at hand than unconstrained technological optimism and doctrines of progress ineluctably coupled to a doom-saying Malthusianism that can conveniently be blamed when, as they invariably do, things go wrong.