ARTIFACTUAL ECOLOGY

THE RECOVERY PROJECT

AND

ARTIFACTUAL ECOLOGY:

A NEW DIRECTION FOR ENVIRONMENTAL THOUGHT

By

ELIZABETH M. SKAKOON, B.A., M.A.

A Thesis

Submitted to the School of Graduate Studies

in Partial Fulfillment of the Requirements

for the Degree

Doctor of Philosophy

McMaster University

DOCTOR OF PHILOSOPHY (2005) McMaster University
(Philosophy) Hamilton, Ontario

TITLE: The Recovery Project and Artifactual Ecology: A New Direction for Environmental Thought

AUTHOR: Elizabeth M. Skakoon, B.A. (Honours Philosophy, University of Windsor), M.A. (Philosophy, McMaster University)

SUPERVISOR: Professor Barry Allen

NUMBER OF PAGES: v, 200

Abstract

This thesis identifies a major paradigm in environmental philosophy. According to many environmental philosophers, the root of our ecological problems is our Modernist world view. Modernity has created a dangerous dualism between humanity and nature. This dualism both encourages a destructive, anthropocentric attitude, and portrays nature as passive, mechanistic, and suitable for domination. Many of these philosophers, most notably deep ecologists, think that the solution to our ecological problems lies in recovering the wild, true aspect of nature and replacing the Modernist world view with an ecological world view. I call this paradigm "the Recovery Project."

I reject this paradigm on the basis that it contains too many problematic premises, notably the idea that nature is ontologically independent. I use contemporary theories in philosophical anthropology to criticize the Recovery Project's realist thesis and their argument that Modernity is responsible for our ecological crisis. This criticism reveals the essential relationship between humanity and artifacts. Although I formulate a constructivist position, it is not the social constructivist thesis critiqued by many environmental philosophers.

I propose a new starting point for environmental philosophy—an idea I call "artifactual anthropocentrism." This version of anthropocentrism accounts for the phenomenon of unintended consequences, which is neglected by standard versions of anthropocentrism and the Recovery Project. I then examine the ecological problems associated with our urban environment. Through a discussion of urbanization and traditional agricultural methods, I explain the difference between domesticating and socializing natural entities and the problems associated with these processes. Continuing the focus on the relationship between humans and artifacts, I conclude that environmental philosophy may be able to address these problems by reorienting itself as a philosophy of technique.

ACKNOWLEDGEMENTS

First—many, many thanks go to my supervisor, Dr. Barry Allen, for his help with this thesis. His editorial efforts and philosophical guidance were superb and through this process he has taught me more about philosophy itself than what this thesis could possibly reflect. Appreciation also goes out to the rest of my committee—Dr. Stephen Haller and Dr. Vera Chouinard. This was a project that engaged other disciplines besides philosophy proper and I could not have extended my reach had I not had these scholars on my committee.

I also thank the philosophy department at McMaster, my intellectual home for the past eight years of graduate school. A thesis is supposed to be the culmination of one's graduate work, but I would not have been able to get to this point had I not had such wonderful instructors and a supportive department throughout the years. Part of my McMaster experience included forming friendships with fellow graduate students. I cannot name them all here, but the ones to whom I owe a particular thank you for their emotional and intellectual support include (in no particular order): Mike Potter, David Godden, Peter Killam, Rob Virdis, Craig Perfect, Go-Go Pandya, Kimberly Harding, and beyond McMaster, Adam Scarfe. In addition, I would not have made it to Mac without a good start in philosophy at the University of Windsor. Thanks to my undergrad instructors, in particular my old mentor—Dr. Ralph Johnson.

An enormous thank you goes to my parents—Walter and Dorothy Skakoon—for their emotional and financial support. Without their help, this thesis would not have been completed. Without their example, this thesis would not have been started. Finally, love and thanks go to my husband, David Farr. I am so fortunate that it'll take me the rest of my life to pay back this debt of gratitude.

TABLE OF CONTENTS

Introduction

It is difficult not to be impressed with the extent and scope of global eco-system degradation at the beginning of the twenty-first century. A brief list of the ills would have to include: rainforest destruction, pesticide run-off, lead contamination, tropical reef bleaching, global warming, nuclear and toxic waste disposal problems, thinning egg shells across many species, loss of top soil, loss of atmospheric ozone, genetically modified organism (GMO) cross-pollination, species extinction, and smog. Every square kilometer of wilderness and every species of plant or animal seems to be threatened by humanity. Some observers have taken the view that nature itself is dead. Due to our actions we have "altered the atmosphere so badly that nature as we know it is over."[1] Others have a more optimistic argument; nature is not technically dead, it has just been commodified, objectified, and paved over. Cement can be torn up and replaced by city gardens, wilderness areas can be protected and expanded, and our current assumptions about nature and our place within it can be changed. With some hard conceptual and practical work by philosophers and activists we can regain some of the nature that we have lost.

Although there are differences among the strategies employed by activists (for example, some prefer direct action while others lobby governments, and still others back their own political candidates), the conceptual differences among environmental philosophers seem fewer. Many notable philosophers engage in what I shall call the "recovery project." The details differ from author to author, depending on philosophical assumptions, but the recovery project that presently dominates the philosophical literature can be characterized in the following general way. The natural world is being suppressed and dominated by humanity. How did this happen? In a word—Modernity. For the past 400 years the philosophical, social, and political aspects of the Modern western world have tamed nature and condemned it to the role of society's warehouse. The proper task of environmental philosophy, according to the recovery project, is to reestablish the true, wild aspect of nature and ensure that it has an appropriate place in deliberation, planning, and action. Anything less will only perpetuate our ecological problems, ultimately leading to our demise.

An assumption of this project is that only one particular aspect of nature has been lost. After all, we are biological beings and are subject to nature's laws and whims, therefore nature still has a presence in the world. Since our economies and cities ultimately depend on the natural world for raw material, nature obviously must still exist and matter to us. So what exactly is to be recovered by the recovery project?

The answer to this question varies somewhat from philosopher to philosopher, but generally it is that the fullest, freest expression of the natural world, its *wildness*, has been lost and needs to be recovered. As one of the forefathers of the

[1] Bill McKibben, *The End of Nature* (New York: Random House, 1989), p. 166.

environmental movement in the United States, Henry David Thoreau, once wrote, "in Wildness is the preservation of the World."[2] His words are a common refrain among nature lovers, many of whom share his sentiments: wild nature represents nature *as it truly is.* To illustrate this point, consider the following scenario. If civilization and its artifacts were to disappear tomorrow, and providing that the current environmental harms are not irreversible, then the ecosystems would eventually regain their integrity, and the planet itself would return to a state of equilibrium. Since short of engaging in collective genocide, we cannot remove ourselves from the world, the next best option is as much as possible to *recover* the wildness of nature.

That may require difficult decisions about what counts as natural or artificial, but in order to determine which items are in which category, the ideal, i.e., the *wild* form of nature, must be employed as the benchmark. Pristine, self-sustaining ecosystems are the ideal by which tainted, degraded ecosystems are measured, and, if possible, restored. The more untouched a particular ecosystem, the healthier it must be. The contrast between the parks of Northern Canada and such heavily used ones as Yellowstone illustrates this point. Unlike the vast wilderness of the Northwest Territories, Yellowstone is nature on the verge of degraded domestication.

Wild nature is not just an existential category. It is experienced, mapped, bounded, and filled with cultural values. For deep ecology, a branch of environmental philosophy that emphasizes the experiential aspect of nature, the *wildness* of nature translates into *wilderness*; the place where we can go to hike, explore, and directly experience nature "unmediated by social concepts."[3] Deep ecology also places a premium on wilderness because it is, practically speaking, the only setting that supports the diversity of *wild*life. Accordingly, "recovering" nature is to be taken quite literally. Although there are a few remaining areas of wilderness, deep ecologists see no reason to be optimistic about their preservation, and doubt that nature is fully and properly wild even within these preserves. The presence of roads, the threat of mining and forestry, and overuse by the tourism industry taint the purity of even the most breathtaking parks.

Although there are other environmental philosophers who may not be considered deep ecologists, *wildness* still plays an important role in their thinking. For Eric Katz and Keekok Lee, wild nature represents the truly O*ther* which must be respected on its own terms. The recovery of nature they envision is to be guided by the ideal of wildness and an almost complete rejection of Modernity, thus placing their arguments alongside those of deep ecology.

The majority of recovery philosophers tend to be deep ecologists who argue or assume that nature is ontologically independent of human existence. Nature's identity, its properties, its origination and continuing existence do not depend on

---

[2] Henry David Thoreau, "Walking," *The Essays of Henry D. Thoreau*, ed. Lewis Hyde (New York: North Point Press, 2002), p. 162.

[3] Alan Drengson "How Many Realities?," *The Trumpeter* 13, no. 1 (Winter 1996): 2.

our existence. Nature *is*. *What* it is exists independently of our perceptions and claims. In traditional metaphysical terms, recovery philosophers are "realists."

In the category of recovery philosophers, I include Eric Katz and Keekok Lee because they also argue for nature's ontological independence, although they do not accept all of deep ecology's arguments about nature. They, like the deep ecologists, blame Modernity for creating a separation between ourselves and the natural world, and propose a similar solution. For Katz, to value restored ecosystems and real wilderness equally poses a danger. To think of restored ecosystems as a substitute for real wilderness is an "expression of an anthropocentric world view, in which human interests shape and redesign a comfortable natural reality."[4] His words express a common concern among recovery philosophers. Anthropocentrism *is* a characteristic of the modern world, and environmental philosophers (all having anthropocentric tendencies by virtue of their modern identities) must carefully examine their presuppositions and guard as much as possible against them.

Recovery philosophers reject Modernity as the framework in which to develop an environmental ethic. Modernity, they claim, is responsible for our anthropocentric outlook. It has conceptualized nature and humanity in such a way that our species is seen as separate from, and better than, the natural world. The Modernist framework has, for the most part, created and fostered a dualism between humanity and nature. Recovery philosophers think that the solution to our ecological problems lies in healing the dualism between ourselves and nature, and replacing the Modernist world view with an ecological world view. They attempt to overcome the dualism by arguing that our biological selves, that is, the aspect of human existence that was created by natural, evolutionary forces, is *primary*. Cultural concerns and artifacts are secondary to the biological realities of our existence. We are *embedded* in natural systems, and we depend on *them* for our existence. The attempt to reverse this order, i.e., consider our cultural identity as more important than our biological identity, is an expression of our anthropocentric outlook. The alternative to Modernity—an ecological world view—emphasizes our embeddedness and our dependency on nature. It also redescribes nature in such a way that the positive qualities denied by Modernity are revived. An ecological world view tells a better story about humanity-in-nature, one where humanity has no justification for holding on to its anthropocentric position.

These analyses, though they never stray far away from the anthropocentrism issue, contain ontological and epistemological claims about nature and the relationship between humanity and the natural world. In the environmental philosophical literature, the "recovery project" is a paradigmatic example of an anti-anthropocentric environmental ethic and philosophy.

---

[4] Eric Katz, *Nature as Subject; Human Obligation and Natural Community* (Lanham, Md.: Rowman & Littlefield, 1997), p. 95.

I doubt that a solution to our ecological problems can be found in the recovery project. I also think that anthropocentrism is the only serious position from which to do environmental philosophy. The version of anthropocentrism that I propose, however, is not the form typically criticized by environmental philosophers. Environmental philosophy cannot meaningfully contribute to the solution of our ecological problems so long as it maintains the existence of an ontologically independent nature. The concept of "nature," I argue, must be traded for the concept of "environment," and *our* environment consists of artifactual economies. Trading "nature" for "environment" also raises an issue that many environmental philosophers, "recovery" or otherwise, are reluctant to address—our urban environment. I argue that the city poses important challenges in the way that we should approach environmental philosophy.

I outline the recovery project in chapters 1 and 2. It is based on five key premises: 1) nature is ontologically independent; 2) the natural and the artifactual are separate, exclusive categories; 3) nature and humanity have a dualistic relationship; 4) Modernity is responsible for our ecological problems; and 5) the solution to those problems lies in the recovery of the wild, the recognition that we are primarily natural beings, and the acceptance of an ecological world view.

Although realism is a metaphysical position held by many philosophers, environmental or otherwise, recovery philosophers specifically appeal to our evolutionary past to support their arguments for nature's ontological independence. Science tells us that we are the newcomers on the evolutionary scene, as our species is only something like 100 000 years old according to the current estimates. Keekok Lee argues that it is unproblematic to conceptualize a world without humans, but it is problematic to conceptualize humans without a world. It seems obvious that nature existed prior to humanity. Philosophers who want to place humanity (and our products) at the center of the world ignore, so it seems, the scientific evidence and this broader evolutionary perspective.

In chapter 3, I consider the philosophical arguments against nature's ontological independence. I do not, however, ignore the findings of evolutionary science. A careful, philosophical consideration of human evolution leads us away from the claim that a natural, inherent reality exists independently of *H. sapiens*. In general, philosophers tend not to look underneath their abstract, scholastic arguments to see what *really* supports their realist position. *Human practices* robustly support the claims of nature's ontological independence, yet philosophers, recovery or otherwise, are reluctant to acknowledge this. Once we understand, however, how the arguments for nature's ontological independence depend on the existence of human practices, we can see that realism is an untenable philosophical position. Our practices necessarily engage material (e.g., tools) and nonmaterial (e.g., language) artifacts. And as humans, we are always engaging artifacts—this is what we do, and this is what our hominid ancestors did to create their place in the natural ecology so many eons ago. Indeed, we can go so far as to say that our reality is not the one typically understood as nature; rather, material and nonmaterial artifacts comprise our reality. Recovery

philosophers have neglected the making, building, and doing aspect of our identity, thereby defining *H. sapiens* in the most minimal of ways as simply another product of natural, evolutionary processes. As such, they argue, we rely *fully* on these natural processes. There is no doubt that we need the biosphere like any other life form, but our differences set us apart from all other biota. I think that these differences must play a central role in environmental philosophy if we want to understand our ecological crisis. To truly appreciate who we are and what we do, we must have a different, richer conception of artifacts than currently exists in the environmental literature. Recovery philosophers usually define artifacts as simply that which fulfills our intentions, thereby ignoring an important feature of artifacts—the fact that artifacts must necessarily exist in economies. Thinking broadly in terms of economies helps to understand how artifacts are created, how they affect our goals, and how they gather humans and nonhumans together.

Of course, when presented with the thesis that we construct an artifactual world around us one may conclude that I am advocating a social constructionist position. Social constructionism, according to recovery philosophers, is an anthropocentrist philosophical position *par excellence*, and they have spared no effort in detailing the putatively disastrous (or merely absurd) consequences of this thesis. If we construct the world, then what is to prevent us from constructing it any way we want? Social constructionism seems to be just another manifestation of our belief in modern progress. This is the core of recovery philosophy's concern with this theory. I closely examine the features of social constructionist theories and conclude that recovery philosophers have both misunderstood social constructionism's main features, and that the position for which I am arguing is a viable alternative to social constructionism.

In chapter 4 I turn my attention to the claim that Modernity has created a dualistic relationship between ourselves and nature. As mentioned, according to recovery philosophy, the gap between nature and culture must be closed lest we let the cultural sphere overrun and destroy the natural sphere. Their solution includes a change in world views; we must abandon our Modernist world view for an ecological world view that reflects the realities of our biological existence. With the help of philosopher Bruno Latour, I argue that the Modern world is not fundamentally different from the old anthropological matrix that first supported our species. We may think that Modern western societies have successfully separated culture and nature, but paradoxically, the more that we behave as if we have separated these two spheres, the closer we knit them together. In short, recovery philosophers attempt to overcome a dualism that, I argue, has never existed in the first place.

After arguing that Modernity has *not* divided the world into two irreconcilable spheres, I examine recovery philosophy's proposal for how we should live with the realities of our ecological situation. These philosophers argue that ecological holism, i.e., the position that takes whole ecosystems as primary, represents nature as it really is and how it really works. If we understand how nature really is, so

their argument goes, we can adjust our habits and lifestyle in accordance with nature's laws. I examine the cogency of ecological holism by comparing the claims made by recovery philosophers with the claims made by evolutionary biologists and other ecologists. The evidence I put forth offers enough reason, I think, to doubt the plausibility of ecological holism.

In chapter 5 I propose a new starting point for environmental philosophy, building on the concept of "artifactual anthropocentrism." As a concept, artifactual anthropocentrism considers, very seriously, *what* we do, and *how* and w*here* we live. Indeed, if we are ever going to have insight into our ecological predicament, then humanity must be front and center in our philosophizing. After all, the ecological degradation that environmental philosophy is concerned about is *our* doing; so, it is prudent to examine what we do. Placing ourselves in the conceptual center of environmental philosophy does not mean, however, that we are all alone in occupying this position. When considering *what* we do we must necessarily include artifacts. This is the "artifactual" aspect of artifactual anthropocentrism.

The inclusion of artifacts alongside humanity in my analysis allows me to ask the question: how do we live? My answer: we live in artifactual economies that grow with every human/artifact interaction. Contrary to the criticisms leveled by recovery philosophers towards anthropocentric theories, this kind of anthropocentrism does not encourage the chauvinistic excesses of Modernism. Rather, artifactual anthropocentrism stresses that we can never have complete control over the world because our actions will always produce more than our intentions. Recovery philosophers have very little to say about the phenomenon of unintended consequences, yet I think it tells us something very important about the nature of reality itself, namely, that reality is open-ended, incomplete, and indeterminate.

The concept of an indeterminate reality has important consequences for environmental philosophy. One such consequence is that we have to start somewhere else besides the wilderness to fully understand our ecological problems. We have to examine where we live. For the growing majority of us, we live in cities. Environmental philosophy has neglected to examine the environment that, for the most part, creates our ecological problems! Cities, by their very nature, *produce* reality. They pull humans and nonhumans into their core and transform them. In turn, the city is transformed as well. I prefer not to follow recovery philosophers who would describe this process as "dominating" nature. Instead, it is more apt to describe the enrollment of natural entities into our urban environments as "domestication." Domestication, to be sure, is not without its risks. We sometimes find that domestication has disruptive and dangerous consequences. Yet the more we know about our environment, the more our scientific institutions and laboratories tell us that our urban edifice relies on so many silent, natural helpers that provide our oxygen, filter our water, and grow our food, the more we are tempted to domesticate them. After all, so much of our existence depends on their contributions. Why would we not want to

manage their existence? This question (i.e., to domesticate or not to domesticate?) is an important one that arises with every new discovery of some silent, helpful entity.

Some entities can withstand domestication and some are better off without it. We cannot, I argue, domesticate everything, nor do we have to. There are some human practices that have formed sustainable and cooperative relationships between ourselves and natural entities. In the last chapter, I return to a subject that I introduce in chapter 1, namely, traditional agriculture. Traditional agriculture is one of humanity's oldest examples of domestication, but to what does it owe its success? I suggest that it depends on a set of techniques that seek to cooperate with, rather than control, natural processes. For centuries, farmers have combined the "wild" and the "domesticated" in every agricultural performance. Indeed, technique is at the heart of *all* human performances, and human performances, that is, human *practices*, make the world. If we are truly concerned about the world we are creating, then environmental philosophy, I conclude, needs to reinvent itself to become a philosophy of technique.

Chapter 1

Modernity as Culprit

In environmental literature, deep ecology is widely influential. This is no doubt due to the editorial efforts of George Sessions (sometimes with Bill Devall) and Alan Drengson in creating the deep ecology newsletter *Ecophilosophy* and the journal *The Trumpeter,* respectively. Given the success of *The Trumpeter*, environmental philosophers tend to use deep ecology as "a sort of standard reference point against which to proceed in presenting their own preferred solutions to ecophilosophical problems."[1] Supporters of deep ecology also tend to have the most explicit criticisms of Modernity in their writing, which explains why many eco-philosophers tend to measure their own theories against the tenets of deep ecology.

Over the years, deep ecology has had many adherents and not all have been academic philosophers. The Norwegian philosopher Arne Naess is generally credited as the father of deep ecology since he invented the term to describe what he understood as a different, more spiritual approach to nature in the writings of Aldo Leopold and Rachel Carson. Although Naess wrote during the boom years of the environmental movement, he was dissatisfied with mainstream ecological thinking at the time. The source of Naess's dissatisfaction lay with his observation that, for the most part, those who were sounding the alarm over ecological degradation were proposing solutions which still maintained and promoted the dominant (Modern) world view. Similar to the feminist adage "the Master's tools cannot be used to tear down the Master's house," Naess thought that the foundation of our ecological problems lay with the assumptions implicit in our techno-industrial world, and that any solution which did not question, criticize, and finally transcend this view was doomed to be shallow and ineffectual.[2] Naess was certainly not the only one in his time to criticize mainstream environmental thinking. The literary critic Leo Marx drew a distinction between a *conservationist viewpoint,* where "nature is a world that exists apart from and for the benefit of mankind" and an *ecological perspective*, where "man is wholly and ineluctably embedded in the tissue of natural processes." Ecology, for Marx, is "in the purest meaning of the word, radical,"[3] and of course unpopular, because it calls into question deeply held cultural assumptions and beliefs. Theodore Roszak's book *Where the Wasteland Ends* argues that the science of ecology is at a crossroads. He asks of ecology, "is it, too, to become another anthropocentric technique of more efficient manipulation?" or will it "recognize that we are to embrace nature as if indeed it

---

[1]Warwick Fox, *Toward a Transpersonal Ecology: Developing New Foundations for Environmentalism* (Boston: Shambhala Publications, 1990), p. 44.

[2]Arne Naess, "The Shallow and the Deep Long-Range Ecological Movements: A Summary," *Inquiry* (Oslo) 16 (1973): 95-100.

[3]Leo Marx "American Institutions and Ecological Ideals," *Science* 170 (1970): 945-52, 946.

were a beloved person."[4] Similar to Marx and Roszak's work, Timothy O'Riordan distinguishes between *technocentric* and *ecocentric* in his book *Environmentalism.* Technocentric approaches to ecosystem problems assume that "man is supremely able to understand and control events to suit his purposes," whereas ecocentric approaches advocate "the virtues of reverence, humility, responsibility and care."[5]

Besides having Devall and Sessions as dedicated spokespersons for deep ecology, what may help to explain Naess's relative success over Rozak and O'Riordan's work is his choice of wording itself. The "deep" of deep ecology suggests that the true way to develop an ecological conscience is to look beyond what is superficially given (society, technology, urbanization) to the underlying matrix, namely nature. Given the influence of Carson's book *Silent Spring,* it is no wonder that those who are disenchanted with the promise of technology should turn to a philosophy that tries explicitly to "articulate a comprehensive religious and philosophical world view."[6] In other words, a harmful world view in which technology is seen as a solution to our human and ecological problems can only be countered by proposing an alternative world view, one that refrains from the optimism and promise of technological solutions.

Deep ecology "tries to clarify the fundamental presuppositions underlying our economic approach in terms of value priorities, philosophy, and religion." Once the presuppositions are exposed and articulated, it is possible to see how they are fundamentally at odds with the needs and requirements of the natural world and the development of an ecological consciousness. For example, if we assume that humans are "isolated and fundamentally separate from the rest of Nature, as superior to, and in charge of, the rest of creation," then we can neither identify with the natural world nor understand how our fate is connected to the existence of others, and are unable even to begin "the search for our unique spiritual/biological personhood."[7] Such failures surely have a source, and their source, according to deep ecology, lies in the "dominant world view" of the Modern Western world.

It is no small task identifying the underlying assumptions of a world view, which has been in effect for four hundred years at least. It is best to examine the most important points with which deep ecologists take issue. Bill Devall, in his book *Deep Ecology,* uses the work of sociologists William Catton, Jr. and Riley Dunlap as a starting point in his discussion of the Modern Western world view which he characterizes in the following terms:

---

[4] Theodore Roszak, *Where the Wasteland Ends: Politics and Transcendence in Postindustrial Society* (London: Faber and Faber, 1973), pp. 403-404.

[5] Timothy O'Riordan, *Environmentalism,* 2nd ed. (London: Pion, 1981), p. 1.

[6] Bill Devall and George Sessions, *Deep Ecology* (Layton, Utah: Gibbs M. Smith, 1985), p. 65.

[7] Arne Naess, "The Deep Ecological Movement: Some Philosophical Aspects," *Philosophical Inquiry* 8, 1-2 (1986): 26-27, 17; Bill Devall, *Deep Ecology*, pp. 65, 67.

> 1. People are fundamentally different from all other creatures on Earth, over which they have dominion (defined as domination).
>
> 2. People are masters of their own destiny; they can choose their goals and learn to do whatever is necessary to achieve them.
>
> 3. The world is vast, and thus provides unlimited opportunities for humans.
>
> 4. The history of humanity is one of progress; for every problem there is a solution, and thus progress need never cease.[8]

These are the familiar Modern themes of domination, freedom, optimism, and progress. These themes are a useful place to begin the discussion of the connections between Modernity and the recovery project, as they are general enough to accommodate differing interpretations by environmental philosophers yet specific enough to be defining characteristics of the Modern age. Although these four themes are sometimes difficult to separate, it will become clear that the central problem of the Modern era, according to recovery philosophy, has mainly to do with the first characteristic: our separation from, and domination over, the natural world.

The old cosmic order of the Ancients and Medievals may have placed humankind above the animal kingdom but our place was still fixed *in the world* and preordained by God. We may have been ranked higher than animals and plants in the great chain of Being, thus allowing for some degree of dominion, but this dominion was tempered by the fact that we had our assigned place in creation. This assigned place in turn limited our actions in the world, thereby curtailing our freedom. Thus, for the premodern world domination did not necessarily mean complete separation and it was not linked to freedom, progress, and optimism. In pre-modern times, the people of Western Europe held the cultural principle of sufficiency. They worked to the point where having more would do no good because "the desire for more was in itself a rebellion against the order of the world."[9] Church and government, of course, had a vested interest in the order of the world and did their part in pre-modern times to maintain this principle. Part of the Modern condition, then, is the loss of our theological roots.

So "separation" as stated in the first point of the Western Modern world view must be understood as more than a product of a hierarchical ranking. Once we

---

[8]Bill Devall, *Deep Ecology,* p. 43. For the complete text, see William Caton, Jr. and Riley Dunlap, "New Ecological Paradigm for Post-Exuberant Sociology," *American Behavioral Scientist* 24 (September 1980): 15-48.

[9]André Gorz, *Critique of Economic Reason,* trans. Gillian Handyside and Chris Turner (New York: Verso, 1988), p. 112.

consider ourselves as *fundamentally* separate from the world, we can then use and fashion it according to our will. *How* we came to see ourselves as separate depends, in part, on which aspects of Modernity one wishes to emphasize. If Modernity is seen as the sum total of the various different types of institutions to which it has given rise (e.g., democracy and the capitalist economy), then one must look at these institutions to find the causes and assumptions which led to our feelings of separation from Nature. As an example of this strategy, Gus diZerga writes:

> One of the most distinguishing features that sets the contemporary world apart from earlier kinds of human society is its inhabitants' overwhelming reliance on abstract procedural rules, ideally applying equally to all, to guide interactions between each other. Such equality in status means that individuals can choose for themselves what purposes they will pursue and with whom they will pursue them. *No hierarchically imposed order of values or purposes governing the society as a whole.*[10]

These abstract procedural rules, whether they are aimed at regulating our economic, legal, or political interactions, do not take into account the needs or limitations of the natural world. Democratic rules, for example, constitute a contract that "leaves out those who cannot join it, that is, trees, rocks, rivers, animals, and so on."[11] John Rawls regards environmental issues to be "metaphysical" and thus considers nature's status and our relation to it as "not a constitutional essential or a basic question of justice." The scope and severity of environmental damage may mean that significant and radical changes must be put in place, which is in itself not compatible with liberal democracy's reluctance to undertake drastic changes.[12] This incompatibility causes some to be pessimistic about the likelihood that democratic institutions can deal effectively with such problems. William Ophul, for example, fears that "the return of scarcity portends the revival of age-old political evils, for our descendants if not ourselves."[13] Others are more optimistic. Christopher Stone argues that the social contract can be enlarged so that legal rights are extended to trees.[14] Regardless of the efforts of those who, like Stone, think that democratic institutions can accommodate the

---

[10]Gus DiZerga, "Re-thinking the Obvious: Modernity and Living Respectfully with Nature," *The Trumpeter* 14, no. 4 (Fall 1997): 185.

[11]Avner De-Shalit, "Is Liberalism Environment-Friendly?" *Social Theory and Practice* 21 no. 2 (Summer 1995): 287, 310.

[12]John Rawls, *A Theory of Justice* (Oxford; Oxford University Press, 1973), p. 512; John Rawls, *Political Liberalism* (New York: Columbia University Press, 1993), p. 246.

[13]William Ophuls, *Ecology and the Politics of Scarcity* (San Francisco: W.H. Freeman, 1977), p. 145.

[14]Christopher D. Stone, "Should Trees Have Legal Standing?" *University of Southern California Law Review* 45 (1972): 450-501.

needs of the environment, there is still a tension between the immediate need for environmental action and the ability of the democratic state to bring about such changes. The source of this tension, according to deep ecology, lies in the individualistic bent of liberal democratic politics and its economic system, i.e., capitalism. Solutions to environmental problems will most likely require collective action; but, as Ronald Dworkin writes, the rights which guarantee our liberty are in direct conflict with such goals:

> Individual rights are political trumps held by individuals. Individuals have rights when, for some reason, a collective goal is not a sufficient justification for denying them what they wish, as individuals, to have or to do, or not a sufficient justification for imposing some loss or injury upon them.[15]

Putting aside the discussion of capitalism for the moment, in response to the challenges posed by the democratic state, Naess himself is vague about the possible solutions. In point six of his deep ecology platform he suggests that "policies must therefore be changed. These policies affect basic economic, technological, and ideological structures. The resulting state of affairs will be deeply different from the present."[16] Exactly what form the political structure should take is not fully explicit in his works. What is explicit, however, is Naess' and other deep ecologists' insistence that their idea of self-realization "goes beyond the modern Western *self* which is defined as an isolated ego striving primarily for hedonistic gratification."[17] The self or "Self" (as they prefer) of deep ecology is one which identifies widely and deeply with the rest of existence, dissolving the boundaries between self and other. Warwick Fox summarizes the dissolution of boundaries in the following way: "We can make no firm ontological divide in the field of existence: That there is no bifurcation in reality between the human and the non-human realms . . . to the extent that we perceive boundaries, we fall short of deep ecological consciousness."[18]

The expanded Self of deep ecology has two important implications for democratic institutions. First, holding no firm divide between oneself and Nature means that fighting for ecological preservation is a form of "Self" defense. John Seed summarizes this position when he writes, "'protecting the rainforest' develops into 'I am part of the rainforest protecting myself. I am that part of the rainforest recently emerged into thinking.'"[19]

---

[15] Ronald Dworkin, *Taking Rights Seriously* (Cambridge, Mass: Harvard University Press, 1978), p. xi.

[16] Arne Naess, "The Deep Ecological Movement," p. 27.

[17] Bill Devall *Deep Ecology*, p. 67. See also Naess, *Ecology, Community, and Lifestyle*, trans. David Rothenberg (Cambridge: Cambridge University Press, 1989), p. 175.

[18] Warwick Fox 'Deep Ecology: a new philosophy of our time?' *The Ecologist* 14, no. 9 (1984): 196.

[19] John Seed *et al, Thinking like a Mountain: Toward a Council of All Beings* (Philadelphia: New Society Publishers, 1988), p. 36.

Ecological resistance has not remained entirely in the realm of theory. The radical environmental group Earth First!, founded by Dave Foreman, considers itself to be the direct action wing of the deep ecology movement, where ecotage, a form of sabotage in the name of the environment, is seen to be self-defense,[20] entailing acts of tree-spiking, destruction of mining equipment, removal of survey stakes, and so on. Where environmental laws, or the lack thereof, are considered unjust, practitioners of ecotage tend to appeal to higher principles, including the liberal tradition of defending minority rights, making their claims similar to the justifications given by activists during the rights revolution in the sixties and seventies. Where the rights revolution overturned unjust state laws by proving that they were unconstitutional, the defense of wilderness by means of ecotage does not have a legal parallel because the minority in this case is excluded from the contract. If ecotage were to become more widespread, then the democratic state would have to either increase its response, thus risking an escalation of violence (something generally distasteful to liberal democratic societies) or revise its basic assumptions to include those who are currently excluded. Since neither seems likely, and the philosophers of deep ecology tend to have an uneasy relationship with radical groups, the second implication of deep ecology's transpersonal Self for democratic institutions is demonstrated by their preference for smaller, more local forms of government.

If democratic states are seen as too impersonal and bureaucratic to effectively deal with environmental matters, then reducing the scale of governments becomes the logical option. Arguments for the preference of a community-based model of politics as opposed to a neutral liberal state are not new. For those mainly concerned with ecological sustainability rather than problems of alienation from the political process this model of politics includes the natural world in the community itself. Although the Self is extended and enlarged across borders, small local communities built on consensus decision-making are considered to be more compatible with a commitment to place and ecology. In the case of a "bioregional" community, a concept which Devall and Naess support, the lines of community are drawn by "the use of climatology, physiography, animal and plant geography, natural history and other descriptive natural sciences." The goal in bioregionalism is to live sustainably by living in place, which means that the community follows "the necessities and pleasures of life as they are uniquely presented by a particular site," and one of the major goals of the community involves developing ways to sustain the "long-term occupancy of that site." Decentralization is a necessary means of achieving this goal because the rules which govern life in a bioregionalist community can only come from those people "who have lived within it, through human recognition of the realities of living-in-place."[21] In short, bioregionalism is, for many, a serious option because it

---

[20] Christopher Manes, *Green Rage* (Boston: Little Brown and Company, 1990), p. 5.

[21] P. Berg and R. Dasmann, "Reinhabiting California," *The Ecologist* 7, no. 10 (1977): 399.

reconnects people with their environment in ways that a large, centralized, democratic nation-state cannot.

Besides the difficulties of involving the natural world in the democratic contract, perhaps the most widely criticized facet of Modernity is the economic institution with which democracy is often associated: the capitalist economy. The relationship between this economy and the liberal state is usually understood as follows: Given that individuals have certain rights which the state cannot violate (principle of liberty) and that people should have a voice in the decisions affecting their lives (principle of democracy), any action that involves a socially consequential exercise of power is subject to both principles. Since mainstream liberal theory holds that the capitalist system does not involve such an exercise of power, only the principle of liberty applies to the capitalist system.[22] Thus, even if democracy could somehow overcome the challenges which individual rights pose for collective action aimed at solving ecological problems, there is the added difficulty of making the private economic sphere *subject* to democratic public rule. While this certainly presents an obstacle for those wishing to solve environmental problems through democratic means, deep ecologists tend to be concerned only with the relationship between the natural world and capitalism, leaving state/economy issues to green economists and political theorists.

As one of the defining institutions of Modernity, there is no doubt about the problems which capitalism poses for the natural world. Although the themes of optimism, progress, and freedom are implicitly contained in capitalism, for now I shall limit myself to a consideration of the way in which deep ecology understands how capitalism fosters radical separation from and domination of nature. Most generally, it can be said that the capitalist economy gives us a set of priorities, which are, for the most part, disassociated from the natural world. André Gorz summarizes this thought nicely when he writes:

> from the moment when I am no longer producing for my own consumption, but for the market, everything changes. Then I need to learn to calculate: given the quality of my soil, would it be better to grow more green vegetables or potatoes? Would a motorized cultivator pay for itself in less than two seasons thanks to the increased production it would make possible? Instead of cutting my wood by hand, would it not be better to buy a circular saw which would save me time and which I could make pay for itself by cutting my neighbours' wood too? All this can be calculated, if I want to earn the wherewithal to enable my family to live and live 'adequately'. So, I must calculate the productivity of the soil, the amount of work necessary for different crops, the cost of tools, seeds, fuel and so on, and the productivity, that is the income which I can achieve in one hour of work depending on which crop I produce. So I will calculate,

[22]Herbert Bowles and Samuel Gintis, *Democracy and Capitalism: Property, Community, and the Contradictions of Modern Social Thought* (New York: Basic Books, 1986), pp. 66-67.

> and organize my life according to this calculation on *homogeneous, linear time schedules, which are insensitive to the natural rhythms of life.* [23]

In an agricultural setting, the "natural rhythms of life" may include beneficial and detrimental insect cycles, the fluctuating fungal bridges in the soil, the time it takes for animal manure to compost into usable fertilizer, the maturation times of vegetables, and so on. These are all subject to varying and complex weather patterns, predator and prey relationships, previous crop plantings, and the individual character of each plant. A careful gardener or farmer who produces solely for herself has strategies to take full advantage of the relationships between plant and soil or soil and insect. Left on their own without the use of chemical fertilizers and pesticides, growth accelerators, and hybridization, these cycles and relationships and their effects on crop yields are not easy to predict. For the home producer, the timing and amount of the yields are of little consequence, provided that some crops succeed when others fail. Home producers do not grow just *one type* of plant or crop, simply because they will not be eating *one type* of plant that year. With the exception of severe drought or hail, diversification in crops, even within the same species of plant, ensures that there will always be a harvest.

As Gorz maintains, producing for the market is entirely different. Agriculture is transformed from a way of life into an industry. The crops are no longer rotated to match the seasons, but instead they are planted according to economic profitability, export potential, and the return on capital.[24] The switch from subsistence agriculture to agribusiness usually entails abandoning the old ways of inter-cropping (different types of plants interspersed with each other according to their maturation times and mutually beneficial qualities) for monoculture, i.e., one type of plant on each plot of land. Although there are many reasons for this change, the first has to do with the use of technology in order to increase productivity. Inter-cropping is usually more labour intensive because the farmer must work around already planted and growing crops in order to harvest or plant another crop. Although intercropping is a more efficient use of land, as much more can be grown in a smaller space, it is difficult if not impossible to design a machine that could plant tomatoes around already growing lettuce heads or harvest corn that is surrounded by growing, maturing squash. Thus monoculture, with its neat, regular plants in neat regular rows, can accommodate the rigid requirements of technology.

The use of technology in agribusiness is not limited to machines. Subsistence agriculture, with its delicate balance of different plant cycles, means that frequent crop rotations are needed to let the land regenerate its fertility and to break any insect cycles which may have taken hold. For example, planting potatoes in the

---

[23] André Gorz, *Critique of Economic Reason*, p. 109 (my emphasis).

[24] Barry Jones, *Sleepers, Wake! Technology and the Future of Work* (Melbourne: Oxford University Press, 1983), p. 82.

same place year after year only helps the potato beetle establish itself. Plants that require a significant amount of nitrogen, e.g., fruiting vegetables, tend to do well when they can take advantage of the renewed nitrogen levels in the soil that were created by previous plantings of nitrogen-fixing legumes. The standardization that monoculture demands means that farmers are unable to make use of the delicate checks and balances that each species of plant provides for the other. Most importantly, these checks and balances, when successful, help to build the most important resource that a farmer can have: good soil. Good topsoil is not created in a laboratory, rather, as Wendell Berry maintains, "we can only care for it (or not), we can even, as we say, 'build' it, but we can do so only by assenting to, preserving, and perhaps collaborating in its own processes."[25] This is because good topsoil is alive. It is full of living creatures in a complex web of interdependency whose flourishing is technically indispensable to soil fertility. There is no substitute and no engineered replacement. Although it is possible to reduce soil to its inert elements and label it as sand, silt, peat, or clay based, this reduction is as accurate and useful as describing humans as carbon-based sacks of water. With its ability to drain and retain water at the same time, good topsoil is also able to control floods and erosion. The drainage and retention of water, in turn, defines the health and function of watersheds.

Building and preserving soil takes time, effort and patience. Agribusiness, with its reliance on chemical fertilizers and pesticides, mechanized planting, spraying and harvesting, and monoculture, shortcuts the processes developed by thousands of generations of farmers. To agribusiness, soil is not something to be preserved; it is not seen as a natural resource to be passed down to the next generation. Rather, it is merely the medium in which plants are grown, a place where they anchor themselves to the ground. For certain plants, smaller, specialized farming operations can make do without soil altogether, hence the hydroponic tomato farm. Chemical fertilizers are intended to feed the plant, but in doing so the high levels of nitrogen combined with the machinery required for application creates, over time, compacted, burnt, lifeless soil. Monoculture *breeds* pests because it encourages the establishment of insect cycles due to a continual, regular food source. Given the temporal pressures of the market, the only options available are *stronger* fertilizers, *stronger* pesticides, or the attempts to breed or bioengineer plants to be resistant to the very pests and drought conditions which monoculture encourages. In the capitalist market system a field lying fallow for a year does not represent an attempt to conserve a resource; it represents lost profit. Of course, the stress of agribusiness farming techniques will eventually render the field useless, even non-existent, since compacted, dead soil cannot hold water and is thus susceptible to wind erosion. Such things as long-term consequences, limits of the natural world, beings and processes which "move to their own rhythms, who follow the urgency of their own messages

[25] Wendell Berry, *Home Economics* (San Francisco: North Point Press, 1987), pp. 62, 63.

rather than those of the Rational Economy,"[26] are "externalities" and have no place in economic calculations. It may be the case that due to their complexity such beings and processes *cannot* be calculated. For example, how much is a healthy field worth in twenty, fifty, one hundred years? What is the current market value for fungal bridges or for ground-covering pursulane?[27]

Besides losing topsoil and unique cultivars, the move to agribusiness also entails the loss of knowledge and technique. Where we were once very adept at growing food in a sustainable fashion (after all, agriculture has been practiced for twelve thousand years) the demands of the capitalist market requires a switch from the *art* and *practice* of agriculture to the *business* of food production. What we lose, then, is one of the most basic relationships that we have with the natural world—the ability to feed ourselves in perpetuity.

How did this happen? Why are we now at the point where valuable species, topsoil and knowledge are being lost? The answer given by deep ecologists is that capitalism *instrumentalizes* the natural world. The market values nature solely for its use-value, and items that do not have a use-value are thereby considered worthless. At the moment, the only mechanism available to protect economically worthless organisms and ecosystems are state preservation programs. This strategy tends to work well as long as the areas conform to the wilderness ideal, i.e., a sublime awe-inspiring stretch of land. It is more difficult to protect specific landscapes, e.g., bogs, marshes, dunes or deserts, because these tend to be scattered amongst private lands, which precludes any attempt by the government to control and own these areas.[28] Since the market system has no mechanism to compensate or reward the farmer who preserves a swamp, it is to the farmer's benefit to drain it in order to create more cultivatable land.

It is important to note that use-value in economic terms is narrowly defined. In a complex biotic community, every member in that community, be it a frog, a bird or an insect, contributes to the well-being of the whole. In Aldo Leopold's image of a land pyramid, the result is "a tangle of chains so complex as to seem disorderly, yet the stability of the system proves it to be a highly organized structure. Its functioning depends on the co-operation and competition of its diverse parts."[29] Economic use, in contrast, is defined by how readily an item can be commodified, i.e., bought and sold in the market. The use value of an organism, then, is determined by *our needs*, not the needs of the broader biotic community. Writing about his home, Aldo Leopold observes that "most members of the land community have no economic value. Wildflowers and songbirds are examples. Of the 22,000 higher plants and animals native to Wisconsin, it is doubtful whether more than 5 percent can be sold, fed, eaten, or otherwise put to economic use."[30]

---

[26] Val Plumwood, *Feminism and the Mastery of Nature* (New York: Routledge, 1993), p. 193.
[27] A ground-covering plant that keeps the soil cool and stable.
[28] Aldo Leopold, *A Sand County Almanac* (New York: Oxford University Press, 1966), p. 228.
[29] *Ibid.*, p. 231.
[30] *Ibid.*, p. 225.

What happens to those organisms that cannot be commodified? Quite simply, they are eliminated, either intentionally or unintentionally, because "the Rational Economy will pay for and allocate space (increasingly privatized as a scarce resource) only to what it can use or what participates in it."[31] One of the best, albeit frightening, examples of the elimination of genetic diversity is told by Vandana Shiva in her analysis of the effects of the Green Revolution in India's Punjab region. The push to introduce monocropped and hybridized wheat and rice from multi-national seed companies working with the Indian government meant that the "custodian" role of peasants in breeding, storing, and developing some of India's 20, 000 varieties of rice was replaced, almost overnight, by a handful of hybrid varieties controlled by Western corporations. Seeds do not have an indefinite shelf-life, which means that if they are not planted, they lose their viability and will not germinate. The impact of the Green Revolution in India eliminated these indigenous varieties, which were bred over centuries, within a twenty to thirty year period. In addition, given that the Green Revolution failed to produce the anticipated abundance for farmers, many of the indigenous varieties were simply consumed as food rather than planted.[32]

According to Shiva, the reason the Green Revolution in Punjab failed was due to the fact that it was ecologically and socially unsustainable. Hybridized, monocropped wheat and rice are very resource-intensive and require external (chemical) sources of nitrogen and pest control. Diseases that were once a minor problem for the wheat crop, e.g., Karnal Bunt, were transformed into epidemics. Supplanting the traditional varieties of rice with the semi-dwarf varieties created in laboratories halfway around the world meant that industry had to frequently replace their hybrid varieties because they were not well adapted to the local growing conditions. From 1966 to 1986, eleven varieties were introduced to the fields in the effort to find a strain that would not be as susceptible to the increase of such diseases as rot disease, rice leaf folder, and brown spot. Besides multiplying problems at a ferocious rate, the reason for the Green Revolution's inability to sustain itself came from its choice to promote high-yielding varieties at the cost of soil fertility. The biomass of the traditional and high yield varieties are about the same; the difference is in the latter's grain-to-straw ratio. More grain with less straw meant that the fields were deprived of valuable fodder, which in turn created a lack of nutrients in the soil. The elimination of the restorative legume crops in favour of wheat and rice also deprived the fields of the chance of restoration. Within the confines of the market the only solution was more chemical fertilizer in an attempt to by-pass the lack of nutrient recycling.[33] The end result of the Green Revolution in Punjab was not farming, but theft:

---

[31]Val Plumwood, *Feminism and the Mastery of Nature*, p. 193.

[32]Vandana Shiva, *The Violence of the Green Revolution* (London: Zed Books, 1991), pp. 61-102.

[33]*Ibid.*, pp. 88, 91-93.

> So much soil fertility was bartered away for commercial gain, without the possibility of returning in any shape or form to the soil what was taken out of the soil, thus impairing it permanently. This is not agriculture, but down right robbery of the soil at the cost of posterity.[34]

The Green Revolution's inability to consider any other solution to these problems was primarily due to its connection with the market system. Behind the rhetoric of freeing "the Indian cultivator from the shackles of the past"[35] through freedom, progress, and optimism are companies such as Monsanto, Dow Chemical, Chevron Chemicals, Shell Chemical Company and Union Carbide.[36] How did market logic create such problems? Shiva's answer is terse:

> Biological products not sold on the market but used as internal inputs for maintaining soil fertility were totally ignored in the cost-benefit equations of the Green Revolution miracle. They did not appear in the list of inputs because they were not purchased, and they did not appear as outputs because they were not sold.[37]

Thus, the market system eliminated those items which could not be readily commodified, e.g., animal dung, fodder, marginal legume crops, even though those items had their use in maintaining soil fertility. Modern themes of progress, optimism, and freedom enter here. It should be evident that fertile soil does not entail a potentially unlimited agriculture. Maintaining soil fertility *means* working within the limits imposed by Nature. As long as those limits are respected, there is the possibility of farming indefinitely, barring major climatic or geological change in the area. The Green Revolution saw these limits as "constraints" on productivity and therefore as limits on freedom. Also, a certain amount of optimism is required to think that chemical technologies developed in laboratories could replace thousand year old field-tested farming methods. Given the involvement of major chemical and agri-business companies in Punjab and the contrasting scarcity and hardship that befell the farmers, the freedom, optimism, and progress are certainly one-sided. Instead of prosperity, Shiva asserts that the local farmers faced "growing disparities among classes" and "increased commercialization of social relations."[38]

Traditional ways of farming support traditional ways of life. Unlike the West, where agriculture is seen more and more as *food production*, in places where life revolves around subsistence agriculture the people cannot help but experience

---

[34]Pyarelal in M K Ghandi, *Food Shortage and Agriculture* (Ahmedabad: Navjivan Publishing House, 1949), p. 185.

[35]A. S. Johnson 'The Foundations Involvement in Intensive Agricultural Development in India', in *Cropping Patterns in India* (New Delhi: ICAR, 1978), p. 45.

[36]Vandana Shiva, *Green Revolution*, pp. 40-41.

[37]*Ibid.*, p. 118.

[38]*Ibid.*, p. 173

social ramifications when their work methods are changed. Punjab is only one of many regions that have experienced social turmoil due to a redesign of agricultural practices. James C. Scott's examination of forced villagization in Tanzania during the early 1970s reveals many of the same attitudes and results. The Tanzanian government in cooperation with Western agricultural specialists implemented policies to move millions of traditionally pastoral farmers into state designed "ujamaa" villages. Behind these policies was a "complete faith in what officials took for 'scientific agriculture' on the one hand and a nearly total skepticism about the actual agricultural practices of Africans on the other." Socially, villagization resulted in "an alienated, skeptical, demoralized, and uncooperative peasantry."[39]

The disastrous results of replacing slow but complex natural processes with one-way inputs of chemical fertilizers and pest control confirms that *sustainability* is related to *diversity*. These natural processes are unpredictable, complicated, and rely on skilled workers and their techniques. A simplified, streamlined system with minimal parts, in contrast, satisfies the managerial demands of predictability, uniformity, control, efficiency, and profitability. An agricultural system that has a regular input and regular output of goods fits well with the requirements of the market because it is then indistinguishable from any other industry. It is irrelevant whether cars or corn are produced; the specific identity of the item is lost when it becomes a commodity that is bought and sold on the market. If the concern is not economic growth but ecosystem sustainability, however, then it is easy to conclude through the study of places like Punjab and Tanzania that the elimination of diversity means the loss of ecosystem and social stability and sustainability.

At this point, the diversity-stability thesis in ecology needs to be addressed. Once considered a hallowed law in ecology, some recent research has called into question this causal connection. "Stable," it seems, is not a good adjective to apply to ecosystems. Chaotic, dynamic, and continually subject to outside disturbances may in fact be the norm, but as Daniel Goodman maintains, this does not mean that environmental philosophers (or even the general public) want to revise their understanding of ecosystems in light of this research. The connection between stability and diversity "is the sort of thing that people like, and want, to believe."[40] Why might belief in this connection be a matter of wishful thinking? For those who are impressed with the diverse number of creatures in nature, it is difficult to imagine that any of them might be redundant or useless. If some of

---

[39]James C. Scott, *Seeing like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven: Yale University Press, 1998), pp. 226, 237.

[40] Daniel Goodman, "The Theory of Diversity-Stability Relationships in Ecology," *Quarterly Review of Biology*, 30 (1975): 261. See also H. Degan *et al, Chaos in Biological Systems* (New York: Plenum Press, 1987); J. Gleik, *Chaos: The Making of a New Science* (New York: Viking, 1987); D. Botkin, *Discordant Harmonies: A New Ecology for the Twenty-first Century* (New York: Oxford University Press, 1990); S.T.A. Pickett and P.S. White, *The Ecology of Natural Disturbance and Patch Dynamics* (Orlando, Fl.: Academic Press, 1985).

these species are threatened with extinction, then arguments for their continued protection lose part of their normative force if it is assumed that "the planet's complement of species may not be rivets holding Spaceship Earth together."[41]

Regardless of the final word given by ecologists, the analyses provided by Vandana Shiva and James C. Scott suggest that at least where there is human interaction with the natural world, as in the case of agriculture, maintaining diversity benefits both the ecosystem and ourselves. It may very well be that some species are redundant, e.g., tigers and rhinos, but given the complexity and *chaoticness* of ecosystems, any lasting changes that agribusiness brings about in cultivatable land impose an entirely different set of energy flows and nutrient levels. Agri-business has not performed any detailed investigations to determine *which* parts can be taken out of the whole picture; rather, it assumes that "soil fertility is produced in chemical factories, and agricultural yields are measured only through marketed commodities."[42] In other words, agribusiness proceeds as if *all* of the parts are potentially redundant and the ones we do use can be replaced with commodified substitutes. In addition, optimistic faith in our own ingenuity contributes to the belief that replacing Nature's parts with commodified substitutes *is* possible and that there will be no harmful long term consequences. If there are any harmful consequences, our belief in progress convinces us that a solution will be found.

For recovery philosophers, the example of capitalism's mishandling of agriculture shows how this Modern institution has severed the ties, built up over centuries, between ourselves and nature. While not always perfect, the sustainable farmer-land relationship is one of the most important and successful interactions we have with the natural world. The replacement of agricultural practices that respond to the demands of Nature with ones that conform to the demands of the market has created a situation where our own lives are potentially at risk. Not only does capitalism threaten our own existence, it also threatens other species. The destruction of rainforests in Brazil in order to support Western beef consumption, the elimination of old-growth forests for export, strip mining in wilderness areas, illegal poaching in Africa for the Asian medicinal market, and so on, are all causes of species extinction. These examples illustrate the Modern *instrumental* stance towards the natural world, and it is this attitude in particular, according to recovery philosophy, that creates the impression of our radical separation from and domination over nature.

Eco-feminist Val Plumwood provides a useful conceptual analysis for understanding the radical separation between us and nature. Human/nature relations, Plumwood argues, are dualistic; that is, they are formed through a

---

[41] J. Baird Callicott, *Beyond the Land Ethic: More Essays in Environmental Philosophy* (Albany: State University New York Press, 1999), p. 119.

[42] Shiva, *Green Revolution*, p. 118. There is some evidence gathered by ecologists studying the drought effects on prairie grasslands to suggest that the stability-diversity hypothesis is, in fact, correct. See D. Tilman and J.A. Downing, "Biodiversity and Stability in Grasslands", *Nature* 367 (1994): 363-65.

"denied dependency on a subordinated other." In contrast to simple dichotomies or distinctions, dualisms create identities for both terms through backgrounding (denial of dependence), hyperseparation, incorporation, instrumentalism, and stereotyping. Some examples of such dualisms that pervade Western culture are: male/female, human/nature, mind/body, subject/object, self/other, master/slave. The relationships between the paired terms are not in any sense equal or mutual; rather, they are akin to that of a colonizer and colonized. Dualisms appropriate and incorporate the colonized into the master's culture, and this culture forms their identities.[43] Our culture depends on nature for its raw materials, but we tend to deny this dependency. Incorporation, for example, means that the master maintains an identity radically distinct from that of the slave's, while at the same time denying the slave any distinction of his or her own. Deprived of a positive identity, the slave is readily instrumentalized because he or she is considered to have no interests or needs of his or her own. Reduced to the status of a mere instrument and lacking individuality, the slave is easily stereotyped and homogenized.

The power that dualisms hold over Western culture is due to their "linking postulates," i.e., "assumptions normally made or implicit in the cultural background which create equivalences or mapping between the pairs."[44] Man/woman, culture/nature, master/slave, mind/body, reason/emotion, and public/private may appear to be different sets, but there are strong associative links between those who occupy the first position in the pair and those in the second. For example, women are not just *different* than men, they are different because they lack reason and are thus more bodily, more natural, and more emotive. This in turn helps to justify their role as domestic slaves in society, a private (not public) matter. If nature is completely different from culture, then it too can be a matter of private (not public) concern, and can be completely instrumentalized. Through the institutional exercise of power, what used to be a mere difference between any ordered pair (men and women *are* different) is now a yawning gap such that any similarity between the two is difficult to conceptualize.

As mentioned, instrumentalism is but one feature of the greater problem of dualisms. Ecofeminists such as Karen Warren and Val Plumwood argue that the structure of dualisms entails the conceptual linking of the oppression of women with the oppression of nature. Any environmental philosophy that considers these two issues as separate will not achieve its goal of emancipating nature because it will fail to understand that nature's emancipation depends upon women's emancipation. Although not all recovery philosophers think that women's oppression is necessarily involved with nature's oppression, there *is* some agreement as to the seriousness that instrumentalism poses for our relationship to the natural world.

---

[43] Plumwood, *Feminism and the Mastery of Nature,* pp. 41, 47-55.

[44] *Ibid.*, p. 45.

In general, regarding the natural world solely as a means to our ends prohibits the recognition of "the other as another self."[45] Selfhood, in ethics, entails individuality but we can only begin to understand "earth-others" as irreplaceable individuals with their own goals and needs when we abandon the arrogant eye, as Marilyn Frye calls that viewpoint which sees the world as a resource for our exploitation.[46] The arrogant eye divides the world into means and ends, neatly categorizing items according to their use-value and their intrinsic value, thus creating a hyper-separation between the two. This "sharp boundary instills the necessary confidence about who is the other, and who is the master for whose wants and needs the universe is conveniently available."[47] For Plumwood, the sharp boundary is helped by mobilizing other dualisms (e.g., mind *uses* the body, humans *use* nature, and so on) to support the separation of a kingdom of means from the kingdom of ends. The dualisms present in Western culture leave no doubt as to who is the predator and who is the prey.

In the kingdom of ends lies the claim that humans have inherent worth, independent of the merits or capacities each may have. Similar to previous social class-structures, the hierarchy that we have imposed on the earth's organisms ranks the worth of a species simply "on the basis of its genetic background," and reserves intrinsic value solely for us. Special consideration may be given to higher organisms like whales or dolphins due to sentiment, but "their well-being imposes no moral requirement on us."[48] We can only be *commanded* by another to take their needs into account if they possess intrinsic value. If the "earth-other" is regarded only as an instrument to satisfy our needs, then environmental philosophy must argue that the preservation of plants, animals and ecosystems is of greater usefulness than the economic benefits derived from mining, forestry, hydro-electric dams, and so on.

A better strategy, according to some, is to establish the intrinsic worth of nature. Intrinsic value shifts the burden of proof because an entity with intrinsic value cannot be made to suffer or be eliminated without sufficient justification. On this point, Warwick Fox writes:

> If, however, the nonhuman world is considered to be *intrinsically* valuable then the onus shifts to the person who wants to interfere with any entity that is intrinsically valuable is morally obliged to be able to offer a *sufficient justification* for their actions. Thus recognizing the intrinsic value of the nonhuman world shifts the *onus of justification* from the person who wants to protect the nonhuman world to the person who wants to interfere with it—and that, in itself, represents a

[45] *Ibid.*, p. 150.
[46] Marilyn Frye, *The Politics of Reality* (New York: Crossing Press, 1983), p. 67.
[47] Plumwood, *Feminism and the Mastery of Nature*, p. 145.
[48] *Ibid.*, p. 146.

> fundamental shift in the terms of environmental debate and decision-making.[49]

Anthropocentrism: Modernity and Rationality

Given the possible benefits of acknowledging the intrinsic value of nature, it is no surprise that this issue is "the central and most persistent cluster of problems in theoretical environmental philosophy."[50] In light of the problems that Modernity creates for our relationship with nature, the question arises for recovery philosophers: What specific feature of Modernity prohibits us from granting intrinsic value to the natural world?

In a word, the answer to this question is *anthropocentrism*. If we can use or destroy any part of nature without having to give a justification beyond the private utility (to someone) of doing so; if it is just *assumed* that the natural world exists as so much raw material for our economy and lifestyle, then surely this must mean that we regard ourselves as the only source and center of value. Given how Modernity assumes and supports our separation from the natural world, both practically with its institutions and conceptually with its dualisms, when the issues of value and ethics comes to the fore it is understandable that our separation would also lead us to believe that we are the "crown of creation, the source of all value, the measure of all things."[51] Given that anthropocentrism is widely addressed by environmental philosophers, it would be difficult to find one definition that would satisfy everyone. It is possible, however, to identify four aspects of the concept that can be ranked from the mildest to the strongest form:

1. Human situatedness, i.e., human views are necessarily human and are conditioned by historical and cultural factors.

2. Humanity as the *source* of all value, i.e., the existence of values depends on a valuer, which is invariably, necessarily, a human being.

3. Humanity as the *center* of all values, i.e., intrinsic values only apply to us--anything else has instrumental value.

4. Humanity as requiring no justification for treating the natural world in any manner we wish, i.e., human chauvinism.

The first and second formulations are often considered to be the weak or trivial formulations of anthropocentrism by environmental philosophers, not

---

[49] W. Fox, "What does the Recognition of Intrinsic Value Entail?" *The Trumpeter* 10, no. 1 (Winter 1993): 101.

[50] J. Baird Callicott, *Beyond the Land Ethic*, p. 14.

[51] John Seed, "Anthropocentrism," appendix E in Devall and Sessions, *Deep Ecology*, p. 243.

including deep ecologists.[52] Human views are of course human, and although we assign value to the things in the world, this does not necessarily mean that we must reserve value only for ourselves. As J. Baird Callicott argues, "subjects are valu*ers*. And we subjects are almost always valu*ees* because we almost always value ourselves. But mere objects too are routinely valuees."[53] The danger of anthropocentrism in this view is not that we have a human point of view, or even that the value of items depends on us. Rather, reserving intrinsic value for ourselves tends to create a special status for humanity, which in turn is often used to justify our deplorable behaviour towards the rest of nature.

The division between strong and weak anthropocentrism depends on how one regards human situatedness and the ontological status of intrinsic value. If one argues for the existence of objective intrinsic values in nature, then one is more likely to see proposition two as an anthropocentric assertion. For example, in his arguments for objective intrinsic value, Holmes Rolston III criticizes J. Baird Callicott's anthropo*genic*[54] account of intrinsic value as a "strained saving of what is really an inadequate paradigm, that of the subjectivity of value conferral." When humans play the role of valuers, any noble sentiment like "let the flowers live!" will ultimately be reduced to "leave the flowers for humans to enjoy," because flowers, or any other being in nature, are "valuable—able to be valued—only by humans."[55] If left to depend on human subjects, Rolston seems to fear that the ethical status of other living things will inevitably descend from the intrinsically valuable to the instrumentally valuable.

Some philosophers want to push the definition of anthropocentrism back even further to the first proposition: human situatedness. One might think that Nietzsche's insight (all values are perspectives and are therefore conditioned by cultural and historical factors) has been widely accepted by environmental philosophy. Deep ecology, however, maintains that human situatedness is a limitation that can and should be overcome. They consider nature, as well as values, to be objectively real. Cultural or historical factors do not *meaningfully* condition humanity.

For Arne Naess, the ultimate premise of his eco-philosophy—the point from which all other deep-ecology principles derive—is the imperative of "Self-Realization." This Self should not be understood as a "modern Western *self* which is defined as an isolated ego striving primarily for hedonistic gratification,"

---

[52] Val Plumwood, *Feminism and the Mastery of Nature*, p. 213, and Warwick Fox, *Transpersonal Ecology*, pp. 20-21.

[53] J. Baird Callicott, *Beyond the Land Ethic*, p. 224.

[54] This is the view that intrinsic values arise out of the interaction between the subject, a valu*er* and the perceived object, the valu*ee*.

[55] Holmes Rolston III, *Environmental Ethics*: *Duties to and Values in the Natural World* (Philadelphia: Temple University Press, 1988), p. 116. For other arguments supporting the objective intrinsic values in nature see: Peter Miller, "Value as Richness: Toward a Value Theory for the Expanded Naturalism in Environmental Ethics," *Environmental Ethics* 4, no. 2 (Summer 1982): 101-14; Paul Taylor, "The Ethics of Respect for Nature," *Environmental Ethics* 3, no. 3 (Fall 1981):197-218.

but rather as a whole that encompasses and connects all of existence.[56] Recall Warwick Fox's assertion that we cannot make any categorical ontological divide within the field of existence. Any existing self will therefore be ontologically continuous with every other existing thing, and the final whole is the universal Self. For those who want to cultivate a "deep ecological consciousness," the intention of "Self-realization" is less an attempt to reach a particular place, more an active condition in which one should live. Human particularity, then, acts as a hindrance towards developing this consciousness. We become mired in our own historically and culturally conditioned situatedness. Hence deep ecology's persistent imperatives, e.g., "Think like a mountain!" "Self-realization!," and its appreciation of Gary Snyder's poetry, e.g., "This living flowing land/is all there is, forever/ We are it/ it sings through us—We could live on this Earth/ without clothes or tools!"[57]

In light of deep ecology's understanding of the Self, one may want to conclude that deep ecology has a similarity with Modernism in that they both strive to suppress context or situatedness. The crucial difference, however, lies in the distinction between the different goals of the experiencer and the observer. Deep ecologists advocate leaving city life behind and venturing out into the wilderness, because "to travel into the wilderness is to go to our aboriginal source...it is by homecoming to enjoy an essential reunion with the earth."[58] Muir and Thoreau are imporant sources for this current in deep ecology. They are also philosophers who hiked regularly in the woods and then wrote inspired works about their experiences. Native American experiences and their natural ways of life also figure prominently in the deep ecology literature as "many supporters of the deep ecology movement claim to have been particularly influenced in their ideas by indigenous perspectives."[59] Deep ecologists generally hold that "nature exists independently of humans." Alan Drengson thinks that the point of wandering in the woods is to "discern Nature's will with minimum human interference." The goal is ecological living, which depends on understanding nature's will. With the right amount of attentiveness the natural world is "knowable unmediated by social concepts."[60] Despite the problematic epistemology this assertion implies (which will be examined in chapter three), the point of attempting to transcend our particularity is to gain access to nature's objective reality. Anything less, they argue, leads us down the problematic path to human chauvinism. It is important to stress that for deep ecologists human situatedness is about more than Nietzsche's claim that all values are necessarily *human* values. Humanity's

---

[56]Arne Naess, *Ecology, Community and Lifestyle*, p. 8.

[57]Bill Devall, *Deep Ecology*, p. 67; Gary Snyder, "By Frazier Creek Falls,' *Turtle Island* (New York: New Directions, 1974), p. 45.

[58]Holmes Rolston III, *Philosophy Gone Wild* (Buffalo, N.Y.: Prometheus Books, 1986), p. 224.

[59]Annie L. Booth, "Who am I? Who are You? The Identification of Self and Other in Three Ecosophies," *The Trumpter*, 13, no. 4 (Fall 1996): 161.

[60]Alan Drengson, "How Many Realities?" *The Trumpeter* 13, no. 1 (Winter 1996): 2.

relationship to nature is more than an ethical issue. As we shall see, it involves epistemological, metaphysical, and ontological considerations.

By contrast, in the Modern scientific tradition the observer attempts to rid him or herself of any presuppositions in order to arrive at the objective truth of the phenomena. The result is an atomized, isolated subject who is supposedly purged of any relation with the object. Of course this is not the sort of subject that deep ecology supports, as the point of deep ecological thinking is to celebrate the relatedness of all things. The goal of the Modern scientific tradition's search for truth is not exactly benign either. Deep ecology shares a view held by many other recovery philosophers, who understand the scientific project of the last few centuries as an attempt to gain mastery and control over the natural world for the benefit and betterment of mankind. Francis Bacon's famous creed, "knowledge is power" is the rallying cry of the Modernist era, where knowledge *of* nature means power *over* nature. The wide acceptance of this understanding of Modern science among environmental philosophers allows Eric Katz to confidently assert:

> This policy (domination of Nature) has been the central project of Western civilization since the Enlightenment, and although it has proven in many respects to be a failure, its fundamental meaning and motivation are clear: the primary goal of Western civilization, especially Western science and technology, has been the control and domination of nature for the promotion of human benefit—the human imperialism over nature.[61]

With such explicit statements from Francis Bacon encouraging us to "endeavour to establish and extend the power and dominion of the human race itself over the universe" in order to "recover that right over nature which belongs to it by divine bequest,"[62] how could one not be convinced that domination was the goal of the Modernist scientific project?

How the Modern scientific method was able to subdue and dominate nature will be examined later; however, the justification for our domination needs to be considered. Domination requires that we see ourselves in a superior light with respect to the rest of creation. The third version of anthropocentrism I distinguished above, which states that only humans have intrinsic value, is a necessary condition for the fourth and strongest version of anthropocentrism, namely, human chauvinism.[63] It is important to understand that third proposition

---

[61]Katz, *Nature as Subject*, p. 138.

[62] Francis Bacon, *The Instauratio Magna Part II: Novum Organum and Associated Texts*, eds., Graham Rees and Maria Wakely (Oxford: Clarendon, 2004), pp. 114, 115.

[63]"Intrinsically valuable, superior humans" may only give a *necessary*, but not sufficient condition for the justification of human chauvinism. Karen Warren argues that superiority does not necessarily imply subordination; see "The Power and the Promise of Ecological Feminism", *Environmental Ethics* 12, no. 2 (Summer 1990): 125-146. The focus for this chapter is not whether these arguments for domination of the natural world are logically coherent or rationally persuasive, but only to elucidate their strong connections to Modernity.

as containing a hidden assumption: Humans are the center of all values *because we are superior to everything else.* For recovery philosophy, this assumed superiority and its justification for human chauvinism stand as the conceptual center around which criticisms of instrumentalism, capitalism, and other themes and institutions of Modernity revolve. Our superiority sets us apart from everything else. *We* are the crown of creation, the intrinsically valuable, the masters of the world. What's to stop us from using ivory from endangered animals to play Mozart? Who's going to prevent us from using monkeys to cure sick children? Who's more important, a rhesus monkey or a human child? To many, the answer seems obvious. Here reasoning stops and attitude begins. Thus the fourth form of anthropocentrism is also the strongest form. As the strongest, it epitomizes an entire world view.

World views are usually not subject to debate. Rather, they form the framework created by a set of assumptions within which problems and their solutions are understood. As demonstrated with the switch to market-friendly agricultural techniques, the solutions to the problems created by this switch mean a greater reliance on industrial technology, not a reevaluation of the agronomist's basic assumptions. Four hundred years of Modernity have engendered a way of being and acting that is ecologically destructive yet widely and mostly unconsciously accepted. Naess' imperative "Self-Realization!" is as much a wake-up call to the masses as it is a philosophical goal. Thus, deep ecology's main criticism of Modernity is that Modernity creates the attitude of human chauvinism. Combating this world view means uncovering and discrediting the underlying assumptions that support the attitude of domination. As I have shown, deep ecology argues that the roots of human chauvinism go all the way back to proposition one, human situatedness.

Human superiority is often understood as the superiority of reason. Although the idea of humans as rational animals can be traced back to ancient Greek philosophy and thus should not be understood as a particularly *modern* thought, when taken together with the goal of progress through scientific advancement, rationality exercises "power over the natural world rather than escaping from it or rising above it through death or right living."[64] Here, then, lies the marriage of Descartes and Bacon. As the "father of Modern philosophy" and the philosopher most thoroughly convinced of the awesome powers of reason, Descartes added important qualifications to Bacon's famous adage; (infallible) knowledge (gained from the exercise of reason) is power. And the purpose of this power is to aid us in assuming the role of "masters and possessors of nature;"[65] in other words, to enslave Nature.

There are two aspects to Modernity's conception of rationality: rationality as a distinguishing feature of humanity, and its employment for the domination of

---

[64] Plumwood, *Feminism and the Mastery of Nature*, p. 110.

[65] René Descartes, *Descartes' Philosophical Writings*, ed. and trans. Normal Kemp Smith (London: Macmillan, 1952), p. 151.

nature. It would be a mistake, however, to treat these two features as separate and unrelated because their combination has consequences for the Modern conception of nature. Recalling Plumwood's analysis of dualisms, the relationship between master and slave is characterized by hyper-separation and hierarchical definition. Hyper-separation means that the master cannot or does not acknowledge any similarities to the slave. Whatever positive quality the master possesses, it belongs to the master alone, ensuring that their two worlds are kept as far apart as possible. Adding the feature of hierarchy to the dualistic relationship, the slave cannot claim for him-or herself any positive qualities of his or her own. This means that his or her qualities will always be defined as the lack of the master's positive qualities. It is easy to recognize how any attributes of the first member of such dichotomies (rational, autonomous, free humans) will generate the opposing term on the other side (irrational or instinctual, instrumental and mechanical Nature). Nature is stripped of positive qualities. The powers of enchantment, subjectivity, autonomy and self-generation once attributed to it by ancient cultures are purged in the Modernist era, thereby rendering it as lifeless and mechanized, suitable for domination.[66]

The old Aristotelian conception of "rational animal" still allows some continuity between us and the natural world. We are animals, specifically rational ones. Descartes rejects this concept, preferring to cleave man into two distinct substances, mind and body, *res cogitans* and *res extensa.* To mind is attributed all the qualities traditionally associated with personhood, most importantly, thought or consciousness: "what then am I? Descartes asks. "A thing that thinks." To the rest of the world (including the body) go all the qualities associated with a mechanized universe, e.g., materiality, ("[the body] can be moved in various ways, not by itself but by whatever else comes into contact with it"), and the simplicity of mere extension as its essence. In the Cartesian universe the mind is the only active substance, for "the power of self-movement, like the power of sensation or of thought, [is] quite foreign to the nature of a body."[67] Deep ecologist Peter Miller summarizes the ethical implications of Cartesian philosophy:

> Descartes . . . can fairly be blamed for providing the metaphysical underpinnings for a value anthropocentrism by stripping material nature beyond the mind to a minimal set of physical properties ultimately rooted in the singular physical essence of extension, which lacks both the contingency and complexity needed to house the values we recognize, say, in living things. And once that is done, moral anthropocentrism receives a further boost, for even if one were inclined to stray beyond the bounds of concern that the humanists prescribe and respect values found in non-human nature, one would

[66]Marshall Berman, *The Reenchantment of the World* (Ithaca, NY: Cornell University Press, 1981), p. 86.

[67]Descartes, *Philosophical Writings*, pp. 83, 81, 80-86, 81.

> appear to have lost any metaphysical basis for doing so: the values are not there to respect.[68]

How easy it is, if inert, material nature has no more agency than Descartes' dressing gown, for the active to dominate the passive! More importantly, what reason could one give to prohibit us from doing so? As we shall see in the next chapter, recovery philosophy argues that based on what we know of ecosystem theory, the Cartesian conception of humanity and nature is simply wrong.

In her book *The Death of Nature*, Carolyn Merchant claims that the "fundamental social and intellectual problem for the seventeenth century was the problem of order." The gradual acceptance of the metaphor of the machine put forth by Marin Mersenne (1588-1648), Pierre Gassendi (1592-1655) and René Descartes (1596-1650) was an antidote to the specter of uncertainty raised by the radical ideas of the Reformation which placed emphasis on individual interpretation.[69] Rejecting ideas associated with "change, uncertainty and unpredictability," the mechanists:

> transformed the body of the world and its female soul, source of activity in the organic cosmos, into a mechanism of inert matter in motion, translated the world spirit into a corpuscular ether, purged individual spirits from nature, and transformed sympathies and antipathies into efficient causes. The resultant *corpse* was a mechanical system of dead corpuscles, set into motion by the Creator, so that each obeyed the law of inertia and moved only by external contact with another body.[70]

The Modernist conception of nature is something to which I will return in chapter four as ideas of the "wildness" of nature form the distinct opposite to the mechanical view. For now, Merchant's identification of order as the central concern of the 17th century helps to introduce Eric Katz's interpretation of anthropocentrism and his indictment of another key Modernist figure: John Locke. Katz is sympathetic to Merchant's thesis. The "death" of nature achieved through the imposition of the machine metaphor means that "humanity has done more than influence natural processes. It has done more than "tame" wild nature for the increased comfort, wealth, and power of human beings." Through the use of technology and science we have attempted to "create an artificial or artifactual world that produces the most benefit for human beings."[71] Katz seems to imply that this project of creating an artifactual reality for our comfort and convenience, if completely successful, would sound the death knell for nature, as it would bury

---

[68]Peter Miller, "Descartes' Legacy and Deep Ecology," *Dialogue* 28, no. 2 (1989): 186.

[69] Carolyn Merchant, *The Death of Nature: Women, Ecology, and the Scientific Revolution* (San Franscisco: Harper & Row, 1980), pp. 192, 194.

[70]*Ibid.*, p. 195.

[71]Katz, *Nature as Subject*, p. 138.

any remaining wildness under an artificial civilization. Given that creating an artifactual reality requires an imposition of order on a disorderly, unruly wildness, an important and necessary step in this process is the way in which land itself was allocated and valued in the 17th century.

For Katz, Francis Bacon may be guilty of forming the methods and purposes of Modern science but it took John Locke to explicitly establish "the traditional modern world view of the human relationship with the natural environment." The key for Katz is Locke's association of anthropocentrism with instrumentalism. Katz interprets the term anthropocentric to mean "those values, goods, and interests that promote human welfare to the near exclusion of competing nonhuman values, goods, and interests," which in turn usually entails that the natural world is instrumentalized or "viewed as a resource valuable only as it promotes the human good."[72] In his *Second Treatise of Government*, Locke's aim was to establish the legitimacy of a representative government as an alternative to the divine right of kings and their arbitrary powers. Given that governments exert power over their subjects, the only way that this power can be justified is through free consent: "The only way whereby any one divests himself of his Natural Liberty, and *puts on the bonds of Civil Society* is by agreeing with other Men to joyn and unite into a Community."[73] A necessary condition of granting that consent is the existence of the natural right of property, which ensures that one has the means to guarantee the maintenance of life. Without such means consent is empty and meaningless. Although this right to property exists in the state of nature, it is subject to two limitations: 1) taking no more than one is able to use, and 2) leaving enough for others. The way in which land becomes property is through the mixing of labour with the land. Thus, our presence and labour changes the fallow wasted fields into something useful for our betterment. Locke even went so far as to define the value of the natural world itself in terms of its usefulness, "the intrinsick value of things...depends only on their usefulness to the Life of Man."[74]

For this Modern thinker, then, it is easy to understand how nature is instrumentally incorporated into human affairs. On its own, nature is mostly worthless; no agency, no intrinsic value, its purpose defined as serving our needs and goals. Recalling the prior discussion of the challenges that liberal democratic institutions face when confronted with environmental issues, and given Locke's importance for democratic theory, perhaps the reason why nature cannot enter into the contract is because the contract itself depends on the instrumental use of nature. Rethinking nature as property could possibly entail a rethinking of the social contract itself. This may be an overstatement of the situation faced by democratic institutions, but it does underscore Katz's insistence that Locke's ideas

---

[72]*Ibid.*, pp. 224, 150.

[73]John Locke, *Second Treatise of Government,* ed. Thomas P. Peardon (New York: Liberal Arts Press, 1952), chapter VIII, paragraph 95; V, 31.

[74]Locke, *Second Treatise of Government,* chapter VIII, paragraph 33; V, 37.

"concerning the value and meaning of nature and property established the primacy of the anthropocentric use-values of natural resources."[75]

In summary, for recovery philosophers, Modernism represents the cultural effort to create a vision of humanity as separate from and dominant over the natural world. Merchant and Plumwood's analyses show that this dissection of the world not only creates a superior status for ourselves; it also reconfigures nature as a passive backdrop for our activities, be they economic, political, or cultural. Tame, regular nature is easy to manipulate yet difficult to value intrinsically. Capitalism responds to this tamed nature by instrumentalizing it, and in doing so reinforces its passivity. Given the world's inequitable class structure under the capitalist system, miscalculations, as in the Green Revolution in India or villigization in Tanzania, are not fully felt by those who are acting and directing others in the name of progress. When the optimism of the Green Revolution began to fade in the 1980s, it was not the CEOs of Monsanto and Cargill who committed suicide by drinking pesticides; it was the farmers. Shiva's analysis of the Green Revolution in India demonstrates that bringing complex cultural and ecological relationships under the strict dictates of economic reason cannot be done without eliminating some of the important relationships and entities along the way. Punjab lost its fertile soils when the application of chemicals was substituted for the more sustainable practices of fertilizing with plant and animal manures. The usual response to these losses is not a reevaluation of our assumptions and priorities or a return to former sustainable practices, but an onward push towards more technology and greater involvement from the economic sector. It is telling that the Green Revolution in Punjab was replaced, with Pepsico's help, by the 'Gene Revolution.'[76]

In the case of our political structures, Katz's analysis shows that for the Modernist philosopher John Locke the instrumentalization of the natural world is taken to guarantee political freedom. And who would not want political freedom guaranteed? Modernity, however, has yet to prove that the domination of the natural world is not a poisoned pill. The ecological and social conditions of the planet strongly indicate that the very freedom through domination that we began to seek four hundred years ago may be coming to an end. The only option we have, according to recovery philosophers, is to recover the wild, untamed part of nature with the hope that its presence will help us find a new, sustainable relationship with the world.

---

[75]Katz, *Nature as Subject*, p. 230.

[76] Shiva, *Green Revolution*, pp. 205, 194-229.

Chapter 2

Introduction

In philosophy, the word "nature" has had a long and varied use. It can refer to everything in our world of experience, including those aspects that are beyond our reach, e.g., distant planets and galaxies. In an abstract sense, nature can mean the universal laws that govern the cosmos. For environmental philosophy, general and abstract definitions do not fully capture the spirit of the word and its importance. Instead, it is useful to look to the discipline that made the subject of nature an issue for our Modern society, the science of ecology. In the previous chapter, I indicated that environmental philosophy developed out of a broader ecological movement activated by the evidence regarding the destruction of ecosystems. Recovery philosophy's definition of nature reflects the understanding of ecology and its influence on environmental philosophy.

Eric Katz considers nature to be "the ecosystemic processes of the earth."[1] I do not think that this definition would be widely contested by other environmental philosophers for the following reasons. The definition refers to *this* planet, excluding other planets and heavenly bodies. This affords recovery philosophers a certain amount of theoretical simplicity as the topic of concern is our planet, not others.[2] The Greek prefix *eco-* means "home," and the focus of environmental philosophy is on *our* home, not any other potential homes for us or other as-yet-undiscovered planets and beings. The other half of the definition, "ecosystemic processes," contains three points which recovery philosophers wish to maintain. First, *process* indicates that nature is in a state of flux. Flux, however, does mean randomness and chaos. Nature behaves according to its laws, and these laws are potentially knowable. Second, ecosystemic process*es* indicate that the whole of nature is constituted by distinct processes or parts that are interrelated. Interrelation means that changes in one part affect changes in another. Third, understanding nature in terms of "*ecosystemic* processes of the earth" allows recovery philosophers to use the science of ecology in their arguments. In this chapter, I examine some of the problematic conclusions that recovery philosophers draw from their understanding of ecology.

The Wild

Although Katz's definition of nature equates nature with ecosystems, it fails to adequately describe that particular aspect of nature with which recovery philosophers are concerned. In the previous chapter I argued that, according to

---

[1]Eric Katz, *Nature as Subject: Human Obligation and Natural Community* (Lanham, Md.: Rowman and Littlefield, 1997), p. 135.

[2] It is interesting to note, however, that some environmental philosophers are now addressing the ethics of terraforming other planets now that our technology is making visits to Mars possible. See Robert Sparrow, "The Ethics of Terraforming," *Environmental Ethics* 21, no. 3 (Fall 1999): 227-245.

recovery philosophy, Modernity has suppressed and dominated nature through its institutions and its conceptual scheme. An important question arises: If we are still subject to the laws and events in nature, what specific aspect of nature has Modernity dominated and suppressed? The answer to this question can be found in Katz's definition. "Ecosystemic processes" is a definition of nature taken from ecology. Ecology has taught us that ecosystems generally maintain their optimum integrity in the absence of human intervention. Putting aside the concept of optimum integrity for now, Robert Rosen expresses this lesson from ecology when he writes:

> if we leave the system alone, some autonomous behavior will ensue. On the other hand, we can ask a question like: if we were to remove, or change, one of these distinguishable parts, what would be the effect of that behaviour? This is a pregnant question. It involves a new element, not merely observation, but willful active intervention. The result of that intervention is, in effect, the creation of *a new system*, which can be regarded as a kind of perturbation or *mutilation* of the original one.[3]

According to Rosen, when we interfere with an ecosystem, we diminish its autonomy, thereby creating a new, poorer version of the original. There is a layperson's term that refers to "autonomous ecosystemic processes operating with optimum integrity in the absence of human intervention," and that is—the wild.

For recovery philosophers, the wild is that important aspect of nature which has been suppressed by Modernity and needs to be recovered if we are going to have a sustainable relationship with nature. Wildness has three distinct but interrelated facets. The first and most familiar sense of the word is geographical. Ecosystems extend themselves across space, and are thought to exhibit unity and coherency. While it may be difficult to draw definite boundaries around a system (because all the systems are connected to one another), deserts are still distinguishable from salt marshes. Deserts, salt marshes, rain forests, and coral reefs are not objects reserved for scientific investigation. They have cultural meaning and sometimes religious importance attached to them as well. Thus, a geographical understanding of the wild must satisfy a broader cultural understanding. The term which refers to a geographical/cultural understanding of the wild is *wilderness*.

Wilderness has a long history in Western culture. Deserts were considered the place of religious salvation. The wild forests of the new world were first loathed, then celebrated by their European discovers and colonists. The importance of place to human identity has been argued extensively by philosophers and geographers. For this chapter, I shall limit myself to recovery philosophy's treatment of *wild* places and their importance to human identity.

---

[3]Robert Rosen, *Life Itself, a Comprehensive Inquiry into the Nature, Origin, and Fabrication of Life* (New York: Columbia University Press, 1991), p. 116.

Thinking of the wild simply as a place does not address recovery philosophy's concerns about sustainability. Sustainability and related concepts of stability, integrity, and ecosystem health invoke a more scientific understanding of nature and its importance to humanity. Place may be necessary for cultural and individual identity, but the wild has more than just cultural significance. Rosen's statement suggests that human intervention within an ecosystem creates a new system that is a mutilation of the previous one. "Mutilation" implies that the new system comes about through some deleterious mutation—the old system is harmed or diminished in some way. Capacity implies function, and although it would be a mistake to argue that wild ecosystems are *intended* to support the various forms of life they do, they *do* produce and support life. Thus, the second aspect of the wild is that of a life support system.

This aspect of the wild is referred to most frequently by environmental philosophers and environmentalists who wish to alert us to the consequences of clear-cutting rainforests, rising global temperatures, the collapse of ocean food chains, and so on. This is a pragmatic conception of the wild, as its concern is with how wilderness performs vital functions for the planet as a whole. Philosophers and scientists refer to places such as Amazonia as the "lungs of the planet," and argue that they should be given special protection on account of their role in maintaining steady levels of carbon dioxide in the atmosphere. This is also a conception of nature which could regard the wild as only instrumentally valuable. Even as recovery philosophers consider the importance of the wild as a life support system, they know that they must avoid the charge of anthropocentrism. In their arguments, life refers to more than just human life, and nature has intrinsic value.

I argued in chapter one that recovery philosophers identify Modernity as the culprit we can blame for the suppression of wild nature. Modernity has destroyed wild places and risks destroying the integrity of our life support systems. It has done so by instrumentalizing nature and denying it any positive identity of its own. Modernity is the master in the culture/nature dualism, so the question arises: If Modernity is the master, then what shall we call nature? The answer is the third and final aspect of the wild. The wild is the Other. It spills over its geographical and scientific boundaries and is present everywhere. No domination is total and complete. In this aspect of nature, wildness manifests itself in problematic and uncontrollable subjects, our bodies, the untended backyard, the inner-city poor, and so on. Although it remains suppressed and dominated, this aspect of nature provides the existential counterpoint to Modernity's totalizing tendencies. The wild's Otherness demands respect. In this discussion of the wild-as-Other, I will address those philosophers who claim that the biggest threat to nature does not lie in its unintended destruction, but rather in its replacement. The development of certain technologies (nanotechnology and biotechnology) threatens to replace nature with a fabricated, artifactual world. It is not sufficient to maintain wilderness and life-support systems; we must also retain the *category* of an

independent (wild) nature in order to ensure the existence of wilderness and well-functioning ecosystems.

Although this chapter focuses on the wild and its treatment by recovery philosophy, I will also address another issue. The wild is independent nature *par excellence,* and we rely on its independence for reasons that will soon be examined. For recovery philosophers, independence means *ontological* independence, although not all philosophers explicitly claim this in their work. I will use two philosophers who *are* explicit about nature's ontological status to help me argue that even though when it is not stated, ontological independence is still assumed. Keekok Lee castigates environmental philosophy for not being clear on this issue. We must assert the ontological independence of nature, she argues, in order for us to preserve it. Eric Katz also argues for nature's ontological independence because we are beginning to develop technologies which could replace natural entities.

I will also examine some of the debates about social constructionist theories in the environmental literature. Some philosophers maintain that nature is not ontologically independent, but rather a social construction. In response to the diversity of social constructivist positions, Ian Hacking directs us to "notice how important it is to answer the question 'the social construction of what?"[4] Postmodern philosopher Mick Smith *has* asked this question in light of these discussions in the environmental literature, and provides a summary of deep ecology's views on the social constructionist thesis. The arguments against the idea that nature may be socially constructed help us understand the deep ecological project. Before addressing the contentious issue of nature's ontology, I must first address the various conceptions of the wild in recovery philosophy.

Wild as Place

There are many historical aspects of the word "wilderness" that resists definition. In one sense, wilderness can refer to any place where human beings feel a sense of displacement and desolation.[5] The feeling of displacement arises when one lacks a sense of home, connection, or familiarity. From this follows an urge to travel, to wander until a place of rest is found. Wilderness is a place that we pass through. We cannot remain because wilderness is *desolate,* it lacks the resources from which home, connection, and familiarity are built. Without the civilizing influence of human habitation, wilderness, according to European myths, is a place of fantastical monsters, ogres, witches, and demons.

The experience of wilderness as a displacement reaches back even further than European fairy tales. According to the Genesis myth, Adam and Eve were

---

[4]Ian Hacking, *The Social Construction of What?* (Cambridge, Mass: Harvard University Press, 1999), p. 11.

[5]Edward Casey, *Getting Back into Place: Toward a Renewed Understanding of the Place-World* (Indianapolis: Indiana University Press, 1993), p. 191.

expelled from Eden, God's cultivated park, and made to toil and suffer in the cursed wilderness. In his book *Wilderness and the American Mind,* Roderick Nash summarizes the significance of the Eden myth. "The story of the Garden and its loss embedded into Western thought the idea that wilderness and paradise were both physical and spiritual opposites." The pioneers in the New World experienced similar toil and suffering, as their survival depended on overcoming their wild environment. Conceptually, according to Nash, the pioneers shared "the long Western tradition of imagining wild country as a moral vacuum, a cursed and chaotic wasteland." Battling the wilderness took on the character of a moral crusade against nature in the name of "nation, race, and God."[6]

Attitudes towards wilderness changed in Europe with the growing presence of deism in Enlightenment texts and parlour rooms, associating nature's diversity and beauty with the goodness and power of God. Deists such as Voltaire grounded faith in God in "the application of reason to nature," rather than in scripture or the church. Nature, particularly wild nature, was all the evidence that deists needed to confirm and maintain their faith in a creator. In 1757, the thoroughly civilized Edmund Burke, in his book *Philosophical Enquiry into the Origin of Our Ideas of the Sublime and Beautiful,* formalized the idea that the *wild* form of nature, its vast, chaotic, and fearful character, could be a source of aesthetic pleasure. The terror felt when confronted with wild landscapes was rooted in our feelings of awe and delight rather than hatred and dismay.[7]

As civilization established itself in the New World, the simple antagonistic relationship between immigrants and the wilderness changed into a more complex attitude. The new Americans were proud of their rugged, individualistic past, characterized by the conquering of the wilderness and the indigenous people. They began a search, however, for a unique identity or nationhood that would distinguish their country from the Old World. At first, writers and politicians focused on the individual elements—waterfalls, birds, rivers, and so on—that could be considered superior to their European counterparts. In Europe, they debated whether America's natural goods were inferior.[8] In defense, some nationalists made the suggestion that the descendants of a recently discovered mammoth may still be alive in some parts of North America's interior.[9] Such comparisons were not successful in helping to establish a unique American identity, as other countries had remarkable flora and fauna too. Finally, it was decided that America's land was superior because, unlike Europe, a lot of it was still *wild.* On the importance of this decision, Nash writes:

---

[6]Roderick Nash, *Wilderness and the American Mind,* revised ed. (New Haven, Yale University Press, 1973), pp. 15, 24.

[7]*Ibid.,* pp. 24, 46.

[8]*Ibid.,* p. 68.

[9]Thomas Jefferson, *Notes on the State of Virginia* (New York: Harper Torch Books, 1964), p. 17.

> While other nations might have an occasional wild peak or patch of heath, there was no equivalent of a wild continent. And if, as many suspected, wilderness was the medium through which God spoke most clearly, then America had a distinct moral advantage over Europe, where centuries of civilization had deposited a layer of artificiality over His works. The same logic worked to convince Americans that because of the aesthetic and inspirational qualities of wilderness they were destined for artistic and literary excellence.[10]

Whether or not America's poets, painters and novelists achieved the "artistic and literary excellence" which they felt they deserved, New World wilderness themes figured prominently in their works. For example, James Fenimore Cooper's popular "Leatherstocking tales" portrayed a romantic, hardy pioneer protagonist who respected the woods, and mourned its inevitable disappearance under less enlightened hands.[11] The disappearance of wilderness became a popular issue once America invested so much of its national identity in it. Wilderness protection, however, conflicted with other ideals that America used to build its image, especially the freedom of citizens to pursue financial and individual independence. A few key advocates managed to convince legislators to set aside large tracts of land and preserve them from development. The first such tract of land (Yosemite) was modest, only ten square miles, which quickly lost its wild character when hoards of tourists caused the land surrounding it to become heavily developed. Despite its domestication, the founding of Yosemite Valley State Park in 1864 set an important precedent in American history. The establishment of Yellowstone National Park, a two-*million* acre reserve in northwestern Wyoming, soon followed in 1872.

Though America claimed a unique national identity based on wilderness, the preservation of Yosemite, Yellowstone, and later the Adirondacks in upper New York State, was not achieved by appealing to aesthetic, nationalistic or less-than-selfish grounds. Their advocates used utilitarian arguments instead. Park advocates pointed out that Yellowstone's mountainous terrain was not that useful for settlement or agriculture. Arguments in favour of preserving the Adirondacks appealed to their watershed functions that supported the urban areas below.[12]

Two of the most influential advocates for wilderness preservation were the American transcendentalist philosopher Henry David Thoreau and writer/explorer John Muir. They may have been the first writers in America to discuss the value of wilderness outside of nationalistic, utilitarian, or romantic formulas. In Thoreau's transcendental philosophy, nature, in particular wilderness, was a reflection of the higher essences and ideals of the divine. Thoreau's friend and philosophical mentor, Ralph Waldo Emerson, once wrote: "in the wilderness, I

---

[10]Nash, *Wilderness and the American Mind*, p. 69.

[11] James Fenimore Cooper, *The Pioneers* (London: Dent, 1929).

[12] Nash, *Wilderness and the American Mind*, p. 117.

find something more dear and connate than in the streets of villages...in the woods we return to reason and faith."[13] In the two years he spent in his cabin built on the shores of Walden pond, Thoreau found his reason and faith in *Walden*, a book considered by deep ecologists as a source and influence for their philosophy. Despite Thoreau's love of nature, he explained the meaning and importance of wilderness by the effect it had on people: "from the forest and wilderness come the tonics and barks which brace mankind."[14] According to Nash, "much of Thoreau's writing was only superficially about the natural world....wilderness symbolized the unexplored qualities and untapped capacities of every individual."[15] Thoreau did not advocate a return to primal conditions, as his relationship with wilderness was balanced by a consideration of the beneficial moralizing influences of civilization. He did not retain any Rousseau-like conception of the noble savage,[16] thinking that philosophers or poets were best suited to appreciate and experience the greatest benefits of wilderness.[17] Neither steeped in the pettiness of civilization nor fully abandoned in the wilderness, the best life was lived at the margins where one could draw from both worlds.

Where Thoreau sought an equilibrium between the wild and the civilized, John Muir sought true wilderness. The success of his books and articles based on travels throughout America's wild places made Muir wilderness' unofficial champion. Although influenced by the Transcendentalist thought of Emerson and Thoreau, unlike his predecessors, Muir was contemptuous of civilization's repressive and utilitarian tendencies. In contrast, wild nature had a liberating influence that was beneficial for human happiness.[18] Liberation was not solely reserved for humanity. Comparing tame, domesticated sheep to their wild cousins, Muir offered evidence that mountain sheep fleece was superior to commercial flocks.[19] This confirmed for Muir that "a little pure wildness is the one great present want, both of men and sheep."[20] He was one of the first to express the thought that natural objects have intrinsic value. Where this insight is most readily appreciated, according to Muir, is in the wilderness itself. In the wilderness, we are "part of wild Nature, kin to everything," and perceive that the snakes are "good for themselves, and we need not begrudge them their share of life."[21]

---

[13] Ralph Waldo Emerson, "Nature," in *Nature, Addresses and Lectures, The Collected Works of Ralph Waldo Emerson,* vol. 1, intro. and notes by Robert E. Spiller (Cambridge, Mass.: Harvard University Press, 1971), p. 10.

[14] Henry D. Thoreau, "Walking," in *The Essays of Henry David Thoreau*, ed. Lewis Hyde (New York: North Point Press, 2002) p. 162.

[15] Nash, *Wilderness and the American Mind*, p. 89.

[16] John Aldrich Christie, *Thoreau as World Traveler,* American Geographical Society Special Publication 37 (New York, 1965), pp. 211-30.

[17] Nash, *Wilderness and the American Mind*, p. 92.

[18] *Ibid.*, p. 123.

[19] *Ibid.*, p. 127.

[20] John Muir, "The Wild Sheep of California," *Overland Monthly* 12 (1874): 359.

[21] John Muir, *Our National Parks* (Boston, 1901), pp. 57, 58.

One of Muir's notable accomplishments was the founding of the Sierra Club in 1892. To this day the Sierra Club is synonymous with wilderness preservation in America. His fame attracted many to seek his company and advice, in particular, a young forestry graduate, Gifford Pinchot, whose views would ultimately represent the paradigmatic split between preservationists and conservationists. At first, Muir and Pinchot held some common ground. The new "scientific" forestry was, Muir thought, a significant improvement on the clear-cutting procedures of the past. Despite his love of wilderness and disdain of civilization, he still acknowledged America's material needs. Where Muir's allegiances were ultimately on the side of wilderness, Pinchot was interested solely in the conservation of the woods as resources. This became evident with the formation of an explicit policy for the management of the nation's forests. On February 22, 1897, preservationists won a temporary victory when President Grover Cleveland established over 21,000,000 acres of forest reserves.[22] Those with economic interests in the land protested immediately. When President McKinley took office soon after, these reserves were put in jeopardy with the Forest Management Act of 1897, which opened up the reserves to mining and grazing. While Muir did not oppose the creation of reserves after the summer of 1897, he no longer supported the conservation movement because it did not guarantee protection of the forests.[23] Instead, Muir devoted himself to the establishment of national parks. His camping trip with Theodore Roosevelt in Yosemite persuaded the president to bring the region under Federal control. Later Muir was part of a successful campaign to have the Grand Canyon designated a national monument.

Muir's legacy was helped by a growing "wilderness cult" in America in the early part of the twentieth century. By the 1890's, the frontier had closed, and the nation no longer had a place to incubate the American ideals.[24] Of this significant change, Nash writes:

> From the perspective of city streets and comfortable homes, wild country inspired quite different attitudes than it had when observed from a frontiersman's clearing. No longer did the forest and Indian have to be battled in hand-to-hand combat. The average citizen could approach wilderness with the viewpoint of the vacationer rather than the conqueror. Specifically, the qualities of solitude and hardship that had intimidated many pioneers were likely to be magnetically attractive to their city-dwelling grandchildren.[25]

---

[22] Nash, *Wilderness and the American Mind*, pp. 134, 136.

[23] *Ibid.*, pp. 137, 138.

[24] For the "Frontier Hypothesis," see Frederick Jackson Turner, *The Frontier in American History* (New York: Holt, Rinehart and Winston, 1962).

[25] Nash, *Wilderness and the American Mind*, p. 143.

The role of wilderness in the American *psyche* was no longer limited to national identity, religious salvation, or the travel adventures of a few real and fictional men. Wilderness became available to the masses as a destination for recreational activity. Yet this recreational activity was not merely a pleasant diversion from city life. In America at the close of the century, cities were regarded with a resentment previously reserved for wilderness. This was a reversal of the previous generation's views of civilization. Now it was supposed that cities were the root cause of America's problems because they embodied business values, big government, and an undermining of "character, taste and morality."[26] Hence Americans sought ways of maintaining what they thought to be the beneficial effects of wilderness. Sir Robert S.S. Baden-Powell's "Boy Scout" organization was imported from England to improve America's collective moral fiber by teaching the male youth wilderness skills. President Theodore Roosevelt urged the nation to not to forget its frontier past, because "no nation facing the unhealthy softening and relaxation of fibre that tends to accompany civilization can afford to neglect anything that will develop hardihood, resolution, and the scorn of discomfort and danger."[27] Big-game hunting and outdoors clubs grew in popularity. One club, organized by Roosevelt, the Boone and Crockett Club, shot big game, but the club was more concerned with the quality of the hunter's character.[28] The club encouraged qualities of resolution, manliness, and self-reliance, "without which no race can do its life work well; and [these are] the very qualities which it is the purpose of this Club...to develop and foster."[29]

An amusing example of the "wilderness cult" was Joseph Knowles' experiment on August 10, 1913. Amidst much publicity, he wandered off into the Maine woods, devoid of tools and even clothes, to live in the wild for two months. During those months, Knowles left updates on his condition written on birch bark and charcoal that were reprinted by the Boston *Post*. The public was delighted to find that Knowles was succeeding in his wilderness experiment.[30] He came back to civilization as a hero to the people of Boston, where he gave speeches and interviews, had banquets thrown in his honour, and published a book on his experiences. His popularity did not decrease even when a rival newspaper revealed that he had spent the two months in a comfortable cabin.[31]

Popular attitudes towards wilderness in America had shifted radically since the pioneer days. After taming the wilderness and establishing civilization, America searched for a national identity. Europe's Enlightenment and Romantic

---

[26] *Ibid.*

[27] Theodore Roosevelt, "Wilderness Reserves: The Yellowstone Park" in *The Winning of the West, The Works of Theodore Roosevelt,* Memorial edition (23 vol. New York, 1924-26) 3, pp. 311-12.

[28] Nash, *Wilderness and the American Mind,* p. 152.

[29] George Bird Grinnell, "The Boone and Crockett Club" in *American Big Game Hunting: The Book of the Boone and Crockett Club,* ed. Roosevelt and Grinnell (Edinburgh, 1893), pp. 14-15.

[30] Nash, *Wilderness and the American Mind,* p. 141.

[31] *Ibid.,* pp. 141-143.

movements introduced the idea that the wild forms of nature could be a source of aesthetic pleasure. Emerson, Thoreau, and Muir developed these ideas and helped express the unique American thought that *wild places* were necessary for a strong, healthy populace.

Through this brief study of America's past, the importance of the wild to American identity is clear. Wilderness was the place that encouraged the characteristics of hardiness, independence, and resoluteness which many regarded as important to American identity. Wilderness was set aside and bounded by geography and laws for these reasons. The wilderness cult might not have been so explicit had America not been as proud of its pioneering past. Despite its love for wilderness, Americans did not make the connection between the pollution and industrialization in the urban areas with the harm it caused to their parks. Coal-powered industry caused acid rain in the Adirondacks and elsewhere. The prized trophy heads that hung in stately manors stood as signs of gradually disappearing species. City dwellers (rural people did not have to escape from civilization, and did not understand what the fuss was about) loved their parks to death. Thus, the love of and identification with wild places was highly idealized.

Although its founder, Arne Naess, was Norwegian, the influence of Thoreau, Muir, and American concepts of wilderness informs much deep ecological thought. One idea that began in America and continues in deep ecology is that wilderness has beneficial effects on the quality and character of human lives. For the transcendentalists, Nature "is dependent on a greater spiritual reality beyond it (God or the Absolute)." This spirit is "infused in Nature" and finds its fullest expression in wilderness. When we travel through the wilderness, we undergo the "process of binding back to the source."[32] The journey gives us the chance spiritually to reconnect with the divine.

Although I have maintained that wilderness is the main interpretation of the wild for deep ecologists, Alan Rike Drengson draws a distinction between wild and wilderness that helps specify the value of wilderness for deep ecology. Wild "refers to the powers and energies found in places, other beings, and ourselves," which are "spontaneous, open, and creative." Wilderness is that place which contains those energies. Respecting, protecting and journeying through wilderness taps into those wild energies. These energies cannot be found *in* civilization because "cities cover it over."[33] This image of civilization as a blanket or crust that covers a vital energy below appears again in a commentary given by Edwin L. Folsom on the importance of Gary Snyder's poetry to ecological thought:

> Synder's major accomplishment, then, is a rediscovery and reaffirmation of wilderness, a clear rejection of Turner's (and America's) closure of the frontier. Snyder announces the opening of

[32] Alan Drengson, "Wild Journeying Way, " *The Trumpeter* 13, no. 4 (Fall 1996), pp. 183, 186.

[33] *Ibid.*, p. 183.

> the frontier again and attempts to push it eastward, to reverse America's historical process to urge the wilderness to grow back into civilization, to *release the stored energy from layers below us*.[34]

Snyder considers civilization as superficial in that it covers nature and its wild energies. Drengson suggests that city-dwelling, given its distance from the "source," has a harmful effect on its inhabitants. In a similar comparison to Muir's evaluation of domestic sheep over their wild cousins, Drengson writes, "a domestic animal has wild energy, but rarely shows it; most of the time it is fenced, conditioned and controlled. Urban humans also live under controlled conditions. It is difficult to realize our wild nature and larger ecological Self in urban settings."[35] Wilderness is the place where one can experience freedom from culture's controlling and domesticating influences. Greta Gaard expresses a similar thought. "Although the circumstances are vastly different, humans alienated from nature and from wilderness by virtue of our location in Western culture are nonetheless animals in captivity."[36] If we ignore the masculine rhetoric of Theodore Roosevelt, we can detect the similarity with deep ecology's views of the value of wilderness for human identity. Drengson does not think too highly of culture. He asserts that it "crops our imaginations, fences our feelings and constricts our bodies," which amounts the curtailment of our freedom, making us "like cattle for Thoreau and machines for Muir."[37] Note the allusion to Modernity with the machine metaphor when Drengson writes:

> We act out the modern metaphor of the world and body as a herd of machines. We internalize the machine image over Nature's body, and create human organizations as if they and we could be machines. We begin to get machine-like ourselves, concealing our original wild vitality. We become routine, constricted, and mechanically systemized. We create artificial machine-like environments (modern cities) that conceal wildness. We become captives of our machines both physical and social. The more hidden the wild is for us, the more numb and dead we feel.[38]

Drengson's lament for the automaton-like existence of modern city dwellers is not unlike the sentiments expressed by those worried that America had lost its source of creativity and vitality with the closure of the frontier at the turn of the century. A nation of passive automatons does not make a good body politic.

---

[34] Edwin L. Folsom, "Gary Snyder's Descent to Turtle Island: Searching for Fossil Love," *Western American Literature* 15 (Summer 1980): 120 (emphasis mine).

[35] Drengson, "Wild Journeying Way," p. 183.

[36] Greta Gaard, "Ecofeminism and Wilderness," *Environmental Ethics* 19, no. 1 (Spring 1997): 11.

[37] Drengson, "Wild Journeying Way," p. 184.

[38] *Ibid.*

Besides autonomy, when one becomes enclosed by civilization, knowledge is lost. Like Thoreau, Drengson considers the sort of knowledge that is learned from books, newspapers, television, and computers as second-hand and inferior to experiential knowledge, which he regarded as authentic.[39] As to what sort of knowledge is *authentic*, Drengson is vague. One could understand him to mean naturalist books or television programs will never be an acceptable substitute for the direct experience of the wild.

There is another kind of knowledge provided by the wilderness. This is the "Self" knowledge that deep ecology maintains we ought to develop to facilitate the change from a Modernist world view to an ecological world view. Part of this Self knowledge is the idea (introduced in the previous chapter) that there are no categorical ontological divisions in nature. Referring to this tenet of deep ecology, Drengson writes, "in wild journeying we realize that the flourishing beings in [the] wilderness enlarge and enlighten us. We value our unique selves but also value being part of everything else." The wilderness experience is a transforming process that helps our small egos "return to our original larger ecological Self that contains the conditioned awareness of the smaller historical ego."[40] Drengson grounds the transformation process in the deliberate control of the body, the basics of which mean the coordination of breathing with walking.

> The breathing and pace of beginners is not harmonized. They walk erratically, talk a lot, breathe in a shallow, ragged way, with lots of stopping. They are often not even conscious of this. This is not wild meditation walking. One must be focused and aware for sustained periods. Meditation walking is conscious unification of ourselves with walking and the wild . . . continuous practice is physically and psychologically healing, as well as enlightening.[41]

Uniting our small historical egos with the larger Self, according to deep ecology lets us "let go of our knots and habitual mind-sets." In turn, our fractured selves are healed because we release our anxiety when we no longer feel estranged from nature. The perception of oneness with nature helps us "bring the wisdom of the natural world home," allowing for "place specific communities and cultures [to] emerge."[42]

Exactly *how* these "place specific communities and cultures" materialize, Drengson is not clear about, but it is possible to find a few conclusions in his analysis of the value of wilderness. First, according to deep ecology, wilderness is necessary for human flourishing. In the city, where we are separated from nature, "we suffer discord, conflict and sorrow," making us "divided and over-

---

[39] *Ibid.*
[40] *Ibid.* pp. 185, 186.
[41] *Ibid.*, p. 185.
[42] *Ibid.*, p. 186.

developed in so many ways."[43] George Sessions refers to Paul Shepard's arguments, which claim "humans are genetically programmed for wild environments."[44] This supports deep ecology's theory that wilderness is essential for human growth and development.[45] Drengson suggests that a fractured self is more than just an unsavory existential condition; it represents immaturity, a shallowness. Devall and Sessions are more explicit: "we suggest that humans have a vital need for wilderness, wild places, to help us become more mature."[46] The person who undertakes Drengson's prescribed wild journeying becomes whole and mature, and as a consequence is able to participate in creating meaning and value in his or her community.

With maturity comes responsibility, and given deep ecology's assumption that place-based communities are more ecologically friendly, Drengson implies that there a causal connection between a mature wilderness-experienced subject and a flourishing community of responsible citizens. In other words, if we want ecologically responsible communities, what is required is *a fundamental change in the psychological composition of the individuals*. Note the psychological terminology Drengson employs: "wild journeying allows the deeper subconscious to surface, as we unravel the conditioned consciousness of our past."[47] The contrasting images of surface and depth are suggested once again. Like pavement over a forest floor, Modernity overlays a fractured, immature consciousness over a truer, more stable sub-conscious that is connected with the wild energies and larger ecological Self. The importance of wilderness is its therapeutic value.

There is another facet to deep ecology's view regarding the value of wilderness. Recall Muir's point about the kinship shared by creatures and ourselves in the wilderness. Again deep ecology draws a contrast between city and wilderness. The urban environment presents us with "manufactured things and spaces [that] have mostly instrumental value,"[48] whereas the wilderness is the home of intrinsically valuable beings.[49] This distinction suggests that our conduct towards our surrounding will be different in the wilderness than in the urban environment. Given the influence of Modernity, if cities present a world of objects and spaces that have no other value besides the instrumental, then we begin to expect that other beings in the world are valuable only for their usefulness as well. The city encourages us to maximize the utility of our surroundings, and to regard the rest of the world with what Marilyn Frye called

---

[43] *Ibid.*

[44] George Sessions, "Postmodernism, Environmental Justice, and the Demise of the Deep Ecology Movement?," *Wild Duck Review* 5 (1995): 15.

[45] See Shepard's contributions to Stephen R. Kellert and Edmund O. Wilson, *The Biophilia Hypothesis* (Washington: Island Press, 1993).

[46] Bill Devall and George Sessions, *Deep Ecology* (Salt Lake City: Gibbs M. Smith, 1985), p. 111.

[47] Drengson, "Wild Journeying Way," p. 186.

[48] *Ibid.*, p. 185.

[49] Devall and Sessions, *Deep Ecology*, p. 111.

"the arrogant eye."[50] The secular, Modern world is absent in the wilderness where wild energies still flow freely and we may experience "the ritual journey into wilderness as *sacred space*."[51] Objects and subjects in sacred spaces have intrinsic value, though they might also have an instrumental role, like a communion cup in a church. The divine is expressed through wilderness, and natural entities are intrinsically valuable because they are a part of the divine whole.

Deep ecology's understanding of nature's ontological status becomes clear when Naess, Sessions, and like-minded philosophers turn their attention to postmodern environmental theory. As Mick Smith observes, the debate has been marked by a systemic confusion between epistemological concerns and ontological concerns:

> Some of the difficulties have arisen because of the tendency of all concerned to elide the difference between constructivism as an epistemological thesis, whether our ***knowledge*** of nature is socially constructed, and constructivism as an ontological thesis, whether "nature" is *nothing more than* a social construct. If we choose to emphasize the import of social systems and practices on our phenomenal apprehension of "nature," then we seem to be making an epistemological claim. But, if we go further and emphasize the absolute inaccessibility of the noumenal, of a socially *unmediated* "nature," then this claim easily slips into an apparently ontological one.[52]

In discussing these issues it is important to ask: The social construction of *what*?[53] For my purposes, I will use Smith's helpful distinction between contextual and strict constructivist theories. Contextual theory emphasizes that our ***knowledge*** of nature is mediated by culture, language, and context. Nature itself remains real and autonomous. Critical ecofeminists like Val Plumwood and Karen Warren as well as other environmental philosophers such as William Cronon hold this position.[54] These theories tend not make the ontological claim that nature is a social construction. Instead, "the constructivist approach is generally to *suspend*, rather than make, claims about the world's ontology, since these kinds of *claims*

---

[50]Marilyn Frye, "In and Out of Harm's Way: Arrogance and Love" in *The Politics of Reality* (Trumansburg, NY: The Crossing Press, 1983), p. 75.

[51] Devall and Sessions, *Deep Ecology*, p. 112.

[52]Mick Smith, "To Speak of Trees: Social Constructivism, Environmental Values, and the Future of Deep Ecology," *Environmental Ethics* 21, no. 4 (Winter 99): 365.

[53]Ian Hacking, *The Social Construction of What?* (Cambridge, Mass: Harvard University Press, 1999).

[54]William Cronon, "Uncommon Ground," in *Uncommon Ground: Rethinking the Human Place in Nature*, William Cronon, ed. (New York: W.W. Norton & Company, 1995) p. 458.

are, rightly or wrongly, regarded as culturally bound and hence ultimately undecidable."[55]

Despite this tendency to suspend ontological claims, and despite the plurality of social constructivist theses, deep ecologists cluster their opponents together under the same constructivist thesis. Sessions, for example, refers to the "Marxist-postmodernist power-elite' theory of truth."[56] Placing Marxism together with postmodernism ignores important differences among theories, for instance; ignoring criticisms leveled at postmoderns by Marxists, which claim that postmodern epistemologies are relativistic.[57] Drengson asserts that nature is knowable "unmediated by social concepts."[58] I am not sure if Drengson is claiming that 1) knowledge of nature is possible without concepts, or that 2) knowledge of nature does not need *social* concepts. If the first interpretation is correct, he would have to defend the possibility of a non-conceptual knowledge somewhere in his argument. If the second, less problematic claim is correct, then he needs to distinguish between social and *non*social concepts. What is a *non*social concept? Drengson does not say. Given deep ecology's views on Modernity, we could understand Drengson to mean that we have the clearest and truest knowledge of nature when we discard our Modernist assumptions. We must discard our Modernist assumptions about nature (and humanity) because they are false.

Perhaps it is easy to characterize everything that deviates from this position as relativistic. Deep ecologists want to avoid the relativity of values they see in social constructivist theories. In doing so, they reveal their position to be "on the side of *naturalistic realism*."[59] Smith writes:

> from a deep ecological perspective this "sociocultural" colonization of the natural world typifies that anthropocentric hubris which allows blinkered humanists to regard their theoretical problematics as complete without regard for nature's own being (verb). Nature's human progeny haughtily dismiss its nascent potential, declaring it to be their own offspring—an invention constantly remade in our own image. In this sense, social constructivism brings with it a fear about the cultural *appropriation* and thence *dissolution* of nature in current theoretical debates.[60]

---

[55]Smith, "To Speak of Trees," p. 367.

[56]George Sessions, "Postmodernism and Environmental Justice: The Demise of The Ecology Movement?" *The Trumpeter* 12, no. 4 (Summer 1995): 151.

[57]For a 'typical' critique, Mike Smith suggests Alex Callinicos, *Against Postmodernism: A Marxist Critique* (Cambridge: Polity Press, 1989), and Christopher Norris, *What's Wrong with Postmodernism?* (London: Harverster Wheatsheaf, 1990)

[58]Drengson, "How Many Realities?" p. 2.

[59]Smith, "To Speak of Trees," p. 366.

[60]*Ibid.*, p. 363.

Deep ecologists maintain that nature is ontologically independent, in part, due to their fear that the denial of such independence provides a theoretical justification for further destruction. Michael Soulé and Gary Lease express this thought: "Certain contemporary forms of intellectual and social relativism can be just as destructive to nature as bulldozers and chainsaws."[61] No independent reality means that there is no longer any limit to human action, and we will not be able to overcome anthropocentrism. "If Nature is a human social construction, then humans can 'reinvent Nature' (and 'reinvent humans' for that matter) in any way which suits our immediate interests and desires."[62] If we do not value nature, deep ecology claims, then we will most likely destroy it. But nature's value depends on nature's ontological *independence*. According to Smith, "deep ecologists such as Sessions have reacted to the relativizing effects of [social] constructivism by trying to *fix* value in the permanence of nature's ontology. By linking ethical values to claims about this ontology, they hope to defend nature's immutable value in and of itself."[63]

Recovery philosophers are not only concerned with nature's continued survival, they are also concerned with *our* survival as well. In the next section, I examine arguments by Laura Westra that highlight the second aspect of the wild dominated by Modernity—the wild as a life-support system.

The Wild as Life-Support System

For deep ecology the wilderness is a place that heals the damage inflicted by Modern civilization. It has divine aspects and therapeutic value. The cultural history of wilderness in America shows that these ideas are not unique to deep ecological thought, but are rooted in a nation's search for identity. Concerns regarding a nation's identity were not confined to lecture halls in universities, but were debated in the popular culture. If we were to speak today of the damage inflicted by Modern society, the much of the debate would focus on the threat of ecosystem collapse. The threat means more than just the loss of God's temples, as was the case with Muir and his battles with Gifford Pinchot. The loss will do irrevocable damage to *our* habitat, the city, and the rest of the earth.

Rachel Carson is accredited with having started the modern environmental movement with her book *Silent Spring* (1962). She examines the unintended consequences of pesticides on wildlife, showing the relations between our choices in Modern society and the resulting damages sustained by nature. Unlike earlier concerns about the preservation of mountain wildernesses, the issues raised by modern ecology show that merely setting aside parcels of land is not enough to

---

[61] Michael Soulé and Gary Lease, *Reinventing Nature? Responses to Postmodern Deconstructionism* (Washington, D.C.: Island Press, 1995), p. xvi.

[62] George Sessions, "Reinventing Nature, The End of Wilderness? A Response to William Cronon's *Uncommon Ground*," in *The Trumpeter*, vol. 13, no. 1 (Winter 1996): 33.

[63] Mike Smith, "To Speak of Trees" p. 372.

preserve the wild. Pesticides, acid rain, Polychlorinated Biphenyls (PCBs), and so on, permeate the lines that a society tries to draw around its natural areas. The wild-as-life-support is a conception of nature that acknowledges that geographical boundaries are not enough to protect the wilderness beloved by Thoreau and Muir.

The idea that the wild is a life-support system derives from the fact that all life depends on a stable, well functioning biosphere. If left alone, natural processes will continue to support life just as they have for billions of years. This is one sense of nature's independence. As explained in the previous chapter, Modern industrial agricultural practices rob the soil of its regenerative capacities, creating further degradation and an increased dependency on industrial practices. The damage caused by agribusiness, strip mining, deforestation, over-fishing, and so on lead many environmental philosophers and scientists to conclude that sustained human intervention in an ecosystem will more than likely result in its degradation. Our economic system arbitrarily removes parts needed for ecosystem health. Business and governments are not guided by ecologists, and they have little or no knowledge of the long-term effects of their interference. Long-term effects are regarded as externalities; they are factors that are not considered in economic calculations, and are not part of the business plan. Environmental laws, when they exist, are often weak. Given our lack of knowledge of long-term effects and our destructive history, some argue that nature should be left wild. An independent nature is a well-functioning one. A nature that serves as a warehouse for our economic system stands to lose its ability to support life on the planet.

Although Laura Westra considers herself a deep ecologist, she does not argue for the spiritual, metaphysical and psychological importance of wilderness as do Devall, Sessions, and Naess. She recognizes the value of mainstream deep ecology but doubts its ability to formulate "principles and rules which have a wider appeal" for scientists, policy makers, and bureaucrats.[64] Like other deep ecologists, Westra focuses on the parceling and preservation of vast tracts of wilderness. However, those vast tracts of wilderness are to be set aside "based on the necessity of allowing a substantial percentage of the planet to pursue its own evolutionary path, that is, not to be used for human interests or treated only as instrumentally valuable."[65] How much land should be preserved? Citing research by the biologist Reed Noss, she suggests that between twenty-five and fifty percent of the earth's surface should remain wild and unmanaged.[66] An unmanaged ecosystem means that "most technological intrusion would be excluded from wild, core areas as required in order to protect their role and

---

[64]Laura Westra, *An Environmental Proposal for Ethics: The Principle of Integrity*, (Lanham, Md.: Rowman and Littlefield Inc., 1994), p. 104.

[65]Laura Westra, *Living in Integrity: A Global Ethic to Restore a Fragmented Earth* (Lanham Md.: Rowman and Littlefield, 1998), p. 198.

[66]Reed Noss and A.Y. Cooperrider, *Saving Nature's Legacy* (Washington, DC: Island Press, 1994)

function."[67] For Westra, the technological manipulation of ecosystems, unless it is done with the goal of restoration, usually results in the loss of ecosystem *integrity*.

Ecosystem integrity, and the ethical principle, the Principle of Integrity, that is, the idea that we should not act so as to undermine the life-support systems on which we depend, is the focus of Westra's work. The word "integrity" has been used in many legislative acts and mission statements pertaining to environmental protection, yet the concept, she notes, is undefined and unanalyzed. To help explain its meaning, with the help of James Kay, a complex-systems theorist, and the input of Henry Regier, Robert Ulanowicz and Don DeAngelis, she contrasts ecosystem integrity with the concept of *health*, a term that is commonly used interchangeably with integrity. For Westra, integrity is a more desirable state. Ecosystems that possess integrity will also possess health, but the reverse is not necessarily true, for two reasons.

First, health is usually defined in relation to socially constructed paradigms, meaning that what counts as healthy in one culture or historical period may not count in another. In their efforts to avoid anthropocentrism, recovery philosophers are wary of allowing cultural or historical factors to determine and define the proper functioning of ecosystems. Second, an ecosystem may manifest signs of health but not be able to withstand future stress. To illustrate this point, consider a smaller example, such as a human being. A person with one kidney may be just as healthy as a person with two. However, an illness may cause more medical problems for the former. In addition, suppose the person is not missing an organ but a limb. Health may not be affected, in that such a person can live a good life without a left arm, but the possibility of engaging in a wide range of activities is reduced.[68] Westra writes, "ecosystems that are merely healthy may encompass both desirable and undesirable possibilities, and may be more or less *limited* in the capacities they possess (or have become artificially or accidentally constrained by humans). It is for this reason that health alone is not sufficient."[69] Examples of ecosystems that are healthy but possess limited capacities are organic farms, provincial parks, and so on. These ecosystems may be stable and well-functioning, but the likelihood that they could support a greater variety of species is less than a rainforest or a coral reef. Like domesticated pets, these ecosystems need continuing care and intervention to do well.

On Westra's account, an ecosystem has integrity if it is able to:

> 1. Withstand stress or retain the ability to deal with outside interference, and, if necessary, regenerate itself;
>
> 2. Manifest health or well-being;

---

[67]Westra, *Living in Integrity*, p. 96.
[68]Westra, *The Principle of Integrity*, p. 26.
[69]*Ibid.*, p. 25.

> 3. Retain an undiminished *optimum capacity* for the greatest possible on-going developmental options within its time/location;
>
> 4. Retain the ability to continue its ongoing change and development, unconstrained by human interruptions past or present.[70]

With this definition, Westra identifies two types of integrity: functional (I_f) and structural (I_s). The first two aspects of the definition—capacity to withstand stress and regenerate—and health, are the functional aspects of integrity. As the name suggests, *functional* integrity has to do with how the ecosystem works. Ecosystems are complex *systems* and not static entities. They are constantly generating and responding to inside and outside forces. Their stability through time attests to their functional integrity.

Health and the ability to regenerate specifies a pragmatic conception of an ideal ecosystem. As an ethicist, however, Westra wants the concept of integrity to act as a strong *moral* principle, protecting both ecosystems and the life that they support. Thus, she chooses structural integrity—the wholeness and unity of natural systems—as the stronger version of integrity, which she thinks can provide the basis from which to derive a moral philosophy.

Westra takes up the example of organismic integrity to make the point that maintaining the structural integrity of ecosystems is a moral imperative. "For humankind, the value of the unity and the integrity of each whole is normally taken to be inviolable—the basis of the dignity of human persons."[71] Our liberal, rights-based legal tradition supports this idea and considers any act carried out on a person without his or her consent as assault, even if the act was done with good intentions. The structural integrity of a human being supercedes the functional integrity.

The idea that the unity of an individual human demands respect leads Westra to claim that "the living organismic unity appears to remain, minimally, a strong basis for claims of moral considerability." Although there are disanalogies between organismic unity and ecosystems (e.g., an organism's unity is easier to distinguish than an ecosystem), Westra maintains that despite their imprecise boundaries, an ecosystem is a unified entity and can be considered a whole.[72] "An ecosystem is not just a plurality of interacting processes and functions through which organisms and communities affect one another in various ways. It is a unity, a whole, as I am." However, the whole can only possess integrity when "it is wild, that is, as free as possible from human intervention. It is an 'unmanaged' ecosystem, although not necessarily a pristine one." Thus, the principle of integrity demands that large areas of the earth remain *wild* to protect and restore structural and functional ecological integrity.[73]

---

[70] *Ibid.*
[71] *Ibid.*, p. 37.
[72] *Ibid.*, pp. 38, 43.
[73] *Ibid.*, pp. 43, 29, 95.

Keeping large areas of the earth wild entails more than creating a lot of parks. Westra suggests that the earth should be divided into wild, buffer, and culture zones. The buffer zones (occupying the space between cultured and wild areas) are reserved for sustainable agriculture and small, low-technology communities. This zone would have its own type of integrity, closely associated with matters of health and sustainability, even though the area has no autonomy and is completely under our control. Activity in the buffer zones is of the type where "humans are *using* the earth, rather than *preserving* it, but they are doing so in ways that do not conflict with whatever percentage of the Earth's pristineness they are duty-bound to preserve and respect."[74] Respect for ecosystem integrity is not limited to the buffer zones. In the culture zones, although containing neither pristine nor healthy ecosystems, maintaining structural and functional integrity obligates us to live in such a way that our actions do not put the integrity of wild ecosystems at risk.[75]

> Without accepting life as in a buffer zone, sustainability and respect for integrity are impossible. Respect for wildness for both its 'services' and its component life is basic. Activities that intrude either quantitatively (spatially) or qualitatively (through inappropriate effects, even from afar) must therefore be restrained for both prudential and moral reasons.[76]

The principle that should guide our actions, helping us to live our lives as if we were in the buffer zone, is the Principle of Integrity (P.I.): "Act so that you manifest respect and understanding acceptance of all natural processes and laws (although self-defense is acceptable)." This is a foundational principle creating an "all encompassing monism as the ground of our moral reasoning. Within it we can fit various 'fitting' ethics, somewhat like a set of nesting wooden Russian dolls."[77]

It may seem as if Westra is deriving a moral principle from the factual state of affairs, thus committing the is/ought fallacy. Against this criticism she argues that "nothing *can* be moral that is in conflict with the physical realities of our existence."[78] Our basic, biological needs must be met before we can formulate and follow other ethical systems. An ethical system, however, cannot contradict or conflict with the Principle of Integrity because we would be destroying the conditions for the possibility of life (and ethics) itself. The Principle of Integrity is the moral imperative required to protect the structural and functional integrity of ecosystems. Through their protection and preservation, we protect and preserve *our* species.

---

[74] *Ibid.*, p. 178.
[75] Westra, *Living in Integrity*, p. 235.
[76] *Ibid.*
[77] Westra, *Principle of Integrity*, p. 98.
[78] *Ibid.*, p. 92, (my emphasis).

Westra's argument suggests that humanity's goal is determining how to fit ourselves into the natural order of things and not contradict the natural laws on which we depend. "I argue that while animals' actions and reaction cannot fail 'to fit,' human agency indeed can fail; witness our interference with laws that will eventually affect the survival of our species."[79] These universal laws are, in principle, knowable by using the proper scientific methods. Westra urges that "today, and in our sense of what 'fits,' continued ongoing scientific investigation of these natural laws is vital . . . everything about ecosystems that is possible to learn, should be learned."[80] In other words, the more we know, the better the fit.

Given her claim that the Principle of Integrity should be a foundational principle for all other ethics, and that it is based on natural laws, Westra must implicitly assume that nature is ontologically independent, meaning that the facts of nature, and nature itself, do not relevantly depend on what we say or do. As a *foundational* principle, the Principle of Integrity must sit on a firm bedrock of scientific fact that reflects *nature as it really is*, apart from any humanly influenced historical or cultural factors. If she lets such historical or cultural factors mediate our understanding of nature, then she could be open to the charge of making an *ad hoc* argument. For example, she could have chosen to protect nature on the basis that it is aesthetically pleasing. Aesthetics, she would reply, is a human, cultural construction, and presumably has nothing to do with what ecosystems need and how they *work*. Destructive flora and fauna can nevertheless be beautiful. Given that the Principle of Integrity is a foundation for all other ethical considerations, she needs a high degree of confidence in science's ability to serve as the authority for all our knowledge about nature. In other words, she places herself under the banner of "nature pure and simple and on the side of a *naturalistic realism*, against its philosophical enemy *constructivism*."[81]

Wild-as-Other

The final aspect of the wild in recovery philosophy arises out of Eric Katz's condemnation of Modernism and technology, and the problems associated with environmental restoration. This issue has been addressed by Robert Elliot in his article "Faking Nature."[82] Elliot concludes that a perfectly restored ecosystem (if there could be such a thing) is similar to a perfectly forged piece of art: both are fakes and cannot or should not be as valuable as the original. For Katz, the attempt to restore damaged ecosystems is "on the most fundamental level . . . an unrecognized manifestation of the insidious dream of the human domination of nature."[83] He agrees with Elliot's argument that restored ecosystems will not

---

[79] *Ibid.*
[80] Westra, *Living in Integrity*, p. 97.
[81] Mike Smith, "To Speak of Trees," p. 368.
[82] Robert Elliot, "Faking Nature," *Inquiry* 25, no. 1 (Spring 1982): 81-93.
[83] Katz, *Nature as Subject*, p. 95.

have the same sort of value as wild ecosystems and it would be a grave mistake to think otherwise.

It may seem strange that philosophers are concerned about this possibility. Few, if any, mining companies propose to return the landscape to its original pristineness. The problem lies with those who think that it is our moral duty to restore ecosystems. For example, environmental philosophers Paul Taylor and Peter Wenz advocate "restitutive environmental justice."[84] Katz claims that the "restoration of a damaged nature is seen not only as a practical option for environmental policy but also as a moral obligation for right-thinking environmentalists." His objections are two-fold. First, it is arrogant (and anthropocentric) to think that humanity could create a substitute for the wild. Like the assumptions made by agri-engineers who destroyed the fertility of the soil in the Punjab, the idea that we could engineer wildness is inimical to the idea of wild nature. It is an example of the Modernist faith that assumes there is a scientific, technological, or mechanical solution to any problem. However, this is not to say that we should not clean up after an environmental accident. Katz does not excuse Exxon from its responsibility to restore the Alaskan landscape after the *Valdez* disaster. Restored areas retain some value. The danger lies in the potential for us to mistakenly regard the restored ecosystem as if it were as valuable as the original. Restoration, for Katz, amounts to "putting a piece of furniture over the stain in the carpet, for it provides a better appearance."[85]

Why does Katz think that restored ecosystems pose a threat to our conception and preservation of nature? He writes:

> Nature restoration projects are the creations of human technologies, and as such are artifacts. But artifacts are essentially the constructs of an anthropocentric world view. They are designed by humans for humans to satisfy human interests and needs. Artifactual restored nature is thus fundamentally different from natural objects and systems which exist without human design. It is not surprising, then, that we view restored nature with a value different from the original.[86]

The difference in value between an untouched ecosystem and a restored ecosystem follows from Katz's understanding of technology and artifacts. He uses Andrew Brennan's argument,[87] which claims that natural entities have no intrinsic purpose or design, and contrasts them with human artifacts which are presumably created for human use and purpose. Restored ecosystems, according to Katz, may only appear to be natural but they will never *be* natural because they

---

[84]Paul Taylor, *Respect for Nature: A Theory of Environmental Ethics* (Princeton: Princeton University Press, 1986), pp. 186-92, 304-6, and ch. 4 and 6. See also Peter Wenz, *Environmental Justice* (Albany: SUNY Press, 1988), pp. 287-91.

[85]Katz, *Nature as Subject*, pp. 96, 97, 106.

[86]*Ibid.*, p. 101.

[87]Andrew Brennan, "The Moral Standing of Natural Objects," *Environmental Ethics* 6, no. 1 (Spring 1984): 41-44.

will be, in essence, anthropocentrically designed artifacts.[88] Katz implies that human activity can never create something that is not in some way *for ourselves*, given that artifacts, by their very nature, are designed with a human purpose in mind. "It is impossible to imagine an artifact not designed to meet a human purpose."[89] A restored ecosystem loses its autonomous status and becomes another human artifact among many. Just as forged art is less valuable than the original, restored ecosystems have less value than untouched wild areas. Value is lost because nature, for Katz, is "ontologically independent from humanity,"[90] and its independence grounds its value.

Keekok Lee has a similar argument. She also states that the independence of nature "amounts to *ontological* independence." Like Katz, she fears that we are developing the ability to "transform the natural to become the artefactual." The artifactual, Lee claims, exists in a different ontological category because it is "the material embodiment of human intentional structures." In contrast, the natural (including biotic and abiotic nature) "owe neither their origins nor their continuing existence to humankind."[91] Her argument mostly depends on the truth and accuracy of what she calls "The Autonomy Thesis." "The Autonomy Thesis" is a collection of well-known scientific facts that explain the origin and development of the universe and life on earth. Like Westra, Lee appeals to science (and its implicit realist assumptions) to help establish nature's ontological independence. The "Autonomy Thesis" is as follows:

> 1. The genesis of the universe and of earth are independent of humans. The Big Bang, which started the universe, is said to have happened 15 billion years ago. Earth itself is said to be 4.5 billion years old. The genesis of life on Earth is also independent of humans. It happened at least 3.6 eons ago during the Archean period (4.5 to 2.5 eons ago) when the chemistry of the atmosphere was first dominated by oxygen. But the history of natural organic evolution is a very long one indeed. The lineage of anthropoid apes which led eventually to *Homo sapiens* emerged less than one-third of a million years ago.
>
> 2. Earth and its biosphere would not be extinguished should humans themselves, for some reason, become extinct as a species. As far as the biosphere is concerned, the disappearance of the human species cannot be said to threaten it. Should human extinction happen, the niches formerly filled by humans will be taken over by other species. It would also, most probably, provide opportunities for

[88]Katz, *Nature as Subject*, p. 98.
[89]*Ibid.*
[90]*Ibid.*, p. 127.
[91]Keekok Lee, *The Natural and the Artefactual: The Implications of Deep Science and Deep Technology for Environmental Philosophy* (Lanham, Md.: Lexington Books, 1999), pp. 177, 181, 118, 177.

> new species to emerge. The continuing existence of Earth and its biosphere is clearly, in this fundamental sense, independent of humans. A simple thought experiment should establish this point.
>
> 3. Moreover, the ability of the biosphere to function integratively and well is also independent of humans.
>
> 4. In other words, Earth and its extremely complex biosphere are fully autonomous. 'Autonomy' is here used to mean no more and no less than its ability to exist, to function integratively and well without any reference to, assistance from, or reliance on humans.
>
> 5. From the perspective of biospheric integrity, humans are, therefore dispensable and could even be redundant.
>
> 6. It follows from the above that if an entity exists 'by itself,' and if its genesis, its continuing existence and survival, are independent of humans, then these are compelling reasons for us, humans, to recognize that it has a value independent of us. In turn, we ought then to recognize that we have a duty (in virtue of our ethical capability) not to undermine or destroy such a thing of value.[92]

The story of the Big Bang followed by the coalescence of planets, the beginnings of life on earth, and our evolutionary origins is familiar to science. To a degree, this story makes sense. Biotic and abiotic entities have a trajectory that predates our existence and "are initiated and sustained in the absence of humans, unaffected by human intentions, goals, purposes and actions, and regardless of human interests or desires." This autonomy constitutes nature's ontological independence.[93] It should be noted that although nature is independent of us, we cannot exist independently of it. Lee writes:

> nature's origin, its maintenance, its continued existence, and its further evolution [is] **in principle** entirely independent of humans. A thought experiment would make this point clear. One can unproblematically entertain, both on the conceptual and empirical levels, the possibility of Earth—that is nature—without humans, whereas one cannot entertain the possibility of humans existing in the absence of nature.[94]

---

[92] Lee, *Natural and Artifactual,* p. 175. Earth's atmosphere in the Archean period was not dominated by oxygen, but was a highly toxic mix of carbon monoxide, methane, ammonia, nitrogen, carbon dioxide, nitrogen, hydrochloric acid and sulfur. Oxygen was produced in the Proterozoic period by blue-green algae and photosynthesis. If "anthropoid apes" means "bipedal hominids," their lineage is actually closer to 4.5 millions years, and not 300 000 years.

[93] *Ibid.*, p. 178.

[94] *Ibid.*, p. 93.

Artifacts, in contrast to nature, owe their existence to human intentionality and therefore should be placed in a separate ontological category. To argue that since nature made us and we made the Great Wall of China, therefore the Great Wall is natural is to subsume culture under nature, "thereby rendering culture an empty notion." To respect both culture and nature, Lee argues, we should replace ontological *dualism* with an ontological *dyadism*, meaning that the ontological distinction between nature and culture is maintained without the hierarchical relationship that characterizes dualisms.[95] On this, Lee writes:

> To prevent ontological impoverishment and to save the natural from being systematically transformed to become the artefactual, through the activities of *homo faber*, rightly requires throwing out dualism, but not the very distinction itself between the natural and the artefactual. As Plumwood has emphasized, differences should not be obliterated, distinctions not overlooked and respect for 'the Other' should be based on the recognition of relevant differences, not necessarily of similarities.[96]

Respect for nature requires recognition of nature's autonomy and independence. Maintaining the two distinct categories of the natural and the artifactual, however, does not deny our evolutionary (natural) origins: "*Homo sapiens* is not so different *au fond* from an oak, a lion, or the water around us." Rather, Lee thinks that it is our unique ability to systematically "eliminate other nonhuman entities around [us] both at the empirical and philosophical levels" that requires us to create a separate category for tools as other artifacts. "What is morally relevant" she thinks, "is precisely that naturally occurring beings and artefactual beings are, in terms of their ontological status, *different* categories of being. What matters primarily is this *difference*."[97] Keeping the natural and the artifactual ontologically separate ensures that we do not confuse the two, which could cause us to regard the restored ecosystem as something just as valuable as the original. Recognizing that the intrinsic value of the natural world is grounded in its independence should also help to prevent its destruction. When a species or a river is eliminated, there is no consolation to be found in shrugging our shoulders and saying "Well, it was just a social construct anyway." The loss of a river or species means the loss of something unique and irreplaceable. It means that we have lost a piece of the living history of our planet.

To subsume nature under culture, either by eliminating or replacing biotic and abiotic entities with artifacts or by denying nature a privileged ontological status, "diminishes the world both ontologically and physically; it *also* diminishes us, humans, who are the agents of such impoverishment." *Our* essence, Lee claims, becomes reduced to the "ability to fashion tools, to make things—the intelligence

---

[95] *Ibid.*, p. 82.
[96] *Ibid.*, p. 181.
[97] *Ibid.*, pp. 184, 191.

of fabrication is all the intelligence that matters and, therefore, that there is in humans." The natural/artifact distinction protects both nature and humanity against the simplification and reduction of our identities, and the possibility of a lonesome, minimalist world in which "wherever one turns, one only sees images of oneself; whenever one shouts, one only hears one's own echoes."[98] Katz expresses a similar thought meditating on the deer visiting the back yard of his summer home:

> These animals are my connection to 'wild nature.' Despite their acceptance of the human presence, they embody something untouched and beyond humanity. They are a deep and forceful *symbol* of the wild 'other.' The world—my world—would be a poorer place if they were not there.[99]

This investigation of recovery philosophy's understanding of the wild reveals these philosophers' commitment to an ontologically independent nature. For Erik Katz and Keekok Lee wild nature is assigned to its own ontological category for its own protection, in order to secure its moral value. Laura Westra claims that a foundational moral principle, the Principle of Integrity, can be derived from the wild's requirement of structural and functional integrity. This principle provides the means by which to fit ourselves properly into an independent reality. The influence of America's history on deep ecology influences the value deep ecologists place in wilderness, in addition to their views on urbanization. In response to constructivist theories, deep ecologists such as George Sessions and Paul Shepard insist on the ontological independence of the wildernesses, and consider any claim to the contrary to be another manifestation of our anthropocentrism.

Despite the arguments that emphasize our dependence on and the importance of the wild, the recovery of nature is not yet complete. Modernity stripped nature of its intentional qualities, emptied it of intrinsic value and convinced us that humanity was *different*. If these philosophers want to stress our dependence, our connection, and our *need* for nature, then how does placing it into a separate category support a reconstruction of this problematic relationship? Social constructionist theories are considered anthropocentric and therefore dangerous. Previously, I suggested that nature's recovery must be handled with care. The epistemological starting point has consequences for the identity of nature and ourselves. George Sessions considers the Modernist tradition, beginning with Descartes, to be the wrong place to start:

> Ecophilosophers over the years have pointed to Descartes as a major source of our anthropocentric ecological problems. French deconstructionist epistemology, following the "inside-out" tradition of

[98] *Ibid.*, pp. 189, 194, (emphasis mine).
[99] Katz, *Nature as Subject*, p. 110.

> Descartes and continental phenomenology (and leading to a kind of human solipsism and denial of a real world existing independently of, and historically prior to, humans) is at best arbitrary, and, more likely, it is nonsense.[100]

It seems that for Sessions, and other recovery philosophers, it really does matter where one begins to philosophize. By "inside-out," Sessions refers to the Spinoza scholar Wallace Matson's characterization of the two dominant styles of thinking in the Western philosophical tradition. Descartes began with human consciousness and worked his way to the world. He placed himself *at the center* and worked his way out. Sessions seems to think that this epistemological starting point cannot help but produce human chauvinism. In other words, epistemological anthropocentrism leads to ethical anthropocentrism. As we saw in the previous chapter, there is some truth to his concern. Descartes kept all the positive qualities for himself and defined nature in the most minimal of terms. He did not regard the *essence* of himself as continuous with and embedded in the physical, material world. Defined in this way, there is no reason *not to* dominate nature.[101] In contrast, the "outside-in" approach "begins with an account of the world and, at the end, or near the end, explains mind and its knowledge in the terms developed in that account."[102] It should be clear that this style of philosophical reasoning is preferred by the philosophers examined thus far because it implicitly assumes the truth of Keekok Lee's Autonomy Thesis (which in turn assumes an ontologically independent nature), that is, an independent existing reality whose *being* is prior to our observations or verifications.

The philosophers examined thus far insist that nature *must* be ontologically independent, otherwise humanity fails to escape the Modernist trap of anthropocentrism. The next step in the recovery project gives an account of human identity that is supposed to form the basis on which a better relationship with nature can be forged. Nature's identity has been established, but what about ours? What aspect of our identity can the recovery philosophers appeal to such that the problematic relationship between humanity and nature is solved? It is to these questions that I now turn.

Our Evolutionary Identity

Nature's wildness is not the only wild oppressed by Modernity. For recovery philosophers, even though we may be cultured, urbanized beings, we retain an aspect of the wild in our own body. Katz considers childbirth, the type

---

[100]Sessions, "Reinventing Nature, The End of Wilderness?" p. 35.

[101]Although the subject is the reasoning behind recovery philosophy's dislike of Modernist philosophy, it is worth noting that this argument only proves that there is no reason *not* to dominate nature—it does not give us a reason *to* dominate.

[102]Wallace Matson, *A New History of Philosophy,* Vol. II (San Diego: Harcourt Brace, 1997), p. 35.

unmanaged by medical science, as an instance of the natural in us. "It is natural, free, and wild not because it is a nonhuman activity—after all, it is human childbirth—but because it is independent of a certain type of human activity, actions designed to control or to manipulate natural processes."[103] He writes:

> Although a broad definition of "natural" denotes independence from human management or interference, a more useful notion (because it has implications for value theory and ethics) can be derived from the consideration of evolutionary adaptations. Our natural diet is the one we are adapted for, that is "in keeping with our nature." All human activity is not unnatural, only that activity which goes beyond our biological and evolutionary capacities.[104]

For Katz, evolutionary history provides the missing link between ourselves and nature. Other philosophers besides Katz and Brennan appeal to evolution as well. Mick Smith notes that George Sessions and Paul Shephard have linked their arguments with the views of "natural scientists seeking to assert the accuracy of their own ontological, epistemological and ethical claims about nature."[105] Specifically, Sessions uses the science of genetics to support his arguments. One of the major areas of disagreement between the postmodernist/Marxist position and his own is "the idea that humans have a universal genetically-based human nature." Accusing his adversaries of "harkening back to older Enlightenment/social science humanist views of humanity's uniqueness, separation from Nature, and visions of total human freedom," Sessions emphasizes evolutionary history as *the* aspect of human identity that provides the basis of continuity between ourselves and nature. Our genetic code is a product of millions of years of evolution. It is not a product of Modernity. His appeal to genetics counters the postmodern view that "humans are not genetically hardwired for anything in particular: the future for humanity is totally open."[106] Since the future for humanity may include the destruction of the natural world, genetics provides much needed limits to human action and identity.

Just as Katz thinks that evolutionary theory provides a definitive answer as to what is natural and unnatural, Sessions believes genetics will do the same. He cites Shephard's work, *Nature and Madness* as support for this claim.[107] What *is* natural, according to Shephard, is that "humans are genetically programmed for wild environments, and that there is a genetically based human ontogeny that involves bonding with wild Nature."[108] Urban dwellers are not only denying

---

[103]Katz, *Nature as Subject,* p. 104.

[104]*Ibid.* see also Andrew Brennan, *Thinking about Nature: An Investigation of Nature, Value, and Ecology* (Athens, GA.: University of Georgia Press, 1988), pp. 88-91.

[105]Smith, "To Speak of Trees," p. 368.

[106]George Sessions, "Postmodernism and Environmental Justice: The Demise of The Ecology Movement?" *The Trumpeter* 12, no. 13 (Summer 1995): 152.

[107]Paul Shephard, *Nature and Madness* (San Francisco: Sierra Club Books, 1982).

[108]*Ibid.*

themselves growth and maturity, they are acting unnaturally if they prefer their city environment over wild environments. This line of argument has led critics to claim that deep ecology is "an ecological version of all that was worst in the crude reductionist and determinist sociobiological analyses of social problems."[109] Deep ecology tends to portray the science of genetics as monolithic and free of internal dissension. Mick Smith observes that Sessions and Shephard fail to recognize the irony in their faith in science. For thinkers who are so disdainful of humanist, anthropocentric positions, "the dominant strands of Enlightenment humanism would have to be characterized by (a rather naïve) faith in natural science as a human endeavor capable of revealing the truth about 'nature'."[110]

In his attempt to amass the evidence against anthropocentrism, philosopher Warwick Fox also appeals to evolutionary theory. His interpretation of our biological history leads to an interesting conclusion about the similarity between the "cultures" of animals and that of human beings. He writes:

> We do not live at the center of the universe and we are not biologically unrelated to other creatures. And yet, although "everybody knows" these truths, it is still worth reminding ourselves of the perhaps subtler points that we are not even psychologically, socially, or culturally different *in kind* from all other animals and that we are not the "end point" of evolution.[111]

To support the statement that humans are only different *in degree* from other animals in our psychological, social and cultural aspects, Fox cites Peter Farb's book, *Humanity*:

> Scientists now know that the chasm separating humans from animals is not so wide as it once appeared. Some animal species have evolved a rich communication system, while others make and use tools, solve difficult problems, educate their young, live in complex social organizations, and apparently possess an aesthetic sense.[112]

Thus in the attempt to counter anthropocentrism, we see two related strategies. First, the human species is construed as not all that different from other species. We are just another branch on the evolutionary tree, and therefore nothing particularly special. Evolution, understood as a slow, gradual process taking

---

[109]Smith, "To Speak of Trees," p. 369. See also, Andrew Ross, *The Chicago Gangster Theory of Life: Nature's Debt to Society* (London, Verso, 1994). The link to sociobiology presumably derives from sociobiologist E. O. Wilson's so-called biophilia hypothesis, according to which humans have an evolved, adaptive need and love for biological diversity. See R. Kellert and Edmund O. Wilson, *The Biophilia Hypothesis* (Washington: Island Press, 1993).

[110]Smith, "To Speak of Trees," p. 371.

[111]Warwick Fox, *Toward a Transpersonal Ecology: Developing New Foundations for Environmentalism* (Boston: Shambhala Publications, Inc. 1990), p. 14.

[112]Peter Farb, *Humankind* (Boston: Houghton Mifflin, 1978), p. 12.

place over millions of years, *cannot* produce a creature that is radically different *in kind* from everything else. Any capacity that we may have as a species, say tool-making, is considered a bit more sophisticated, a bit more developed, but not a singular trait that radically distinguishes our species from others. Second, other creatures, close cousins to our species, have only less sophisticated versions of our traits and behaviours. *Homo sapiens* uses a stick to uproot nutritious rhizomes; a chimpanzee uses a stick to pull termites from a mound. *Homo sapiens* decorates the walls of a cave with paintings depicting a hunt; a weaver bird chooses brightly coloured string to decorate the nest. Our sticks and paintings may have a greater variety of uses, whereas the brightly coloured string and the termite lure are confined to attracting a mate and eating termites, but the observable behaviour of animals leads to the conclusion that they engage in simpler versions of many if not most of our activities.

Pointing out complex behaviour in animals—tool use, communication systems, social relations, aesthetic sense, and so on—and concluding that they are analogous to human versions can lead philosophers to import problematic concepts into their arguments. It is important to know the scientist's working definitions. For example, a recent study with capuchin monkeys from the Yerkes National Primate Research Centre suggests that they may actually have a sense of "fairness" akin to our own.[113] To the recovery philosopher concerned with amassing evidence of continuity between human beings and other animals, a study suggesting the presence in another species of a complex concept such as fairness is a welcome piece of evidence. Closer inspection shows that the working definition of fairness is problematic. In the study, the monkeys were trained to exchange a granite chip for a cucumber treat. When some saw that others got a tastier reward, a grape, for the same amount of work, they often learned to reject the cucumber, thereby forfeiting a "directly accessible food that they readily accept and consume under almost any other set of circumstances," or they responded by "tossing the token or reward out of the test chamber."[114] Assessing the results of their study, Brosnan and de Waal conclude:

> People judge fairness based both on the distribution of gains and on the possible alternatives to a given outcome. Capuchin monkeys, too, seem to measure reward in relative terms, comparing their own rewards with those available, and their own efforts with those of others. They respond negatively to previously acceptable rewards if a partner gets a better deal. Although our date cannot elucidate the precise motivations underlying these responses, one possibility is that monkeys, similarly to humans, are guided by social emotions. These emotions, known as 'passions' by economists, guide human reactions to the efforts, gains, losses and attitudes to others. Clearly if these

[113]Sarah F. Brosnan and Frans B.M. de Waal, "Monkeys Reject Unequal Pay," *Nature* 425 (18 Sept. 2003): 297-9.

[114]*Ibid.*, p. 298.

> reactions evolved to promote long-term human cooperation, they may exist in other animals as well.[115]

I neither dispute the possibility that capuchin monkeys have an evolved sense of fairness nor exclude scientific findings from philosophical arguments. I do want to point out that the researchers rely on a concept of fairness that is exclusively sourced from economists.[116] In a variety of bargaining games considered by economists, fairness means the acceptance of an offer and unfairness means its rejection. The acceptance or rejection of an offer may help simplify experimental design, but can it really encapsulate the concept of fairness itself? Falk, Fehr, and Fischbacher add an important caveat to their own conclusions: "despite their predictive success in important areas, our results indicate that legitimate doubts remain as to whether these models capture the phenomenon of reciprocal fairness in a fully satisfactory way."[117] Games and related economic models cannot capture the "phenomenon of reciprocal fairness" because they are not situated in the real world, and consequently have important limitations. The mere acceptance of an offer does not, in real life situations, make that offer fair. If it did, then the paltry wages paid to sweatshop workers in China are fair by virtue of the fact that they have accepted them.

Science, then, is not an unproblematic resource for environmental philosophy. The uncritical adoption of scientific findings may commit the philosopher to an understanding of a concept that he or she may not wish to maintain in other contexts. I suspect that the reason why recovery philosophers appeal to science has to do with the rhetorical weight that Western society gives to scientific claims. Arguments about the intrinsic value or aesthetic need for wilderness may be considered subjective and dismissed by policy makers. Science ostensibly provides the objective basis for claims about the consequences of ecosystem destruction and the erroneous assumption of human superiority.

Laura Westra also has an understanding of human identity that emphasizes our evolutionary connection to the natural world. Instead of appealing to genetic or behavioural similarities, her argument seeks to reconcile the interests of ecosystems (maintaining functional and structural integrity) with the basic biological interests of humans. She argues for an all embracing monism that is

---

[115] *Ibid.*, p. 299.

[116] Armin Falk, Ernst Fehr, and Urs Fischbacher, "On the Nature of Fair Behaviour," *Economic Inquiry* 41, no. 1, (January 2003): 20-26. See also J. Andreoni, P. M. Brown, and L. Vesterlund, "What makes an allocation fair? Some experimental evidence," *Games and Economic Behaviour*, 40, no. 1 (2002): 1-24. It is interesting that Brosnan and de Waal did not draw a different, simpler conclusion. "Fairness" depends on a developed sense of individuality. Something is fair when a person "gets what is owed." Whether capuchin monkeys have a sense of individuality is doubtful. They are, however, sociable animals that live in groups of ten to thirty members. We can presume that there are strong social instincts helping to bond the monkeys together in groups. Rejecting cucumbers might have been an expression of frustration stemming from the social instincts that push them towards inclusiveness.

[117] Falk *et al*, "Nature of Fair Behaviour," p. 21.

supposed to accord respect for the biological unfolding and development of each organism within the system.[118] The ground of this monism, the Principle of Integrity, supports only basic biological interests, "a 'general' good without which no other good is possible." All other goods, i.e., all other moral systems, are supposed to fit within the Principle of Integrity because the principle "operates as a *limitation* and basic first principle for all other interhuman ethics."[119]

Her position cleaves human identity into two parts. First is our biological identity, whose interests come prior to our societal interests and which serves as a limitation on our actions. Clean air, water, food, and a stable, well-functioning biosphere are the natural requirements for all life on earth. The reality, the *is* of our existence, is a product of millions of years of evolution. To deny that reality would be to deny a basic biological fact. Every other human concern is subsumed underneath the Principle of Integrity, whose main goal is the protection of the conditions that support life. The laws of nature that govern every other organism also govern us, and it is a grave mistake to think that because we have a socio-technical culture, we are somehow exempt from those laws.

So far, her view is an example of the environmental rhetoric popularized by scientists such as David Suzuki. Take away our culture, artifacts, technology, and we are just another animal on planet earth. The following paragraph demonstrates Westra's distinction between a human and a technological identity:

> Thus, to take a "deep ecology" position and to support some preservation of the wild does not force humans outside the natural environment; it simply recognizes the limits within which humankind must operate in it. Of course, *it is simply "human," not "techno-human," beings who belong in natural systems,* as claims about an ecological niche can only be made for an animal in its natural state.[120]

Our natural state or our ecological niche does not include technology. Westra seems to imply that the human species evolved and established its ecological niche, *then* invented tools. With tool use we displaced ourselves from our niche and became techno-humans. But is this story about our evolutionary development true? Can we really make a distinction between a natural human and a techno-human? These are important questions. Westra, however, along with the other environmental philosophers, does not ask these questions.

The strategy used by these environmental philosophers is to emphasize the kinship we share with other species. For deep ecologists, the key similarity is shared genetic history. Westra appeals to common interests, but the differences between humans and the other species are not considered. In response to this point, one may say that for far too long we humans have concentrated on the differences between ourselves and the natural world. Difference has been used to

---

[118] Self-defense, though, is permitted.

[119] Westra, *Principle of Integrity*, pp. 130, 123.

[120] Westra, *Living in Integrity*, p. 138.

justify a host of atrocities against nature. The similarity between our nervous system and that of a rat means that we have excellent test subjects to help determine the safety of a drug. When determining, however, whether a certain chemical is a carcinogen or not, companies will often appeal to the *differences* between humans and rats in their own defense. For Descartes, the difference between mind and body justified animal vivisection. For most Christians, the difference between mankind and the rest of nature justifies our stewardship role on earth. Difference helps to justify anthropocentrism. For these environmental philosophers, changing the focus from *difference* to *similarity* helps to remove the grounds for maintaining an anthropocentric position.

Concentration on similarity, though, raises conceptual problems. One of the major criticisms leveled at deep ecologists by ecofeminists is that in their attempt to overcome the differences between humanity and nature, deep ecologists dissolve the boundaries between self and other, subsuming the other under an expanded self. Plumwood argues that "there is an arrogance in failing to respect boundaries and to acknowledge difference which can amount to an imposition of self." Maintaining a sense of difference is important because "acknowledging the other's boundary and opacity of being is part of respect for the other."[121] Despite their problematic metaphysics, deep ecologists appeal to our evolutionary past and our genetic code as the basis for our similarity with the rest of nature. Plumwood also appeals to the importance of the recognition of our animal selves in overcoming dualisms.

> Much modern environmental wisdom from such thinkers as David Suzuki has as its main theme the message that humans are animals and have the same dependence on a healthy biosphere as other forms of life. On the surface, it is puzzling that an apparent truism should find so much resistance and should need to be stressed so much. But the reason why this message of continuity and dependency is so revolutionary in the context of the modern world is that the dominant strands of western culture have for so long denied it, and have given us a model of human identity as only minimally and accidentally connected to the earth. For all the formal knowledge of evolutionary biology, this model of disconnection remains deeply and fatally entrenched in modern conceptions of the human and of nature, inscribed in culture as a result of a dynamic which sought to naturalize domination in both human and non-human sphere. [122]

Modern western culture enforces and reinforces an alienated human identity. Evolutionary biology emphasizes similarity and continuity. Despite her desire to recognize the irreducibility of the Other, Plumwood considers the evolutionary

---

[121]Val Plumwood, *Feminism and the Mastery of Nature* (New York: Routledge, 1993), p. 178.
[122]*Ibid.*, p. 6.

facts of our origins as a species as proving the continuity between ourselves and the rest of nature. In this sense, her theory is similar to deep ecology.

Lee and Katz place our differences in another ontological category. The Autonomy Thesis given an account of the origins of life in the universe and tells the story of our evolution—our natural selves. What we produce, however, exists across an ontological divide, separated and separate. Besides the idea that an ontologically independent nature is "a category worth preserving," and preserving this category "constitutes the most fundamental task in environmental philosophy,"[123] Lee worries about the consequences that ensue when *Homo faber* is selected as the defining identity of human beings. According to Lee, the understanding of our species being, as *Homo faber*, is a defining characteristic of Modernity:

> Humanity is primarily celebrated in terms of the intelligence displayed in tool-making and in the manufacture of artefacts. Its associated theme of the humanization of nature is another way of saying that the natural is both ontologically and morally void (in keeping with the metaphysics of Scientific Naturalism) unless endowed with being and value by humans in their endeavor to transform it to become the artefactual *via* human labor and technology. Furthermore, fabrication permeates the whole of human existence in the sense that whatever we do—eat, make love, climb mountains—our activities are mediated increasingly by highly technologized artifacts. *Homo ludens* rides on the back of *homo faber*; so does the kingdom of freedom if the kingdom of necessity is to be left behind.[124]

Celebrating the building, creating, transforming aspect of humanity is celebrating the triumphs of our ability to manipulate the natural world. For Lee, *Homo faber is* anthropocentrism personified. Thus, she adds another aspect to environmental philosophy's analysis of Modernism. Recall Katz's view that the instrumentalization of nature is the defining ill of Modernism. Since instrumentalization requires beings who instrumentalize, Lee extends Katz's position to include the anthropology of *Homo faber*, the creator of instruments. "Modernity, in its boldest aspiration, tries to transform the natural into the artefactual."[125]

As with the other recovery philosophers, the dualism between ourselves and nature is partly healed through the splitting of *our* being into two parts, the natural and the artifactual. Into the first category goes our evolutionary history, common interests, genetic code, and the animal nature common to all *Homo sapiens*. Into the second category goes our particular cultures, languages, artifacts, cities, and so on. However, we have not yet overcome the dualism by recovering our

---

[123]Lee, *The Natural and the Artefactual*, p. 4.
[124]*Ibid.*, p. 7.
[125]*Ibid.*, p. 85.

suppressed wild/evolutionary identity. For recovery philosophers, Modernity is powerful because it is an all encompassing world view. The only defense against this world view is another that is based on nature's ontological independence and that recognizes our recovered, wild identity.

Ecology and the Need for a New World View

The concept of world view was coined by Immanuel Kant in *The Critique of Judgment.* Originally, *Weltanschauung* referred simply to our perceptions about the world.[126] In his work detailing the theological importance and philosophical history of world view, David K. Naugle notes that after Kant, the term was widely adopted in German philosophy, beginning with Kant's disciple, Johann Gottlieb Fichte. The word lost its technical, Kantian meaning when it shifted from sensory perception to a more general "intellectual perception of the cosmos."[127] The concept made its way into other branches of philosophy and other disciplines, e.g., sociology and anthropology. The various meanings it has received bear a family resemblance. Cultural anthropologist Michael Kearney gives a general definition:

> The world view of a people is their way of looking at reality. It consists of basic assumptions and images that provide a more or less coherent, though not necessarily accurate way of thinking about the world. A world view comprises images of Self and of all that is recognized as not-Self, plus ideas about relationships between them, as well as other ideas.[128]

In his catalogue of world views, James Sire explains the concept in similar terms. Worldview is "a set of presuppositions (or assumptions) which we hold (consciously or unconsciously) about the basic makeup of our world."[129] Other images used to explain worldview include grid or framework,[130] a "mental image of social reality,"[131] and a paradigm for interpreting data.[132]

---

[126] Immanuel Kant, *Critique of Judgment,* trans. Werner S. Pluhar (Indianapolis: Hackett, 1987), pp. 111-12.

[127] David K. Naugle, *Worldview: The History of a Concept* (Grand Rapids, Mich.: Eerdmans, 2002), pp. 58-107, 61.

[128] Michael Kearney, *Worldview* (Novato, Calif.: Chandler and Sharp, 1984), p. 41.

[129] James Sire, *The Universe Next Door: A Basic World View Catalogue,* (Downers Grove, Ill.,: Intervarsity Press, 1976), p. 17.

[130] Howard A. Snyder, *EarthCurrents: The Struggle for the World's Soul,* (Nashville, Tenn: Abingdon Press, 1995), p. 135.

[131] Dennis Pirages and Paul R. Ehrlich, *Ark II: Social Response to Environmental Imperatives* (San Francisco: Freeman, 1974), p. 43.

[132] Edwin Hung, *The Nature of Science: Problems and Perspectives* (Belmont, Calif.,: Wadsworth, 1997), p. 368. See also Floyd Merrell, *A Semiotic Theory of Texts* (New York: Mouton de Gruyter, 1985), p. 42.

For deep ecology, the concept of world view is indispensable. Their analysis of environmental problems, the thrust of their critique of other environmental theories, and the very name *deep* ecology itself evince the primacy they give to the concept of world view. In his mission statement Drengson states that *The Trumpeter's* aim "is to pursue and present *ecosophies*." Ecosophies are a personal quest for wise, sustainable living, and a theoretical search for "a *total* or *comprehensive view* of our human and individual situation."[133]

Why is world view important to recovery philosophy? If we are in an ecological crisis and the crisis is understood as a result of a harmful Modernist world view, then it is plausible and tempting to see the solution in terms of an alternative world view. A shallow, piecemeal approach to environmental problems will not attack the root of the problem. Commenting on the founder of deep ecology, Drengson writes, "Naess' ecophilosophy framework of analysis for the environmental movement and crisis is an inclusive and comprehensive one, aimed at getting a total view, understanding holistically."[134] Deep ecology blames the Modernist world view, whose main feature is an anthropocentric attitude that "regards humans as isolated and fundamentally separate from the rest of Nature, as superior to, and in charge of, the rest of creation."[135] Nothing less than a wholesale change that "amounts to a 'conversion'—a psychological/spiritual 'paradigm shift,'"[136] will allow us to escape the conditions that have created the problem.

Deep ecology's theoretical commitment to the "right" world view encourages deep ecologists to be dismissive of those who merely want to clean up landfills or reduce air pollution. Such concerns are only symptoms of the erroneous assumptions fostered by Modernism. George Sessions reveals this bias when he states:

> many people who claim to be environmentalists are fixated mainly on pollution and toxic waste issues, and on how *urban humans* in industrial countries are negatively affected . . . an ecological or ecocentric perspective involves a total view and an integrated understanding of the ecological crisis, which helps in setting priorities at this time of extreme planetary crisis.[137]

Deep ecology's commitment to a world view frames their analysis of other environmental philosophers. For instance, consider the ecofeminist/deep ecology debates. Ecofeminist Ariel Kay Salleh, initiated a debate amongst ecofeminists

---

[133]Alan Drengson, "An Ecophilosophy Approach, the Deep Ecology Movement and Diverse Ecosophies," *The Trumpeter* 14, no. 3 (Summer 1997): 110.

[134]*Ibid.*

[135]Sessions and Devall, *Deep Ecology*, p. 65.

[136]JoAnn McAllister, "Wilderness: Back to Basic, An Interview with George Sessions," *The Trumpeter* 11, no. 2 (Spring 1994): 68.

[137]*Ibid.*, p. 66.

and deep ecologists over whose analysis of the environmental problem was more profound.[138] For Naess, the depth of ecosophies is judged from the "distance [they] look in search of roots of a problem, and in refusing to ignore troubling evidence."[139] Ecofeminism, according to Fox, is shallow, because it posits one perspective (women's) in the search for the root cause of ecological destruction.[140] In response, ecofeminists scrutinize deep ecology for traces of the anthropocentrism it purports to eject from its theory, and argues that an analysis of the connections between the oppression of humans and the oppression of nature provides a more comprehensive view.[141] Ecofeminists claim that "there is a respect in which ecofeminism *is* a kind of deep ecology. It is not shallow; it is anti-anthropocentric. . . and engages in extensive, if not bottomless, questioning about the many factors which contribute to our present environmental dilemmas."[142]

Where deep ecology and some strands of ecofeminism differ, however, is in the extent to which the former uncritically adopts the science of ecology as the foundation of its world view. Although many eco-feminists have a conceptual analysis of environmental problems (e.g., Plumwood's account of dualism), most stop short of positing a world view *contra* Modernity because of their skepticism towards comprehensive systems. The ecological world view of deep ecology is a comprehensive system and argues that the science of ecology has created a radical shift in our understanding of the world. Using Robert Kirkman's terminology, ecologism is the world view that "takes its place as part of a movement of opposition against 'modernism,' and which is defined in terms of that opposition."[143]

An aspect that many recovery philosophers would like to include in ecologism is *ecological holism.* Although he is not a deep ecologist *per se,* J. Baird Callicott gives an account of the cultural implications of ecology in his article "The Metaphysical Implications of Ecology."[144] Like the deep ecologists, Callicott thinks that ecological holism is the solution to the problem created by Modernity

---

[138]A.K. Salleh, "Deeper than Deep Ecology: the Eco-Feminist Connection," *Environmental Ethics* 6, no. 4 (Winter 1984): 339-345.

[139]Arne Naess, *Ecology, Community and Lifestyle: An Outline of an Ecosophy* (Cambridge: Cambridge University Press, 1990), p. 12.

[140]Warwick Fox, "The Deep Ecology- Ecofeminism Debate and its Parallels," *Environmental Ethics* 11, no. 1 (Spring 1989): 5-25.

[141]See Val Plumwood, *Feminism and the Mastery of Nature* (New York: Routledge, 1993), and Ariel Salleh, "The Ecofeminism/Deep Ecology debate," *Environmental Ethics* 14, no 3 (Fall 1992): 195-216.

[142]Christine J. Cuomo, "Ecofeminism, Deep Ecology, and Human Population," in *Ecological Feminism*, ed. Karen Warren (New York: Routledge, 1994), p. 102.

[143]Robert Kirkman, "Why Ecology Cannot Be All Things to All People," *Environmental Ethics* 18, no. 4 (Winter 1997): 376.

[144]J. Baird Callicott, "The Metaphysical Implications of Ecology," *Environmental Ethics* 8, no. 4 (Winter 1986): 301-316.

because ecological holism challenges two fundamental Modernist tenets: atomism and reductionism.

According to Callicott, Modern science "adopted and adapted an ontology first set out in Western thought by Leucippus and Democritus in the fifth century B.C.—atomic materialism." There were many advantages associated with the adoption of atomic materialism. As simple bodies, an atom's location and movement could be understood in precise mathematical terms, and larger, more complex bodies could be understood as a temporary association and dissociation of atoms. Given that composite bodies are ontologically reducible to its simpler components,[145] atomism implies reductionism. In addition, composite bodies can be understood in mechanical terms because causal relations amongst bodies can be reduced to the motion of atoms from point to point. Atomism is not limited to scientific investigation; it occupies an important place within the broader Modernist world view. The implications of atomism for the Modernist world view are summarized as follows:

> [T]he world consists of an array of precisely demarcated individual things or substances, which preserve their identity through time, occupy definite positions in space, have their own essential natures independently of their relations to anything else, and fall into clearly distinct natural kinds. Such a world resembles a warehouse of automobile parts. Each item is standard in character, independent of all other items, in its own place, and ordinarily unchanging in its intrinsic nature.[146]

According to recovery philosophers, ecology teaches us that the world should not be understood in such terms. Atoms and their movement through space are not the basic units of understanding. Instead, relationships, energy and organicism are emphasized.[147] To understand an individual organism, one must involve "the conception of others and so on, until the entire system is in principle implicated."[148]

A typical definition of ecological holism can be found in Westra's work. It is the philosophical position that considers "life-support systems, and hence wholes, rather than individuals to be primary."[149] In the environmental literature, holism is rarely found without the attendant terms *ecocentric* or *biocentric* (whether there is any meaningful difference between the two terms depends on the philosopher). Generally, deep ecologists prefer the term *ecocentric*. The problem with the term

---

[145]*Ibid.*, pp. 302, 303.

[146]Anthony Quinton, "The Right Stuff," *New York Review of Books* 5 (December 1985), p. 52.

[147]Early ecological theory was both a romantic reaction to eighteenth-century mechanism and reductionism, rife with metaphors like balance and harmony but it also owed some of its early ideas, e.g., the economy of nature, to thinkers more firmly entrenched in the Modernist tradition. See Gilbert White, *The Natural History of Selborne* (New York: Harper, 1942).

[148]Callicott, "Metaphysical Implications of Ecology," p. 311.

[149]Westra, *The Principle of Integrity*, p. 123.

*bio*centric, literally "life-centered," and its cognate "*bio*sphere," is that the importance of life is overemphasized at the expense of the abiotic entities. Living matter is regarded as existing on lifeless rock, thus contributing to an anthropocentric perspective, where "sea, land and air—classified as dead environment—can be freely exploited. In the reigning ideology as long as large *organisms* are safeguarded, anything goes."[150]

In contrast, *eco*centric recognizes the contributions of abiotic entities—volcanoes, mountains, the ozone layer, and so on—to the functioning of the whole. Stan Rowe writes, "the planetary ecosphere and its sectoral volumetric ecosystems are SUPRA-organismic, higher levels of integration than mere organisms." *Bio*centrism fails to capture this higher level of complexity because of its commitment to organisms, whereas "essential to the *ecocentric* idea is assignment of highest value to the ecosphere and to the ecosystems that it comprises."[151]

Despite the quibbles over *ecocentric* or *biocentric*, the roots of ecological holism are found in the doctrine of *organicism*. Although it originated in philosophy, the doctrine of organicism was adopted by psychology, biology, and social theory. Given the relatively wide and variable treatment of ecological holism in the environmental philosophy literature, an examination of organicism's fundamental tenets will give a clearer picture of the relevant issues in ecological holism. For Westra, and other deep ecologists, ecocentric holism is *the* answer to problems created by the dualisms they criticize. Eric Katz is more skeptical for reasons that will soon appear. I will examine whether there is reason to doubt the soundness of ecological holism in chapter 4.

According to the most common understanding of organicism, there is a relevant analogy between organisms and the world. Despite the number of writers who claim that this is *the* characteristic of organicism,[152] D.C. Phillips argues that the"explication of organicism in terms of the organic analogy is unduly vague, for five distinct but interrelated ideas can be distinguished fairly readily in the organicist position, at least in the late nineteenth and early twentieth centuries."[153] These are:

> (i) The mechanistic approach, i.e., the analytic approach as typified by the physico-chemical sciences, proves inadequate when applied to certain cases—for example, to a biological organism or to society or even to reality as a whole.

---

[150]Stan Rowe, "From Shallow to Deep Ecological Philosophy," *The Trumpeter* 13, no. 1 (Winter 1996): 29.

[151]*Ibid.*

[152] See for instance F. W. Coker, *Organismic Theories of the State* (New York: Columbia University Press, 1910); P.A. Sorokin, *Contemporary Sociological Theories* (New York: Harper, 1928), ch. 4., and D. Martindale, *The Nature and Types of Sociological Theory*, 2nd ed. (Boston : Houghton Mifflin, 1981), p. 52.

[153] D.C. Phillips, "Organicism in the Late Nineteenth and Early Twentieth Centuries," *Journal of the History of Ideas* 31, no. 3 (Sept. 1970): 413.

(ii) The whole is more than the sum of the parts.

(iii) The whole determines the nature of the parts.

(iv) The parts cannot be understood if considered in isolation from the whole.

(v) The parts are dynamically interrelated or interdependent.[154]

The organicist position of the early-to mid-nineteeth century was based on a rejection of the mechanistic approach to nature. The revival of the theory in the twentieth century was, in part, due to the efforts of the neo-idealists F.H. Bradley, A.E. Taylor, and J. McTaggart.[155] At the core of organicism is the doctrine of internal relations (sometimes called intrinsic relations), which holds that any relation between entities, for instance, A, B, and C, is possible only within an embracing whole. Entities are altered by virtue of these relations, and these relations qualify the whole which reciprocally qualifies the parts. The idea that entities are necessarily altered by virtue of their relations is the key point in the doctrine of internal relations. This means that A gains something, say, P, by virtue of its relation to B. If A did not have P, it would be not-A. The organicist's rejection of mechanism rested on this point because in mechanical systems the nature of the parts stays the same whether or not they are included in a system. For example, a bicycle chain does not change when separated from the rest of the bicycle. However, a human liver, if separated from a person's body, would transform from an intricate mass of cellular tissue capable of filtration to a lump of rotting matter. Callicott asserts confidently that "internal relations are straightforwardly implicated in ecology."[156]

Apart from its critique of mechanism, Organicism's four remaining characteristics—(ii) whole greater than parts, (iii) whole determining parts, (iv) inability to understanding individual parts without the whole, and the (v) interrelation of the parts—can be identified in today's ecological holism. Take the familiar phrase, "the whole is greater than the sum of the parts." According to Phillips, in the context of organicism this means that if we were to compare the characteristics of the whole to a sum of the characteristics of all the parts, we would see that the former has a *different* set of characteristics than the latter. This point is particularly relevant for ecological holism because it is thought that ecosystems have functions and capabilities (stability, diversity) that individual organisms do not. Ecocentric holists conclude that ecosystems therefore have

---

[154] *Ibid.*

[155] *Ibid*, p. 414; see also F.A. Bradley, *Appearance and Reality* (Oxford, 1962), 18; A.E. Taylor, *Elements of Metaphysics* (London, 1961), 113 and J. McTaggart, *The Nature of Existence* (Cambridge, 1921), I, 113.

[156] Callicott, "Metaphysical Implications of Ecology," p. 311.

interests, that is, they are goal-directed. If it can be shown that ecosystems have interests, and if we base moral considerability on the fact that something *has* interests, ecosystems would be morally considerable.

In addition to the whole possessing characteristics that do not exist in the parts, the parts have characteristics that would not exist if they were isolated from the whole.[157] This idea can be seen in Callicott's understanding of species adaptation:

> Their actual relationships to other organisms (to predators, to prey, to parasites and disease organisms, etc.) and to physical and chemical conditions (to temperature, radiation, salinity, wind, soil and water pH, and so on) literally sculpt their outward forms, their metabolic, physiological, and reproductive processes, and even their psychological and mental capacities.[158]

According to ecological holists, wholes give species their particular traits because wholes are primary. For Callicott and Rowe, primary is understood as "prior":

> To convey an anti-Aristotelian thought in an Aristotelian manner of speech one might say that from an ecological perspective, relations are 'prior' to the things related, and the systemic wholes woven from these relations are 'prior' to their component parts. Ecosystemic wholes are 'logically prior' to their component species because the nature of the part is determined by its relationship to the whole. That is, more simply and concretely expressed, a species has the particular characteristics that it has because those characteristics result from its adaptation to a *niche* in an eco*system*.[159]

Stan Rowe expresses this in shorthand form: "*earth before organisms. Ecosystems before people.*" Rowe even claims that wholes have unique causal powers. "Marsh ecosystems *brought forth ducks* as well as a swarm of other semi-aquatic organisms . . . marshes can exist without ducks, but ducks (now in decline) cannot exist without marshes." Here we see the third aspect of organicism: the whole determines the nature of the parts. Species, for Rowe, do not just *adapt* to niches in ecosystems, the ecosystems actually *produce* the species to fill the niches. According to Rowe, "these beliefs are arguably based in science."[160]

The final aspect of organicism, the dynamic interrelation of parts within a whole, is understood by ecological holists to give primacy to energy and its transfer throughout an ecosystem. The flow of *energy* through the system

---

[157]Phillips, "Organicism," p. 417.

[158]Callicott "The Metaphysical Implications of Ecology," p. 312.

[159]*Ibid.*

[160] Rowe, "From Shallow Ecology to Deep Ecological Philosophy, p. 30.

provides the basis for the dynamic interconnection of all constituent parts of the whole. Robert P. McIntosh cites R. L. Lindeman as the father of the "functional ecosystem approach," in which ecosystems were understood as the transfer of energy through food chains.[161] Followers of this approach expropriated the laws of thermodynamics for ecology, citing them as ecological principles.[162] After the introduction of thermodynamics, mathematical models soon found their way into ecology through the expropriation of systems analysis. "The attempt to develop a general model for an ecosystem is, therefore, an attempt to develop a conceptual structure for ecosystem theory."[163] Writer and forester Aldo Leopold (a major influence on deep ecology and Callicott) considers the transfer of energy to be fundamental to understanding ecosystems. In an oft-quoted passage, he defines land as "a fountain of energy flowing through a circuit of soils, plants and animals."[164]

In conceptualizing land *as energy,* the understanding of the world shifts from discrete matter to a model where matter is radically contingent on the flow of energy through a system. The Yale biophysicist Harold Morowitz explains this concept using the example of a vortex. A vortex exists only because of a flow of water. It is not an entity in the classical Western sense of the term. Biological entities, although they are more complex than water molecules, are similar to a vortex. The same description applies: "transient, unstable entities with constantly changing molecules dependent on a constant flow of energy to maintain form and structure."[165] The flow of energy through an ecosystem means that entities will be brought into necessary relationships with each other as energy is transferred from organism to organism. Naess claims that the primacy given to energy by modern ecology inspires us to understand organisms as "knots in the biospherical net of intrinsic relations."[166] Following his assertion that wholes should be considered *prior* to the parts, Callicott concludes that energy is "a more fundamental and primitive reality than material objects or discrete entities."[167] Like Paul Shephard, Callicott proposes that "living natural objects should be

---

[161]McIntosh, "Some Problems of Theoretical Ecology," p. 34, see also R.L Lindeman "The Trophic-Dynamic Aspect of Ecology," *Ecology* 23 (1942): 399-418.

[162]McIntosh, "Problems of Theoretical Ecology," p. 34. See also E.P. Odum "Energy Flow in Ecosystems. A Historical Review," *American Zoologist* 8, (1968): 11-18, [*Environment, Power and Society*, (New York: Wiley-Interscience, 1971), p. 331.] and R.V. O'Neill, "Paradigms of Ecosystem Analysis," in *Ecological Theory and Ecosystem Models,* ed. S.A. Levin (Office of Ecosystem Studies, The Institute of Ecology, 1976): 16-19.

[163]B.C. Patten, "Ecosystem modeling in the U.S. International Biological Program," in *Systems Analysis and Simulation in Ecology*, ed. B.C. Patten (New York: Academic Press, 1975): 4.

[164] Aldo Leopold, *A Sand County Almanac and Sketches Here and There* (New York: Oxford University Press, 1949), p. 216.

[165]Harold J. Morowitz, "Biology as a Cosmological Science," *Main Currents in Modern Thought* 28, (1972): 156.

[166]Arne Naess, "The Shallow and the Deep, Long-Range Ecology Movement. A Summary." *Inquiry* 16 (1973): 98.

[167]Callicott, "Metaphysical Implications of Ecology," p. 310.

regarded as ontologically subordinate to 'events' and/or 'flow patterns' and/or 'field patterns.'"[168]

Although he does not address the philosophical dimensions of organicism, Eric Katz critiques ecological holism. He is concerned about its potential ethical consequences. Any holist who maintains the intrinsic value of each and every part regardless of its participation in the whole will have to answer the difficulties raised by the "substitution problem." Ecological holism does not confer an autonomous existence on organisms within the whole. "They are *parts*, nothing more; they are not members, not individuals, but units or elements in an organic body." Parts can be replaced if the need arises because there is nothing *intrinsically* or *individually* valuable about any one of them. The community model, according to Katz, offers a better description of ecosystems *and* establishes the individual worth of each participating organism because it acknowledges that "each has an independent existence," in addition to its functions in the system.[169] He writes:

> The natural ecosystem is more similar to a community like the university than to an organic system like a human body. It is difficult to conceive of humans, plants, and inanimate natural objects as mere parts of one large organism. Although these autonomous entities do participate in an ecological system, they also have independent lives and functions. In addition to the role the entities in an ecological system play in maintaining the natural order, they also perform functions on their own. Evolutionary theory teaches that all species strive for their own survival, but in doing so they contribute to the functioning of the natural system.[170]

In response to Katz's concerns, there is a final aspect to ecological holism that must be addressed as it will reveal what I suggest is the primary motivation behind those who adopt its tenets. Westra's response to the "fascist" objection often leveled at ecological holism is a starting point. Criticisms leveled at holistic theories claim that the priority of the whole over the individual, if applied in a political context, could result in a sort of eco-fascism. Prioritizing the whole means according individuals less value. This has been demonstrated by the history of totalitarian regimes.[171] In a similar vein, if the value of the whole is a function of its interconnected parts, for human beings in particular, given that our contributions to the whole are minimal (and are outweighed by our damaging

---

[168] Paul Shepard, "A Theory of the Value of Hunting," *Twenty-Fourth North American Wildlife Conference* (Washington, D.C.: 1957), pp. 505-06.

[169] Eric Katz, "Organism, Community, and the 'Substitution Problem,' *Environmental Ethics* 7, no. 3 (Fall 1985), pp. 245, 246.

[170] *Ibid.*

[171] Tom Regan, *The Case for Animal Rights* (Berkeley: University of California Press, 1983), p. 362.

effects), holism "may not prescribe mass genocide or species suicide, but it comes close."[172]

There are two strategies employed by those who wish to defend holistic theories from these charges. The first suggests that ecosystems have intrinsic value because, like individual organisms, they have interests, even if the interests of ecosystems are limited to "interests in their own self-regeneration."[173] If one accepts that premise, then "the moral considerability of individual organisms is *guaranteed* since the fact that these kinds of entities have interests of this kind is even easier to establish."[174] In other words, the recognition of intrinsic worth is based on whether or not the organism is *autopoietic*, that is, capable of self-regeneration. Since both ecosystems and organisms have this capacity, there is no devaluation of the individual within the system.

The second strategy argues that there cannot be any relevant conflict between individuals and wholes because the Principle of Integrity "only promotes and supports a general 'good' without which no other good is possible, whether for individuals or groups."[175] Integrity is a foundational principle for parts and wholes. Human beings, and all other life forms, need self-sustaining ecosystems for survival. Ecosystems are composed of life-forms. Both need integrity. Any potential conflict between individual *humans* and wholes is resolved "at the basic level of survival only, [because] we have no interests that are completely separate from those of all other life, so that their 'values' and our 'values' coincide."[176] Our interests are congruent because our "biological requirements" are "neither markedly different from, nor in any way superior to those of the rest of the biota."[177] Given that we are all dependent on natural systems as well as being embedded within them, Westra claims that biocentric holism is actually more democratic than fascist. "Hence rather than impose totalitarianism, the Principle of Integrity demands respect, prima facie, for the freedom to unfold of all individuals, groups, species, and systemic wholes." She recognizes that human beings have goals beyond survival, but at the level of basic biological needs the Principle of Integrity "assumes the coincidence of 'strong' interests (supporting strong rights) of individuals, species, and wholes."[178]

Ecological holism is supposed to heal the dualism between humanity and nature because its basic tenets oppose the assumptions about nature introduced and supported by Modernity. At the level of basic, foundational life-support, its proponents claim that holism dissolves any distinction between ourselves and

---

[172]William Aiken, "Ethical Issues in Agriculture," in *Earthbound: New Introductory Essays in Environmental Ethics,* ed. Tom Regan (New York: Random House, 1984), p. 269.

[173] Warwick Fox, *Transpersonal Ecology,* p. 178.

[174] *Ibid.*

[175] Westra, *Principle of Integrity*, p. 130.

[176] Westra, *Living with Integrity*, p. 99.

[177] Westra, *Principle of Integrity*, p. 131.

[178] *Ibid.* pp. 130, 131. On the 'democracy' of holism see also Warwick Fox, *Transpersonal Ecology,* p. 178.

nature that anthropocentrism may tempt us to make. Recall the four levels of anthropocentrism: (1) human situatedness, i.e., human views are necessarily human and are conditioned by historical and cultural factors; (2) humanity is the measure and source of all value; (3) humanity is the center of all value; and (4) human chauvinism. Ecological holism opposes anthropocentrism at its most basic level, namely human situatedness. Given that nature, for ecological holists, is defined in terms of an organic system, cultural and historical factors are inconsequential and irrelevant. Each and every thing is defined in terms of its relation to every other thing, and humanity occupies just another niche, existing as just another knot in the web of life. Most importantly, it is claimed *our survival depends upon the recognition of this fact.* "Survival requires that we know Nature as best we can so that our practices will be ecosophic."[179] Allow any kind of cultural or historical factors to condition our knowledge of nature and we have to adjudicate among a troubling plurality of positions, none of which are guaranteed to work. They will not work because none of them will get at the truth of an ontologically independent nature. For example, referring to the difficulties faced by the Canadian government regarding the protection of the cod stocks, Westra argues that "this crisis could have been avoided only through policies and practices consistent with an *ecological world-view,* one going beyond competing aggregate preferences of various human groups."[180] The ecological world view is intended to solve and *re*solve, cleanly and fairly, all the various competing wants and needs of a pluralistic society. Every human being has that *one* important thing in common—our natural, dependent, biological identity. Even those groups thought to have a more sustainable existence with their surroundings (e.g., aboriginal peoples) are not immune from the dictates that might follow from an ecological world view. Westra writes:

> For instance, although natives in the Amazon claim to be living harmoniously with nature (and they are indeed less disruptive to natural processes than commercially exploitive foreign practices in the areas) their goals and those of conservation biology do not necessarily mesh. The problem is that native hunters, for instance, may pursue a species to extinction, then move on to exploit another 'resource' beyond its capacity to recover.[181]

An ecological *world* view is as totalizing and comprehensive as the name suggests. Modernity began with the Cartesian inward turn. Our identity was defined in the absence of nature. The ecological world view wants to readjust our sights *outwards* again, towards nature. It also wants to redescribe the identities of *H. sapiens* and nature so that there is no reason for holding on to our anthropocentric attitudes. Given that the biosphere functions as a whole,

---

[179]Drengson, "How Many Realities?", p. 2.
[180]Westra, *Living in Integrity*, p. 92.
[181]*Ibid.*, p. 84.

ecologism does not spare anyone or anything in its aim to bring the earth under a comprehensive doctrine, a global set of assumptions and presuppositions about ourselves and the rest of the planet.

Why not appeal to cultural or historical factors? Recovery philosophy's answer: they are divisive and irrelevant. For recovery philosophers, no cultural or historical factors could ever hope to change the truth about nature. Why? Nature is ontologically independent. What is, or is not, *true* about nature does not depend on us. We can discover it, contemplate it, and try to live with the truth of nature, but we cannot change it. Unfortunately, the Cartesian inward turn gave us Modernity. And the Modern understanding of nature merely reflects our desire for freedom, progress, optimism, and domination. One does not even have to be a bona fide ecological holist to maintain this thesis. Eric Katz and Keekok Lee have been seen to cleave the world into two distinct categories, the natural and the artifactual. Anything created by humans, for human use, goes into the latter category. We, and anything else created by nature, sit in the former. The only difference between the ecological holists and Katz and Lee is due to theoretical differences in their respective conceptions of exactly how the category of nature works. Deep ecology and J. Baird Callicott suggest an organic model. Katz prefers the community model. It does not really matter because both sides agree that whatever the conclusion, the findings will reflect nature *as it really is*. The ecological world view that is finally decided upon will reflect their consensus. But the ecological world view depends on "separating the inseparable: our purely biological existence from the rest of our human existence in all its complexity."[182] If it's inseparable, then why try to separate it?

Despite the best efforts of the recovery philosophers to recover the wild aspect of our identity, there *is no* strict "biological level" of existence for human beings independent of culture and history. Recovery philosophers make an abstraction where no abstraction can be made. We have already seen how recovery philosophy wants to maintain our continuity with nature by separating and subordinating our cultural identity to our biological and evolutionary identity. Ecologism depends upon the untenable separation of these two aspects of human identity, and fits humanity into an ecosystem niche. Unfortunately, this is a problematic understanding of our evolutionary history *and* ecology. Our success as a species is not a consequence of the successful occupation of a niche; rather, our survival depended (and continues to depend) upon the artifactual *milieu* that we inherited from previous hominids, and continue to cultivate. I will address this matter in greater detail in the next chapter, but for my present purposes it must be stated that our reality *is* artifactual. "A sheltering fabric of artifacts is an existential presupposition of *H. sapiens*, as much as fresh water."[183] One cannot assign primacy to our biological needs because it is only through our artifactual *milieu* that biological needs can be met in the first place. What is an artifact? It is

[182]Westra, *Principle of Integrity*, p. 128.
[183]Barry Allen, *Knowledge and Civilization* (Boulder, Colo.: Westview Press, 2004), p. 207.

not an object created out of an independently existing material intended for human use. It is the effect of "individual or concerted performance."[184] Westra's frequent use of the term "life support services" is very misleading. It suggests that humanity is a passive, comatose patient connected to a respirator that pumps all the necessary requirements into its recipient. Good ecological living then becomes the minimal disturbance of the respirator. But if artifacts are an existential precondition for humanity, if they form and shape reality, if in any human ecology "it is artifacts all the way down,"[185] then it is in performance, not passivity, that we must begin to understand the relationship between ourselves and nature.

When we consider the importance of artifacts the analysis of our environmental problems change. I think that means that the concept of anthropocentrism may need not be abandoned, just rehabilitated. We can no longer affirm the basic principles of the recovery project. It is to my critique of these basic principles that I now turn.

[184] *Ibid.*, p. 63.
[185] *Ibid.*

Chapter 3

Introduction

This chapter presents my critique of the first two premises of the recovery project—nature's ontological independence and the nature/artifact distinction. The metaphysics at the core of recovery philosophy is realism. Despite deep ecology's claims, rejecting this metaphysical position does not mean that a "social constructivist thesis" is the only other option. There is another way of thinking about reality (and nature) that circumvents the realist/social constructionist debates.

My arguments against the first premise also challenge the nature/artifact distinction as drawn by recovery philosophers (premise two). I mentioned in the last chapter that in any human ecology, "it is artifacts all the way down."[1] The upshot of this statement is that anthropocentrism *is* the only position from which we can begin to understand the human/nature relationship. The arguments I present that support anthropocentrism are informed by the same considerations used by recovery philosophers to help support their arguments for ecocentrism—evolutionary theory. I draw primarily on philosopher Barry Allen's philosophical anthropology. In principle, I do not think that the use of evolutionary theory, ecology, and other scientific disciplines is wrong. Science helps us to understand the ecological consequences of our actions, and I, along with the recovery philosophers, do not want to ignore its findings. However, philosophy must treat the evidence carefully.

Deep ecologists as well as fellow travelers such as Eric Katz and Keekok Lee assume a realist metaphysics because they fear that anything less than an ontologically independent nature will mean a *destroyed* nature and the extinction of our species. Their understanding of Modernity grounds this fear. Modernity misunderstood nature as atomistic, inert matter, and the current ecological destruction is the result. I do not agree with the position that nothing less than an ontologically independent nature will stop the chainsaws. In this chapter, I separate the issue of nature's identity from ethical concerns and address only the former. In chapter 5, I address the ethical aspects of anthropocentrism, notably intrinsic and instrumental value. Separating the epistemological and the ethical issue is necessary in order to achieve some clarity about anthropocentrism itself. It is now time to question the basic assumptions upon which recovery philosophy's critique of anthropocentrism is based. Unlike other disciplines, philosophers have the privilege, perhaps even the responsibility, to examine our basic assumptions and discard them if necessary. Environmental *ethics* will probably be affected by my arguments, but that is another issue for another chapter.

---

[1]Barry Allen, *Knowledge and Civilization* (Boulder, Colo.: Westview Press, 2004), p. 63.

When the definition of artifact is reassessed, an important issue comes to the fore. The way artifacts presuppose and mediate each other are essential features of artifacts that have not been fully appreciated by environmental philosophers. Once we understand how artifacts gather and mobilize other artifacts and people, our understanding of Modernity must also change. The next chapter uses Bruno Latour's thought to challenge the third and fourth premises of the recovery project—our dualistic relationship with nature and the view that Modernity is responsible for our ecological problems. I also challenge the fifth premise of the recovery project—the expected recovery of the wild through the conversion to an ecological world view. I agree that we need to retain some wilderness on the planet. There are prudential reasons for doing so. However, I do not think that the wild should be preserved based on the assumption that our evolutionary heritage gives us a predisposition for wilderness areas. Such statements are founded on a problematic and unsophisticated understanding of evolutionary theory.

Ontology, Epistemology, and the Evolution of *H. sapiens*

There are other theorists, besides recovery philosophers, who think that the human/nature relationship is "partly epistemological." Historian Gary Lease asks: "Is nature 'out there' or do we create it?" His question implies that there are only two options. Nature is either "out there" or it is a "social construction."[2] Like the recovery philosophers, he settles for the former. "[T]he world, including its living components, really does exist apart from humanity's perceptions and beliefs about it . . . we can gain dependable, scientific knowledge about this independent, natural world, in spite of differences among us in class, culture, gender, and historical experience."[3]

A reality existing "out there," "implies the *indifference* of beings to our knowledge, perception, or even our existence."[4] For my purposes, this is an important meaning of the term "ontological independence." For the realist, truth and falsity are neither relative to nor conditioned by culture, gender or historical experience, but depend on the accurate correspondence of our statements to the world. The origin of this idea of truth can be found in what Barry Allen calls "onto-logic": "the *logical* possibility of true discourse [is grounded] in the *ontic* possibility of the entity whose being (existence and identity) makes the discourse true." As we have seen with the recovery philosophers, nature's being—the independent *is* of nature—is presumably an ontological independence. Regardless of the description, the thought is the same: nature is identical to itself

[2] Gary Lease, "Nature under Fire," in *Reinventing Nature? Responses to Postmodern Deconstructionism*, ed. Gary Lease and Michael E. Soulé (Washington D.C.: Island Press, 1995), pp. 7, 8.

[3] Lease and Soulé, "Preface," *Reinventing Nature?* p. xvi.

[4] Allen, *Knowledge and Civilization*, p. 27.

and is thus prior to "the determination of truth, or what is said."[5] A recovery philosopher would ask: How could this not be true? To think otherwise would be to question the existence of the natural matrix that gave birth to our species. It would be an act of extreme hubris and a violation against common sense to reverse the order, subordinating the realm of being to the act of knowing.

A bit of investigation shows that the "onto-logic" at the root of the realist position is not as simple as one may think. "Onto-logic" is "receptive, passive, contemplative transparency."[6] Consider Lease's characterization of the realist position. He assumes that reality exists apart from our "beliefs and perceptions."[7] Reality is something that we *perceive*. We form *beliefs* based on our perceptions. Deep ecology updates the contemplative thread of Greek philosophy. Instead of pondering the "Good" in the agora, he or she walks in the woods, undergoing the process of "binding back to the source."[8] As explained in the previous chapter, "the source" refers to wild nature.

The Greek philosopher and the wilderness traveler place their everyday concerns aside so that "things are free to show themselves as they are, according to their own self-identical being." To see the problem with this position we need to engage the traditional language of metaphysics and discard passive contemplation. Self-identity means that a thing is identical to itself (a = a). It implies that "beings *are*, and *what* they are (their nature or self-identity) is in them, prior to any perception—to say nothing of test, measurement, or verification—on our part."[9] However, this condition of onto-logic—self identity—implies the *human practice* of comparison:

> What have we said in saying that a being is "identical to itself?" We say it is self-same, the same as itself. And sameness, what is that? If two things are in some way the same, they obviously have to be commensurable. For instance, the only way two things can be the same in color is if both are colored, hence commensurable, meaning comparable in that respect. Commensurability means things *can be* compared, not that they *are* compared but that they *can be, could be*. And since commensurability is a condition of possibility for sameness,

---

[5] *Ibid.*

[6] *Ibid.*

[7] Lease and Soulé, "Preface," *Reinventing Nature?* p. xv. It is interesting to note that Lease refers to the realist position as an assumption. For a thinker concerned with countering "certain radical forms of 'postmodern deconstructionism," one expects that he could do better than merely *assuming* the existence of the outside world. In fairness to Lease and the recovery philosophers, given its roots in ancient Greek philosophy the realist position is highly influential and is adopted uncritically by the same scientists used by recovery philosophers. The rhetorical weight that the Modern, Western world gives to science means that the assumption of a reality "out there," will be a somewhat *safe* assumption.

[8] Alan Drengson, "Wild Journeying Way," *The Trumpeter* 13, no. 4 (Fall 1996): 186.

[9] Allen, *Knowledge and Civilization*, p. 27

> the ontological possibility of *being the same or different* depends on the possibility of *being comparable*.[10]

The possibility of comparison implies the existence of the practice of comparison. We cannot assert that a thing is identical to itself and not import the historical and cultural traditions that make the very idea of commensurability possible.

Emphasizing that comparison is a *practice* means that there is no *single* instance of comparison. Rules, practices, tools, and words presuppose and depend on each other for their meaning. Their meaning and use are relative to other rules, practices, words, and so on, in their group. This idea is particularly important for this chapter's discussion of tools and networks. Ludwig Wittgenstein makes a similar point. "It is not possible that there should have been only one occasion on which a report was made, an order given or understood; and so on.—To obey a rule, to make a report, to give an order, to play a game of chess, are *customs*." He also warns philosophers against permitting their imaginations to substitute for the customs of measurement and verification. "A thing is identical with itself.—there is no finer example of a useless proposition, which yet is connected with a certain play of the imagination. It is as if in imagination we put a thing into its own shape and saw that it fitted."[11]

The idea that there is an independent nature is untenable. As Allen points out, "there are no self-identical beings with natures all their own for us to correspond with. Identity, sameness, and difference are artifactual, contingent by-products of our life and practice."[12] We cannot step outside our form of life, understood as encompassing all our customs, languages, practices, *and* our evolutionary neurology, to determine what *really is*. "Reality," Allen asserts, "in the only sense that matters, is completely artifactual." There is no doubt that we are left with an anthropocentric perspective—but what is the alternative? Besides a human perspective, one that is mediated and conditioned by our practices, our language, and so on, what other perspective could we take? Truth understood as an accurate correspondance of our statements to an independent reality assumes that language and reference do not depend on the form of life from which they arose. "Onto-logic" assumes that the world shines forth its truth, waiting for

---

[10]*Ibid.*

[11]Ludwig Wittgenstein, *Philosophical Investigations,* trans. G. E. M. Anscombe (Oxford: Basil Blackwell, 1953), §199, 216; In contrast, Keekok Lee sees no problem with allowing imagination to guide one's philosophical arguments. On the ontological independence of nature she writes, "A thought experiment would make this point clear. One can unproblematically entertain, both on the conceptual and empirical levels, the possibility of Earth—that is, nature—without humans, whereas one cannot entertain the possibility of humans existing in the absence of nature. This shows that nature is independent and autonomous of humans in a deep sense." Keekok Lee, *Natural and the Artifactual: The Implications of Deep Science and Deep Technology for Environmental Philosophy* (Lanham, Md.: Lexington Books, 1999), p. 93. Given the sheer volume of philosophical argumentation debating realism and social constructionism, a position that advocates an independent reality must do more than just appeal to a thought experiment.

[12]Allen, *Knowledge and Civilization*, p. 29.

beings to describe and explain it. This position, however, presupposes these human practices when it asserts that reality is *prior* to these practices. In other words, realism commits the fallacy of begging the question. Bad news for recovery philosophy and nature's ontological independence: "The end of human life is the end of the world, beyond which is—*nothing*."[13] Concepts, theories, truth-conditions, counter-factual statements, the practice of comparison and verification—everything used to refer, describe, theorize, prove or disprove the world disappears along with us. Description, reference, and theory are human artifacts. We cannot expect them to endure when their creators become extinct.

To understand the connection between evolution and artifacts, it is important to dispel a few myths about hominid evolution and neurology. Recall Westra's assertion that "it is simply 'human,' not 'techno-human,' beings who belong in natural systems, as claims about an ecological niche can only be made for an animal in its natural state."[14] I suggested that this statement could be understood to mean that the human species evolved, *then* invented tools and displaced ourselves from our niche. Taken with Keekok Lee's assertion that "humanity is primarily celebrated in terms of the intelligence displayed in tool-making,"[15] we are led to believe that hominid evolution was a straight, steady march culminating in the birth of the most sophisticated, tool using species, *H. sapiens.*

Hominid evolution does not follow a straight, progressive line. It is akin to a "branching bush," similar to the evolution of other species. "The attempt to fit all the hominid fossils in a single progressive sequence reflects an outdated understanding of evolution."[16] It ignores the now abundant and uncontroversial evidence of the coexistence of multiple hominid species at different times in the past. Furthermore, we cannot take credit for the invention of tools—that distinction most likely belongs to *H. habilis*, a hominid that predates our species by nearly two million years.[17] Human technical culture owes much more to our evolutionary ancestors than thought by recovery philosophers.

> Chronologically at least, most of the history of technics comes before us, before *H. sapiens,* lying between the first *Homo*, 2 million years ago, and the arrival of our kind, about 100,000 years ago. By the time *sapiens* is on the scene, the hominid ecology already embraces most of the ice-free old world and is saturated with sheltering artifacts, including stone tools, fire, and ritual, with some speech or protolanguage.[18]

---

[13] *Ibid.*, pp. 62, 30.

[14] Westra, *Living in Integrity: A Global Ethic to Restore a Fragmented Earth* (Lanham, Md.: Rowman and Littlefield, 1998), p. 138.

[15] Lee, *Natural and Artifactual,* p. 7.

[16] Allen, *Knowledge and Civilization,* pp. 184, 188.

[17] Clive Gamble, *Timewalkers: The Prehistory of Global Colonization* (Cambridge, Mass.: Harvard University Press, 1994), p. 53.

[18] Allen, *Knowledge and Civilization*, p. 172.

This artifactual *milieu* pre-dating our species had profound consequences for the evolution of neurology. Before we can understand the importance of artifacts, we must resist the temptation to follow deep ecology's arguments regarding our genetic code. Wild nature, they claim, is written into our genes—and that is the basis for our natural identity. Evolution is responsible for our genetic code, and thus, we are "programmed for wild environments."[19] "Programmed" is a good choice of words because Shephard's argument is similar to ones put forward by some developmental biologists. In essence, they hold that an organism's phenotype is the outward manifestation of its genotype. In other words, the characteristics of the organism are *programmed* by its genetic code. The development of the organism is likened to running a computer program; every limb, hair, and cell is predetermined by its genes.[20] The causal chain originates in our protein sequences, and it is a one-way, bottom-up trip. Prominent molecular biologist Walter Gilbert summarizes this point. On the completion of the human genome project "we will know what it is to be human."[21]

The scientific literature debating to what extent genes determine the abilities and traits of an organism is vast. I do not need to delve into all the arguments here, as my concern is with the specific issue of the relationship between humans and artifacts, and the conclusions drawn from this relationship. Recall that recovery philosophers regard artifacts as *secondary* to the natural realm and define them in terms of *intentional* use. In contrast, the natural "comes into existence, continues to exist and goes out of existence entirely independent of human volition and manipulation."[22] In traditional philosophical terms, we refer to the natural realm as having its own "nature or principle of change." Artifacts lack this original principle, thus their status is secondary compared to nature.[23] Deep ecology implicitly supports this view, as it holds that our *primary* identity is natural because *who we are* has been decided by our genes, and our genetic code is the product of an ontologically independent nature.

Artifacts, however, had a primary role in our evolution as a species. Human neurology is much more "plastic" than has previously been thought. The difference between our species and our chimpanzee cousins should not be measured in percentages of genes or ratios of brain size to bodies. What counts is the degree of "neural indeterminacy" present at birth. Our brains' synaptic connections are not predetermined by genes, but are organized "through interaction with the local environment, which is an inextricably artifactual-social

---

[19]George Sessions, "Postmodernism, Environmental Justice, and the Demise of the Deep Ecology Movement?," *Wild Duck Review* 5 (1995): 15.

[20]Richard Lewontin, *The Triple Helix; Gene, Organism and Environment* (Cambridge, Mass.: Harvard University Press, 2000), pp. 3-38.

[21]Walter Gilbert, "A Vision of the Grail," in *The Code of Codes: Scientific and Social Issues in the Human Genome Project*, eds. Daniel J. Kevles and Leroy Hood (Cambridge, Mass.: Harvard University Press, 1991), p. 45.

[22]Lee, *The Natural and the Artefactual*, p. 82.

[23]Allen, *Knowledge and Civilization*, p. 63.

environment." The artifactual environment, then, is not only essential to our survival, but also "leaves a trace in the sentient neurology of every individual."[24] This is true of us now, and was also true of our species when it arrived on the scene some hundred thousand years ago. The success of *H. sapiens* was not a result of a successful adaptation to an ecological niche—a niche from which we displaced ourselves with the invention of tools. Rather, our existence is an effect, "an unintended by-product,"[25] of the *artifactual culture* that predated our species by two million years.

> Artifacts worked in symbiosis with evolving neural plasticity. The more sheltering the fabric of artifacts, the more neurology evolved to depend on it, until the very coherence of our neurology—its (and our) viability—has become an evolutionary artifact. The effectiveness of a modern-human neurology physically depends on an artifactual setting. Artifacts complete synaptic circuits evolution and ontogeny leave open; they are the media by which otherwise entirely internal neural patterns acquire a relation to the environment that is both understood and causally effective.[26]

In other words, our evolutionary history has given us brains that require our artifactual ecology if we are to survive. This is the primary role that artifacts play in the *sapiens* ecology. There is no denying that we need clean air, food, and fresh water—but we need our artifactual ecology, i.e., culture, as well. Westra and other recovery philosophers want us to "separate the inseparable," extract our cultural identity from our natural identity. Allen's arguments and the neuroscience research he cites suggests that culture is literally "written" into our brains.[27] There is no intellectual procedure that can extract the culture out of *H. sapiens*. Our identity would be irrevocably altered and the patient would be lobotomized.

It should be evident that the word "artifact," according to Allen, has a broader definition and cannot be defined simply in terms of use or intention. "To have a use or intention is already to have and use artifacts and cannot account for their origin." Rather, artifacts are an effect of group or individual performance. This definition includes the *unintended* consequences of human performance, thereby broadening and accounting for more than Eric Katz's definition. Katz claims that he cannot think of any artifact that is not intended for human use. His definition of artifact prompts his concern that restored ecosystems, by their very nature, will

---

[24] *Ibid.*, p. 65.
[25] *Ibid.*, p. 66.
[26] *Ibid.*
[27] Clifford Geertz, "The Impact of the Concept of Culture on the Concept of Man," in *The Interpretation of Cultures* (New York: Basic Books, 1973); Merlin Donald, *Origins of the Modern Mind* (Cambridge, Mass.: Harvard University Press, 1991), chap. 9; Gerald Edelman, *Bright Air, Brilliant Fire* (New York: Basic Books, 1992); and Terrence Deacon, *The Symbolic Species: The Co-Evolution of Language and the Brain* (New York: Norton, 1997).

never have the *autonomy* possessed by wild ecosystems. Allen asks: "What are pollution and garbage if not artifacts despite their lack of utility or intentional form?"[28] Eric Katz does not have an answer—although he should, considering that pollution, garbage, toxic waste, and so on, are ruining our health and the planet's ecosystems.

Unlike Lee, Katz does not make any explicit reference to Greek philosophy, though it is clear that this is the basis of his general understanding of artifacts and their origins. According to traditional understanding, the production of artifacts involves the conception of a plan (creating), and the imposition of the plan on matter (fabricating). These classical assumptions about artifacts also fit with another recovery philosophy thesis—world view. The set of assumptions one has about the world influences what sort of plans are created and imposed on matter. Artifacts, in this view, are material. Plans and assumptions are non-material and therefore non-artifactual. For recovery philosophers, the solution to ecological problems is to change our assumptions about nature and the plans that we make based on those assumptions. Change *those* and the material world will take care of itself. That is why deep ecologists dismiss urban problems such as air pollution, water shortages, and so on. They are merely the "shallow" ecological problems that must not distract us from the real "deep" ecological world view that needs to be cultivated. They are merely the symptoms of a collective *conceptual* (mental) problem.

It is important to remember that behind Katz's understanding of artifacts lies the onto-logical assumption of an independent nature. Of course, Allen is not concerned with maintaining an ontologically independent nature, as we have already seen why this position is untenable for philosophical and evolutionary reasons. No independent nature: So what's left? Allen's answer—artifacts. "Reality, in the only sense that matters, is completely artifactual." Remember, artifacts are the effect of human performance, and not *all* performances are material. Language, concepts, theories, and so on, are examples of artifacts that fall outside of Katz's materialist assumptions. Does this mean that *everything* is an artifact? In a word—yes. If everything is an artifact, is "artifact" devoid of meaning? No.

> There is no proof that the existence of artifacts requires the existence of *known* nonartifacts. So why is it impossible that nothing nonartifactual should exist? If that *is* possible, then the existence of artifacts does not depend on the existence of something that is (or is known to be) not an artifact.[29]

As previously mentioned, the disappearance of *H. sapiens* would mean the disappearance of the world. Language, concepts, the practices of reference and verification, the theories used to philosophically "prove" the existence of an

[28] Allen, *Knowledge and Civilization*, pp. 63-64.
[29] *Ibid.*, p. 63.

independent world are themselves no longer present. The only option left for recovery philosophers is to postulate a *metaphysical* reality to counter the inevitability of anthropocentrism. In addition, metaphysical arguments may not be able to accommodate the scientific (evolutionary) evidence recovery philosophers depend on, or in the very least there would be some difficulty reconciling the realism implicit in science with metaphysics.

On the surface, this sounds like another "social-constructionist" theory recovery philosophers might say. Surely nature does not depend on *us* for *its* reality! However, theories must be treated carefully. They do not allow us to transcend our artifactual reality because they are essentially artifacts themselves.[30] This does not mean that evolutionary theory will not reveal important insights. Hominid evolution discloses the vital relationship between artifacts and our species. It also reminds philosophers that language, truth and falsity must be understood in reference to the form of life that cultivates and cares for them. Strictly speaking, I do not think that we need evolutionary theory to complete the arguments against nature's ontological independence. Many philosophers have advanced compelling arguments against realism (nature's ontological independence).[31] Recovery philosophers, though, expect the realist assumption in the sciences to act as a defense against those who want to debate it philosophically, as if Modern science's authority could silence philosophical debate. Since science seems to be the authority they respect, I feel compelled to consider the evolutionary theory they choose to ignore. Allen's careful examination of evolutionary theory leads us in the opposite direction of realist metaphysics *and* shows the interdependent relationship between *H. sapiens* and artifactual culture.

At this point I must admit that the idea that reality is artifactual would probably be met with incredulity by *many* philosophers besides the ones that I have called the recovery philosophers. Given the weight and endurance of the philosophical tradition behind "onto-logic", I am somewhat sympathetic to the probable protests. It is worth mentioning at this point, however, that the idea of an artifactual reality is an important part of a larger paradigm that I am setting forth in chapters 3, 4, and 5. To some extent, this paradigm also implies a background of 20th and 21st century philosophical argumentation that has raised serious objections against realism. I can only ask the protesting reader to familiarize him or herself with some of the literature, and also request that he or she avoid dismissing my arguments before the final picture has been presented. My main concern is not with the academic arguments about the ontological status of reality *per se*, although in chapter 5 I do make some conclusions about reality's ontological status that are based on this final picture. I am interested in pointing environmental philosophy in a new direction in the hope that it can address some

[30] *Ibid.* p. 29.

[31] For instance, Michael Dummett, Hilary Putnam, the "later" Ludwig Wittgenstein, Lorraine Code, Bas van Fraassen, and Bruno Latour.

important questions and issues (covered in chapter 5) that are neglected by philosophers engaged in the recovery project.

Deep ecologists mistakenly assume that any opening to anthropocentrism automatically means that one is therefore a social constructionist. I can understand why this is so. Anthropocentrism takes *perspective* seriously. The problem, according to deep ecology, is that we rapidly move towards human chauvinism once we admit that nature may in fact be a social construct. If nature is a social construct, then what's to prevent us from reshaping it in any manner which suits our needs and desires? This is their main fear regarding social constructionist theories. However, social constructionism is more complicated and diverse than deep ecology typically portrays it to be. Much of the debate in the literature regarding social constructivist theories arises from the confusion between *ontological* and *epistemological* claims. It is one thing to claim that our knowledge of nature is constructed; it is another to claim that nature *itself* is constructed. Smith argues that most social constructionist claims *suspend* the question of nature's ontological status. Bruno Latour has a different interpretation that I will soon address. For now, Smith's distinction between *nature* itself and our *ideas* about nature will suffice. The social constructionists, according to Smith, prefer to discuss the ways in which our *ideas* about nature are socially constructed.

Nature and Social Constructionism

Allen admits that his own position is anthropocentric. However, it should not be considered a social constructionist theory. In order to understand why this is the case, it is helpful to use Ian Hacking's analysis, which divides social construction theories into two groups. The first addresses local claims. These are claims made by theorists who hold that some "thing," call it "X," is socially constructed. Hacking's own alphabeticalized sample of such claims runs the gamut from "Authorship" to "Zulu nationalism." His second analysis focuses on the "science wars."[32] In this discussion, more than a local claim of social constructionism (gender, literacy, illness) is at stake. On one side of the war are scientists who believe that "the world comes with an inherent structure, which it is their task to discover."[33] The endurance of certain scientific claims, e.g., second law of thermodynamics, is thought to rest on the fact that *we got it right* as far as the conservation of energy in the universe is concerned. On the other side are philosophers who argue that the durability or stability of these laws (or other

[32]The term "science wars" refers to an on going debate in academia between scientists and humanists over science studies. For an interesting overview of the issues involved in the "science wars," see John Michael, "Science Friction and Cultural Studies: Intellectuals, Interdisciplinarity, and the Profession of Truth," *Camera Obscura* 37, (January 1996): 125-58.

[33]Ian Hacking, *The Social Construction of What?* (Cambridge, Mass: Harvard University Press, 1999), p. 84.

scientific claims) is due to historical and cultural factors. There are metaphysical undertones to the "science wars." Reality itself is at stake in these discussions.

There is more to Hacking's analysis and further details will be addressed later, but it is important to emphasize the idea that social constructionist theories can either make local or global (metaphysical) claims. Yet the constructivism I favour conforms to neither of these versions of "social constructionism." It is a genuine alternative, and one that is anthropocentric and artifactual, rather than "social."

Hacking suggests that we ask: "What's the point of social constructionist theories?" For local claims, the point is simple. Social constructionist theories want to "raise consciousness" about a particular issue. Hacking identifies three premises among those theories that have consciousness raising as a goal: 1) for any X, X should not be regarded as inevitable or part of the natural progress of the world; 2) X is quite bad as it is; and 3) it would be better if X was either eliminated or radically transformed.[34]

These three premises can be seen in debates among ecofeminists regarding women's identity. Val Plumwood is critical of other eco-feminists who hold that women are more ecologically sensitive than men because they are more "in touch" with nature due to their ability to bear children. These eco-feminists argue that women's ecological identity is inevitable—it is just the way women *are*. Plumwood claims that the identification of the "natural" with "female" was built up over centuries of dualistic thinking and is therefore not part of any essence of what it is to be female. Furthermore, she claims that the identification of women with nature has lead to the oppression of both and that it would be best if women could reconstruct their identity.[35] She must therefore think that this identity is not natural, that it is rather constructed, perhaps a social construction.

Hacking notes that the first premise of social construction theories (X is not inevitable) arises when it *appears* that X is inevitable. "If everybody knows that X is the contingent upshot of social arrangements, there is no point in saying that it is socially constructed."[36] But when society assumes that X is a purely natural, inevitable part of the world then there may be a point to engaging in what Karl Mannheim once called the "unmasking turn of mind."[37]

The purpose of "unmasking" is to expose the "extra-theoretical" function of an idea. Usually, extra-theoretical functions refer to the ways in which ideas serve the power interests of those who hold them. The arguments or ideas are not directly addressed; rather, social constructionists of this unmasking, consciouness-raising stripe seek to "dissolve" an idea. Once the *real* interests that make people

---

[34]*Ibid.*, p. 6.

[35]Val Plumwood, *Feminism and the Mastery of Nature* (New York: Routledge, 1993), pp. 19-40.

[36]Hacking, *Social Construction of What?*, p. 12.

[37]Karl Mannheim, *Essays on the Sociology of Knowledge* (London: Routledge & Kegan Paul, 1952), p. 140.

accept it are exposed, then (the argument goes) the idea will lose its effectiveness.[38]

One does not have to be a social constructionist to adopt this strategy which goes back to the critique of ideology in Marx and Engels. Chapter 1 investigated the redefinition of nature during the scientific revolution. I showed how recovery philosophers (along with other environmental philosophers) argue that Modern ideas of nature (passive, inert, externally related atoms) stem from the desire to dominate the natural world. Moderns like Descartes or Locke "conveniently" choose a description of nature that accommodates their desire to dominate. At the root of the scientific revolution, according to recovery philosophers, is a plain, self-serving anthropocentrism. Of course, not *all* of the arguments made by recovery philosophers use Mannheim's "unmasking" rhetoric. Recovery philosophers might be considered "social constructionists" about our idea of nature, but not about nature itself.

As previously explained, the recovery philosophers assume an ontologically independent nature. Nature *is*. But how we *think* about nature has been conditioned by Modernity. According to their analysis, Modernity was the set of "historically situated, social interactions" that construed our present conception of nature as passive, fragmented, inert, and without needs of its own. Nature itself, they claim, is active, holistic, and has clearly defined needs (e.g., functional and structural integrity). We saw how these philosophers appeal to genetics, ecology, and evolutionary theory to help establish these claims. I must emphasize that their use of these scientific disciplines is to help establish nature's *reality*, its "is." However, they do not subject genetics, ecology, and evolutionary theory to the same "unmasking" scrutiny as they do Cartesian and Newtonian ideas.

Deep ecology's desire to find an anthropocentric position behind every other environmental philosophy has mired many debates. Deep ecologists unmask social construction theories of nature, which prompts social constructionists to "unmask" the deep ecological position as covertly anthropocentric position, and so on. Deep ecologists feed the debate. Any claim regarding the objectivity of genetics, ecosystem ecology, or nature itself becomes fair game for critical eco-feminists and postmodern environmental philosophers.[39] It seems as if "unmasking" leads to a tedious and unhelpful regress of accusations.

Another problem that has mired many debates in environmental philosophy has to do with the use of the word "nature." The word "nature" is especially

---

[38]Hacking, *Social Construction of What?* p. 56.

[39] See A.K. Salleh, "Deeper than Deep Ecology: The Eco-Feminist Connection," *Environmental Ethics* 6, no. 4 (Winter 1994): 339-345; Warwick Fox, "The Deep Ecology-Ecofeminism Debate and its Parallels," *Environmental Ethics* 11, no. 1 (Spring 1989): 5-25; Christine Cuomo, "Ecofeminism, Deep Ecology, and Human Population," in *Ecological Feminism*, ed. Karen Warren (New York: Routledge, 1994): 88-105; Ramachandra Guha, "Radical American Environmentalism and Wilderness Preservation: A Third World Critique," *Environmental Ethics* 11, no. 1 (Spring 1989):71-83; Steven Vogel, "Environmental Philosophy After the End of Nature," *Environmental Ethics* 24, no. 1 (Spring 2002): 23-39.

vexing because it is possible to slip from a local claim to a global one. As the previous chapter argued, the most important aspect of nature, for the recovery philosophers, is wildness. When considered in opposition to Modernity as "the Other," wildness is a concept. Wildness is also geographical, and as "wilderness," wildness is a thing. It is also a *process*—our life-support system. As a life-support system, wildness is less "thing-like," but it is not an idea. It is possible to make a *local* claim in these cases. For example, given America's search for a unique national identity in the nineteenth century, we could say that deep ecology's present conception of wilderness has been socially constructed. If America's history had been different, or if the deep ecologists were from an Asian culture, then it is possible that their *idea* of wilderness would be different as well.

However, when wildness is considered to be independent nature, "nature" becomes another word for "reality." Given that the word "nature" can stand in for wilderness, processes, concepts and reality, *and* given the amount of science relevant to environmental philosophy, there should be little surprise that debates about local claims quickly turn into discussions about larger, metaphysical issues.

For instance, take William Cronon's book *Uncommon Ground.* It is the outcome of a three year, large-scale research project that promoted a number of regional conferences around California in the early 1990s and culminated in an inter-disciplinary seminar at the Humanities Research Institute (HRI), University of California, Irvine, in 1994. The theme of the seminar and book that resulted is "Reinventing Nature," and the book's essays represent a wide variety of disciplines: geography, history, cultural studies, English, philosophy, and so on. The topics covered include: the social construction of the Eden myth, the legacy of landscape architect Frederick Law Olmstead, a dandyish stroll through a shopping mall, work and environmentalism, and the contested moral terrain of natural forests. The essays are informed by social constructionist theories (Cronon's introduction divides the essays into "nature as artifice," "nature as commodity," "nature as self-conscious cultural construction") but to use Hacking's distinction, the claims and the topics are local and specific.[40]

In response to *Uncommon Ground* and the "Reinventing Nature" seminar and conference series, conservation biologist Michael Soulé and historian Gary Lease organized a conference and book of their own, aptly named *Reinventing Nature?* In the preface, the purpose of the book is made clear: "To directly challenge some of the rhetoric that justifies further degradation of wildlands for the sake of economic development." By "rhetoric," they mean the "deconstructionist view" that "asserts that all we can ever perceive about the world are shadows, and that we can never escape our particular biases and fixed historical-cultural positions."[41] With cue words such as "world" and "fixed historical-cultural

---

[40]William Cronon, ed., *Uncommon Ground: Rethinking the Human Place in Nature* (New York: W.W. Norton & Company, 1995).

[41] Michael Soulé and Gary Lease, eds. *Reinventing Nature? Responses to Postmodern Deconstruction* (Washington D.C.: Island Press, 1995), p. xv. Why a Platonic claim that the

positions," it is clear that Lease and Soulé are concerned with the broader issues of metaphysics, ontology, and epistemology, despite the fact that most of the essays in *Uncommon Ground* rarely make metaphysical claims about nature. For Lease and Soulé, nature means reality. Specific claims about wilderness' "cultural construction" are considered to be arguments about the ontological status of nature (reality) itself.[42]

Lease and Soulé's book could be considered another contribution to the "science wars," a series of debates between those thinkers (usually scientists) who defend the objectivity of scientific claims and others (usually philosophers, historians of science, and those whose work falls under the category known as "science studies") who argue that scientific claims are contingent products of culture and history. Although the "science wars" is a recent phenomenon, Hacking claims that the debate is a contemporary version of an older debate between philosophers and sophists. I do not need to reproduce the debates in their entirety to explain this point. Instead, it is useful to summarize the three theses Hacking identifies as "sticking points" in the debate. These are: 1) contingency; 2) nominalism; and 3) external explanations of stability.[43]

Social constructionists generally hold that specific claims in the natural sciences are not inevitable. This is what Hacking refers to as sticking point number one: contingency. Quarks, for example, are considered by many particle physicists to be the basic building blocks of the universe. Social constructionist philosopher Andrew Pickering argues that the sort of high-energy physics that developed in the 1970s and led to the "discovery" of quarks was never, in any sense, predetermined. There could have been a different theory, say a non-quarky physics. This "non-quarky" physics could have been just as successful as the "quarky-physics," meaning the *standards* of the alternative physics (how elegantly and thoroughly the theory could explain phenomena) could have been just as good. But once physics establishes a robust fit between theories, phenomenon, and apparatus it seems inconceivable that there could have been an alternative. To the physicists, quarks are an inevitable discovery. They disagree with the constructionist contingency thesis that "no set of conditions—including 'how the world is'—predetermines the evolution of a science."[44]

As stated, the science wars have implicit metaphysical issues. This is more clearly seen in sticking point number two: nominalism. At stake are two competing views of the world and our relation to it. It is important to note that these issues are also reproduced and debated within the environmental literature. The first view, often held by scientists, assumes that the world is of its own nature,

---

visible world is a world of shadows is labled "deconstructionist," hence somehow aligned with the arch anti-Platonic philosophy of J. Derrida *et al* is a mystery known only to the authors.

[42]For example, Cronon's essay "The trouble with wilderness" refers to our *idea* of wilderness, not wilderness itself.

[43]Hacking, *Social Construction of What?*, p. 60, 63-99.

[44]*Ibid.*, p. 72. See also Andrew Pickering, *Constructing Quarks: A Sociological History of Particle Physics* (Edinburgh: Edinburgh University Press, 1984).

"structured in the ways in which we describe it."[45] Of course, scientists admit their fallibility—our descriptions may be wrong at times. The *world* though, comes with an inherent structure and it is the task of inquiry to describe the pre-existing facts. If, in time, quarks are not surpassed by better theory, then quarks will move into the class of claims presently occupied by those such as the second law of thermodynamics and Maxwell's equations. Hacking refers to this metaphysical position as realism, although, as he admits, the term "realism" is out of philosophical vogue at the moment. "Inherent structurism"[46] is his alternative term for this traditional philosophical position.

In opposition, another view of the world is presented by nominalists. This position holds that "the world is so autonomous, so much to itself, that it does not even have what we call structure in itself. We make our puny representations of this world, but all the structure of what we can conceive lies within our representations."[47] Our names, our descriptions of nature, are *just* names and descriptions. They do not reflect any pre-existing divisions in reality. This is not to say that nominalists do not "believe" in reality: they are not anti-realists, as they are not "skeptical about or agnostic about the unobservable entities postulated by theoretical sciences."[48] Mick Smith's words are helpful here. He tries to clarify the issues regarding social constructionist debates in the environmental literature. Social constructionists "*suspend* questions about nature's ontology."[49] They are more likely to address how our *ideas* about nature are formed.

If Hacking is correct in identifying nominalism as a defining feature of social constructionist theories, then deep ecologists may be making a straw-person argument against social constructionist theories. George Sessions's asserts that such theories are claiming that nature is a social construction. He may be missing the key point of nominalism. For Sessions, "nature" means an ontologically independent reality, something *out there*. Social constructionist theories, as he understands them, are claiming that the "out there" is a social construction. Sessions rejects this, unmasking it as an anthropocentric position, a case of the human mind overstepping its boundaries.[50] However, one better understands nominalism not as maintaining, strictly speaking, that nature is a social construction; rather their claim is that the *idea* or *representation* of nature held by a given theory, group, or community, is a social construction. Social constructionists are not trying to give an account of the social construction of an *ontological* reality. *That* reality, to repeat Hacking, is autonomous and keeps to itself. Ironically, Hacking notes that the nominalist position may indeed claim

---

[45]Hacking, *Social Construction of What?* p. 83.

[46]*Ibid.*

[47]*Ibid.*

[48]*Ibid.*

[49]Mick Smith, "To Speak of Trees," *Environmental Ethics* 21, no. 4 (Winter 1999): 367.

[50]George Sessions, "Postmodernism and Environmental Justice: The Demise of the Ecology Movement?" *Trumpeter* 12, no. 3 (Summer 1995).

that "it has an even deeper respect for the world."[51] Namely, by not confusing it with our descriptions of it.

The third sticking point of social constructionist theories is what Hacking calls "explanations of stability." As with nominalism and contingency, there are implicit metaphysical issues. In the science wars, philosophers and other thinkers advance different explanations for the stability and acceptance of a body of scientific belief. One can be an "externalist" or an "internalist." For externalists, the persistence of a scientific claim has to do with the external, relevant, extra-scientific factors that support it. Hacking cites Bruno Latour's actor/network theory as an example of "externalist explanations of stability." Although to school-children it may appear that scientific laws come in neat, singular statements, prepackaged for rote learning, credible and lasting scientific claims link and engage a host of other laws, institutions, disciplines, apparatus, people, and so on. "If you doubt the item, you have to challenge endless other items with which it is linked, challenge an expanding host of authorities, undo a net of thousands of directly or indirectly cited experts and results."[52] All of these factors contribute to the stability of a claim. Like pulling a stray thread, one must be prepared to unravel the whole sweater.

In contrast, "internal" explanations of stability hold that the durability of a scientific claim is due to the ability of good science to get things right. A host of actors may be needed to discover Maxwell's equations, but once established, their stability is upheld by the fact that they are simply true. Discovering their truth may require the institutions, authorities, apparatus, other actors, and so on, but these social factors do not *support* and *stabilize* the truth of the equations or laws, which is grounded in the world's inherent structure. In this view, scientific claims endure "because of the wealth of good theoretical and experimental reasons that can be adduced for them."[53]

Some scientists consider themselves as defenders of truth and objectivity. This is true of Soulé's book. To be accused of reinforcing the power elite's status quo goes against their good intentions. The social constructionists, according to Hacking, unmask a "vision of reality revealed by physics, and the associated claims to profundity of the entire endeavour."[54] In other words, the aim of the social constructionists engaged in the science wars is practically the same as those social constructionists concerned with local claims. Both question claims to inevitability. One way to try to win support for a claim is to say: It's inevitable—that's just the way things are.[55] The "way things are" can refer to the relative intelligence of the different human races or the second law of thermodynamics. Another way of saying "X is inevitable" is "X is natural." Social construction accounts respond to such statements by asserting that nothing is natural or

---

[51]Hacking, *Social Construction of What?*, p. 83.
[52]*Ibid.*, pp. 84-92, 90.
[53]*Ibid.*, p. 91.
[54]*Ibid.*, p. 95.
[55]*Ibid.*, p. 47.

inevitable. All we have are *representations* of reality and these are *our* creations, so there is no use in appealing to an objective world as support for our claims.

Bruno Latour and Ian Hacking name Immanuel Kant as social constructionism's forefather.[56] Given what I have covered thus far of Hacking's analysis, the similarities should be somewhat obvious. Social constructionism's second sticking point, nominalism, claims that the true world can never really be known. All we have are our representations. This is similar to Kant's noumenal/phenomenal distinction which limits knowledge to the merely phenomenal world of experience rather than the noumenal world of "things in themselves." Where the social constructionists differ from Kant is in their indifference to the metaphysical questions. Hacking cites Nelson Goodman's term for such indifference. He calls it "irrealism."[57] "Irrealism" is a good term as it fits with Smith's analysis of social constructionism in the environmental literature. Metaphysical issues are suspended, and the failure of deep ecologists to appreciate this silence has led to a lot of irrelevant arguments. For Kant, at least, the noumenal realm is posited and plays a necessary role in his larger philosophical system, despite being empirically unknowlable.

Although Kant's *Critique of Pure Reason* is primarily an attempt to find a rational ground for the possibility of scientific knowledge (an enlightenment project, to be sure) the categories of the understanding are considered to be mental constructions. Latour identifies Kant as continuing Descartes' mind-behind-a-veil metaphor, and pinpoints the post-Kantian removal of the transcendental ego and its replacement with "society" as the step that launched modern-day social construction theories. These theories may have unmasked the transcendental ego as a fiction intended to secure certainty and reality, but they have kept Kant's critical and constructive elements.

Despite their rejection of social constructionist theories, recovery philosophers have borrowed elements from this framework. Latour writes, "instead of a mythical Mind giving shape to reality, carving it, cutting it, ordering it, it [is] now the prejudices, categories, and paradigms of a group of people living together that determined [our] representations."[58] "Prejudices, categories, and paradigms of a group of people living together" is another way of saying "world view," and (as the previous chapter detailed) the formation of an ecological world view plays a central role in recovery philosophy. To be fair, recovery philosophers *do* search for some universality; the eco-centric world view is supposed to reflect the *real* world (nature) as revealed by the sciences of ecology, genetics, and evolutionary theory. It is interesting how little they have escaped the Modernist and Postmodernist arguments they reject. From Modernism they borrow a faith in science to reveal an objective realm of nature. From the social constructionists

---

[56]Bruno Latour, *Pandora's Hope: Essays on the Reality of Science Studies* (Cambridge, Mass.: Harvard University Press. 1999), p. 6; Hacking, *Social Construction of What?*, p. 61.

[57]Nelson Goodman, *Ways of Worldmaking* (Indianapolis: Hackett, 1978).

[58]Latour, *Pandora's Hope*, p. 6.

and postmodernists, they borrow Mannheim's strategy of unmasking the extra-theoretical functions of an idea, as well as the concept of world view.

Whether or not recovery philosophers can successfully mix and match these various elements from Modernism and social constructionism and *still* remain non-anthropocentric is an interesting question. However, my concern is whether it is possible to maintain an anthropocentric position but not be a social constructionist. For my purposes, I do not want to suspend questions of nature's ontology—in fact, I wish to eliminate the term "nature" altogether and suggest that it be replaced with "environment."[59] The irrealism at the heart of nominalism (sticking point number two of social constructionist theories) will not allow me to trade nature for environment because it has ultimately nothing to say about these issues. Allen's analysis may allow the trade, provided that it does not prove to be a social constructionist theory of the sort I have been describing.

Is Allen a social constructionist? If Hacking's analysis of social construction theories is correct, the answer is no, though there are some similarities with regard to sticking point one—contingency. There is no similarity with sticking point number two (nominalism), and number three (external explanations of stability) does not apply.

There is some overlap between the thesis that science did not have to develop a "quarky" physics and Allen's claim that we possess a neurology that predisposes us to prefer certain kinds of order on an aesthetic basis. Pickering and Allen do not think that the inherent structure of the world guides our investigations, rejecting or affirming our scientific claims. According to Allen, we owe much more to aesthetic feelings than philosophers may be willing to credit. "Let it not be said that feelings have no authority, for it is not arbitrary that we feel as we do. It is *contingent*, but given the (contingent) evolution of life, we feel as we do, which makes it the opposite of arbitrary."[60] Note that the evolution of life is also highly contingent. Our species did not *have* to show up some hundred thousand years ago, and it did not *have* to evolve the sort of preferences that it did. This holds true for all species. Paraphrasing Stephen Jay Gould, if we could rewind the tape and restart the history of life all over again, the outcome of evolution would be different each time.

On the issue of "raising consciousness" through unmasking the extra-theoretical functions of an idea, Allen holds little in common with the social constructionists. A major thesis of *Knowledge and Civilization* is that traditional epistemology is biased towards propositional knowledge, and that this bias trivializes philosophy's understanding of knowledge, and overlooks our civilization's dependency on a more broadly technical sort of knowledge. For Allen, knowledge is "superlative artifactual performance."[61] Language is not the

---

[59]There are important differences between the two terms, and the distinctions will be addressed in the next chapter.

[60]Allen, *Knowledge and Civilization*, pp 68, 69.

[61]*Ibid.*, pp 63-74.

only artifact capable of such an accomplishment —theoretically, it is possible of all artifacts.[62] However, there are no extra-theoretical functions to unmask behind traditional epistemology. Epistemologists do not have worldly power interests that they struggle to maintain with their logocentric conception of knowledge, unlike the usual targets of social constructionism, e.g., right-wing ideologues, large corporations, fascist governments, and so on. There is a difference between identifying a theoretical bias and exposing an ideology.

Allen raises consciousness about our dependency on knowledge, and instills an appreciation of our species' "superlative artifactual performances," e.g., twelve thousand years of successful agriculture, and five thousand years of urbanization. He also argues that these indispensable accomplishments of knowledge are fragile and threatened. However, this is not quite the consciousness raising that Hacking refers to in *The Social Construction of What?* He is not making the case that the way in which we evolved is a bad thing and has to be overturned.

Where Allen differs most significantly from social constructionist theories is in regard to nominalism. Nominalism's implicit metaphysical position is *ir*realism—a refusal to mention metaphysical issues at all, suspending them in favor of a social analysis (unmasking) of our representations of reality. As Hacking says, this is still a metaphysical position.[63] However, Allen argues against the traditional onto-logic position at the core of realist metaphysics. Recall his assertion that "reality (in the only sense it matters) is completely artifactual." This means that *our* reality, the reality for *H. sapiens*, is artifactual. Such a statement cannot possibly be interpreted as an *ir*realist position. Artifacts are not shadows or socially constructed representations of a real world—they *are* the world.

Our artifactual reality means that we cannot step outside of our perspective even through the use of imagination or conjecture. Imagination and conjecture are artifacts as well. However, it is important not to let perspective mislead us philosophically. This is not a reworked metaphysical idealism. Just as there is more to knowledge than what can be expressed through language, there is more to our perspective than a contemplative mind. Perspective should be taken to include our evolutionary history, our neurology, our practices, and performances.

I dislike the words "perspective" and "world view" because of their visual biases and passive connotations. In the previous chapter I suggested that "performance" is a better word to use in environmental philosophy when considering the human/nature relationship. Human *perspective* misleads us into thinking that we could take up another perspective, or widen the one that we have through a change in premises. Our capacity for empathy and our imaginations

---

[62]There are some artifacts that have a better chance of being used in a superlative way. Consider the difference between an electron microscope and a paperclip. A friend of mine once told me that before he studies his silver atoms, he has to spend up to four hours meticulously tuning his microscope. The paperclips on my desk do not require the same skill and finesse unless if I used them in a non-conventional way, say, to defuse a bomb.

[63]Hacking, *Social Construction of What?*, p. 61

allow us to do both. The ease with which we can do so, that is, the ease with which we can entertain the possibility that there is an ontologically independent nature that existed before, during and after *H. sapiens,* reinforces the non-anthropocentric position. As Keekok Lee asserts, a simple thought experiment allows us to unproblematically entertain the thought of a world without humans, but not humans without a world.[64] The environmental destruction written about so passionately by deep ecologists helps us empathize with those species that are being edged out of their habitats. Geological and evolutionary time frames stretch our understanding of the earth's history. Pick up any high-school science book, watch a nature program, listen to astro-physicists speak about quasars and distant galaxies—how could one *not* get the feeling that the human perspective is very, very small compared to the age of the dinosaurs or the awesome gravitational pull of a black hole?

But change human perspective to human performance and we are left with anthropocentrism as the only serious philosophical position from which to do environmental philosophy. We can imagine or theorize an independent nature; pretend that the forests will continue to grow after we are gone (if we haven't cut them all down by then), but imagining and theorizing are fundamentally *our* artifactual performances. If they did not exist, then the thought that there is an independent nature would not exist, so we cannot use imagination and theory to prove the existence of an independent world and deny their artifactual character at the same time.

At this point, recovery philosophers might extend their gratitude for clarifying the issues and direct their question at me instead of the social constructionists. At least the social constructionists were mute regarding the world. My unabashedly anthropocentric theory may seem even more dangerous than the deconstructionists criticized by Soulé, Lease and the recovery philosophers. Reality is artifactual, and artifacts are necessarily human artifacts. So *nature* is an artifact? It would appear so, if we keep all the terminology and assumptions of recovery philosophy. However, I do not agree with the assumptions implicit in recovery philosophy, so the question is misleading. As mentioned, I want to exchange "nature" for "environment," and my reasons will soon become clear. However, it would be more helpful to address the question that Soulé and Lease raise against the social constructionists: If there is no independent nature, then what's to prevent humanity from redesigning (or reinventing) nature in any way we see fit? This is the core of their concern. If nature loses its ontological independence due to the adoption of an anthropocentric position, then nature loses the ground for its value. If nature loses the ground for its value, then the way is clear, apparently, for uninhibited human chauvinism. Admitting that *reality* is artifactual rapidly translates into the loss of the wild. Must we provide more ammunition for Modernity's war on nature?

---

[64]Lee, *Natural and Artefactual*, p. 93.

So far it may seem as if Allen's version of anthropocentrism, call it "artifactual anthropocentrism," has no ecological upside. This would be a premature judgment. The benefits of this position will soon be shown, but recovery philosophy's concern must be at least partially addressed. I think their concern is both serious and misleading. It is serious in that it raises the issue of ecological limits. I agree that there are ecological limits to our actions. We cannot replace all the living trees with plastic ones without compromising the oxygen levels in the atmosphere. Furthermore, I doubt that managed forests are more sustainable than unmanaged (wild) ones at least on conventional ideas of what managing a forest entails. Recognizing our ecological limits may include leaving large tracts of wilderness intact.

Recovery philosophy's concern is misleading because it assumes an untenable Modern dualism between society and nature. Note the phrasing of their question: what is to prevent *we* (society) from redesigning or manipulating *nature* in any way that *we* see fit? The question assumes that nature and society exist in separate, purified ontological zones. No wonder recovery philosophers attack social constructionists so enthusiastically! Social constructionism enlarges society's ontological zone, extending it to the point where it becomes the *de facto* substitute for nature. The social constructionists have defrocked the scientists as nature's spokesperson. Using science to investigate issues such as the native intelligence of the human races is at best quaint, at worst racist. If one segment of the population does more poorly in school than another, then do not look to nature ("genes") for an explanation, they claim, look to society. There you will find all the explanation you need. Examine the students' world view. Study their perspective. Consider their socio-economic status. Form a theory about how society has created their "prejudices, categories, and paradigms" and compare them to the "prejudices, categories, and paradigms" of the educators. Add a dash of power, mix and serve. It's practically formulaic. In the end, however, swapping nature for society will not help one to escape Modernism and the faith it places in science. Enlarging either ontological zone obscures a fundamental misunderstanding. Although we may *think* that nature and society are two distinct zones, our reality is actually composed of "hybridized networks," linking and mixing these two realms together to the point that the maintenance of strict distinctions between them is impossible. I address these issues in the next chapter where I show how the question posed by recovery philosophers (i.e., what's to prevent us from redesigning nature any way we see fit?) is specious.

The Behaviour of Artifacts

So we have lost an ontologically independent nature but we have gained an understanding of artifacts and their importance to human existence. Implicit in recovery philosophy's understanding of nature and artifact is a kind of linearity that should also be discarded. Picture a straight line anchored in nature (independent reality), passing through our assumptions (world view) then through

our intentions and terminating in an artifact (culture). Nature, according to their arguments, has a fixed, independent reality that the Modern world has failed to recognize. Instead, we have described it in accordance with our desire for domination and control. The Modern understanding of nature is erroneous and must be replaced by another, more accurate understanding that is not tainted by our anthropocentric tendencies. We can find a better, truer understanding of nature if we look to the sciences of genetics, ecology, and evolutionary theory. Once our assumptions about humanity and nature are changed, we will no longer *produce* the sorts of artifacts (cities, pollution, technology, and so on) that cause harm to nature. Independent (true) nature *gives* us a *true* set of assumptions (an ecocentric world view) that we can use to *plan* our existence and *produce* a healthy, sustainable culture. This is why Katz cannot account, or does not think he needs to account for the unintended effects of artifacts. One cannot *plan* for an unintended consequence. Bad consequences indicate poor planning, according to recovery philosophy; they have nothing to do with how artifacts behave. But unintended effects *do* exist, and they tell us something important about the behaviour of artifacts that cannot be adequately explained by reference to poor planning based on erroneous assumptions grounded in a Modernist understanding of an independent reality. We have already seen how our hominid neurology has developed over the past two million years in conjunction with artifactual culture. Our form of life, Allen argues, is an unintended effect of artifactual culture over evolutionary time. In the final chapter, I will address how artifactual anthropocentrism opens up more interesting questions and issues for environmental philosophy than the recovery project. It is essential though, to this present discussion to provide the groundwork for these ideas first.

The linear model implicit in recovery philosophy's analysis of artifacts overlooks the idea that artifacts exist in an economy. The word "economy" means more than just "monetary," although thinking about how monetary systems work helps to explain the point. Isolated from the economic system that gives a dollar bill its worth, it is nothing more than a piece of linen paper. Money *qua* money must circulate, exist within a system of exchange that establishes its value. Exchange must exist as a practice, presupposing wide agreement and trust among participating members.[65] Recall Wittgenstein's assertion that there cannot be a

[65]Not only must a system of representation and a mutual atmosphere of trust be present for economies, but for the most sophisticated economic systems, i.e., Western capitalism, property ownership must be clearly defined. Peruvian economist Hernando de Soto explains why Western style capitalism has not been adopted by eighty percent of the world's population: "nobody can identify who owns what, addresses cannot be easily verified, people cannot be made to pay their debts, resources cannot conveniently be turned into money, ownership cannot be divided into shares, descriptions of assets are not standardized and cannot be easily compared, and the rules that govern property vary from neighbourhood to neighbourhood or even from street to street." Most of the world's population lives in what de Soto calls an "extralegal" environment that prevents their assets from acquiring the bureaucratic language necessary to attain visibility in the marketplace. See Hernando de Soto, *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else* (New York: Basic Books, 2000), p. 15.

single instance where a rule was followed. Rules, reports, words, and money exist in a system, and their value is relative to others elements of the system.

Applying these ideas to tools (a paradigmatic example of artifacts), we can understand why "it takes tools to make, use, and teach tools, and tools generate more tools as they are used."[66] As with words and money, tools also depend on the activities and practices of other artifacts and agents:

> Tools are used by creatures which, if not actually working together, are doing what they do in reply to, or expectation of, the actions of others, in an indefinitely extended web. It is not an external object and an internal need that inspires the tool, but the understanding that when you do one thing, somebody else does another that is integral to the success of both actions. Each action complements the other in an economy of reciprocal exchange mediated by tools and other artifacts.[67]

Artifacts link together other artifacts (as well as people) in a dense web of interdependency. Bruno Latour calls the lines of the interdependent web of artifacts "socio-technical networks."[68] If it is difficult to picture a web of interdependency when thinking of a simple tool, e.g., hammer, then consider Allen's example: a passenger jet. Besides the precision co-functioning of the 4.5 million parts of a Boeing 747, a flight across the Atlantic requires highways, flight schools, the petrochemical industry, other passengers, sophisticated radar technology, engineers, and so on.[69] As Latour observes, "it is a mistake, or unfairness, that our headlines read, 'Man flies,' 'Woman goes into space.' Flying is a property of the whole association of entities that includes airports and planes, launch pads and ticket counters. B-52s do not fly, the U.S. airforce flies."[70]

That is why a chimpanzee's termite-fishing stick or a sea otter's shell-smashing rock (although they may indicate a certain level of cleverness) cannot properly be considered a tool. Chimpanzees lack an artifactual economy of social complementary actions. Standards of tool creation, maintenance and technique must exist, and also be taught. It takes care and the cultivation of technique to make a tool as basic as an Acheulian hand-axe (never mind a Boeing 747). As it stands, the evidence suggests that chimps do not engage in any of these behaviours, and their survival does not depend on the use of a termite stick.

If we accept Katz's reasoning about artifacts, then yes, the stick is the means that fulfills the chimpanzee's *intention* to eat the termites. Along with the other recovery philosophers, Katz defines artifacts in terms of their use. This definition

---

[66]Allen, *Knowledge and Civilization*, p. 204.

[67]*Ibid.*, p. 205.

[68] Bruno Latour, *We Have Never Been Modern*, trans. Catherine Porter (Cambridge, Mass.: Harvard University Press, 1993) p. 117.

[69] Allen, *Knowledge and Civilization*, p. 90.

[70]Bruno Latour, "On Technical Mediation—Philosophy, Sociology, Genealogy," *Common Knowledge* 3, no. 2 (Fall 1994): 35.

erroneously assumes that we form our intentions, then pick up the tool and carry out our intentions.

Earlier I referred to Katz's analysis as linear because he does not take into account how artifacts presuppose other artifacts in a web of socially complementary action. Linear also refers to the idea that we form the goal of an action in our mind, then devise the tools as the means to that end. However, we have to abandon the commonly held idea that artifacts are the neutral instruments of human intention because the tool itself may dictate the ends of an action. Our artifactual economy presents possibilities for action that did not previously exist. "Tools let us do things we could not imagine without them. Cutting is not something we just naturally want to do, and invent blades."[71] Likewise, dominating nature is not something we *decide* to do, and invent genetically modified foods.

To this, deep ecologists may reply: But that's the point! We are the instruments of Modernity because technology defines our ends. Recall Drengson's words: we act like a "herd of machines" because we have created organizations on the machine model and consequently have become prisoners of our own creations.[72] That is why deep ecology dislikes urbanization. Deep ecologists think that urban living undermines the true relationship between humanity and its artifacts. It subverts the natural order, placing what is properly secondary (artifacts) as primary.

Drengson has merely reversed Katz's definition, and in doing so he misses the point. Tools and other artifacts are neither the neutral instruments of human intentions, nor the masters of humanity. Tools, rather, extend social skills to nonhumans. Allen describes this relationship in the following way: "to make an Acheulian hand axe is to treat a stone as a kind of social partner, extending to the nonhuman cognitive and manual skills rehearsed and founded in social interaction, for instance mutual grooming."[73] As social partners, tools *share* the responsibility for action. I have already shown how this is the case with airlines. Here is a simpler example. Latour examines two different, but related attitudes towards handguns. Those who wish to control firearms have a slogan: "guns kill people." The National Rifle Association (NRA) replies that "people kill people," so why prohibit the sale of guns? The latter position is similar to Katz's understanding of artifacts. The gun, an artifact, is neutral. It does not modify or contribute anything to the user's intentions except to execute the act more efficiently. Intention, or the "program of action" is set before the gun is picked up and fired. This position suggests that "techniques are nothing more than pliable and diligent slaves."[74]

---

[71] Allen, *Knowledge and Civilization*, p. 205.
[72] Drengson, "Wild Journeying Way," p. 183.
[73] Allen, *Knowledge and Civilization*, p. 205.
[74] Latour, "Technical Mediation," p. 31.

In contrast, the materialist or technological determinist school of thought argues that "our qualities as subjects, our competences, our personalities, depend on what we hold in our hands." The slogan "*guns* kill people" refers to the idea that artifacts have a script that imposes itself on the user. A law-abiding person with a gun in her hand is *transformed* into a killer.[75] In a similar vein, according to deep ecology, people are transformed by their urban environments. Ironically, we become *less human* in the most *anthropocentric* of all places. Ralph Waldo Emerson expresses a similar thought in his *Ode to Channing*: "Things are in the saddle and ride mankind." The ideology of the NRA and the arguments of the materialists are two sides of the same coin according to Latour. Both assume that only one agent is responsible for the action, only one agent acts according to a script. However, when we pick up an artifact (in this case, a gun) "a third possibility is more commonly realized: the creation of a new goal that corresponds to neither agent's program of action. You had wanted only to hurt but, with a gun now in hand, you want to kill."[76] With a tool in hand, goals shift and new possibilities are realized.

Latour's explanation would not make sense if it were maintained that our psychological capacity does not change or that objects have an essence whose script is imposed on their users. Like the NRA, Katz maintains that our intentions precede our actions. The source of our intentions (according to Katz) lies in the Modern world view. Deep ecology holds that in the city our day-to-day interaction with modern technology determines our intentions. The city and modern technology have an essence that imposes itself on our primarily natural personas, and that essence is given by Modernity. Getting back to our true "Self" means that we must reject our urban, Modernist identity in order to discern nature's will with minimum interference. Although the deep ecologists and Katz seem to have opposing views, their understanding of artifacts mirrors the humanist and materialist arguments. They both seek to explain action by singling out *one* actor rather than attributing action to the whole system. Both Katz and the deep ecologists maintain that an ontologically independent nature should guide our intentions. Modernity and modern technology mask nature and master humanity, according to these philosophers.

Against this, bear in mind the idea that artifacts exist in an economy. Artifacts have no essence because their existence supposes and presupposes other artifacts, and their meaning and use depends on these relations. This is half of the argument against recovery philosophers who want to essentialize our psychology or tools. I am arguing that artifacts do not *behave* as described by Katz, Lee, and the deep ecologists.

When we set aside the philosophical impulse to essentialize either the gun or the person, we can see how the identities of both are transformed by creation and execution of a new goal:

---

[75] *Ibid.*, pp. 31-32.

[76] Latour, "Technical Mediation," p. 32.

> Essence is existence and existence is action. If I define you by what you have (the gun), and by the series of associations that you enter when you use what you have (when you fire the gun), then you are modified by the gun—more so or less so, depending on the weight of the other associations that you carry . . . You are different with a gun in hand; the gun is another object because it has entered into a relationship with you. The gun is no longer the gun-in-the-armory or the gun-in-the-drawer or the gun-in-the-pocket, but the gun-in-your-hand aimed at someone who is screaming. What is true of the subject, of the gunman, is as true of the object, of the gun that is held. A good citizen becomes a criminal, a bad guy becomes a worse guy; a silent gun becomes a fired gun, a new gun becomes a used gun, a sporting gun becomes a weapon.[77]

The sporting gun becomes a weapon because, at the scene of the crime, the gun is tagged, examined, tested, and held as evidence. The citizen becomes a criminal after the legal institution (complete with bailiffs, clerks, judges, juries, press, prisons, politicians, books, and courthouses) finds him or her guilty of a crime. The old adage "criminals are not born, they are made" holds true. Changes in identity occur relative to the other "series of associations that you enter when you use what you have." If someone is a police officer, the series of associations will be different than that of an ordinary citizen. He or she is allowed, even *expected* in some instances, to fire his or her gun. Firing a gun, in *some* instances, is keeping perfectly within his or her professional identity as a police officer. Appropriate or inappropriate times are determined by our legal, political, and cultural institutions. This does not mean that legal, political and cultural institutions make the firing of a gun *right* or *wrong*—Latour's point is more fundamental. Without these institutions, without artifacts knitting together other people and places, without the "densely mediated layers of artifactual economies," *there would be no gun and no one to fire it.* Guns, criminals, home invasions, and police officers are not naturally occurring objects around which we create laws to manage their existence. As with money, without a widely held system and practice of representation and exchange, there are neither purchases nor banknotes. Once again think of the jetliner example. Airlines are as institutional as our legal or political bodies. Just as many actants are mobilized and make possible the firing of a gun as a flight of an airplane.[78]

At this point, it may seem as if Bruno Latour is a social constructionist *par excellence*. Guns, criminals, police officers, and so on, obviously exist in society. So, of course, they would not exist if society did not exist. However, this conclusion assumes the two distinct ontological zones of "nature" and "society."

---

[77] *Ibid.*, p. 33.

[78] Latour's term for "actor." He prefers "actant" because "actor" is assumed to refer only to human beings. His point is that artifacts are full partners in action as well.

I address why we cannot divide and maintain the social as distinct and separate from the natural in the next chapter. For the moment, my aim is to show how the linear model implicit in recovery philosophy fails to capture how we use, produce, and work with artifacts.

Why all the fuss about artifacts?—one may ask. Recall my suggestion that, *contra* recovery philosophy, our relationship with nature has to be defined through *performance*, not *passivity*. Nature, the recovery philosophers claim, is active—not passive! *Human* identity is primarily biological—not cultural! Let nature perform its functions, recovery philosophers say, and keep our *activities* to a minimum lest we interfere with nature's life-support functions. Their reasoning merely inverts the relationship between ourselves and nature that Modernity has created, and does not advance our understanding of ecological problems and their possible solutions. The reason is simple: human beings *act*. An *inactive* human being is a *dead* human being. This is true of every other organism as well. The difference, however, between us and even our closest evolutionary kin among contemporary species is that artifacts are social partners. We delegate responsibilities to them when we cannot be present, e.g., speed bumps slowing traffic. We share responsibilities with them, e.g., the *Enola Gay* helped the U.S. destroy Hiroshima. Although Col. Paul W. Tibbets, Jr. flew the plane, "the attribution to one actor of the role of prime mover in no way weakens the necessity of a *composition* of forces to explain the action."[79] Artifacts are just as active as we are. Recovery philosophers have overlooked this important fact in their haste to establish nature as humanity's Supreme Court.

If we take human performance as our starting position in understanding our relationship with nature, then artifacts cannot be relegated to the sidelines. Even the least technologically proficient society envisioned by deep ecologists would contain artifactual economies. There is no alternative for human beings. As previously indicated, recovery philosophers owe more to social constructionism than they would care to admit. Recovery philosophers freely attribute nature-based world views to *pre-modern* aboriginal cultures without recognizing the obvious tension, i.e., that the concept of world view is a Modernist invention, in their cultural anthropology. As Latour says, "deep ecology means shallow anthropology."[80] I could overlook the liberties deep ecologists take with their interpretation of other cultures except for the fact that world view plays an important role in their arguments. I do not deny that people have assumptions and expectations that guide their actions in the world, but I want to resist the totalizing tendencies and linear analysis that the concept encourages. The arguments against world view have to be presented in stages because the recovery philosophers borrow from science, anthropology, and (without knowing it) social constructionism to build their ecological world view. We have already seen how

---

[79]Latour, "Technical Mediation," p. 35.

[80]Bruno Latour, *Politics of Nature: How to Bring the Sciences into Democracy*, trans. Catherine Porter (Cambridge, Mass.: Harvard University Press, 2004), p. 43.

the idea of artifactual economies undermines the linearity implicit in recovery philosophy's use of the concept of world view. In this chapter I have tried to undermine the conceptual foundation for an ecological world view—an ontologically independent nature. We have seen that the arguments for nature's ontological independence presuppose the artifactual (and therefore the *very* human) practices of comparison, measurement, and contrast and operate with an untenable conception of the distinction between artifacts and nature.

Despite these arguments recovery philosophers could still claim that Modernity has created and continues to foster a dangerous split between nature and society. Isn't our Modern, western culture *different* than all the others? Rejecting the first two premises of the recovery project helps to prepare for the somewhat contentious answer to this question. I turn to this now.

Chapter 4

Introduction

This chapter presents my critique of the remaining theses of the recovery project—Modernity's role in the ecological crisis and the proposed solution of the establishment of an ecological world view. Although the previous chapter argued against the idea of an ontologically independent nature and the natural/artifactual distinction, recovery philosophers may still insist that Modernity shoulders much of the blame for our present destructive relationship with nature. In its desire to dominate the natural world, Modernity has conceptualized nature as passive, fragmented, and lacking needs of its own. Recovery philosophers point out that our Modernist institutions (e.g., the capitalist economy) rely on and reinforce these concepts through their practices, thereby contributing to the Modernist world view. A natural world reduced to nothing more than atomized, contingently related parts, in turn, is difficult to value intrinsically.

Modernity has also reconceptualized humanity's identity. We are free beings, no longer constrained by past irrationalities, e.g., God, the cosmic order, superstition, and so on. Society is *ours* to construct. Neither the divine right of kings, nor the limits of the natural world will prevent us from doing what we want. We have every right to believe and pursue the Modernist ideas of freedom, optimism, and progress. Celebrate *Homo faber*! How could we not when we look at our technological accomplishments, our political successes?

This exuberance has been tempered by those who point out that the natural world is suffering as a result of our anthropocentric Modernist world view. Conceptually and geographically, Modernity has driven a wedge between us and nature, poisoning and destroying both as a result. Recovery philosophers maintain that this relationship can be saved only if we abandon the Modernist world view whose main feature is anthropocentrism. When the problem is presented this way, the solution seems obvious. What we need, according to recovery philosophy, is a change in world views. They argue that ecology offers a more accurate, less self-serving description of nature. Ecology presents us with a better paradigm to guide our actions. The two opposing poles of society and nature will finally be brought into harmony through ecological thinking. Recall that Westra even goes so far as to argue that ecosystem integrity should act as a foundational principle for all human actions.

The arguments about Modernity's role in splitting the world into two halves—nature and culture—need to be closely examined. Previously I mentioned that "nature" is a vexing term, and should be replaced with "environment." Already we have seen some of my reasons for this change. Our reality is an *artifactual* reality. If the arguments for this statement are as persuasive as I take them to be, then the independent backdrop that the recovery philosophers call "nature" is an unnecessary and specious concept.

Recovery philosophers might accuse me of falling into one of Modernity's most seductive traps: the colonization of the natural by the social. After all, the

previous chapter contained my unabashed admission of anthropocentrism. They understand artifacts as products of human intentionality. To say that our reality is an artifactual reality would mean that that our reality is fundamentally a social, humanized reality. In their view, I have enlarged the sphere of human culture to the point where it now eclipses the natural sphere. Indeed, this is why deep ecologists, along with Lee and Katz, think we need to recover the wild. The wild, supposedly the most faithful and accurate form of nature, is our life-support, the Other, and the place where we can escape from Modernity's harmful influences. Given that Westra's arguments for the Principle of Integrity were explicitly intended to trump any claims made by the social sphere, the recovery of the wild is not intended to forge a mutual understanding between the natural and the social spheres. In warfare a truce is impossible as long as one side thinks that it can still win. The recovery philosophers are convinced that nature has one distinct advantage over the social sphere—scientific fact. Despite the importance that deep ecologists place on the spiritual value of wilderness, personal growth, and other anti-Modern sentiments, they appeal to the scientific facts when confronted with any criticism that their philosophy has dubious religious overtones. The wild is stamped in our genes, they say. We are the product of eons of evolutionary process. Human beings have a universal nature that is supported by scientific fact. This nature, however, does not place our species in a privileged light. Scientific ecology overturns anthropocentrism because it de-centers humanity and reduces us to a minor actor—at best—on the world's evolutionary stage.

The appeal to the scientific facts as revealed by genetics, evolutionary theory, and ecology indicates that the recovery philosophers have not escaped the Modernist paradigm. The goal of this chapter, however, is not to show their inconsistent reasoning, although that issue will be addressed. Their inability to escape the Modernist paradigm is *not* a sign that Modernity is all-powerful, or that post-Modernity is our only option. Instead, I examine Bruno Latour's argument that we *have never been* Modern. I hope this argument will help environmental philosophers understand that there is another way of conceptualizing environmental problems. Environmental philosophy remains entangled in the dualist structures it condemns. In the Modernist tradition, they have divided the world into two camps, nature and culture. Again, following the Moderns, these two camps have become purified ontological zones. Thanks to the recovery philosophers, these zones are now at war. Katz's work is a prime example of the desire to purge and separate. Even restored eco-systems, although conceivably indistinguishable from their wild cousins given enough time, will *forever* be a human artifact. We have already seen arguments that question the natural/artifactual distinction, but now it is up to Latour to show how we cannot even appeal to Modernity itself to reinforce what has never actually been there in the first place.

We Have Never Been Modern

Recovery philosophers regard Modernity as a sleek, uniform, homogeneous piece of history. Their understanding is not that different from most other accounts of Modernism. Despite the various definitions, Westerners mainly understand the Modern era as designating "a new regime, an acceleration, a rupture, a revolution in time."[1]

Most other cultures do not see themselves as breaking from the past, so what exactly has changed? Through Modernization, the West thinks it has accomplished what has so far eluded most other cultures; we are able to distinguish between knowledge of people and knowledge of things. This means that we no longer seek explanations for physical phenomenon through events from the human world. We know, for example, that sacrificing animals will not make the clouds rain on the crops. Those are the beliefs of pre-modern cultures. In our eyes, pre-modern cultures mix signs and things, social conventions and knowledge of nature. There is no such mixing in the West because for us, the world has been split into two parts; nature and culture. But we did not make this separation between nature and culture at the birth of Modernity some four hundred years ago and then took it for granted ever since. As we shall see, this separation has been actively maintained by the West. Latour gives a name to the creation and maintenance of the neat cleavage between nature (knowledge of things) and culture (power and human politics). He calls it the "work of purification."[2]

We have seen in the previous chapter how the work of purification plays a role in the science wars. Social constructionists are derided for suggesting that scientific theories owe their success to external, societal factors that keep the theory afloat rather than the fact that they have accurately described an independent reality. Kuhn and Pickering mix the two spheres that their critics insist should be kept separate.

Given that Modernity is understood as a break with the past, criticisms from the social constructionists in the science wars are often understood as a threat to return humanity to the dark ages. When social constructionists argue that all we have are our representations and may never really know the world *as it truly is*, they are understood as removing the rational ground from which we can expect a happier, optimistic future. Behind the work of purification lies the myth of progress:

> What gives the thrust to the arrow of time is that modernity at last breaks out of a confusion, made in the past, between what objects really are in themselves and what the subjectivity of humans believes them to be, projecting onto them passions, biases and

[1]Bruno Latour, *We Have Never Been Modern,* trans. Catherine Porter (Cambridge, Mass.: Harvard University Press, 1993), p. 10.

[2]*Ibid.*, pp. 99, 11.

> prejudices. What could be called a front of modernization—like the Western frontier—thus clearly distinguishes the confused past from the future, which will be more and more radiant, no doubt about that, because it will distinguish even more clearly the efficiency and objectivity of the laws of nature from the values, rights, ethical requirements, subjectivity, and politics of the human realm.[3]

Modernity reassures us that when we "purify" our sciences, i.e., disentangle our petty politics, our cultural biases, our personal prejudices from the task of scientific investigation, then objective nature comes into clear focus. The scientist only discovers what is already present.

There is more, however, to Modernity than *scientific* progress. Those on the other, social side of the divide have been busy with the work of purification as well. Latour points out that our Modern understanding of society assumes that citizens are free, calculating, self-interested beings—a conception of humanity that we have inherited from that exemplary Modern, Thomas Hobbes. Humanists find comfort in this conception of humanity. Latour confirms their thought that, "human beings and only human beings, are the ones who construct society and freely determine their own destiny."[4] The social sciences and the humanities have, for the most part, accepted that society is "made up only of citizens, calculations, agreements or disputes...in short, it is made up of nothing but social relations."[5]

We have seen an example of this purification in the previous chapter's discussion of artifacts. Recall the National Rifle Association's stance on gun control. Latour pointed out that their position is similar to those humanists who think that artifacts contribute *nothing* to the script of their user. Guns do not modify our goals; they are not partners in crime. Here we have a picture of society where actions are explained by calculating individuals whose only connection to the world is through the tenuous thread of social relations. Artifacts are merely the instruments of intentions that arise from these relations. Since they are not agents, they do not have to be counted. What *does* modify our purposes are the social relations.

Val Plumwood's arguments are also a good example of the work of purification. In her account, social relationships are both the cause and the solution to the ills associated with the subjugation of women and nature. Unbalanced social relationships (i.e., dualisms) lie at the heart of Western culture. These dualisms modify the identities of those on either side of the divide: men/women, culture/nature, master/slave. Her proposed solution calls for a critical reconstruction of these identities that involves finding continuity, plurality,

---

[3]Bruno Latour, *Pandora's Hope: Essays on the Reality of Science Studies* (Cambridge, Mass.: Harvard University Press, 1999), p. 199.

[4]Latour, *We Have Never Been Modern*, p. 30.

[5]*Ibid.*, p. 28.

and reciprocation where before there was only separation, homogenization, and domination.

The work of purification isolates and maintains the distinct ontological zones of culture and nature. However, if we resist the temptation to define the boundaries of nature and culture by constantly contrasting one with the other (*here* we find facts, over *there* we find values) and just *look* at how societies and natures are created, we see the mixing and knitting of the nonhuman and human realms. No society is built on social relationships alone. Likewise, science does not study nature in an asocial void. As we have already seen in the previous chapter, our ecology is an *artifactual* ecology. We have always mobilized nonhumans (elements from the natural world) to help build our societies. We treat artifacts as social partners. And what about science? Science, or the science*s*, as Latour prefers, link and mobilize all sorts of societal elements. Pick a "natural" item such as a forest. Next to those scientists who are claiming that old-growth forests need to be preserved, you will find politicians, labour activists, ecologists, church groups, business and industry leaders, and so on. The mad-cow crisis in Europe and North America is about more than the mysterious prion. It involves wary consumers, dietary habits, stock options, nervous Albertan farmers, scientific debate, trade wars between the United States and Canada, and the revamping of national food-inspection services. Latour does not claim that society forms the *context* for the sciences. He is not a social constructionist. Context can be as misleading a word as world view because it encourages one to think in spatial and perceptual terms. Society is neither an interpretive lens that is placed over the researcher's eyes, nor is it a background to science's foreground. Instead, it is better to think in terms of networks.

The groundwork for this idea has already been laid in the previous chapter. Recall that it is very difficult to identify essences once one recognizes that artifacts exist in economies. Artifacts are relational, that is, their existence and identity depend on other artifacts as well as the many relations with other people that their use and production imply. We have also seen how technologies both disperse and gather humans and nonhumans. Science does the same thing. If this is difficult to understand, that is because we tend to think of science in terms of theories, concepts and "natural" objects and ignore the experiments, the laboratories, the equipment, and the strange beings that are produced in them. The discipline that studies this neglected aspect of science is called "science studies." According to Latour, the purpose of science studies is to follow the connections and relationships between all the actants that are connected with a given content of a science. The actants are diverse and may include politicians, laws, consumers, scientists, viruses, dietary habits, religious groups, and so on. Science studies does not state *a priori* that there is a connection between science and society, and then searches for the ways that society permeates science, (e.g., theoretical bias) or how science permeates society. Rather, science studies traces

the connections between the actants as "the existence of this connection depends on what the actors *have done or not done* to establish it."[6]

Using a previous example, one does not look for the "society hidden in, behind, or underneath" the laboratory research responsible for isolating the prions thought to cause Creutzfeldt-Jakob disease in humans and bovine spongiform encephalopathy in cattle. The more interesting questions, Latour suggests, asks how the laboratory knits together all sorts of actants (farmers, governments, shaky sheep) in new and startling ways, *and* how the actants help determine the direction taken by the laboratory.

If it is seen that Latour wants to dismantle the autonomy of Science, then, as I suggested earlier, one might be ignoring the central role played by laboratories and experiments. "While Science had certainty, coldness aloofness, objectivity, distance, and necessity, Research appears to have all the opposite characteristics: it is uncertain; open-ended; immersed in many lowly problems of money, instruments, and know-how."[7] Research, the laboratory, field-experiments, and so on, are the life-blood of the sciences. They eventually produce the sturdy, abstract laws of physics, but just as a brontosaurus becomes slowly fossilized over millennia, we know not to mistake the pile of bones for the living creature. Even the most theoretical of the sciences, e.g., particle physics, relies on an experimental setting. Last century's race to find the top quark (the sixth piece of evidence that completes the Standard Model of Energy) involved research teams from all over the world. Eventually, teams from France and Japan had to withdraw from the experiments because it became evident that only the highest energy particle accelerator would be able to detect the top quark. *That* laboratory was Fermilab's 6.3-kilometer Tevatron accelerator. In 1994, scientists found evidence of the top quark and its mass prompted this reaction from one of the scientists: "the top mass may provide a clue to the origin of mass in the universe, but we need to continue the exploration to go beyond just the clue. Improvements to the accelerator will allow us to produce many more top quarks so that these questions can be explored."[8] Thus, even the most seemingly theoretical of scientific pursuits depends on the laboratory setting.

An important question arises: How shall we think about those objects jointly created by the laboratories and by society? In other words, how do we classify the ozone hole, global warming, or a restored ecosystem? For the recovery philosophers, these are puzzling questions. In the world of the socio-technical networks, the purified, ontological categories of culture and nature are no longer at our disposal. We shall soon see why culture and nature are categories that need to be explained; they themselves are not sources of explanations. Latour suggests that instead of obsessing over what category these things should occupy, we

---

[6]Latour, *Pandora's Hope*, p. 87 (emphasis mine).

[7]*Ibid.*, p. 20.

[8]"Chicago Scientists Find Evidence for Top Quark" *The University of Chicago Chronical* 13, no. 17 (April 28, 1994).

should acknowledge their hybrid nature. He calls the production of hybrids, that is, the laboratory practices that produce those part social, part natural objects, the "work of translation or mediation."[9]

The relationship between these two dichotomies, the work of purification and the work of translation or mediation, is paradoxical because "the more we forbid ourselves to conceive of hybrids, the more possible their interbreeding becomes."[10] Stated simply, the more we *purify,* the more we *translate* or *mediate*. Indeed, it is the proliferation of hybrids that has brought the relationship between the two to light. For centuries, we have not been able to consider *both* purification and hybridization at the same time because the Moderns have forbidden it. Latour's metaphor of the "Modern Constitution" helps to make this point clear. Constitutions are evaluated and understood by what sort of guarantees they offer. We have already seen some of the first guarantee afforded by the Modern Constitution. Even though our faith in the objectivity of science may be secured by the thought that scientists only discover the secrets of a *transcendent* nature (an ontologically independent nature) scientific discovery is actually a practice. Laboratory *practices,* i.e., the work of translation or mediation, are necessarily unstable, tentative, social, and as such, are a part of this immanent world. The transcendence of nature is therefore supported by its immanence. For the Moderns, "even though we construct Nature [immanent], Nature is as if we did not construct it [transcendent]."[11] This is the first guarantee of the Modern constitution.

The double-play on transcendence and immanence also exists in the social sphere. Although the Moderns hold that the state is freely constructed by its citizens, the state is *more* than just a social contract held among its citizens as society needs the participation of non-humans. The state mobilizes industry, commerce, the arts, natural resources, and so on, in order to create and maintain its existence. In an important sense, then, the state, or the social sphere, can be said to surpass its creators. It has a permanence, a solidity, a history, and a durability, that grows as we construct it.[12] The bigger the state gets, the more we are impressed with its abilities to mold and shape its own citizens. In other words, the more we construct society by mobilizing non-humans, the more we can say it *transcends* us. Immanence, in this case, is supported by transcendence. This is the Modern constitution's second guarantee.

Taken together, the first and second guarantees are contradictory, both mutually and internally. They are internally contradictory because *transcendence* is supported by *immanence* in nature and vice versa for society. Scientists "go on and on both constructing Nature artificially and stating that they are discovering it" while "the newly defined citizens go on and on constructing the [state] by dint

---

[9]Latour, *We Have Never Been Modern,* p. 10.
[10]*Ibid.*, p. 12.
[11]*Ibid.*, p. 32.
[12]*Ibid.*, p. 31.

of calculation and social force, but they recruit more objects in order to make it last." This contradiction is not obvious to the Moderns because they have added what Latour calls the third Constitutional guarantee that makes the other two mutually contradictory: "there shall exist a complete separation between the natural world (constructed, nevertheless, by man) and the social world (sustained, nevertheless, by things); secondly, there shall exist a total separation between the work of hybrids and the work of purification."[13] In other words, the Moderns think that transcendent nature must be kept far away from self-determining beings if we are to have both a successful science and a free, democratic society. Let society mess around with science, and then scientific discovery will not reflect *nature as it really is*; it will only show us our own human, all-too-human face. We will be back in pre-modern times, mixing social conventions with the things themselves. The reverse holds true as well. Society must be kept far away from a transcendent nature if we are to maintain our freedom. Let nature determine the shape of society, and we give up the right to self-determination that we so desperately fought for in the wars against the monarchies of Europe. We will only trade one despot for another.

In essence, Moderns believe that the source of their power and success depends on their ability to maintain the separation between nature and society. But, as we have seen, science is necessarily a human *practice* that is intertwined with society, and society willingly builds and reinforces the foundation of its freedom with each new hybrid produced by science. As long as we fail to see how both nature and societies mobilize each other, Latour argues, we will think we are Modern and not see the contradiction inherent in the Modernist purification of the social and natural spheres. What we need to realize is that the *more we purify*, that is, the more we insist that science has nothing to do with the social and vice versa, the *more we translate and mediate*. A science that is considered to be purged of all things social is free to create more strange and troubling hybrids, or "quasi-objects," ***because we assume there will be no consequence for the social order.***

Why do the Moderns think that there will be no consequences for the social order? The third guarantee—"there shall exist a complete separation of the natural world from the social world"—assures us that the world of nature (created by humans) and the world of culture (created by nonhumans) will never interfere with each other. If it is difficult to understand these three guarantees of the Modern Constitution, then think of pre-Modern cultures. Pre-modern cultures do not separate signs from things, nature from society, true knowledge from social requirements. *Our* anthropologists, all Moderns to be sure, are used to the great divide of nature and culture. Thus, to us Moderns, pre-modern cultures seem to be mixing that which should be kept separate.

There is one more constitutional guarantee that must be covered in order to understand how Modernity has managed, up until now, to hold all the critical

---

[13] *Ibid.*

positions. This symmetry of nature and culture, their double-play on transcendence and immanence, would perhaps be more obvious had the Moderns not introduced a "crossed-out God." God was no longer necessary for society and nature thanks to both the Reformation and the success of laboratory science. That did not mean, according to Latour, that God disappeared entirely. He became the "God of Metaphysics," and the "God of the heart."[14] Religion descended into the heart and became spiritual and individualistic. In this way, God was taken out of society. God was taken out of nature because he was no longer necessary to explain the workings of nature. Thus, the "crossed-out God" became a transcendent and metaphysical being. No longer meddling in society but held close to the heart meant that "the moderns could now be both secular and pious at the same time." No longer meddling in nature but held as a metaphysical postulate, the moderns could use God as an arbitrator.[15] On the connection between the immanence and transcendence of Society, Nature and God, Latour writes:

> A threefold transcendence and a threefold immanence in a crisscrossed schema that locks in all the possibilities: this is where I locate the power of the moderns. They have not made Nature; they make Society; they make Nature; they have not made Society; they have not made either, God has made everything; God has made nothing; they have made everything.[16]

This means that the Modern Constitution allowed one to renounce, denounce, affirm, and deny by staking out territory on one or more of these positions and criticizing the others. In summary, a Modern could:

> [1] Fall back on the transcendence of nature to criticize the obscurantism of power . . . [2] on the immanence of Nature to criticize human inertia . . .[3] on the immanence of Society to criticize the submission of humans and the dangers of naturalism . . .[4] on the transcendence of society to criticize the human illusion of individual liberty . . .[5] on the transcendence of God to appeal to the judgment of humans and the obstinacy of things . . .[6] on the immanence of God to criticize established Churches, naturalist beliefs and socialist dreams.[17]

Given the form of the Modern Constitution, all six positions are legitimate and familiar. But how is Latour able to—just now—identify them? Have we moved into a post-Modern world and achieved a little critical distance? No. Post-

---

[14]Latour, *We Have Never Been Modern*, p. 33.
[15]*Ibid.*
[16]*Ibid.*, p. 34.
[17]*Ibid.*, p. 43.

Modernity is a symptom of Modernity and not a solution. The postmoderns have accepted the Modernist belief that we have successfully divided the objective, natural world from the social, subjective world. However, they think that these two spheres are now absolutely incommensurable.[18] For Latour though, it is not that *we are no longer* Modern, but rather *we have never been* Modern. The guarantees have kept us from thinking about the relationship between the work of purification and the work of mediation until, as Latour points out, the hybrids produced in the lab have become too numerous and diverse, thus presenting us with too many ontological (to say nothing of ecological) problems.

In the past, we dealt with hybrids by considering which aspect was social and which aspect was natural. We have already seen this in the debates about wilderness, for example. Cronon's book *Uncommon Ground* explored our *social ideas* about wilderness—how we project our culture and our prejudices on wild nature. Cronon's critics did not read him very carefully and accused him of claiming that wilderness *itself* was a social construction. This was not his point. Cronon assumed that the natural, transcendent, objective aspect of the wild was different from the subjective and social part of the wild and concentrated his effort on the latter. A transcendent, objective nature was never denied its rightful existence in his work.[19]

Wilderness is an unproblematic example for Modernity and recovery philosophers. After all, wildness *is* nature in its purest form. It is relatively easy for environmental philosophers to determine what aspect of wilderness is social (therefore immanent and subjective) and what is natural (therefore transcendent and objective). Nature and culture act as hooks to which we attach our explanations because "in the modern perspective, Nature and Society allow explanation [while] they themselves do not have to be explained." Nature has always been there, transcendent and eternal. We discover it, we explain *how* it works. The same is true of society. "Society always comprises the same resources, the same interests, the same passions." Isn't this true? The Moderns dealt with hybrid-objects, like wilderness, "*by conceiving every hybrid as a mixture of two pure forms.*"[20] Until recently, they did not threaten the purified poles of nature and society, thus they never challenged the "official" Modern Constitution. Both culture and nature had their say in the ontological structure of the object. Objects were constructed by the work of mediation, and then conjured away.

However, the more recent examples—smog, global warming, or the ozone hole—cause problems for the Moderns. How do we classify these monsters? It seems disingenuous to follow the post-moderns and dismiss them as mere "signs" and "simulacra." The damage that these hybrid objects cause is quite real. Recall

---

[18] *Ibid.*, p. 62.

[19] It mystifies me as to why the Deep ecologists do not acknowledge the same tendencies in their own work given their constant appeal to aboriginal and Asian understandings of nature.

[20] Latour, *We Have Never Been Modern*, p. 80.

Latour's point that the more we purify, the more we mediate. We chase after a transcendent nature, say we are only *discovering* its secrets while we create strange new hybrids in the lab. We fervently hold on to the idea that society is ours alone to construct, yet we mobilize millions of nonhumans and create a society that transcends us all. The Moderns credit their success to their careful separation of Nature and Society (the work of purification), but, as Latour argues, "they have succeeded only because they have mixed together much greater masses of humans and nonhumans, without bracketing anything and without ruling out any combination!"[21] As a result, the Modern Constitution is collapsing under its own weight. It is a victim of its own success. It permitted the creation of strange hybrids (smog, mad-cow disease, global warming) that in turn called into question the dichotomy that separates nature and culture. Modernity may *think* that it has successfully cleaved the world into two halves (purification), but the work of mediation has always been present, just never recognized. The work of mediation has knitted together both purified poles. In this sense, we *have never been* Modern. We have never functioned according to the official Modern Constitution. Latour can only now point this out given that Modernity and the work of purification has finally produced objects so ontologically strange and troubling that their existence has finally called into question the basic assumptions of Modernity.

It should be obvious that Latour is proposing something quite troubling for recovery philosophers, and other environmental philosophers as well. The recovery philosophers, along with Val Plumwood and other eco-feminists, have accepted the Modernist Constitution. According to their analysis, Modernity is responsible for our ecological problems because it has: 1) driven a wedge between nature and culture; 2) emptied the former of all subjectivity and meaning; thus allowing for 3) culture to instrumentalize and dominate nature. In short, what the Moderns take to be their *success*, i.e., the separation of nature and culture, the recovery philosophers (and most other environmental philosophers) take to be the grand *failure* of our times. The separation of nature and culture meant that values and subjectivity got relegated to the human realm, thus leaving nature cold, mechanical, objective, and hence suitable only for domination. In this sense, they are anti-Moderns. But as anti-Moderns, recovery philosophers still accept the general framework of Modernity. A quick review of their solutions reveals these Modernist tendencies.

In the official Modern schema (and in recovery philosophy) nature is ontologically independent. It may be instrumentalized, atomized, and dominated, but nature and its laws are out there awaiting discovery. Westra best summarizes the strategy of recovery philosophy when she urges that we should learn everything we can about ecosystem laws so that our ethics and actions can fit the

[21] *Ibid.*, p. 41.

requirements of nature.[22] For recovery philosophers, the cultural sphere must subsume itself under the natural sphere if we (and everything else) are to survive. Cultural concerns are considered to be *preferences* at best.[23] We cannot trust them to aid us in our decisions about how to live with nature because they come from a Modernist culture and will thus only express our anthropocentric presuppositions. Like good Moderns, they think that science is done best when it is purged of social factors. Recovery philosophers place a lot of faith in a cool, rationalist, impartial science and its ability to reveal the laws of nature. They would not be sympathetic to Latour's understanding of the sciences as hot, hybrid, and tentative.

They think we can subsume the cultural sphere under the natural sphere provided that we can heal the dualism between the two. Recall that for recovery philosophers, the most important aspect of our identity is our natural selves produced by an ontologically independent nature over eons of evolutionary time. Theoretically, then, subsuming culture under nature should be an easy task, as long as we overcome the anthropocentrism that tries to keep them separate. Recovery philosophers consider ecological and evolutionary theories to be the keys to help heal the anthropocentric dualism created by Modernity. In particular, ecosystem ecology undermines the features (instrumentalization, homogenization, hyper-separation, and denial of dependency) that support a dualistic relationship. Ecological holism shows us that we are embedded and interconnected with the natural world. In other words, it bridges the gap between nature and culture opened up by Modernity. We are left with little *reason* to maintain our privileged position. If ecology bridges the gap between nature and culture, evolutionary theory delivers the final blow to those who would want to maintain our privileged position based on our cultural identity by undermining the first and most basic formulation of anthropocentrism: human identity and knowledge are shaped and conditioned by social and historical factors. Of course, recovery philosophy does not *deny* that culture exists. Given that recovery philosophers are still firmly entrenched within the Modernist framework, it is a matter of finding a satisfactory relationship between the two spheres. Social and historical factors came *after* we arrived on the evolutionary scene, according to recovery philosophy. That is why we cannot take such factors very seriously. They are only products of human intentionality and thus their status is secondary compared to the primary beings of nature. Recovery philosophers do not think that the existence of facts and values in nature depends on human experience. They are objectively real. By way of explaining this idea, Peter Miller writes:

> If the universe had never evolved human or other valuing subjects, presumably it would contain no values, nor indeed any other distinctive features like stars or trees or electrons. While it is evident

[22]Laura Westra, *Living in Integrity: A Global Ethic to Restore a Fragmented Earth* (Lanham, Md.: Rowman and Littlefield, 1998), p. 92.

[23]*Ibid.*

> that the universe would, under that condition, not contain anything *called* or *conceived of* as values, stars, trees, and electrons (there being no one to do the calling or the conceiving), it is nevertheless paradoxical to make these other and prior entities existentially dependent upon what is, as far as we know, the contingent existence of human beings.[24]

This does not mean that we cannot ever really *know* the universe. Recovery philosophers are not nominalists. For them, and for the Moderns, it is a matter of distinguishing and then privileging ontology over epistemology:

> It would be surprising, indeed, if values bore no relation to the admittedly subject-dependent experiences and activities of valuing and evaluation, just as it would be surprising if physical objects bore no relation to our subject-dependent perceiving and scientific theorizing. Perceptual and value experiences, while not absolute and incorrigible in their deliverances, are supposed to have some sort of epistemic primacy in our access to objects and values in the world. We should not, however, confuse epistemic primacy with ontological primacy and assume that physical objects could not exist without a perceiver nor values without a valuer.[25]

This is the philosophical reasoning behind the insult—"anthropocentrist!"— often leveled at social constructionists by recovery (and other) environmental philosophers. Admit that our identity and knowledge are conditioned by historical and social factors, and the natural sphere will no longer have the strength and weight it needs to override any demands made by the cultural sphere. Why is this so? Westra has already told us. Once the facts are known, the discussion stops. Latour echoes this point: Modernists think that "without this division between 'ontological questions' and 'epistemological questions,' all moral and social life would be threatened . . . without it, there would be no more reservoir of incontrovertible certainties that could be brought in to put an end to the incessant chatter of obscurantism and ignorance."[26] If we keep talking and debating, it is only because we have some preference, privilege, or an anthropocentric attitude that we are unwilling to give up for the good of the environment. In summary, for recovery philosophers, the formula is rather simple. If you think what you *know* determines what *is*, then you are an anthropocentrist. If you think what *is* determines what you *know*, then you are a non-anthropocentrist.

The creation and adoption of a new ecological world view helps to keep the lessons of ecology front and center in our minds. In addition, the values that were

---

[24]Peter Miller, "Descartes' Legacy and Deep Ecology," *Dialogue* 28, no. 2 (1989): 195.

[25]*Ibid.*, p. 199.

[26]Bruno Latour, *Politics of Nature: How to Bring the Sciences into Democracy* (Cambridge, Mass.: Harvard University Press, 2004), p. 12.

lost in Modernity would be rediscovered. To understand how deep ecologists think we can discover these values, optic metaphors seem inevitable. Modernity, for them, has clouded our vision. We cannot see the values in nature because we are so entrenched in our cultural sphere. This is why Drengson's prescription of wild journeying is so important to deep ecology. Just as rare rocks and ecological laws can be discovered in the wilderness, so can objective value, if we are psychologically prepared for it. Recovery philosophers become just as nervous as the thinkers and scientists engaged in the science wars when the issue of the social construction of knowledge is raised. No wonder—both recovery philosophers and scientists hold fast to the idea of a transcendent, eternal nature. Recovery philosophers just want to include values on the itemized list of natural entities.

To recovery philosophers, the maintenance of the two spheres is very important, but they cannot be *combined* because nature will lose its ontological independence. Mix nature and culture, and we risk transforming the wild into a domesticated park. Nature is the reservoir of indisputable certainties, and science is its spokesperson. However, underneath the purified categories of nature and culture is the work of mediation, silently (because it is not officially recognized) creating the hybridized networks. To put it plainly, and this is *especially* troubling to recovery philosophy, the work of mediation has *created* the categories of nature and culture. We do not *start* with nature and culture, assuming that they have been existing there forever. Nature and culture are stable and massive categories that we have produced. "The great masses of Nature and Society can be compared to the cooled-down continents of plate tectonics."[27] In this sense, we Moderns are different from others, but not radically different. In order to understand this point, we have to examine more of Latour's hybridized networks.

Earlier I suggested that reality, in the only sense that matters (for humans or their ecology) is an *artifactual* reality. That means that nature does not exist in the way that recovery philosophers (and Modernists) understand it to exist. Nature is not a simply given background, a backdrop, a space, or a container for intrinsic value. It is not an ever-lasting reality where humanity arrives on the scene, builds societies, then dies.

Second, artifacts exist in economies. They presuppose other artifacts and create possibilities for actions where none existed before. Artifactual economies also create new artifacts. As I will argue in the next chapter, this particular feature is a fundamental aspect of our world that environmental philosophy must take into account in its analyses of ecological problems. How could we explain the emergence of the "new" or the "surprising" if everything was explained through a culture's world view or paradigm? How would we explain the emergence of a world view itself? When we accept that there is no eternal, transcendent "world" to "view," the movement, expansion, development, and stabilization of networks comes to the fore. It is important to note that the world does not simply recede

[27]Latour, *We Have Never Been Modern*, p. 87.

into the unknowable background. Networks do not sit on the background of nature or society—they create reality as they expand and develop.

If we had to credit something for our success as a species, then let us not credit "rationality" or "language." I think we should credit the artifacts that act as social partners to stabilize the social realm. There are countless examples. Other species, e.g., baboons and other primates, though they may have complicated social interactions, must always reinforce their social realm through social tools aimed at manipulating one another. They are faced with a constantly decaying social reality. We alone have tools, and are thus able to extend *our* social skills to nonhumans. Nonhumans are "at once pliable and durable; they can be shaped very quickly but, once shaped, last far longer than the interactions that fabricated them."[28]

At this point, recovery philosophers may protest. "But Modernity has created so *many* strange and troubling artifacts that we are now alienated from our products!" Have we created a world where we no longer feel at home? The picture of Modernity as an all-encompassing state-of-being from which there is no escape arises when we "tend to transform the lengthened networks of Westerners into systematic and global totalities."[29] Physical laws like Planck's constant or the Pythagorean theorem seem to be everywhere at once. *Where* are they? They are *in* nature, we tend to say. Likewise, economic systems, bureaucracies, consumerism, crime, and so on are *in* society. Now we can begin to understand how the networks have produced the Modern, purified categories of nature and culture. When we lose sight of the fact that the diffusion of scientific facts depends on machines and instruments, on schools, scientists and other artifacts, we confuse products with processes. It seems as though there is a transcendent nature, but that is because we are particularly adept at mobilizing and linking the actants needed to verify its laws. "It is possible to verify gravitation 'everywhere', but at the price of the relative extension of the networks for measuring and interpreting."[30] Likewise, the agencies that we think have created our Modern society, e.g., instrumentalization, bureaucratization, capitalization, and so on, are neither macro-actors manipulating a populace, nor are they symptoms of a Modern consciousness as explained in chapter one. Rather, they too are comprised of local networks:

> If we wander about inside IBM, if we follow the chains of command of the Red Army, if we inquire in the corridors of the Ministry of Education, if we study the process of selling and buying a bar of soap, we never leave the local level. We are always in interaction with four or five people . . . Could IBM be made up of a series of local interactions? . . . The Ministry of Education of a mountain of pieces of

[28] *Ibid.*, pp. 61, 62.
[29] *Ibid.*, p. 117.
[30] *Ibid.*, pp. 115, 119.

> paper? The world market of a host of local exchanges and arrangements?[31]

If we think of Modernity in terms of totalities, homogenized spaces, or universals, it is easy to regard these Modern spaces as devoid of ethics and humanity when they become rationalized and bureaucratized. We then convince ourselves that we have done the terrible deed of disenchanting the world and emptying nature of all positive value. As anti-moderns, recovery philosophers follow the Moderns in that "they have accepted massive cognitive or psychological explanations in order to explain equally massive effects."[32] The global ecological problems that we face, so the reasoning goes, are explained by the global acceptance of the Modernist world view. In light of this conclusion, critics of Modernity take it upon themselves to save the margins, the peripheries, the local, the places and spaces that have not yet succumbed to the bureaucratized, rationalized, homogenized, and instrumentalized "center." The wild is such a place. We have seen how Eric Katz guards it and insists that any manipulation will automatically diminish its status. Other thinkers, such as Wendell Berry and Anthony Weston, want to save the family farm; it is a margin between the city (center) and the wild "other." "Place" is now popular in the environmental literature.[33] Philosophers are borrowing concepts from geography and mounting a defense of the "local" against the threat of Modern totalization. The following passage is a good example of a critique that takes Modernity at face value. Try counting the number of spatial references:

> Postmodern culture with its decentered subject can be the space where ties are severed or it can provide the occasion for new and varied forms of bonding. To some extent, ruptures, surfaces, contextuality, and a host of other happenings create gaps that make space for oppositional practices which no longer require intellectuals to be confined to narrow separate spheres with no meaningful connection to the world of the everyday . . . a space is there for critical exchange . . . [and] this may very well be "the" central future location of resistance

---

[31] *Ibid.*, p. 121.

[32] *Ibid.*, p. 116.

[33] See Daniel Berthold-Bond, "The Ethics of Place: Reflections on Bioregionalism," *Environmental Ethics* 22, no. 1 (Spring 2000): 5-24; Andrew Light and Jonathan Smith, eds., *Philosophy and Geography I: Space, Place, and Environmental Ethics* (Lanham, Md.: Rowman and Littlefield, 1997); Bryan G. Norton and Bruce Hannon, "Environmental Values: A Place-Based Theory," *Environmental Ethics* 19, no. 3 (Fall 97): 227-245; Mick Smith, "Against the Enclosure of the Ethical Commons: Radical Environmentalism as an 'Ethics of Place,'" *Environmental Ethics* 19, no. 4 (Winter 1997): 339-353; Gary Snyder, "A Place in Space: Ethics, Aesthetics, and Watersheds" *Environmental Ethics* 18, no. 3 (Fall 1996): 321-326; Robert Mugerauer, *Interpretations on Behalf of Place: Environmental Displacements and Alternative Responses* (Albany: State University New York Press, 1994).

> struggle, a meeting place where new and radical happenings can occur.[34]

Latour is not denying that Modernity has had its ill effects. He is not a techno-apologist. But we do not have to think in terms of sleek, totalized spaces (and their opposites) because there is a better and more accurate way of conceptualizing our world. He writes, "we have never abandoned the old anthropological matrix. We have never stopped building our collectives with raw materials made of poor humans and humble nonhumans."[35] The small, fragile, artifactual economies that supported *H. sapiens* one hundred thousand years ago continue to this day. The networks of Western "Modern" culture are longer, reach further, work faster, and mobilize more actants, but they are not fundamentally different.

Indeed, the revolution in time that Modernity was supposed to have heralded has not occurred. We are neither progressing nor sliding into decadence. The Modernist approach to classifying objects (determining what is "natural" and what is "social") allowed the Moderns to group objects into an ordered front that is superceded by the next set of objects. For example, traditional agriculture was supplanted by the green revolution, and now the green revolution is superceded by the gene revolution. However, if we are patient enough to trace the number of networks and other actants that have contributed (and continue to contribute) to the existence of an object, fitting the actants and networks within a homogeneous time frame becomes impossible. For example, genetically modified corn contains twelve thousand years of agriculture, fifty-year old knowledge of DNA, two hundred years of a modern educational system, thirty-one year old scientists, and the fickle tastes of consumers who have recently decided that they want fresh, unblemished sweet corn in January. Anthropologists are fond of calling cultures that combine cable television with grass huts "a land of contrasts." The same can be said of us and our daily activities:

> I may use an electric drill, but I also use a hammer. The former is thirty-five years old, the latter hundreds of thousands. Will you see me as a DIY expert 'of contrasts' because I mix up gestures from different times? Would I be an ethnographic curiosity? On the contrary: show me an activity that is homogeneous from the point of view of the modern time . . . my habits range in age from a few days to several thousand years.[36]

If it is impossible to fit objects and techniques into a single temporal framework, what does this imply for our understanding of time? It means the past can be revisited, resorted, and reshuffled without being labeled archaic or backwards.

---

[34]bell hooks, *Yearning* (Boston: Sound End Press, 1990), p. 31. I count nine.
[35]Latour, *We Have Never Been Modern*, p. 115.
[36]*Ibid.*, p. 75.

Old techniques can be combined with new ones. We have always done this, but under the spell of Modernity we could not recognize the result because the products of our labour were instantly purified, gathered together, then superceded by the next exciting (or terrifying) object.

Deep ecology admires traditional cultures because they have resisted Modernist ideas of progress and innovation. The maintenance of tradition, however, *requires* constant innovation.[37] Amish communities in Ontario, for instance, are faced with problems such as a growing attrition rate among their youth, laws that circumscribe the application of corporal punishment, and so on. With each new challenge presented to the communities, the members, if they want to remain traditional, have to find new ways of ensuring the continuation of their way of life.

If the sciences gather and mobilize humans in their endeavors, and societies gather and mobilize nonhumans in their endeavors, does it still make sense to use these terms, "nature" and "society"? Latour suggests that we use the term "collective" to refer to the environment in which humans and nonhumans co-exist. We do not have to completely abandon our use of the categories "nature" and "society." These categories help explain how the work of purification contributes to the existence and lengthening of the networks even though the networks themselves do not respect the partitions erected by the Moderns. We are wasting our time, however, if we follow the recovery philosophers and try to heal a dualism between nature and culture that did not exist in the first place.

There is one last feature to the recovery project that needs to be addressed. Suppose the arguments I raise against nature's ontological independence, Modernity, artifacts, and evolution are acceptable. Recovery philosophers could still appeal to ecological holism as a model for our understanding of nature. The prognosis for billions of organisms, including ourselves, is not encouraging—so why not find some solutions in ecological holism?—they may ask. There are, however, reasons for doubting the soundness of this theory. I turn to them now.

Critique of Ecological Holism

In chapter 2, I used D.C. Phillips's analysis of organicism to reveal the salient points of ecological holism. It is useful to revisit these again. Ecological holists generally maintain that: 1) the mechanistic approach is inadequate to understanding natural processes; 2) nature is more than the sum of its parts; 3) the whole (nature) determines the parts; 4) the parts cannot be understood if considered in isolation from the whole; and 5) the parts are dynamically interrelated or interdependent.[38] Following Ian Hacking, let us call these the "sticking points," of ecological holism.

---

[37] *Ibid.*, p. 76.

[38] D.C. Phillips, 'Organicism in the Late Nineteenth and Early Twentieth Centuries," *Journal of the History of Ideas* 31, no. 3 (Sept. 1970): 413.

Ecological holists such as J. Baird Callicott, Stan Rowe, and Laura Westra think that the sciences of ecology and evolutionary biology support the truth of these five points. I maintain that ecology and evolutionary biology offer us enough reason to *doubt* the plausibility of these claims. It is difficult to say why the evidence that I present has been ignored by recovery philosophers.

Let us begin with the third point: the whole determines the parts. Ecological holists generally maintain that wholes are *primary*. For Callicott and Rowe, *primary* means *prior*. Callicott writes, "relations are 'prior' to the things related, and systemic wholes woven from these relations are 'prior' to their component parts." The characteristics of species result from their adaptation to an ecosystem *niche*.[39] Rowes claimed that wholes have unique causal powers and produce the species to fill the niches.[40]

Callicott and Rowe's understanding of species adaptation makes it seem like a process of fitting pegs in pre-existing holes. Is this an accurate portrayal of the relationship between organism and environment? Can we say that nature causes, or exists prior, to its parts? Evolutionary biologist Richard Lewontin strongly disagrees. He claims that the view "that the environment of an organism is causally independent of the organism, and that changes in the environment are autonomous and independent of changes in the species itself" is "bad biology, and every ecologist and evolutionary biologist knows that it is bad biology."[41] Environments cannot be conceived independently of organisms and they cannot be assigned any significant sort of priority over organisms because they cannot *exist* without organisms. From the truth that organisms cannot exist without environments, holists conclude incorrectly that environments must come before organisms. There is, however, no such thing as an environment without an organism because quite literally, an environment is "something that surrounds or encircles, but for there to be a surrounding there must be something at the center to be surrounded."[42] A proper understanding of environment places the organism at the center.

But surely there are ecological niches—one may protest—and the interconnection of the various organisms occupying their niches produces a whole. In *that* sense, a holist concludes, the whole is prior to the organism because organisms must adapt to these niches or die. The whole itself could be considered to have determining, causal powers. However, to think of an ecological niche must be to think of an organism because "the concept of an empty ecological niche cannot be made concrete." Lewontin writes:

> If the concept of the preexistent ecological niche is to have any concrete reality and any value in the study of nature, it must be

[39] J. Baird Callicott, "Metaphysical Implications of Ecology," p. 312.

[40] Stan Rowe, "From Shallow Ecology to Deep Ecological Philosophy,' p. 30.

[41] Richard Lewontin, *The Triple Helix*: *Gene, Organism, and Environment* (Cambridge, Mass.: Harvard University Press, 2000), p. 48.

[42] *Ibid.*

> possible to specify which juxtapositions of physical phenomena would constitute a potential niche and which would not. . . There is a non-countable infinity of ways in which the physical world can be put together to describe an ecological niche, nearly all of which would seem absurd or arbitrary because we have never seen an organism occupying such a niche.[43]

Just as one cannot specify in advance suitable physical conditions, the habits and structures of the animals cannot be set out in advance either. Lewontin refers to fungus-gardening ants that cultivate mulch upon which to sow and grow their food. Who would suggest that this is a possible behaviour (gardening ants!) if we did not first observe it?[44]

If organisms are at the center of our understanding of an ecological niche, then what about the process of adaptation itself, commonly understood as the process by which ecological niches are filled? If not considered carefully, the concept of adaptation can be misleading. To ecological holists, it involves a relation between organism and environment that assumes that latter is static and prior to the former. Callicott and Rowe emphasize the relatedness between organisms and environments, but the physical characteristics and activities of the organisms themselves determine what is and is not important to the organism in its environment. Marshes *are* important to ducks,[45] but so are wind currents, the tilt of the earth, and the number of warm days, all of which contribute to migration. One can point to the geographical area of duck habitats, but not everything within that habitat will be relevant to the duck's survival. *Conservation* reasons might prompt us to claim that the marsh, as a geographical entity, is the duck's environment, especially if someone wants to drain it for farmland. Yet an environment is much more than a geographical locale, and geography is not a suitable guide for understanding the relationship between an organism and its environment.

What is the environment of an organism? Lewontin defines it as "the penumbra of external conditions that are relevant to it because it has effective interactions with those aspects of the outer world." The key thought is "effective interaction." Organisms adapt through their interactions with the world. "Organisms not only determine what aspects of the outside world are relevant to them by peculiarities of their shape and metabolism, but they *actively construct,* in the *literal sense of the word,* a world around them." Lewontin points to the different micro-climates between leaves of a maize plant compared to the micro-climates just above the ground and in the soil layers. These microclimates are

---

[43] *Ibid.*, p. 49.
[44] *Ibid.*
[45] Not *all* ducks, as there are 4 species that prefer oceans.

relevant to plant metabolism because they determine the rate of growth which in turn determines the microenvironment.[46]

In response, ecological holists could point out that the various microclimates, or the environments which organisms construct around themselves, are ultimately connected to the biosphere itself. They might raise sticking point number five: the parts of nature are dynamically interrelated or interdependent. Eventually, they may say, everything *is* connected to everything else. Again, Lewontin disagrees. "Everything is not effectively connected to everything. While gravitational perturbations do indeed spread out into the indefinite distance, one can stir a flower without troubling a star because gravitation is a weak force that decreases as the square of the distance between objects."[47]

Sometimes ecological holists draw the dividing line between what is and is not part of the whole arbitrarily. Laura Westra, for example, asks whether we should be concerned about landscapes that are not life-supporting.[48] The question reveals her assumption that the biosphere is the ultimate context for life-support. She ignores the myriad creatures that depend on the tides for their environments (some crustations and seaweeds) and those that depend on the moonlight as a signal to mate (corals). For these organisms, the moon *is* a vital part of their environment, although it exists beyond the biosphere. It is a mistake to ask a philosopher what is, or is not, nature—try asking the organism first. You will probably get a better answer.

If one could ask most of the earth's creatures about the most important element in their environments, the answer would most likely be: The sun (water would be a close second). Again, the ecological holists draw their line at the biosphere and exclude the energy *source*. According to Kent Peacock, this oversight has created the misunderstanding amongst philosophers that we are living in a thermodynamically closed system, where ecosystem management amounts to the management of ever-decreasing resources, as if the best relationship with nature that we can hope for is "a mitigated, restrained, low-level parasitism."[49]

If instead we accept that "the planetary ecosystem is made possible only by a vast flow of solar and geothermal free energy," then it may be *possible* to forge a "mutualistic association" with nature. Theoretically, according to Peacock, we could perform the same functions as autotrophs, i.e., "generate useful negentropy

---

[46]Lewontin, *Triple Helix,* pp. 49, 54, 57.

[47]*Ibid.* p. 110.

[48]Westra, *Principle of Integrity*, p. 125.

[49] Kent Peacock, "Staying Out of the Lifeboat: Sustainability, Culture, and the Thermodynamics of Symbiosis," *Ecosystem Health* 5, no. 2 (June 1990): 91-103, 97; Peacock cites William Rees, Nicholas Georgescu-Roegen, Keekok Lee, Herman Daly, Jeremy Rifkin, William Ophuls, and William Catton as examples of philosophers who assume that we are living in a thermodynamically closed system. Although I have already examined some of Lee's arguments, it is still worth noting that Westra relies on Rees, Rifkin, and Ophuls' arguments in her works.

[negative entropy] for the rest of the system."[50] It is interesting that Peacock's argument regarding a possible mutualism between ourselves and nature proposes the possibility of a new relationship without relying on the awkward metaphorical and metaphysical language used by Callicott, Wenz and Shepard.[51] Furthermore, Peacock uses a mechanical analogy to make his point:

> What we need is a simple mechanical analogy to make this sort of process intuitive. The alga is indeed a net producer—but how and why? . . . How can it contribute more to the system than it uses? The way it helps the system is by directing an external flow of energy—far more than it needs for its own use—through an elegant biochemical pathway that traps some of that energy. In abstract terms, it is functioning something like a valve, modulating an externally supplied flow of energy. And valves, in general, expend much less energy than they can modulate.[52]

Although the comparison between alga and valves is just an analogy, here we have an environmental philosopher who has not completely abandoned mechanistic language. His argument undermines sticking point number one: the mechanistic approach is unsuitable for understanding natural processes. In addition, Peacock's analogy challenges organicism's fourth sticking point: the parts cannot be understood in isolation from the whole. The point of that idea is that if an entity were to be separated from the whole, we would not know the changes that would result in either the part or the whole.[53] Ecological holists would agree with this, and cite human arrogance and deductive, linear science as reasons for why we would think otherwise.[54]

Philosophically, this fourth idea of organicism has its problems as well. The central thesis of the doctrine of internal relations states: *All* characteristics of an entity are necessarily *defining* characteristics. If it is possible that only some of the characteristics are defining, "it is possible for some entities to be separated from the systems to which they belong without their natures being altered; the defining characteristics of these entities are unaffected by the removal from the systems."[55] In addition, if only some of the characteristics are defining characteristic, then it is also possible that we can gain knowledge of an entity even

---

[50] *Ibid.* p. 98.

[51] Take for instance Shepard's oft quoted statement, "the epidermis of the skin is ecologically like a pond surface or a forest soil, not a shell so much as a delicate interpenetration." in "Ecology and Man—A Viewpoint," p. 2. Callicott uses a metaphysical statement to argue an ethical point, "if it is rational for me to act in my own best interest, and *I and nature are one*, [emphasis mine] then it is rational for me to act in the best interests of nature." in "Intrinsic Value, Quantum Theory, and Environmental Ethics," *Environmental Ethics* 7, no. 3 (Fall 1985): 275.

[52] *Ibid.* p. 98.

[53] Phillips, "Organicism," p. 419.

[54] Westra, "Living in Integrity," p. 216.

[55] Phillips, "Organicism," p. 420.

if it is no longer part of a whole because its nature would not be radically or irrevocably changed

That organisms can be transplanted into new locations attests to their relative independence from their original habitat. In some cases, the transplanted species do better than before. Kudzu, eucalyptus, carp, gypsy moths, Australian rabbits, and North American starlings are transplants whose overwhelming success in new habitats has prompted their classification as pests.[56] Furthermore, the claim that knowledge of the part is impossible if it is separated from the whole is highly questionable. On the disadvantages of holism, Lewontin writes, "even if it were true that everything is strongly connected to everything else, that should not be confused with the methodological claim that no success at all in understanding the world or in manipulating it is possible if we cut it up in any way."[57] Reductionism has disadvantages, yet one just has to think of the enormous knowledge that we have gained to understand its success.

Whether we can predict the consequences for the whole when we remove the parts, however, is a different matter and depends on the part itself. Remove all the decomposers (fungi, bacteria, and so on) and there would probably be severe consequences for practically any ecosystem. Remove a large predator and the system might not be noticeably affected.

We do know, however, that ecosystems change when enough parts are removed. The important question for ecological holism is not whether there can be changes, but rather: what should we conclude about the system itself when we observe these changes? Ecological holists maintain that because ecosystems, as wholes, manifest characteristics that are absent in individual organisms, the existence of these characteristics is due to the ecosystem trying to *maintain* those characteristics. In other words, from the observation that ecosystems seem stable, support a diverse amount of life, and so on, holists conclude that ecosystems are goal-directed. The existence of goal-directed behaviour is evidence for sticking point number one: nature is more than the sum of its parts.

For ethicists, goal directed behaviour indicates *interests,* and the existence of interests opens up the question of whether or not the system should be morally considerable. Given that recovery philosophy proposes an environmental ethic that acknowledges nature's intrinsic value, the idea that ecosystems have interests, i.e., they engage in goal directed behaviour, is very important indeed. I do not wish to address whether the existence of interests immediately qualifies an entity for moral considerability. That is another issue. However, I do want to cast doubt on the assumption that ecosystems have interests, and, in part, this discussion of holism already does so. If the concept of ecosystem *wholes* is problematic, then *a fortiori*, attributing interests to those wholes is problematic. However, I must suggest a plausible alternative to understanding ecosystem *change* without

---

[56]Edward Tenner, *Why Things Bite Back* (New York: Knopf, 1996), pp. 116-160.

[57]Lewontin, *Triple Helix*, p. 110.

invoking ecological holism. One possibility lies with the suggestion that changes in ecosystem behaviour could be considered behavioural *byproducts*.

Ecosystem stability and the tendency for ecosystems to regenerate after experiencing stress (Westra considers this to be one aspect of ecosystem integrity) may be merely the net result of self-serving responses by individual organisms."[58] This view complements Richard Lewontin's point that the environment of an organism is "the penumbra of external conditions that are relevant to it because it has effective interactions with those aspects of the outer world."[59] When these interactions are no longer effective because a food source disappears, for example, we observe ecosystem change. This observation is understood by reference to the success and failure of the organisms, not by a problematic reference to the natural *telos* of the system. That does not mean reductive science will be able to say in advance which way the ecosystem will shift. Change may be impossible to predict given the almost incalculable number of interactions in the system. Even well-intended actions (for example, cleaning beaches after the *Exxon Valdez* oil spill) had unforeseen consequences. The high pressure hoses used to clean the beaches killed marine life that was initially unaffected by the spill; the oil was driven into subtidal areas containing richer marine life; and the rescued sea-otters spread a herpes virus to non-affected sea-otters, killing more otters than the spill itself.[60]

While systems ecology may be an interesting and important addition to the science of ecology, the recovery philosophers equate ecology with *systems* ecology and ignore the field's internal and external debates.[61] One such debate addresses systems ecology's reliance on mathematical models. "Models tend to be indestructible once introduced into the ecological literature," even though they may have been discredited for years.[62] Sometimes models simply fail to deliver what they promise. "In forty years of model building, the vast majority of models

---

[58]Harley Cahen, "Against the Moral Considerability of Ecosystems," *Environmental Ethics* 10, no. 3, (Fall 1988): 197. See also Robert M. May, "The Evolution of Ecological Systems," *Scientific American* (September 1997): 161.

[59]Lewontin, *Triple Helix*, p. 48.

[60]Tenner, *Why Things Bite Back*, p. 90-91.

[61]Westra is also guilty of this confusion. See *Principle of Integrity*, pp. 21-77.

[62]McIntosh "Theoretical Ecology," p. 44. McIntosh gives this example: "Robert MacArthur's famous 'broken stick' model was one of several he advanced to illustrate the way relative abundance of individuals is distributed among species in a community [note: when the consumption of abundant resources are mapped on a graph, the curve resembles a 'broken stick']. In 1966 Pielou pointed out mathematical deficiencies in the model and MacArthur described his intellectual offspring as 'an obsolete approach to community ecology which should be allowed to die a natural death'. However, the model was still widely cited, and Hairston tried to give it the coup-de-grace, saying there was 'no biological significance to the fact that a collection does or does not show a fit to the broken-stick model, and its usefulness in any ecological context is challenged.' Like the Phoenix, the model seems indestructible and was described by Culver as one of 'some macroscopic variables of communities that show consistent patterns in real communities'; and he commented, 'we should expect models that predict these patterns'." "Problems in Theoretical Ecology," p. 44.

in the ecological literature do not describe the phenomena they purport to describe or they contain internal mathematical problems or both."[63] There *are* other ways to think about the environment. The system approach to ecology *is not the only theory available.* In his history of ecological ideas, Donald Worster notes that "more often then not, the ecological text [ecological holists] know and cite is either of their own writing or a pastiche from older, superceded models. Few appreciate that the science they are eagerly pursuing took another fork back yonder up the road."[64] Ironically, McIntosh considers that most of the problems in theoretical ecology "stem from philosophical considerations only dimly perceived" because "most of the attention given to biology by philosophers has been concerned with evolution and relatively little attention has been given to ecology, leaving ecologists to make their own way in seeking to adapt or develop scientific methods or philosophical positions for ecology."[65] Callicott, Rowe, Naess and other ecological holists arrived at their philosophical conclusions based on an ecological theory *that was itself* based on half-understood, or misunderstood philosophical doctrine. *Caveat Emptor*!

Recovery philosophers prefer holistic theories because these theories reinforce their metaphysical conception of nature. In light of the arguments presented against ontological independence *and* ecological holism, I see no reason why we should keep "nature" as a fundamental concept in environmental philosophy—at least in the way recovery philosophers understand it. I think the concept creates more problems than it solves. To defend their conception of nature, recovery philosophers have had to: 1) invent an implausible history of human evolution; 2) create the most minimal, reductionistic understanding of human identity; 3) assume an outdated and simplistic understanding of artifacts; 4) refuse to acknowledge the unintended consequences of artifactual interaction; 5) entrench themselves even further into the Modernist framework that they purport to condemn; 6) silence cultural concerns by appealing to the "facts" of nature; and 7) portray science as free of dissention! All this to save nature from anthropocentrism. It's not worth it. It's time to let go. There *is* nothing to recover.

Have we won the war against nature? In a sense—yes, but the lessons we have learned have changed the battleground. We should not ignore the realities of our ecological situation, of course, but new concepts are needed to accommodate these realities. I am using the plural intentionally, because now that the concept of nature is no longer carrying the heavy burden recovery philosophers made it we have to admit that "reality is relative to an organism and its ecology and there is

---

[63] *Ibid.*, p. 45. See also K.E.F. Watt, "Critique and Comparison of Biome Ecosystem Modeling," in *Systems Analysis and Simulation in Ecology*, ed. B.C. Patten (New York: Academic Press, 1975) vol 3, pp. 139-152.

[64] Donald Worster, *Nature's Economy: A History of Ecological Ideas* (Cambridge: Cambridge University Press, 1985), pp. 332-333.

[65] McIntosh, "Problems in Theoretical Ecology," p. 45.

no such thing as *the* ecology, or *the* environment."[66] And the only reality from which we can begin to philosophize about the environment is our *artifactual* reality. In other words, we have to start with us; let us call our starting point *artifactual anthropocentrism.* I turn to this now.

[66]Allen, *Knowledge and Civilization*, p. 85.

Chapter 5

Introduction

This chapter presents an analysis of "artifactual anthropocentrism," the proposed new ground for environmental philosophy. When I suggest that environmental philosophy needs a new ground from which to begin, I do not mean that we can, practically speaking, start from zero. The desire to turn back the clock, or to wipe the slate clean is supported by the conviction that something essential has been lost along the way and needs to be regained. Indeed, revolutions purge the old guard, both literally and metaphorically, in order to create space for the new society that takes into account or is based on whatever principle the rebels think will solve the crisis.[1] We have already seen Latour's criticisms of the Moderns and anti-Moderns who think that the march of Modern history is caused by the "new" constantly supplanting the "old" in a smooth, inevitable progression. Given this understanding of time and history, it is easy to understand the mind-set of ideologues and revolutionaries. They want to take control of this process for their own purposes, deciding what institution, practice, or object gets discarded. Recovery philosophers, notably deep ecologists, also engage in this sort of thinking when they urge the overhaul of our social and political systems in order to accommodate the needs of an ontologically independent nature.[2]

The difficulty then, with proposing a new ground for environmental philosophy lies in resisting this revolutionary style of thinking while acknowledging that a crisis exists. Something essential has been lost—an ontologically independent nature—but perhaps it is more apt to characterize its disappearance as an early morning fog lifting rather than a headless monarch wheeled away on a tumbrel. What is revealed is a world of *our* making, and that is where environmental philosophy has to begin. It has to start with the present because there is no other ground on which to start over and rebuild. Unfortunately, and somewhat ironically, environmental philosophers seem to know very little about the environment that everyday, more people have come to inhabit—the city. Although I cannot address *all* the relevant issues that the city raises for environmental philosophy, I can point the way towards a better understanding of these issues. Given that I am still concerned with environmental philosophy, the wild needs to be considered as well. I would not point environmental philosophy in a direction that excludes or neglects issues related to wilderness. It, along with the city, forms part of our landscape and must be taken

[1]There are numerous examples, e.g., "workers owning the means to production" (Marxism); "form follows function" (Bauhaus); and "Nature knows best" (Deep ecology).

[2]See deep ecology's eight point platform. Arne Naess, "The Deep Ecological Movement: Some Philosophical Aspects," *Philosophical Inquiry* 8 (1986): 10-31.

into account. First, however, we need some good conceptual tools before turning to these issues.

Artifactual Anthropocentrism

In chapter one, I summarized the four formulations of anthropocentrism as understood by environmental philosophers. They have in common an account of the relationship between human beings and the world. The name itself—anthropo*centrism*, suggests that human beings are at the center of some*thing*. Different formulations of anthropocentrism suggest the different relationships between that "thing," (usually understood as "the world") and humanity.

We have already seen, however, that behind the concerns regarding anthropocentrism lie deeper issues of ontology and epistemology. Instead of letting what *is* determine what we *know,* anthropocentrism (as understood by environmental philosophers) turns things upside down. What we know determines what is. Under the assumptions of recovery philosophy, this seems to be an extreme act of hubris. An ontologically independent nature does not rely on *us* for its existence. We have seen what is wrong with this argument. We do not have to settle for the traditional formulations of anthropocentrism either. These formulations depend on the same understandings of ontology, epistemology, world view, Modernism, and so on, as do anti-anthropocentrism.

I mentioned in the first chapter that environmental philosophers have to take a stand on anthropocentrism at some point in their thinking. I do not excuse myself from this. In response, one might ask: "if anthropocentrism is such a problematic issue, why bother addressing it at all? Why not skip to environmental policy or law, and give up on this hopeless debate?" Taken in its broadest sense, anthropocentrism raises questions regarding our relationship with the world. It was the perceived *lack* of care and concern regarding our actions in the world that began the environmental movement, and the ecological crisis shows no signs of abating. The question then—what is our relationship with the world?—needs to be addressed. To be honest, I am not fond of the question because its basic formulation (humanity's relationship with the *world*) implicitly assumes the same dualistic structure that I have tried to dismantle.

Recall the points made in the previous two chapters: 1) human reality is an *artifactual* reality characterized by the creation and maintenance of socio-technical networks (thus there is no ontologically independent nature); 2) culture and nature are not separate *given* spheres, rather they are intertwined and grounded in humanity's existence right from our very beginning as a species; and 3) a satisfactory relationship with nature has to be found in human *performance*, not passivity. Considering these three main premises and asking the question that anthropocentrism raises—what is our relationship with the world?—I can only answer: we *make* the world.

A number of qualifications, however, must be added to this statement to avoid the traps of dualism. First, philosophy's visual and spatial biases suggest that

"making" the "world" is akin to stepping into a given reality and rearranging the parts to suit one's desires. Nature is the background, or the raw materials, and we use it to construct the cultural foreground. The previous chapter demonstrated why we should no longer think in these terms (i.e., nature and culture), as they are abstractions from the work of mediation.

The only pre-existing reality (if we have to speak of one) is the artifactual *milieu* that any human generation inherits from its forebears. Right from the start, we have had social partners other than ourselves. The subject, the "we" of artifactual anthropocentrism, then, has to include more than just humans. It must include the nonhumans as well. As Chapter 3 demonstrated, *every* performance is a concerted performance involving nonhuman artifacts and human beings.

It is important to emphasize the word "performance" because the traditional understanding of "making," i.e., formulating a plan, carrying out that plan on inert matter according to one's intentions, relies on the assumptions maintained by recovery philosophers. But "making" is a good verb to use at the moment because it immediately flushes out an important objection that will help clarify artifactual anthropocentrism. The first question recovery and other environmental philosophers are likely to raise is: "if we make the world, then what is to stop us from designing and then constructing it as we desire?" Not all desires are noble or ecologically friendly. We may choose to construct highways or subdivisions instead of preserving watersheds and green spaces. Given our technical abilities, we seem to be able to control the very blueprint of living nature itself, i.e., the genetic code. Reality could become a designer reality.

Environmental philosophy's indignation with the suggestion that we make the world stems from the loss of an ontologically independent nature. If there is no particular way the world *has to be*, it seems as if we have unlimited freedom to shape it in any way we wish. Remove the basis on which we can confidently assert that nature has interests (e.g., integrity, and stability), and *human* interests rush into the vacuum created by the loss of an ontologically independent nature.

At first glance, artifactual anthropocentrism seems to give carte blanche to those who want to let human interests "shape and design a comfortable natural reality."[3] There are a few points that must be raised against this fear. First, the objection implies that competing interests are at the heart of most environmental disputes in both a pragmatic and moral sense. As stated in the previous chapter, if one can establish that ecosystems have interests, then they can become candidates for moral consideration. We have already seen how the ascription of interests to ecosystems is suspect, but it also seems obvious that human beings have interests. It is difficult to imagine what moral philosophy would be like if we did not take interests into account when doing ethics. If we are not careful, however, considering basic *biological* interests may lead us to think that we can "separate the inseparable: our purely biological existence from the rest of our human

[3]Eric Katz, *Nature as Subject: Human Obligation and Natural Community* (Lanham, Md.: Rowman and Littlefield, 1997), p. 95.

existence in all its complexity." [4] We think we can separate the need for fresh water and healthy food from the artifactual *milieu* from which they are realized. A human need for food and water *cannot* be separated from the socio-technical economy by which it is satisfied.

The model for understanding resource use in Garrett Hardin's famous "Tragedy of the Commons" article has had an adverse impact on environmental philosophy. Hardin draws an analogy between humanity's use of the finite resources of the earth and the "commons" scenario introduced by mathematician William Forst Lloyd in 1833. In this scenario, the commons, a patch of land open to all farmers for livestock grazing, is eventually destroyed when each farmer makes the rational decision to increase his herd by one animal. Taken singly, it is in the farmers' best interest to maximize their herd by one because it means more meat and milk. The effects of overgrazing are dispersed and are less than the utility of adding that extra cow. The tragedy occurs when each farmer makes that rational choice, again and again, eventually destroying the commons.[5]

I do not deny that this is a clever way to look at resource use. The problem is that environmental problems become framed as a game of numbers—how many resources do we need for how many people, and most importantly, how can we *quantify* those interests? Quantifying needs is difficult because so many human goods are incommensurable. What is good for one person may not be good for another. Ignoring the vast amount of empirical evidence to the contrary, Hardin states that this incommensurability is only *theoretically* true. "In real life incommensurables are commensurable. Only a criterion of judgment and a system of weighting are needed." In an argumentative move that we have seen before, Hardin appeals to nature as having the final word:

> In nature the criterion is survival. Is it better for a species to be small and hideable, or large and powerful? Natural selection commensurates the incommensurables. The compromise achieved depends on a natural weighting of the values of the variables. Man must imitate this process . . . the problem for the years ahead is to work out an acceptable theory of weighting. Synergistic effects, nonlinear variation, and difficulties in discounting the future make the intellectual problem difficult, but not (in principle) insolvable.[6]

Nature is once again held up as humanity's Supreme Court. It determines what goods we can pursue and which ones ought to be abandoned. This reasoning bears a striking resemblance to the proverb "man proposes, God disposes." The doomsday scenarios painted by climate change research seems to suggest that

---

[4]Laura Westra, *The Principle of Integrity: An Environmental Proposal for Ethics* (Lanham, Md.: Rowman and Littlefield, 1994), p. 128.

[5]Garrett Hardin, "The Tragedy of the Commons," *Science* 162, no. 3859 (Dec. 13, 1968): 1243-48.

[6]*Ibid.*, p. 1244.

nature will eventually render its verdict swiftly and cruelly. There is no reason, argues Hardin, why we cannot perform the same sort of natural selection on our own activities. One of the best ways to help solve the problem of determining what goods are needed for survival is to reduce the number of variables! And by variables, Hardin means human population. Not only do burgeoning populations exacerbate the tragedy of the commons; they complicate the calculation of necessary resources. He thinks that *in principle*, performing some sort of evolutionary calculus is possible. Why? The variables are fixed. Nature has "x" amount of resources. Our goods require "y" amount of resources. There is "z" number of people in the world. Reduce "y" and "z" in order to make "x" last longer. Note that Hardin *assumes* we are living in a world of finite resources. This implies that our system is a closed system that obeys the second law of thermodynamics.

Six years after "The Tragedy of the Commons," Hardin published "Living on a Lifeboat."[7] His approach to environmental ethics follows closely his earlier assumptions about the carrying capacity of the earth. "Lifeboat ethics," as it is known in the literature, tries to determine the fairest way to divvy up our limited, gradually diminishing resources. The previous chapter summarized Kent Peacock's arguments challenging the view that the earth is a closed thermodynamic system. What needs to be emphasized, however, is that Hardin implicitly assumes a divorce between our interests and that which creates and realizes our interests, i.e., our socio-technical networks. There is a reason for this separation. Hardin was expressing his dissatisfaction with the faith that a technical solution will be found for our ecological problems. When the situation gets bad enough, this argument goes, a technical solution will appear. This is a chillingly irresponsible way to respond to what could be a global catastrophe in the making. But does the prevalence of that admittedly irresponsible way of thinking mean we should use instead Hardin's abstract and reductionistic formula (too many people, not enough resources) to understand and solve our ecological problems?

It does not take a huge population to wipe out resources. In the quest for maritime supremacy, the ancient Phoenicians decimated the magnificent "cedars of Lebanon," as cedar makes a fine building material for sailing ships.[8] In addition, it seems obvious that different populations have different needs, depending, among other things on their geography. Small populations spread out over large distances (e.g. Canada) will have a different pattern of resource use than more compact populations. In fact, it seems that population density, when managed properly, can lead to a reduction in resource use. To see this point, look at how cities are currently planned. Architect Peter Blake points out that modern

---

[7]Garret Hardin, "Living on a Lifeboat," *BioScience* 24, no. 10 (Oct. 1974): 561-568.

[8]Russell Meiggs, *Trees and Timber in the Ancient Mediterranean* (Oxford: Clarendon Press, 1982). The Phoenicians also recognized that their resources were diminishing and attempted to preserve what was left of the forests.

urban zoning with its meticulously planned work, industry, and living zones has unduly strained the economies of urban areas. Zoning wastes resources, or at least does not use them optimally. For example, Wall Street in New York City is practically empty on the weekends and from 6 p.m. to 8 a.m. on weekdays. The city has to spend money in order to maintain the infrastructure and yet all that infrastructure, all those *resources*, sit unused for close to two-thirds of the time.[9] There are worse examples. There are also better examples. Amsterdam may have had the dual advantage of being built and supported by Holland's merchant class long before urban zoning was invented, but to the credit of the Dutch, they have done a remarkable job of maintaining a dense urban population in a time where other cities are permitting suburban growth and sprawl. It is possible to work, live, play, and shop without leaving the city limits. Today, Western Europeans use mass transit for ten percent of all urban trips, compared to only two percent in the United States. In Japan, where population density is greater than Western Europe, ninety-two percent of downtown Tokyo travelers commute by rail. The difference between public transportation and private car use is significant. Private vehicles consume two to three times more fuel than public transit for every kilometer traveled.[10] *How* an urban populace organizes itself, then, can have a big impact on the sorts of resources it uses. Hardin's analysis of resource input and output fails to recognize this fact.

As we shall see, the prevalence of cities in the modern human ecology change the way in which we should approach environmental philosophy. For now, my point against Hardin (and others who think that environmental problems are a matter of divvying up resources) is that we cannot speak of interests without also speaking of artifacts. *How* they are used, what actions they encourage or inhibit and with what effects are important questions that cannot be dismissed by Hardin's (well placed) skepticism regarding the faith in a technical fix. It *is* important to discuss resource use, but use implies technique, and thus leads us back into the world of socio-technical economies. What we must avoid is the sort of thinking that suspends the issues of technique and economies in order to construct a comprehensive balance sheet that places resources on one side and human interests on the other. As I have argued, artifactual economies produce new interests, they create new goals. Note that Hardin does not recognize that his own approach to environmental problems is technical. What could be more *technical* than a "weighting system" and a "criterion of judgment" to commensurate all those incommensurables?

These theoretical exercises are good insofar as they raise consciousness about our present habits. But environmental *philosophy* should not take them too seriously. In Hardin's view, our collectives are nothing more than giant "black

---

[9]Peter Blake, *Form Follows Fiasco: Why Modern Architecture Hasn't Worked* (Boston: Little, Brown, 1977), p. 111.

[10]Janet L. Sawin, "Making Better Energy Choices," in *State of the World 2004: A Worldwatch Institute Report on Progress Toward a Sustainable Society* (New York: W.W. Norton, 2004), p. 30.

boxes." The term "black box" is an expression borrowed from the sociology of science. According to Latour, it refers to "the way scientific and technical work is made invisible by its own success. When a machine runs efficiently, when a matter of fact is settled, one need focus only on its inputs and outputs and not on its internal complexity."[11] I am not claiming that environmental philosophers generally regard Modern Western civilization as an efficient machine. An oft-quoted statistic claims that if the rest of the world's population were to consume as North Americans do, we would need the equivalent of three more earths. Hardin's argument creates the picture of environmental problems as amounting to resources input and pollution output, without any thought as to what goes on inside the box. Environmental philosophy needs to open that box.

I have already made the point that the artifactual economies that create our collectives also create our reality in the most fundamental sense. Hardin would not be able to even *think* that we could devise a formula to calculate resource use and commensurate human goods unless nature or natural resources were already settled. However, they are not settled, and never will be—so long as the combined action of humans and artifacts continues to change our collectives. Quite simply, Hardin is chasing a moving target. That does not mean that we should not consider the existence of ecological limits. Ecological limits, the maintenance of wilderness, and so on, are important issues, but they need to be conceptualized in a way that does not depend on the untenable assumption of an ontologically independent nature.

In the environmental literature, there seem to be two conflicting attitudes towards human ingenuity and performance. On the one hand, Katz argues against the idea that we have a moral duty to restore damaged ecosystems. He is afraid that we would grow accustomed to the designed, artificial reality and demand more of the same. Katz implicitly assumes that, in time, we can achieve such a technical power and employ it successfully even if the ultimate effects would be, as he thinks, destructive. Keekok Lee makes a similar point. Although deep ecologists are not specifically concerned with ecosystem restoration, they too regard our technical abilities with a mixture of awe and dread. In short, recovery philosophers fear *Homo faber* as it embodies a chauvinistic attitude towards the natural world. On the other hand, environmental philosophers often point to our follies in *attempting* to control natural processes for our own ends. Vandana Shiva's analysis of the terrible social and environmental consequences of the green revolution in India's Punjab region is just one example used by those who *doubt* our technical abilities. Human chauvinism, that most extreme form of anthropocentrism, embodies both the fear of technical success (we win, nature loses) and failure (nature wins, we lose).

The idea of "making the world" then, seems to encourage or even imply this extreme form of anthropocentrism. Whether we are successful or not, some*one* or

[11]Bruno Latour, *Pandora's Hope: Essays on the Reality of Science Studies* (Cambridge, Mass.: Harvard University Press, 1999), p. 304.

some*thing* will eventually pay for our performances. Why encourage a concept that entails an obvious loser? Indeed, who would want to promote chauvinism? I could take this fear seriously *only if it were true* that we could shape the world according to our desires. But we cannot make the world any way we wish, and that is not due to a lack of technical ability. In explaining how this fear is ill-conceived, we will see how the concept of artifactual anthropocentrism does not imply a celebration of Modernism's *Homo faber*. In fact, artifactual anthropocentrism leads us away from such a grandiose depiction of our species and its technology.

The hope or fear of an artificially designed reality entails the belief in Modernity's capacity to bring about such change. Call it confidence in Modern technical progress. It is worth our while to test this optimism and see whether or not it is misplaced. So far my critique of Modernity has relied on Latour's argument that "we have never been Modern." I would now like to shift the focus from the theoretical to the practical, and examine a test case. If Modernity has the power to design and shape a comfortable natural reality *within an "artificial" environment itself*, perhaps then environmental philosophers like Eric Katz are justified in their concern that the natural environment is under threat of being replaced with one more suitable to our liking. But if following the tenets of Modernity and applying them to building and design leads to failure—then Katz's concern must not only be reassessed, but also we have to determine what *really* is at issue.

The Failures of Modernist Planning

There is no better designer for our test case than the French architect and planner Le Corbusier. Born Charles-Edouard Jeanneret, Le Corbusier was known more for his ideas and designs than the relatively small number of them that were built. Unlike other architects of roughly the same time period, e.g., Frank Lloyd Wright, he produced few buildings. He did, however, have considerable influence over generations of architects and urban planners. Le Corbusier's vision was the "high Modernist city," a massive, centralized, hierarchical structure that purposively ignored the particularities of place, politics, custom, and the past. This is one of the reasons why most of his visions were never realized. His plans "required a political resolve and financial wherewithal that few political authorities could muster."[12]

Le Corbusier took Modernist principles to the extreme. He adored straight lines, open spaces, and an aesthetic that was so austere and supposedly universal that his cities could be located almost anywhere. Above all, Le Corbusier emphasized order in planning. He asserts, "architecture is the art above all others

[12]James Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven: Yale University Press, 1998), p. 103.

which achieves a state of platonic grandeur, mathematical order, speculation, the perception of harmony that lies in emotional relationships."[13]

As a lover of order, he naturally hated the tangled and twisted streets of European cities. An ideal city, he thought, should model itself on the machine, and the purpose of the urban machine was production. But machines can only produce if they are efficient. Hence, almost every aspect of Le Corbusier's planning was devoted to efficiency. He calculated how much fresh air, sunlight, essential services, and space his urban inhabitants needed. He designed expansive roadways for ease of commuting, and placed the pedestrian walkways well away from traffic. Assuming that building up rather than out is a more efficient use of space, his plans included massive vertical structures for residential and commercial needs.[14] He is known best for the motto "the home is a machine for living"—a motto taken to heart by practically every public housing scheme since.

There was no room for compromise or individual taste in his plans. The efficient order imposed on the urban landscape had to come from the lucid, rational mind of the planner. Only when the planner pulls far away from the messy disorder of the street (Le Corbusier called for the "death of the street") and designs with objective detachment and rational precision can the built environment finally embody the ideals of the Modernist age. On the nature of the Plan, Le Corbusier writes:

> This plan has been drawn up well away from the frenzy in the mayor's office or the town hall, from the cries of the electorate or the laments of society's victims. It has been drawn up by serene and lucid minds. It has taken account of nothing but human truths. It has ignored all current regulations, all existing usages, and channels. It has not considered whether or not it could be carried out with the constitutions now in force. It is a biological creation destined for human beings and capable of realization by modern techniques.[15]

The type of order that guided Le Corbusier was primarily a visual order, and the best vantage point from which to plan was from above—a god's eye view. Only from above could one properly appreciate the wide expanses of roadway, the grassy fields, parks, and streets meeting at right angles. This is why he asserts that planning should not have to take into account any regulations of a municipal government or the customs and habits of a people. Proper planning has to start with a clean slate regardless of the cultural cost. Cultural particularities are precisely what has to be eliminated in the name of visual order. And visual order, for Le Corbusier, meant *efficient* order. As we shall see, on ground level the

---

[13]Le Corbusier, *The Radiant City: Elements of a Doctrine of Urbanism to Be Used as the Basis of Our Machine-Age Civilization*, trans. Pamela Knight (New York: Orion Press, 1967), p. 322.

[14]Scott, *Seeing Like a State*, pp. 103-107.

[15]Le Corbusier, *Radiant City*, p. 154.

experience was entirely different. City life, after all, is lived *in the city*, and Le Corbusier's aesthetic preferences created real problems for both his disciples and the unlucky residents.

Why did he think that people would be willing participants in such an obvious dictatorship? Just as a mathematical proof commands assent, Le Corbusier was certain that since his cities embodied Modern rationality, Modern people would immediately embrace them.[16] In his high Modernist view, freedom and autonomy, the personal idiosyncrasies of taste, style and subjectivity, would be superceded by the pleasure of "fitting logically into a rational plan."[17] If the Plan is rational, efficient, cool and lucid, how could Modern people not want to be a part of his grand vision? In short, the Plan was Modern reason transformed into concrete and steel.

Le Corbusier extended and developed his ideology of urban design in 1928 when he organized the *Congres Internationaux d'Architecture Moderne* or CIAM. Essentially, this organization was the origin and nucleus of what became known as the "international style" in architecture. The CIAM members met periodically between 1928 and 1956. In 1943, they published their most controversial document, the *Athens Charter*, which expressed the view that urban planning can be used as an economic and political tool of the state. Not that CIAM doctrine was meant as a tool of oppression; on the contrary, their intentions were noble. The members were motivated by what they considered to be a crisis in the urban environment: European cities could not accommodate the needs of a burgeoning population because private interests were dictating how cities were developing. Given that private interests often come into conflict with one another, cities found themselves lacking the internal structure necessary to accommodate the "requirements and consequences of the machine and industrial production."[18] In short, CIAM doctrine was motivated by the idea of the public good. Properly speaking, they were not communists, although they did share a loose affiliation with soviet engineers and architects. CIAM members sought to redefine the concept of private property, not abolish it completely. Redefining the concept of private property is no easy task given that property rights are enshrined in the Western legal tradition. CIAM members were more than happy to let lawyers handle that problem.[19]

The world has a city that was built entirely according to CIAM principles—Brasília, the capital city of Brazil. Its architect, Lucio Costa, was a follower of Le Corbusier. Given that Brazil's interior was largely undeveloped, Costa could literally start with a blank slate. There were no building codes, no prior settlements, no residents to uproot. He had the ideal conditions for planning and building the high Modernist city. Brasília's design and execution was true to

---

[16]Scott, *Seeing like a State*, p. 114.

[17]*Ibid.*

[18]James Holsten, *The Modernist City: An Anthropological Critique of Brasília* (Chicago: University of Chicago Press, 1989), p. 43.

[19]*Ibid.*, p. 45.

CIAM doctrine. Since Brazil's leaders wanted their capital city to embody egalitarian ideals, Costa planned residential *superquadra* (superblocks) that deliberately mixed the classes and prevented them from expressing their individual status. He did the same for recreation facilities. Movie theatres, sports complexes, and gathering places were strategically located for the ease of mixing and mingling. Since traffic jams created problems for Brazil's big coastal cities, Brasília was designed with wide expressways intended to move traffic quickly and efficiently between work (in a big office tower) and home (another big tower). Street life, the lively, spontaneous and sometimes volatile gathering of people, was deliberately planned out of Brasília. Costa left no room for informal and unstructured public places. There was an enormous square, the Plaza of the Three Powers, but it served no function except to symbolically emphasize the administrative power of the capital.

Brasília was designed to avoid the proliferation of satellite cities around its perimeter. In Brazil, other satellite cities adjacent to such major urban areas such as Rio and São Paulo had poor infrastructure, high crime rates, and poverty. In short, they were slums. As mentioned, Brazilian officials wanted the capital city to represent their country's long-awaited Modernization. Slums, class divisions, poor infrastructure—these were signs of the past. What better way to leave the past behind than to engineer a city according to Modernist principles! Were they successful? For the most part—no. From the very beginning, Brasília had its slums. Satellite cities may have been planned out in the completed city, but no one figured that the scores of construction workers needed someplace to stay. Temporary sites soon became permanent settlements. Workers appropriated more land by "squatting" and in about twenty years more than three-quarters of Brasília's population lived outside the formal planned city. The population within the planned city was barely half of what was anticipated. It was not just the unforeseen masses that spoiled Costa's plans. High-ranking officials eschewed the nondescript housing he provided precisely because it did not allow for the display of personal taste and wealth. They built their own residences on the other side of Brasília's local lake.

Although CIAM doctrine promised egalitarian living for all, Brasília actually exacerbated the plight of the working classes. The wealthier residents who decided to live in the *superquadra* often kept a servant or two, even though their apartments were unfit to house the help. In traditional Brazilian architecture, the relationship between master and servant is reflected in the design of the house. Cleaning, cooking, and other household activities were kept at the back of the house in separate rooms designed for exclusion and ventilation. The masters of the house rarely entered these areas. In fact, the greater the distance from the kitchen to one's room, the higher one's status. However, given Brasília's design, servants usually did not have their own rooms. As a result, maids were often forced to spend inordinate amounts of their free time commuting from the satellite

cities to their workplace.[20] At least maids in traditional Brazilian houses could benefit from the free room and board. Transportation was not cheap either. Bus fares were weighted in such a way that those who lived furthest away would have to pay the most. This meant that the majority of the poor who lived in the satellite cities and worked in Brasília proper paid approximately double the cost of transportation than in Rio.[21]

The *superquadra* and the office buildings were built in typical "international style." Predictably, this style is seen all over the world, and its visual characteristics are quite familiar—tall buildings made out of reinforced concrete and steel covered by thin glass "skins." They exist in practically every major city on the planet. It does not mean, however, that they are *suited* for every city on the planet. First, the price of these structures is an issue. A glass curtain wall is fifty percent more expensive to build than masonry walls. The advances made in reinforced concrete structure meant that walls were no longer needed for structural support. The internal frame carries the entire load, which then further justifies light-weight materials to make up the walls. This is good news for builders who must work with space restrictions. But Brasília was planned to exist in the middle of nowhere, so the space restrictions were far different than if one were building in, say, downtown Manhattan. Brasília's architects, then, choose to build in the international style only because it was "specified in the Master plan."[22] And the Master plan demanded this style only because it *looked* efficient and orderly.

The main problem with Brasília is summarized by James C. Scott: "the founders of Brasília, rather than having planned a city, have actually planned to prevent a city."[23] First-generation residents even gave a name to the mild shock they experienced living in such atypical Latin American conditions. They called it *brasilite,* translated Brasíl(ia)-itis. It referred to a bland, lackluster ennui that resulted from living in such a sensory deprived environment. Brasília has no street life, and the residents missed it. Other cities, like Rio and São Paulo had lots of informal spaces where people gathered, gossiped, shopped, dined, and people-watched. It is important to note that these spaces (always planned-out by CIAM followers) play an essential role in city life. According to Jane Jacobs, the foremost critic of urban planning, the life of a street produces an effect where the sum of each trivial interaction creates an urban order that cannot be legislated from above. As we go about our errands and have interactions with others on the street, we build a "web of public respect and trust," that, most importantly, does not commit us to any private interactions.[24]

---

[20] *Ibid.*, p. 180.
[21] *Ibid.*, p. 160.
[22] *Ibid.*, p. 183.
[23] Scott, *Seeing Like a State*, p. 126.
[24] Jane Jacobs, *The Death and Life of Great American Cities* (New York: Random House, 1961), p. 56.

Brasília's residents only had work and home. Getting to know one's neighbours required a private commitment usually in the form of an invitation into a home, or a scheduled meeting place. It does not matter that people were grouped together in residential blocks. Jacobs has noted that residential blocks actually increase the aloofness of residents, making them less likely to strike up a conversation or discuss daily events with neighbours. Where there is no public place that promotes chance encounters, residents are faced with an all-or-nothing decision. Either let someone into your life and entangle them in your private affairs, or maintain a strict boundary and let no one in. Most people choose the latter option.[25] With no inviting public spaces, the very thing that makes cities such as London, Paris, Amsterdam, Marrakech, and Bangkok such a joy in which to live, Brasília prevented its residents from forming a web of public trust and identity.

There are many consequences to the "death of the street." In Brasília, people felt a profound sense of isolation and social restriction.[26] Of course, the residents did enjoy Brasília's lower crime rate and higher wages, but those were essentially the only benefits that the city could offer. More often than not, however, municipal projects that destroy an existing street life (instead of planning it out altogether) introduce higher crime rates into the area. According to Jacobs, this is due to the loss of the "eyes on the street." Vibrant street life promotes those informal relationships that people have with the shopkeepers, the counter-help, the hot-dog stand, the bar patrons, and so on. These informal relationships create a climate where there is a sense of accountability for the goings-on in the neighbourhood. Jacob recounts a story where a man seemed to be luring a young girl to go away with him. Watching the scene from her second-story window, and debating whether she should intervene, Jacob noticed that within minutes, the owner of the deli, two bar patrons, a butcher's wife, a fruit vendor, and a laundryman all appeared on the sidewalk along with several pedestrians. They were watching and were ready to intervene if necessary. Thankfully, the man was actually the girl's father, and no harm was intended.[27] However, the anecdote has an important point. Street life means *civil* life—where "civility" means more than proper manners. This type of life may *look* chaotic, but Jacobs points to a deeper sense of order that underlies it all. It is not the visual geometry of Le Corbusier and his CIAM devotees; it is a social order that is brought about by the constant informal interactions we have with those outside of our private sphere. This social order forges trust and social bonds that can, in some cases, turn into political movements. In most cases, it creates a sense of collective identity and a feeling of *pleasure* of being part of an urban environment. Architecture can help or hinder this process. Shorter city blocks, buildings of differing ages, a high population density, and mixed uses are the four factors that encourage a vibrant

[25] *Ibid.*, pp. 65-68.
[26] Holston, *Modernist City*, p. 107.
[27] Jacobs, *Death and Life of Great American Cities*, p. 39.

street life.[28] High Modernist urban planning imposes factors like single-use zoning, residential complexes, and super-highways that discourage street life.

It is interesting to note that when environmental philosophers *do* talk about improving urban life, they often recommend increasing the number of city parks.[29] Their views are no different than Le Corbusier's or other proponents of "garden cities." Le Corbusier planned green expanses around the base of his residential complexes. Again, on an intuitive level this makes sense. If cities are seen as dirty and squalid, then why not create more green spaces? Would that not improve our quality of life? Could we foster some ecological awareness by bringing a little bit of nature into the city? It depends. If planners implicitly think that cities are diseased organisms that need a shot of natural medicine, then the park is sure to fail. According to Jacobs, orthodox city planning assumes that green open spaces are a cure-all to a dispirited neighbourhood.[30]

On their own, city parks will not fix the problems of a neighbourhood. They neither confer an appreciation of all-things-natural, nor do they revive an unwelcoming neighbourhood. Rather, parks are places that "need the boon of life and appreciation conferred on them."[31] Whether a park *works* the way it was intended by providing a pleasant public space for people to gather in a socially positive way, or whether it becomes a haven for vandalism, drugs, and muggings largely depends on several intricate factors. First, the layout matters. A square piece of land with a few benches on either side offers nothing to please the eye. It is as bland and boring as Costa's Plaza of the Three Powers. In contrast, Amsterdam's Vondel Park has meandering laneways shaded by mature trees that connect to smaller paths leading to ponds with quaint bridges that encourage pedestrians to gaze at the water lilies and storks. Vondel Park also has some expansive green areas where people gather and play music, eat lunch, or watch the throngs of cyclists pass by. We appreciate parks for their aesthetic qualities. They have to be inviting *safe* places in which to linger and explore.

How and where parks are situated also matters. If half of the park is shaded in the afternoon not by trees but by adjacent buildings, then you are sure to find that side of the park completely empty. If the park is near a diverse, multi-use neighbourhood, then those conditions that create safety for the streets will create safe parks as well, according to Jacobs. Parks in business districts will only be visited by office workers on their lunch breaks, weather permitting. If there are no other reasons to be in the adjacent area besides work, then the park will stand nearly empty for most of the time. In the worst case scenario, the park will gain a reputation for muggings and drug dealing. Contrary to CIAM doctrine and environmental philosophy, green open spaces may *not* be good for your health after all. It is also commonly assumed that parks act as air fresheners and filters.

---

[28] *Ibid.*, p. 151.

[29] For example, see Alastair S. Gunn, "Rethinking Communities: Environmental Ethics in an Urbanized World," *Environmental Ethics* 20, no. 4 (Winter 1998).

[30] Jacobs, *Death and Life of Great American Cities*, p. 90.

[31] *Ibid.*, p. 89.

Yes, the average tree will remove about two tons of carbon dioxide a year, but urban air quality depends on the air circulating *above* it. If more open space meant fresher air, then Los Angeles (having the most amount of space of any North American City, according to Jacobs) should also have the best air quality. But in the automobile age, more open space means more cars, as there is no easy way to get around in Los Angeles but to use the freeways.

The point of this excursion to Brasília is not to mock Brazilians for being duped by the promise of a panacea for their social ills. Urban planning, more or less according to the spirit of CIAM principles, is still being followed to this day in cities around the world, and urban geographers and writers such as Jacobs continue to critique its assumptions. What is the criterion for judging the success or failure of Modernist urban planning? I think it depends on one's expectations. Given that cities around the world are expanding rapidly as waves of people leave their fields and towns and migrate to the city, we can ask the question: what motivates these people? Allen has an answer, "a city is a place where a person can experience optimism about the future, a credible promise of expansive prosperity."[32] In other words, cities offer hope. But they can only offer hope if there is enough diversity and open-ended possibilities for people to explore. Urban planning tries to dictate *from above* what is and is not allowed, thus undermining the very conditions that make people want to live in a city in the first place! In this sense, Modern architecture and planning fails to make our cities stimulating places of opportunity. At the very least, one criterion by which we can measure the success of a city has to be whether or not people actually enjoy *living* there. One must consider the social isolation, ennui, and cultural deprivation experienced by Brasília's residents to be a sign of the failure of Modernist architecture and planning.

Another way in which Brasília (and other examples of CIAM planning such as the Punjab capital, Chandigarh) have failed to live up to their planner's expectations is the extent to which the formal plans turned out to depend on informal practices. Right from the start, formal Brasília was made possible by informal shanty-towns erected by the construction workers. The slums around Chandigarh (another Le Corbusier creation) accommodate workers who provide the city with a steady supply of cheap labour. Costa and Le Corbusier were confident that a formalized Plan was all that was needed for the building and functioning of a city. They are not alone in their miscalculations. James C. Scott's book *Seeing Like a State*, offers many examples of formalized plans that are parasitic on informal practices. Unions, for instance, recognize the relationship between the formal and the informal, and use it to their advantage. To get the attention of management, they slow down production by a "work to rule" campaign, meaning they will do *exactly* what is prescribed, and no more. Their success at slowing down production attests to the fact that order and

[32]Barry Allen, *Knowledge and Civilization* (Boulder: Westview Press, 2004), p. 240.

efficiency, be it in a factory or a city, requires *more* than what a plan and its principles can determine.

As previously mentioned, recovery philosophers worry that Modernity has the power to design and shape a comfortable reality—or bring about a global catastrophe in its attempt to design that reality. Brasília is a test case in which we can see how the tenets of Modernity fail when applied to the built environment. A true (albeit extreme) Modern, Le Corbusier conflated visual, geometric order with efficient order. He thought that architecture and planning had the power to mold and dictate the activities of a populace. Le Corbusier is the sort of historical figure that recovery philosophers would identify as an out-of-control *Homo faber.* I suspect, however, that recovery philosophers would miss the point of Le Corbusier's failures. It is true that the tenets of Modernity are highly problematic for building and creating, but that is not because they have originated from a world view that is inimical to nature, as recovery philosophers would be inclined to conclude. Le Corbusier failed because he misunderstood the relationship between people and their environment. Note that recovery philosophers also hold the same assumptions as Modernist planning. It does not matter whether we are talking about the laws of an ecosystem or the principles of CIAM urban planning, both maintain that the environment prescribes a form of life for its inhabitants. On the contrary, Jacobs and Lewontin tell us that the order of any given environment is really achieved by the activities of the organisms within it. There is something unique about our activities that environmental philosophy fails to address, and that is the problem of unintended consequences.

Strictly speaking, I do not think we need the extreme examples of Le Corbusier and CIAM doctrine to illustrate the problem of unintended consequences. A more mundane case shows it as well. Talking about the relationship between the suburbs outside of metro Toronto and its inhabitants, geographer Richard Harris points out that people who move to the suburbs may get "more space and a good place to raise their children," but their collective actions create "whole swaths of space which aren't necessarily what *anyone* wants."[33] In other words, there is a mismatch between intentions and consequences. It is easier to see the unintended consequences that arise out of CIAM urban planning. After all, they clearly spelled out their intentions in their various publications. What is somewhat unusual is that Harris does not have a theory to explain *why* this is the case—"some of what happens isn't what anyone wanted. It just kind of happened."[34]

There are other examples that also illustrate the unintended consequences that arise when we attempt to construct an environment. The failed experiment, "Biosphere 2" was an attempt to construct a biological environment that

[33]Richard Harris cited in Tralee Pearce, "The Latest Hot-Spot: Suburbia," *The Globe and Mail,* August 14, 2004, p. M5.

[34]*Ibid.*

mimicked the life and material cycles of Earth.[35] On September 26, 1991, eight men and women sealed themselves inside this artificially constructed biosphere—a hermentically enclosed space of 204 000 cubic meters that sat on 3.15 acres—for two years. Despite their best efforts, almost everything went wrong. Among the problems were: dangerously low oxygen levels; the extinction of most of the nonhuman vertebrate species and pollinators (thus many plants could not reproduce); dangerous nitrous oxide concentrations; and the proliferation of cockroaches, ants, and vines that made farming difficult.[36] These "biospherians" were not inept, as most commentators acknowledge that mistakes were unavoidable. One commentator notes, "anyone else would have made equally bad blunders, but different ones."[37]

Indeterminacy and Artifactual Anthropocentrism

Environmental philosophers have very little to say about cities and urbanization. On their account, the replacement of the Modernist world view with an ecological world view means that our assumptions about the world will change and, consequently, new goals will be formed (preserve wilderness, adjust our habits, soften our technology, and so on). Given that historical and cultural factors, of which urbanization is a part, are incompatible with ecologism, *and* that artifacts, which include cities, are defined as anything intended for human use, then, for the recovery philosophers, a change in goals will also mean a change of artifacts. The new ecological society they anticipate will be born out of nothing less than a total shift away from the Modernist world view. If we bide our time, mess around with competing preferences, and try to adjudicate between a plurality of needs while the wild life-supporting ecosystems are being destroyed, then we will destroy ourselves. In these accounts, there is no theoretical *need* to address urbanization because the problem is not our artifacts; they just fulfill our intentions. The problem is with us, our Modernist understanding of nature, and the goals (domination of nature) engendered and fostered by this understanding. Recovery philosophers propose that we should let ecologism engender *new* goals based on the *true* understanding of nature. Why waste time thinking about cities? They will probably not count in the new world order. George Sessions summarizes my point: "ecology shows us that the basic assumptions upon which the modern urban-industrial edifice of Western culture rests are erroneous and highly dangerous. An ecologically harmonious social paradigm shift is going to require a *total* reorientation of the thrust of Western culture."[38]

---

[35]Thomas Homer-Dixon, *The Ingenuity Gap* (Toronto: Knopf, 2000), p. 134.

[36]*Ibid.*, p. 135-136.

[37]William Broad, "Too Rich a Soil: Scientists Find the Flaw That Undid the Biosphere," *New York Times*, October 5 1993, national edition, B5.

[38] George Sessions, "Ecological Consciousness and Paradigm Change," in *Deep Ecology,* ed. Michael Tobias (San Marcos, CA: Avant Books, 1984), p. 30.

The problem of unintended consequences disappears in their analysis because of what they anticipate from a radical change in world view. The built environment, for recovery philosophers *and* for other Modernists such as Le Corbusier, *always* reflects higher ideals, higher mental concepts, and more abstract principles like the kind found in Modernity. Because the artifactual world is merely a product of human intention (Katz) or that it merely carries out the Modernist project and subjects our wild natures to a rationalized, constricted, and tamed existence (deep ecology), the artifactual world is passive insofar as both Katz and the deep ecologists believe we can manipulate our built environment for our ends and thereby prescribe a form of life to ourselves. It does not act except when animated by the Modernist (or any other) "script." To the recovery philosophers, unintended consequences mean *poor planning* based on an erroneous world view. This is why they are able to frighten themselves with thoughts of an out-of-control *Homo faber*.

Besides the presence of unintended consequences in artifactual ecologies, there is a deeper problem in environmental philosophy that helps to define artifactual anthropocentrism. Environmental philosophers defend the ontological independence of nature because they want to downplay, or even eliminate the issue of *indeterminacy* in their theories. Indeterminacy may indeed be *the* issue that environmental philosophy must face if it is ever going to offer a helpful analysis of our present ecological problems and realities. The concepts "indeterminacy" and "determinacy" have a long philosophical history, thus there are many definitions from which to choose. I prefer to borrow from mathematics and say that indeterminacy refers to the indefinite number of solutions to a given problem. Given that environmental philosophy is interested in seeking solutions to our environmental problems, this definition is a good place to start. But mathematical equations are not artifactual economies. The former are fixed. The number of solutions is indefinite, but they still exist. In contrast, artifactual economies are not fixed—they are constantly evolving and producing new artifacts and new relationships among artifacts. I suggest that the whole phenomenon of unintended consequences is just another way of saying "evolving environment." The concept of indeterminacy, then, must be pushed further to accommodate this reality. For environmental philosophy, indeterminacy is the idea that environmental problems are *fundamentally* irresolvable. Any solution found will be strictly provisional because the solution will itself become part of another problem. In a sense, environmental problems are not problems at all but a fundamental aspect of our artifactual reality. This does not mean, however, that we have to live with global warming, acid rain, smog, and so on. To say that environmental problems are fundamentally irresolvable is not to condone those who refuse to make improvements. It suggests the opposite. The indeterminacy that we live with is the *constant* and *never-ending* struggle our species has to endure in order to sustain its own environment. We are always caught between the responsibility for what we have made and the unintended consequences to

which we must respond. That middle position is where we live. Humanity is pulled tight between these two poles.

Environmental philosophers seek to ease this tension by appealing to an ethical principle, natural laws, or an anticipated change in world view. These strategies only serve to make us strangers in our own world. They are concerned with changing our conceptual ethical or mental schemata and hoping that the rest of the material world will fall into line. We may be more connected with nature, but only at the cost of a disconnection from the world.

From the very beginning of our history, our actions have always produced more than our intentions. Why? Artifacts themselves do not exist singly—they always exist within an economy. So in any human performance, changes made to *one* artifact will always mean a subtle (or sometimes not so subtle) change in the entire economy. The economy itself, however, does not just undergo a rearrangement of existing relationships—if that were the case, then how could one account for the emergence of the "new" or the "surprising?" Rather, artifactual chains produce *and at the same time* react to new artifacts. Those who think that cause and effect are being jumbled must remember that there is no artifact that exists outside of an economy of other artifacts. Just as there is no first word or first order given, you cannot go looking for a cause that is itself impervious and unreceptive to its own effects. *How* the economy will react, *what* novel artifact it will produce—that is indeterminate. It is indeterminate because one cannot, in principle, set out *in advance* any criteria that could identify *in advance* the new and the novel. New artifacts force *us* to accommodate *them*.

Previously I argued that the relationship between humanity and the natural world must be based on human performance and not passivity. Recall that in order for her Principle of Integrity to act as a foundational principle, Westra must bracket culture, politics, technology—in other words, all human performances—and focus solely on our biological, animal selves. This narrow understanding of human identity turns into a passive understanding, given that the Principle of Integrity requires that we permit life-support concerns to supersede cultural concerns. The wild supports life, she argues—so how can we sanction actions that may undermine our basic biological needs? From the standpoint of ecosystem integrity, basic biological needs *determine* which cultural interests are feasible and which ones are not. Splitting human identity in two like this is highly problematic, so she needs a powerful tool—the ontological independence of nature—to drive the wedge between our cultural and biological selves. Recall that all of the recovery philosophers seek to heal the dualism between nature and humanity by combining a supposedly scientific appreciation of our natural human identity with the assumption of an ontologically independent nature. Their amalgamation creates a Supreme Court for humanity—a compelling combination of philosophical realism and scientific certainty intended to silence debate and determine solutions to our ecological problems.

But there is no ontologically independent nature with a set of independent, timeless laws that govern, guide, and determine reality. Thus, there is no

particular way that *we* have to be, and there is no particular way that *reality* has to be. The present can only be explained by a "quirky series of antecedent events."[39] This is what paleontologist Stephen Jay Gould calls "contingency:"

> Historical explanations take the form of narrative: E, the phenomenon to be explained, arose because D came before, preceded by C, B, and A. If any of these earlier stages had not occurred, or had transpired in a different way, then E would not exist (or would be present in a substantially altered form, E', requiring a different explanation). Thus E makes sense and can be explained rigorously as the outcome of A through D. But no law of nature enjoined E; any variant E' arising from an altered set of antecedents, would have been equally explicable, though massively different in form and effect. I am not speaking of randomness (for E had to arise, as a consequence of A through D), but of the central principle of all history—*contingency*. A historical explanation does not rest on direct deductions from laws of nature, but on an unpredictable sequence of antecedent states, where any major change in any step of the sequence would have altered the final result.[40]

Paraphrasing Gould, rewind the tape of history and there would be no *H. sapiens* and its accompanying neurology. There would also be no forests, ecosystems, or ostriches. Rewind far enough and there would be no quarks or second Newtonian law of motion. Recall Andrew Pickering's point that we did not have to develop a quarky physics, but the fact that we *did* makes their discovery seem natural, inevitable, and *necessary*. However, it could have been otherwise.

Think of human performance and indeterminacy as two sides of the same coin. Human performance is always a concerted performance because we act *with* artifacts. They are our social partners. This is the "artifactual" aspect of the concept of "artifactual anthropocentrism." Quarks, natural laws, and so on are not parts of an ontologically independent nature; rather, they are products of these concerted performances whose effects will always extend beyond our intentions. Most importantly, however, the upshot of contingency means that the recovery of nature is impossible. *We* have created this thing we call "nature." It is a product of historical events. We cannot argue, as the recovery philosophers do, that since Modernity we have been on the wrong track. We cannot rewind the tape and recover a nature that is free of genetically modified organisms, smog, hydro-electric dams, and global warming to help us deal with these entities. Like it or not, these entities (or hybrid-objects) are now included in what we call nature, so we must now find another way of thinking about them.

Previously I mentioned that environmental philosophy must face indeterminacy. What does this mean? It means we must accommodate it, accept

---

[39] Stephen Jay Gould, *Wonderful Life: The Burgess Shale and the Nature of History* (New York: W.W. Norton and Company, 1989), p. 286.

[40] *Ibid.*, p. 283.

it, and not try to whisk it away with a philosophical sleight of hand. We cannot *ignore* it because indeterminacy is an essential aspect of human performance. And concerted performances are an essential aspect of artifactual economies. "Reality" is another name for the sum of all these artifactual economies. In essence then, indeterminacy entails that reality itself is open-ended. This is the key idea of artifactual anthropocentrism: our open-ended, indeterminate world is created through concerted performances involving humans and nonhumans. No world view can be used to comprehend this idea because the concept of world view is intended to delineate the boundaries by which reality is circumscribed. There is no boundary to reality because there is no complete and closed independent nature. It is important to note that this is not a variation of nominalism or social constructionism. The social constructionists do not have a problem with dualisms because they *suspend* ontological issues, whereas I am presenting an ontology of artifacts. Most importantly, however, the concept of an open-ended reality means that there is no dualism to overcome because there is no dual reality in the first place. As mentioned, however, the gap between socially constructed reality and the real world presents an insurmountable dualism for the recovery philosophers. When faced with social constructionism, no wonder recovery philosophers retreat back to the safe haven of ontological independence. For their project, suspending ontological issues removes the possibility of solving our environmental problems. In their view, nature is *not* silent; it is knowable. To say it is knowable means that in time, we can determine its laws. If we can determine its laws, then there is the possibility of humanity determining a proper fit to its laws, that is, one that solves our ecological problems.

It may seem as if I am unduly simplifying their position. After all, many environmental philosophers are quick to point out that we cannot determine how a given ecosystem is going to act. To think otherwise implies the anthropocentric attitude they condemn. As previously mentioned, environmental philosophers consider anthropocentrism to be a problem because it embodies the Modernist idea that humanity can overcome the limits set by the natural world. Recovery philosophers have spared no energy in detailing the paradoxical, often tragically counter-productive unintended consequences of such interventions.

How then can I claim that recovery philosophers take inadequate cognizance of indeterminacy when they urge us to be cautious in light of nature's complexities? Isn't that what defines the environmental movement—the recognition that we may be doing irreparable harm precisely because we really do not *know* the end results of our actions?

When environmental philosophers talk about our limited knowledge of the natural world, I think "uncertainty" is a more apt term to use than "indeterminacy." The term uncertainty often serves as a catch-all phrase whenever scientific findings are in doubt. Sociologist Brian Wynne argues that uncertainty has been used to refer to four different concepts: risk, uncertainty, ignorance, and indeterminacy. The one that is relevant to the recovery argument is uncertainty, which means that the parameters or boundaries of a system are known, but the

quantitative significance of the factors involved is not known.[41] Uncertainty can be compared to playing a game where the rules are fixed, but the players do not know how the game is going to unfold. When environmental philosophers urge us to be cautious in our actions, I believe they are usually referring to the uncertainty of our knowledge in light of nature's complexities. Using the image of a game again, recovery philosophers acknowledge that the rules are set. They are the universal laws by which an ontologically independent nature operates. The Principle of Integrity ("act so that you manifest respect and understanding acceptance of all natural processes and laws") requires us to learn all that we can about ecosystem laws.[42] The inherent complexity of the system, however, makes it difficult to predict the timing of specific events or their outcomes. In light of this difficulty, many environmental philosophers endeavor to formulate principles that embrace uncertainty. One example widely supported by environmental philosophers, Westra included, is the "precautionary principle."[43] This principle is motivated by the recognition that scientific knowledge of the behaviour and resiliency of ecosystems is always limited. The principle urges us to act prudently when science can establish that there *may* be a grave threat, and not wait until solid scientific evidence establishes for certain that there *is* a threat, for it may then be too late for effective action. The controversy over global warming is a good issue for seeing how the precautionary principle is supposed to work. Is the earth's average temperature increasing? Many climatologists think so, but we cannot know for certain because of the inherent complexities of our biosphere. Should we wait until we *know* for certain? No—by then it may be too late. Given the potential for catastrophic damage, and the fact that it is within our ability to reduce greenhouse gas emissions, the precautionary principle recommends we act prudently and take action.

It must be noted, however, that Westra equates "complexity" with "indeterminacy." I do not understand why she thinks that these two terms are interchangeable. She acknowledges the difference between indeterminacy and uncertainty. She writes, "uncertainty is an epistemological category, whereas the complexity that gives rise to uncertainty is an *objective* state of natural systems and their processes. This indeterminacy indicates the limits of our capacity to understand, hence the necessity for constraints on our action."[44] However, there is little to suggest that the complex systems science on which she bases her

---

[41]Brian Wynne, "Uncertainty and Environmental Learning: Reconceiving Science and Policy in the Preventative Paradigm," *Global Environmental Change* 2, no. 2 (June 1992): 111-127.

[42]Westra, *Principle of Integrity*, p. 97.

[43] Although it is called a "principle," there is no widely recognized formulation. See *Interpreting the Precautionary Principle*, Timothy O'Riordan and James Cameron (eds.) (London: Earthscan Publications, 1994).

[44]"Our position gives primacy to actual existent processes, as well as to individuals and wholes; hence I use either *complexity*, with its clear ontological connotations, or *indeterminacy*, for the same reason." Laura Westra, *Living In Integrity: A Global Ethic to Heal a Fragmented Earth* (Lanham, Md.: Rowman and Littlefield, 1998), pp. 216, 219.

ecosystem approach has anything to do with my point about the indeterminate nature of reality.

In her book *Living in Integrity*, Westra urges us to reject linear, deductive science in favour of what authors Jerome Ravetz and Silvo Funtowicz call "post-normal science." According to these authors, the complexity of ecosystems entails "moving to a science based on unpredictability, incomplete control, and a plurality of legitimate perspectives."[45] The need for a "plurality of legitimate perspectives" is required given the existence of various hierarchies created by "holons" of differing complexity in the world. Holons are wholes which are themselves also parts of other wholes. For example, a holon may be a marsh ecosystem that is a part of a watershed ecosystem. The marsh ecosystem, however, is itself comprised of holons of differing complexity. On the simple end, there is the bedrock underneath the marsh. On the complex end, there are the flora and fauna. A plurality of perspectives is thus needed to study the plurality of systems. For example, the quantitative methods of physical science are a legitimate part of studying the marsh, as the "holons in the lower hierarchical dimensions" are only "complicated" rather than "complex."[46] On the topic of complexity and hierarchy, according to Funtowicz and Ravetz, the most complex systems of all display the trait of reflexivity. They write:

> At the top [of the holon hierarchy] are those with the properties characteristic of reflexivity, such as purpose and awareness. The hierarchical dimensions with reflexivity are also characterized by indeterminacy and uncertainty (sometimes deep); and hence ethics becomes necessary for the self-aware beings there.[47]

"Purpose," "awareness," "reflexivity," and the necessity of ethics all indicate that Funtowicz and Ravetz are referring to *H. sapiens* as the most complex, reflexive system. We can take indeterminacy to mean freedom in the old-fashioned philosophical sense of the term, namely, the view that our actions are not causally determined. Unless Westra is willing to attribute purpose, self- awareness, and uncertainty to ecosystems (a dubious proposition) I must conclude that she is misappropriating the term. It is true that ecosystems are complex. But the authors she cites do not use indeterminacy as a synonym for complexity on the level of ecosystems. The term is reserved solely for us.

"Embracing complexity" may also be more complex than she thinks. According to complex systems theorist Daniel Stein, "complexity is almost a theological concept; many people talk about it, but nobody knows what it really

---

[45] Silvo O. Funtowicz and Jerome R. Ravetz, "Uncertainty, Complexity and Post-Normal Science," *Environmental Toxicology and Chemistry,* 13, no. 2 (Nov. 1994):1881.

[46] Silvo O. Funtowicz and Jerome R. Ravetz, "The Poetry of Thermodynamics," *Futures* 29 (June 1997): 801.

[47] *Ibid.*

is."[48] Unpredictability, non-reducibility, and emergent properties seem to be aspects of the complex systems studied by scientists. However, given the wide range of systems that are studied under the umbrella of complex systems theory, e.g., chaotic systems, neural networks, cellular automata, and adaptive algorithms, it is difficult to establish a precise definition. It is difficult to embrace something if we do not know what it is. Nobel prize-winning physicist Murray Gell-Mann goes a step further and claims that "any definition of complexity is necessarily context-dependent, even subjective."[49]

According to Stephen Kellert, chaos theory (a subset of complex systems theory) places a limit on predictability because chaotic systems have a "sensitive dependence on initial conditions." This means that when predicting how a system will behave, a small amount of vagueness in one's starting point may mean a large amount of vagueness later, thus making one's prediction inaccurate, or just an educated guess. "As chaos sets in, we encounter the inadequacy of our methods, not the inadequacy of our laws."[50] This *challenges* determinism, mainly because we used to think that a deterministic system and a predictable system were the same thing. But chaos theory shows that a system can be unpredictable, but yet guided or determined by a set of natural laws.[51]

In contrast, indeterminacy refers to the constant shift and change of the boundaries or parameters of a system. The rules of the ecology game are not set—they are highly contingent and evolve over time. The distinction between uncertainty and indeterminacy is useful because it helps to specify the difference between my position and that of the recovery philosophers. An ontologically independent nature has a set of rules; its processes are determinate. We may be uncertain about what is going to happen, but nothing will happen that does not accord with those laws—of *that* we can be certain. And for recovery philosophers, that certainty is enough to establish nature as humanity's Supreme Court. I reject this position not only for the reason that there is no ontologically independent nature, which in turn entails that there are no fixed, determinate, immutable laws that we can use as a foundation for principles or to establish a universal human identity, but also because these philosophical arguments create an impoverished analysis of unintended consequences and novel artifacts. A fixed, immutable, *complete and closed* nature is the bedrock to their arguments. Yet, as I have argued, such a concept of nature impedes rather than advances the development of a cogent environmental philosophy. Ironically, nature prevents us from thinking very seriously about our environment. What we *must* think about is our environment. And our environment is one of open-ended, artifactual economies.

---

[48]Daniel Stein, "Preface," *Lectures in the Sciences of Complexity,* Daniel Stein, ed. (Santa Fe, N.M.: Addison-Wesley, 1989), pp. xiii-xv.

[49]Murray Gell-Mann, *The Quark and the Jaguar: Adventures in the Simple and the Complex* (New York: W.H. Freemann, 1994), p. 33.

[50]Stephen Kellert, *In the Wake of Chaos: Unpredictable Order in Dynamical Systems* (Chicago: University of Chicago Press, 1993), p. 44.

[51]*Ibid.*, p. 50.

We are used to thinking of economies and systems as closed loops whose internal dynamics are determined by natural laws. I prefer Latour's image of an ascending spiral. It is just an image, but it works well to convey the idea of the incompleteness of reality. Incompleteness does not mean that we cannot speak of laws or principles. It only means that we must acknowledge that the laws or principles are not reflections or representations of an ontological autonomous reality. They are artifacts that exist in artifactual economies, and, as such, they are open to change and reformulation. One could say that they are more *resistant* to change, but that is not because a particular law or principle is true in the sense that it corresponds with reality. Rather, natural laws (e.g., Boyle's law) owe their resilience to the host of other economies that they enforce, and on which they depend.

Cities and the Importance of Technique

Earlier I mentioned that Hardin's analysis of resource use portrays the city as a giant black box relying on natural materials for inputs and expelling harmful outputs. I made the suggestion that environmental philosophy must open that black box called urbanization, and address the issue that Hardin has suspended—*technique*. Now that artifactual anthropocentrism has been defined, we can see how important cities and technique are to environmental philosophy.

Recall my main point about artifactual anthropocentrism—our open-ended, indeterminate world is constantly created through the concerted performances of humans and nonhumans, and that our evolving world is a world of artifactual economies. The city is *the* place where we find the greatest concentration of these artifactual economies. This is an essential point. The importance of the city is more than the fact that millions of people around the world are migrating to urban areas. My point is not just that the city is the new reality, but rather that the city has now become a major creator of global ecological reality.

Cities *creating* reality? It is a simple point. Thinking about thermonuclear fusion is somewhat helpful. The sun produces light because its gravitation pull has created a massive density of hydrogen atoms at its core. Hydrogen atoms are unstable at these high pressures, thus they fuse to make more stable helium atoms. But what counts is the *density* of atoms at the sun's core. Jupiter has often been called a failed star. It is a big gaseous giant, but not big enough. It does not have enough gravity to create the level of density required to fuse hydrogen atoms. "Cities as stars" is a metaphor to suggest how we can think of cities as sites where reality is produced. Put arts, industry, people from all walks of life, education, commerce, recreation, and so on into a small geographical area and just *see* what happens. What you get are cultural products like nothing else. Of course, reality is created wherever there are artifactual economies, but the city has voracious needs. It pulls other artifacts into its core and transforms them.

The new, startling, strange artifacts produced when we compress artifactual economies—isn't this what frightens us about the city?[52] As previously mentioned, America has a long history of hostility towards its urban centers. Intellectuals such as Emerson, Thoreau, Jefferson, Melville, Hawthorne, and Poe regarded the city as a place of disease, vice, toil, and danger. The same attitude lies behind the mass migration into the suburbs in the twentieth century. As geographer Richard Harris noted, people want a safe place to raise their families. Many think that city life is dangerous, and I do not think this fear is unwarranted. One thing that cities do very well is to shelter us, both literally through its architecture, and figuratively by respecting and even encouraging our differences. In the country, the "village-idiot" is rarely considered a threat. In the city, however, the stranger takes on a more menacing cast. The different, the unusual, and the deviant can not only find shelter and remain somewhat anonymous in the city, but also their particular tastes can develop and flourish when they can find others like them. That is not necessarily a bad thing. The sheltering aspect of urban life is part of the reason why many social outcasts, e.g., homosexuals, the disabled, immigrants, and refugees, find their home in the city. With access to a concentration of services and support networks, it is possible to carve out one's niche, and even build a community (Toronto has been called a "city of neighbourhoods") to reflect one's taste and ethnic origin.

Not all tastes are benign and not all communities are inclusive, but the point is that the city provides the opportunity for individual and communal experimentation. It provides the stability (sheltering) and resources (artifactual concentration) that are needed to try the new and the different. Of course, in any experiment there is always the possibility of failure. In some places, such as a farm, a miscalculation can be disastrous. Plant the crops too early, and a frost can destroy the seedlings. A new kind of irrigation ditch may allow you to plant on the side of a hill but be careful—too much or too little water will reduce yields. A livelihood that is based on sustainable farming is less open to experimentation for the reason that a miscalculation can actually *kill* the experimenter.

Although we may be more free to experiment within an urban setting, there *are* restrictions. We have become increasingly dependent on long socio-technical networks to deliver essential goods: food, water, power, and so on. There are building codes and regulations, the legal system, corporate interests, and city planners. The Western world is a tightly administrated world. And administration entails transformation because laws and regulations do not simply *describe* a pre-existing practice or custom; rather, they actively *prescribe* a particular practice. This point may easily be overlooked in the twenty-first century simply because these laws, building codes, and our legal system have been around for so long that their existence is self-justifying. However, go back to the creation of these modern administrative practices in Europe and you will

[52]Pet rocks, microwaves, tanning beds, skateboards, videogames, cybersex, walkmans, and Botox injections are some notable examples.

find that governments had to actively impose standardizations on their populaces in order to render the country "legible."[53] For example, in eighteenth century France, land ownership, weights and measures, surnames, and dialects varied widely. The sheer variety of customs and practices made centralized governmental coordination impossible. It took centuries to standardize even the basics of land ownership, and the process was not without its problems. Inevitably, the wording of a particular law or regulation favoured some and disadvantaged others.

We do not, however, need historical examples to see the connection between administration and transformation. According to Peruvian economist Hernando de Soto, approximately eighty percent of the world's people live in an "extra-legal" environment. In the West, our legal system provides the means for building capital—a single, coordinated system of property ownership. Property is the main asset used to build capital. In non-Westernized countries, many people own property, but that property cannot be converted into capital because there is no coordinated legal system to give it "legibility." Assets are thus dead assets, because property cannot be converted into the papers and deeds required by the larger system of capitalist investment. We take this feature of the Modern Western world so much for granted, argues de Soto, that we tend to create myths around our own success when asked to explain why the Western nations have the capitalist edge over their poorer cousins. *We* have democracy, the protestant work ethic, the technical proficiency, and so on. *They* are the "uncritical prisoners of dysfunctional cultures," or they lack the entrepreneurial spirit, or they are simply too poor.[54]

The point that I want to draw from De Soto's analysis is that our Modern urban edifice derives its resiliency from the coordination of scores of these small and seemingly banal decrees whose interrelations are far from obvious. This holds true for non-Westernized cities as well. Just because eighty percent of the world's population lives in an extra-legal environment does not mean that there are no laws or codified practices to help coordinate activities. The problem, argues de Soto, is that there are too many. Sometimes the fault lies with the government and the number of bureaucratic steps required to register land ownership or a business. As an experiment, De Soto and his team wanted to know how long it took to officially register a small, one-employee business in Lima, Peru. They spent six hours a day for two hundred and eighty nine days acquiring all the certifications, and paid thirty-one times the average monthly wage in administration fees. Obtaining legal authorization to build a house on state-owned land takes over six years, and requires two hundred and seven steps in fifty-two government offices. It takes from thirteen to twenty-five *years* to formalize informal urban property in the Philippines. In Egypt, gaining access to

[53]Scott, *Seeing Like a State*, pp. 11-83.

[54]Hernando de Soto, *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else* (New York: Basic Books, 2000), p. 5.

desert land in order to build takes seventy-seven steps, thirty one different entities (power utility companies, housing associations, survey departments, and so on), and can take up to fourteen years to complete.[55] No wonder most people give up and build illegally. However, it would be false to say that there are no codes or practices in effect. To protect their investments, people borrow from the official legal system, they use customs from their villages, and make ad hoc improvisations. As a result, there is a staggering diversity of extra-legal practices that somehow manages to support most of the world's population. By support, I mean that these are the quasi-regulatory artifactual economies that the people *themselves* put into place in order to carve out a niche in their urban environment. From de Soto's statistics, it is obvious that they receive little help from their official governments. Westerners may not be able to fully appreciate the significance of their situation because the system that brings our water, our food, manages our disputes, ensures a relatively safe working environment, educates and polices the populace, and so on, is smoothly coordinated in comparison. Our integrated and coordinated socio-technical networks can do marvelous things. Press a key on your computer, and your assets can be transferred around the world. Sign a piece of paper and you own a house. As far as administrative networks are concerned, the reality is that legality is not the norm. Despite the existence of powerful corporate interests that do exert *some* measure of control, most of the world's people live in a state of what could be called controlled anarchy.

This anarchical reality should give environmental philosophers serious pause. Although de Soto's primary concern is with the lack of integrated bureaucratic systems required to transform property into assets and then into capital, his observations can be applied to environmental concerns. In order to be effective, environmental laws and regulations also need an integrated system. Like electricity, laws and regulations will get to the places where they are needed the most only if the suitable pathways and connections exist. It is too easy to look at the sometimes appalling conditions of developing nations and conclude that they are simply not enlightened about the environment. I think they *do* know about the dangers of deforestation, inadequate sewage systems, hazardous waste, and so on. Many must deal with these realities on a day to day basis because their urban edifice only partially shelters them. As it stands, however, their concerns have little chance of being integrated into the kind of coordinated, globalized action required by international treaties such as the Kyoto protocol. How can a government impose an environmental regulation when it cannot even legalize a citizen's property in less than ten years? Even high-tech industries such as computer and aircraft construction are off the books in some countries.[56] This is just one of the many problems that urbanization poses for environmental philosophy.

---

[55] *Ibid.*, pp. 6-28.
[56] *Ibid.*, p. 64.

For the rest of the population, i.e., the Westernized nations, the problem may not be one of diversity, but instead the lack of it. Our food supply is completely dependent on oil. It is needed not only to transport the food but to grow it as well. Agri-business depends on massive quantities of chemical fertilizers, and chemical fertilizers are created by refining petroleum. An estimated five tons of oil is needed for one ton of fertilizer. Figure in the oil required to grow a head of lettuce in California, ship it to Canada where it is sorted at a depot in Toronto, then sent to Sudbury, and you might as well call it an edible oil product and put it next to the Cool-Whip™. Organic methods of agriculture are making a comeback, but their success will depend on much more than a few dedicated farmers. Organic foods require a change in our habits and expectations about food and its preparation. Open-pollinated vegetables and fruits (as opposed to the hybrid and genetically engineered varieties) are not easy to grow, and they spoil at a much faster rate than produce specifically bred to sit on the shelf for a week. Organic methods of cultivation are more labour intensive and demand more skill from the farmers, thus they tend to be more expensive than conventionally grown produce. The competitive nature of capitalism means that large grocery chains are dedicated to selling their food at the lowest price, but they do so at the expense of taste, nutrition, and variety. Not only is our food supply dependent on oil, it is also dependent on fewer and fewer varieties of food. According to the *Garden Seed Inventory*, there were one thousand and eighty varieties of open-pollinated tomato seed available for purchase in 1998 in North America. More than half of these varieties, however, are only available from one or two suppliers. If the suppliers decide to drop a particular seed, the variety will most likely become extinct.

Why be so concerned about the disappearance of a tomato variety? We *should* be concerned about the elimination of genetic diversity. It does not matter if we are talking about "charismatic mega-fauna," such as leopards and elephants, or the humble tomato.[57] I do not want to follow Paul Ehrlich and say that the planet's species are the rivets holding spaceship earth together. There is little evidence to suggest that the disappearance of the cheetah population in Africa, or that the disappearance of the Tennessee Peach Fuzz tomato will have a significant impact on our environment.

I also do not want to argue for the intrinsic value of cheetahs, elephants, or tomatoes. Arguments for the intrinsic value of the natural world have the express purpose of locating and defending its value completely independent of *any other considerations*. That is, any instrumental or aesthetic value that the item may possess is irrelevant to determining its intrinsic value. One has to consider the

[57] Plants can do marvelous things as well. Take for instance the Sub-Arctic Maxi. This tomato can be cultivated as far north as the Yukon due to its unique growing habits. Instead of producing on its main stem like other tomatoes, it quickly produces fruit on its faster growing lateral stems.

thing as an absolute, singular being, devoid of connections and associations with other beings. Given what I have argued about artifactual economies, we can see the flaw in this strategy. Besides the fact that there is no completely isolated being devoid of connections and associations with other beings, arguing that we *should* consider these beings apart from the connections that they hold undermines the efforts to establish the intrinsic value of natural objects.

To understand this point, we must ask: "what is intrinsic value and why do we want it?" By intrinsic value we mean that an object is a "good in itself." Its existence does not need any justification. It is fine just the way it is, and does not need anything else (use value, aesthetic value, and so on) to justify its presence. Warwick Fox argues that the recognition of an entity's intrinsic value shifts the burden of proof onto those who would want to eliminate it without sufficient justification.[58] In other words, recognizing intrinsic value is a way of ensuring an object's continued existence. If that is what we want to do, that is, to ensure the continued existence of natural objects like wilderness preserves, cheetahs, and so on, then why consider them in abstraction from any other connections and associations they may have? As Latour argues, "an entity gains in reality if it is associated with many others that are viewed as collaborating with it. It loses in reality if, on the contrary, it has to shed associates or collaborators (human and non-human)".[59] The more collaborative artifacts and associations we can connect to wilderness, the more reality to sustain it. And the more resilient it becomes, the more its presence is self-justifying. Ironically, environmental philosophers withhold from their arguments the collaborative associations that secure an entity's reality in the first place. No wonder they encounter such difficulty in arguing for intrinsic value!

To be fair, I think they are unsure of what may constitute a "collaborative artifact or association." This is a valid point. What happens if we associate wilderness with aesthetic pleasure? Will this attitude help or hurt it? Will it lead to the protection of those areas (and creatures) that are pleasing to us, e.g., mountain ranges, dolphins, and rare butterflies, and the dismissal of the less popular entities, e.g., swamps, dung beetles, and the Komodo dragon? We could associate the rainforest with its potential medicinal value. But what happens if we find a cure for cancer without its help? These are some of the concerns raised by environmental philosophers who question whether a particular association or connection will help an entity maintain its existence. Those who want to argue solely for the intrinsic value of wilderness and other natural objects portray these associations as purely instrumental. They oppose the thinking that says we need the rainforest because it is useful *to us*. Grounding its protection on the basis that it is "good for us" instead of "good in itself" undermines its protection, they argue,

---

[58]W. Fox, "What does the Recognition of Intrinsic Value Entail?", *The Trumpeter* 10, no. 1 (Winter 1993): 101.

[59]Latour, *Pandora's Hope*, p. 158.

and reinforces the same anthropocentric attitude that would cause us to destroy the rainforest.

I have already explained how intrinsic value depends on an isolated, atomistic, understanding of artifacts. The same can be said of instrumental value. Notice that the same concerns about collaborative associations are found in de Soto's arguments. Streamlining the myriad extra-legal practices *without* causing undo harm to an already fragile population is not as simple as "running a bulldozer through garbage." Rather, "it is more like rearranging the thousands of branches and twigs of a huge eagle's nest—without disturbing the eagle."[60] His image could not be more appropriate. The branches and twigs are the concentrated artifactual economies that constitute our sheltering, supportive environment. This sheltering environment *includes* wilderness. It also includes a host of other artifacts, e.g., capitalism, agri-business, the internal combustion engine, legal and extra-legal practices, and so on, that damage wilderness. As previously mentioned, we should not let geographic boundaries be our guide for understanding environmental problems and issues. Just because we can see where the city ends and the wilderness begins, this does not mean that the former uses the latter like a builder uses a hammer. The lines of artifactual connections that join less socialized artifacts like the ozone layer, mountain ranges, and cheetahs, with what we may call more socialized artifacts like our cities, legal systems, and so on, are too tangled and too complex to allow us to isolate those artifacts that have only a use value.[61] Our socio-technical networks do not stop at the city limits. We do not use the city anymore than we use nature. Both comprise our artifactual environment. To say that our environment is only instrumentally valuable is perhaps the narrowest understanding we can have of the relationship between an organism and its environment.

It is, of course, very often true that cities are parasitic on their surroundings. It may even be true that the present configuration of artifactual economies is unsustainable. Parasites, however, have the option of finding another host. How do we create a more sustainable configuration of artifactual economies? I do not know. But thinking that we only have to change our ethical assumptions or our world view cannot be the answer. It would be like trying to build a house with only a hammer. We need to widen our scope, and artifactual anthropocentrism can help.

---

[60]de Soto, *Mystery of Capital*, p. 188.

[61]Anthony Weston echoes this point when he encourages us to think of values in a holistic, web like way. The means/ends distinction is too linear to capture how we justify values. "To justify or to explain a value is to reveal its organic place among our others . . . sometimes I value the mountain air because in it I feel (and *am*) healthy, other times I value health because it enables me to reach the mountains." Anthony Weston, "Beyond Intrinsic Value: Pragmatism in Environmental Ethics," in *Environmental Pragmatism*, Andrew Light and Eric Katz, eds. (New York: Routledge, 1996), p. 293.

I recognize that the concepts of intrinsic and instrumental value are very popular in the philosophical literature. Indeed, many philosophers, recovery or otherwise, argue that nature is intrinsically valuable. If thinking in terms of artifactual economies means that we no longer have these ethical concepts of intrinsic and instrumental value at our disposal, at least in the way that they have traditionally been portrayed, what then shall we do about environmental *ethics* proper? What are, in other words, the ethical implications of artifactual anthropocentrism?

I am raising this question only to defer most of my answer to the end of this chapter. There are some points, though, that I can address now. The first is an obvious objection to my position. Establishing the intrinsic value of nature is the best way, according to many environmental philosophers (recovery and otherwise) to guarantee its survival. Guaranteeing nature's survival, in turn, guarantees our survival. The part, i.e., humanity, depends on the whole of nature. However the reverse, so it seems, is not true. Recovery philosophers think that our Modernist identity will prompt us to reach for high-tech solutions that will most likely cause more problems than they solve. Take, for example, the problems associated with coal-burning energy production. Burning coal creates smog, acid rain, and contributes to global warming. In contrast, nuclear energy is cleaner and more efficient according to its supporters. Many experts and lay people herald nuclear energy as the high-tech solution to our present energy crisis. But the solutions to today's crises often become the problems of tomorrow. The waste associated with nuclear energy is perhaps the most lethal by-product of our industrial society. So, what do we do with the waste? The proponents of nuclear energy recognize that the waste *is* a problem, but they seem to be optimistic about our capacities to handle the waste in a responsible way even though the problem itself will be with us for centuries. The suggestions range from recycling the heat emitted from the spent fuel to produce even more energy to encasing the waste in concrete and burying it in the Nevada mountains. To the opponents of nuclear energy, these are not satisfactory solutions as the risks associated with nuclear waste are just too great for any society to handle. I will return to this topic when I discuss the further ethical implications of artifactual anthropocentrism, but for now we can see that recovery philosophers would undoubtedly point to our Modernist faith in technological solutions as the underlying cause of such optimism.

Viewing nuclear energy as a plausible solution to our energy crisis is just one manifestation of our faith in technology held by many in our Modernist society, according to recovery philosophers. There are other examples as well. Too many pesticides? Grow genetically modified crops instead. Not enough farmland? Drain a few swamps or cut down the Amazon. Our Modernist thinking, so argue the deep ecologists, multiplies the problems instead of solving them. The only option is to jettison Modernity and establish the intrinsic value of nature. There is no doubt that recovery philosophers would consider my arguments against the usefulness of the concepts of intrinsic and instrumental value as ultimately detrimental to any attempt at saving nature and ourselves. No intrinsic value in

nature means that nature is defenseless against our misguided attempts at solving our problems. On the road to ensuring a safe and secure energy and food supply, we could inadvertently set in motion a chain of events that would destroy everything.

There are two points I would like to raise against this objection. The first is to point out an assumption that I have previously shown to be questionable. Recovery philosophers think that the Modern world is fundamentally *different* than other societies. This assumption *itself* can inadvertently support the arguments of those who argue that nuclear energy is our only option, GMO crops will feed the world and reduce pesticide use, and so on. In thinking that our Modern world is fundamentally different, that it has driven a wedge between ourselves and nature, we prevent ourselves from drawing on the lessons of the past. Recovery philosophers fail to recognize that our society is not the only society that has faced the possibility of ecological collapse; there have been many others. The societies whose collapse can be mostly or partly blamed on ecological failure are: the ancient Easter Islanders, Pitcairn and Henderson Islanders, the Greenland Norse, the Maya, and the Anasazi to name a few.[62] In addition, we can also say that by and large, the problems that these societies faced are problems with which we are now confronted. These ancient cultures faced population pressures, dwindling natural resources (e.g., fish and fuel), deforestation, soil erosion, loss of biodiversity, water shortages, pests, and climate change. Our modern technologies may have added nuclear waste and toxic chemicals to this list, but the point is that our current "Modern" society faces much the same ecological problems as did these ancient cultures. Recovery philosophers fail to see this point because they romanticize pre-modern cultures and think that past societies (and present non-Modern ones) have some sort of intimate, loving relationship with the natural world. The supposed nature-centered world view of the Chao Anasazi did not save *that* particular native American tribe from an ecological collapse brought about by deforestation. The nature-centered Shinto, Buddhist and Confucian attitudes did not prevent the Japanese from doing almost the same. It was not a change in world view that saved Tokugawa Japan from cutting down the last of their ancient forests, it was the shoguns who seized political control of much of Japan and imposed draconian wood conservation measures on the peasantry.[63] Japan's leaders also reforested much of the deforested land—a process known as silviculture. Now, almost 74% of modern Japan is covered by forests.

Resisting the thought that ecological collapse is a feature only of the Modern world allows us to broaden our scope and look for patterns amongst those societies that managed to pull themselves back from the brink of destruction. Motivated by the foresight that their societies would collapse if the current

---

[62]Jared Diamond, *Collapse: How Societies Choose to Fail or Succeed* (New York: Viking Penguin, 2005).

[63]*Ibid.*, pp. 136-156; pp. 294-308.

practices were left unchanged, the societies of ancient Japan, Papua New Guinea, the Dominican Republic, and Iceland imposed deeply conservative measures to arrive at sustainable levels of resource use. In other words, they stopped cutting down their forests, switched from cattle (an animal that has a considerable ecological impact) to lighter, smaller livestock, adjusted their irrigation and farming techniques, cleaned up their rivers, imposed quotas on their fishing industries and combated population growth. In other words, these cultures made a concerted effort to save themselves by saving the nature around them. What makes us think that just because we are "Modern," these measures would not work for us today? Our urban edifice still relies on mobilizing the actants in the natural environment. We may have built a shelter for ourselves, but it is not a fortress. What we do inside our urban environment affects the ecological balance and the ecological balance affects our urban environment. Deep ecologists have characterized pollution, toxic dumps, and so on, as urban concerns and not the concerns of wilderness. Unwittingly, they reinforce a dualism between the built and natural environments that is simply untenable. Our artifactual economies know no geographical boundary. How, what, and where we build and consume affects the actants around us. Granted there are *some* problems that seem to be almost intractable at the moment. For instance, it is doubtful that we can immediately end our dependence on oil. We may have painted ourselves into a corner with our modern agricultural methods. At the moment, we are almost entirely dependent on these modern techniques to feed ourselves. Even if we could, say, whisk away all agri-business and replace it with organic methods overnight, we may not want to given that the larger structures of food distribution are ill-prepared for such a change. At the same time, however, it is probably foolish for any society to have such a small percentage of its population engaged in food production. Organic methods *are* more labour intensive. Right now, there are simply not enough knowledgeable people to grow the amount of food that we need in North America. My point is that the ecological success of other cultures depended on using less, doing more *with* less, and replacing much of what was taken in the first place—not an easy task and we can take issue with some of their methods, e.g., infanticide, land seizures, and so on—but the solutions were not, strictly speaking, "high-tech" solutions to the problems.

Secondly, in their reluctance to think of unintended consequences in any other way but as symptoms of a destructive Modernist world view, recovery philosophers may be denying themselves a good argument against those who place all their faith in high-tech solutions. On the hope that technology will solve our problems, Jared Diamond says it best: "What makes you think that, as of January 1, 2006, for the first time in human history, technology will miraculously stop causing new unanticipated problems while it just solves the problems that it previously produced?"[64] This is a good point as it challenges not the world view of those who would place their faith in technology, but a collective, dangerous

[64] *Ibid.*, p. 505.

amnesia that our culture experiences and reinforces when we think of ourselves as fundamentally different from other societies in different times. We forget that CFC's were once considered a safe alternative to ammonia. We also forget that automobiles were once considered cleaner and quieter than horse-drawn transportation. These are reminders that we need another way to think about modern technology besides its whole-hearted adoption or rejection. I will return to this point at the end of this chapter when I argue that ethical issues are intimately bound up with questions of technology.

Returning to the objection, i.e., the claim that removing intrinsic value for nature may in fact be counter-productive to humanity's survival, we can add yet another objection by recovery philosophers. If there is no intrinsic value in nature then this implies that artifactual anthropocentrism places us at the center of ethical concern. The issue is *our* survival. To this I reply: Yes, the issue is our survival, but that does not mean we consider ourselves as the *center* of ethical concern. All ethical questions are not reducible to questions of our own survival. Unfortunately, environmental ethics seems to be unduly influenced by animal ethicist Peter Singer popularization of W.H. Lecky's conception of ethics as an expanding circle. In the middle of the circle is the individual self. Right action is a simple self-preservation. As we become more ethically enlightened, our circle expands to encompass our family, our community, our nation, and so on.[65] This model of ethics was easily adopted by environmental philosophers. They enlarged the circle to include animals, plants and the biosphere. Anthropo*centrism* seems to shrink that circle and undo the ethical progressions we have made over the years. What right-minded ethicist would want a return to an ethic of simple self-preservation no matter how enlightened? This is the sort of ethical critique typically leveled at anthropocentrists.

I think the "expanding circle" thesis presents a conception of ethics that is inimical to the paradigm that I have been setting forth in this chapter. First, Lecky's concept assumes that there is such a thing as an irreducible human being occupying a place at the center of the world. As I have argued, to even *be* a human means that one must necessarily engage and create artifactual economies. Lecky, like the recovery philosophers, makes an abstraction where no abstraction can be made. We cannot separate our existence from our actions. Artifactual anthropocentrism does not shrink the circle of ethical concern—it problematizes this way of conceptualizing ethics.

Does this mean ethics has no place at all in environmental philosophy? No—but I suspect our traditional ethical concepts need some rethinking. As previously mentioned, I will offer some ideas at the end of this chapter. At the same time, however, I acknowledge that my suggestions regarding the ethical implications of artifactual anthropocentrism may seem unsatisfactory to some. The reason for

---

[65]W. E. H. Lecky, *History of European Morals from Augustus to Charlemagne*, introduction by C. Wright Mills, (New York : G. Braziller, 1955).

this, I hope, is not the concept itself but the scope of the question. A more thorough and complete answer will have to wait for another time.

If environmental philosophy is really concerned about the environment, and if our environment is built through our concerted performances, then we should look, very seriously, at what a concerted performance actually means. Do not let the building metaphors I have used lead you to conclude that all concerted performances are necessarily material. Artifactual anthropocentrism is not intended to be the material answer to the mental and world view arguments that I have criticized. Instead, concerted performances refer to, quite broadly, the interaction among artifacts, and artifacts are more than just material entities. To even *be* an artifact is, quite literally, to be a concerted performance. So, when thinking about artifacts that are important to environmental philosophy, say wilderness, cheetahs, the biosphere, we must necessarily think about concerted performances.

Artifacts owe their existence to the coordination of myriad actants that are brought together and are themselves *maintained* through artifactual economies. We may be unused to thinking of the reciprocal nature of artifacts, but the examples to explain this are endless. Journal articles and books maintain philosophers, buildings maintain architects, criminals maintain police officers, amoebas maintain biologists, and so on. In these relationships, the actants seem natural and obvious. Sometimes, however, the actants are *not* obvious. It took the experience of trying to be capitalistic outside of capitalism's bell-jar for de Soto to see that our integrated property rights exist beside each secure capitalist transaction we make. I do not want to say that integrated property rights are *behind* capitalism's success. Rather, it would be more precise to say that our integrated legal property system assures safe and secure economic transactions because it maintains a presence in each transaction. Its presence turns ordinary houses into assets, and plain pieces of paper into deeds. It is not the background to capitalism but its social partner. As such, one can say that the legal system is "folded" into the capitalist system.

"Nature" too maintains a presence in every artifact and concerted performance, but in order to understand this point, our terminology needs some fine-tuning. Everything is an artifact, and artifacts themselves are the products of concerted performances, and which are themselves artifacts of earlier such performances. Strictly speaking, there is nothing natural in the world. It is better to talk about degrees of socialization. Instead of calling an artifact "wild," call it "less socialized" instead. *All* artifacts participate in artifactual economies, so the difference between a socialized artifact and a less socialized artifact is a matter of degree. We can say that the greater the participation in our artifactual economies, the more connections and associations it has, hence the greater its socialization. The greater its socialization, in turn, means the more *reality* it has.

Take for instance, the ozone layer. The discovery of the dangers of chlorofluorocarbons, our knowledge about skin cancer and cataracts, and the Montreal protocol all contribute to socializing this artifact. We pick up a spray

can and (if one is environmentally inclined) look for the symbol that reassures us that there are no CFCs in it. A simple bottle of sunscreen does not just prevent burns, it prevents cancer. Hats and eyeglasses are not just fashionable, they are protection as well. It used to be that we checked the weather forecast to see if it will rain. We now plan our daily activities around the UV levels. Now even moles on your body are suspicious—they may herald some future, painful death. All these artifacts and performances socialize the ozone layer. We can say that it is now folded and incorporated into many other artifacts and performances.

But there are crucial differences between socialized artifacts that have a long history of domestication, e.g., property law and capitalism, and less (or more recently) socialized artifacts like the ozone layer or the Amazon basin. These differences will also help distinguish environmental philosophy from other disciplines. The most thoroughly socialized artifacts are more malleable and more open to change because they tend to exist within a sheltering urban environment. In principle, we are *more* free to experiment with them because they sit adjacent to other artifacts and practices that we can depend on in case an experiment fails. If governments actually get around to it, streamlining the extra-legal practices will be difficult, but they are practically *made* for domestication.

Less socialized artifacts do not have these same characteristics. By definition, they have fewer connections. So we need another distinction. There is a difference, I suggest, between socializing an artifact and domesticating it. The difference seems to be associated with the idea of sustainability. Thoroughly domesticated artifacts, e.g., cities, feeder cattle, the capitalist economic system, and so on, are in need of constant care, attention, and intervention to maintain their existence because they are so thoroughly enmeshed with a host of other artifacts on which they depend. Less socialized relatively undomesticated artifacts need less intervention to maintain their existence, *in principle*. But the problem facing us now is that these less socialized artifacts *need* more socialization, that is, they need more associations to help maintain their presence. The ozone layer needs more international treaties, more scientists, more collaborators of all kinds. As we learn more about the ozone layer, we realize the extent to which it is enmeshed in an economy of highly domesticated artifacts. Its contributions, however, are not immediately evident. Only through quite elaborate concerted performances (high-altitude weather tests, cancer research, and so on) does the ozone layer *gain* its reality and we begin to understand, via these elaborate concerted performances, its place in the global ecology. As an important social actant, it suddenly starts appearing *everywhere*. It appears as a partner in agriculture, in aerosol cans, our genetic code, and in the refrigeration units of older model cars. Who knows where the ozone layer will appear next! It may have a *geographical* position of twenty-four kilometers above the earth, but as I have to keep repeating—do not let geographical location be your guide for understanding the environment.

Here then, is the paradoxical aspect of *environmental* philosophy: the reality of less-socialized entities is not sustained by their geographical position alone to

say nothing of their intrinsic value or absolute natural identity. In the case of the ozone layer, it exists far more robustly and explicitly precisely because of its dense connections within our urban artifactual economies. In a sense, we could say that our urban artifactual economies, for the most part, *produce* the ozone layer. I understand how this can seem counter-intuitive, but without scientists, computer technology, the Montreal protocol, aerosol sprays, medical laboratories, and all the other artifactual connections that make it seem impossible to deny—from where else would it get its reality? We may have to cordon off a geographical area for an entity. Certainly the Amazon basin would not be the Amazon basin if it did not exist geographically within a certain latitude and longitude. Its full existence, however, is more than what is contained within those geographical boundaries.

Once a new social actant arrives on the scene we are faced with an important decision; should we domesticate it or not? *If* we decide to domesticate the social actant—that is, to enroll it into our collective, administrate it, attach institutions to it, and tie it tighter to our already existing economies—we transform it in the process. For example, the history of forest management in Europe has revealed one important lesson: you cannot *manage* or *control* forests, you can only turn them into something else.[66] So the difference between domestication and socialization is not just a matter of degree. It is not just a matter of attaching more actants to an entity. Rather, we apply a host of techniques that transform the entity such that it will fit into our existing economies with the minimal amount of disruption to those economies.

There is nothing technically specific to domestication; that is, domesticated entities are not smaller or more placid versions of their wild ancestors. How we change the entity depends on the initial characteristics of the entity and the requirements of an economy. We can, however, point to three general characteristics of domestication: 1) we domesticate entities that *benefit* the economy; 2) we make them *predictable*; and 3) we *control* or *manage* certain features of the entity. Some natural entities are better candidates for domestication than others because they, to a certain extent, have aspects that are complementary to our needs. The ease with which the people in the Fertile Crescent (Southwestern Asia) were able to domesticate wild wheat, barley, and then legumes was a major contributing factor to the rise and success of agriculture and the displacement of hunter-gatherer way of life. Legumes are high in protein, thus there is an obvious benefit to their domestication. The cereals (e.g., wheat, barley, oats, and rye) yield 50 kilocalories of food energy per one kilocalorie of work. These plants are annuals, not perennials, so their yields are predictable. They are controllable in the sense that we can plant them wherever the climate permits and where a field can be tilled. Farmers in the Fertile Crescent maximized their yields by planting in higher altitudes in the dry season, and at lower altitudes in the wet season. Other continents, such as North America, did

[66]Scott, *Seeing Like a State*, pp. 11-22.

not have such good candidates for domestication, thus agriculture did not flourish there as it did in other parts of the globe.[67]

It did not take much effort to transform wild wheat into a predictable and controllable plant. Wheat differs from its wild cousins in only two respects: it has a non-shattering seed stalk and uniform germination times. Wild grasses disperse their seeds in order to propagate. When their seeds are mature, the top of the stalk spontaneously shatters, scattering the seeds. Grasses have staggered germination times that increase the chance of some plants surviving an early frost as cold kills seedlings but does not harm the seeds themselves. Some wild wheat has the single-gene mutation that prevents the stalks from shattering. We choose to cultivate these plants over their stalk-shattering neighbours simply because their seeds were still on the stalk (and thus accessible to foragers) instead of scattered on the ground. Of those plants with the mutated gene, we established uniform and predictable germination times quite easily. A tilled and watered field immediately sprouted some plants that were then cultivated and used for seeds for the next year. The seeds that did not sprout immediately did not yield a harvest, so they were not kept for the next sowing. The domestication of barley and legumes proceeded in much the same way.[68]

As with the domestication of plants, so too with the domestication of animals. There are certain animals that immediately disqualify themselves as candidates for domestication. There is no practical benefit to domesticating a carnivore for consumption given that the conversion ratio of food biomass to the consumer's biomass is less than ten percent. Instead of raising herbivores to feed the carnivores, it is more efficient to eat the herbivores. Hippos, rhinos, and bears are too large and dangerous to make their domestication practical. Zebras are too nasty and have resisted many attempts by South Africans to domesticate them. In contrast, the wild horses of Southern Russia were calmer than their African cousins, and thus were originally more suitable for domestication. In addition, wild horses sort themselves into a distinct hierarchy. This tendency helped us to domesticate the horse because we played the role of lead animal and secured the herd's obedience. Not all economies, however, need a placid, obedient horse. There are some horse breeds, most notably the Arabian, that are bred to be fiery and temperamental in order to carry their riders across harsh desert environments. Here is a case where we domesticated an animal to be predictably unpredictable. There would be no Arabians, however, if the wild horses of Southern Russia did not have certain traits that we found to be complementary to our economies at that time.[69]

The mating habits of some species automatically disqualify their candidacy for domestication. The difference between the taming and domesticating is the

---

[67]Jared Diamond, *Guns, Germs, and Steel: The Fates of Human Societies*, (New York: W.W. Norton & Company, 1999), pp. 131-156.

[68]*Ibid.*, pp. 104-130.

[69] *Ibid.*, pp. 169-173.

failure or success at breeding. Some African kings kept stables of (tamed) wild cheetahs for hunting but failed to domesticate the cheetah because they could not breed the animals. The mating ritual of cheetahs is rather elaborate. Female cheetahs ovulate only after two cheetah brothers chase her down for several days over vast distances.[70] The males of most deer and antelope species are viciously territorial and need separate areas for the mating season. Obviously these traits would pose serious problems for any human attempting to domesticate such creatures.

Thinking broadly, we can see that domestication techniques have been applied to more than just plants and animals but other natural entities as well. Fire was one of our earliest domestications. Now it exists quite safely in the form of matches, lighters, woodburning stoves, as the pilot light in your water heater, and so on. Fire can kill if not handled properly, but so can pigs, horses, and cows. If it is advantageous to make a river predictable, we often do so by reinforcing its banks, diverting its flow, and building dams. We domesticate forests by turning them into parks, and we domesticate the shorelines of oceans and large lakes by building breakwalls.

Of the three features of domestication, I think that "control" is the feature most closely associated to the transformation of entities. We create beneficial and predictable entities by controlling an entity's size, shape, location, germination time, genetic material, behaviour, ovulation, and so on. As mentioned, entities must already have some predictable and beneficial traits that make them good candidates for domestication. Why waste time domesticating the deadly night shade mushroom?

As previously mentioned, when a new actant arrives on the scene we are faced with the question: should we domesticate this entity? In a sense, the urban environment makes it easy to say yes considering that cities have been very successful at domesticating the less socialized artifacts of the world. Our artifactual economies efficiently turn forests into desks for school children. They can grow food in one part of the world and ship it to another. As we know, however, these practices are not sustainable. They use too many resources *and* negatively affect humans and nonhumans.

Here then, is the challenge of environmental philosophy; how do we fold a less socialized entity into our collective without domesticating it at the same time? In other words, how do we create the maximum number of collaborative associations for the rainforest and thus establish and maintain its reality *without* making it fully dependent on these collaborative associations? It is a difficult task because less socialized entities, like the ozone layer, *gain* their reality through their collaborative associations. But the more collaborative associations attach to the ozone layer, the more we institutionalize it, and the more we institutionalize it, the more we become obliged to manage and direct it.

---

[70] *Ibid.*, p. 170. Talk about playing hard to get!

Why should we resist managing and directing these less-socialized entities? Why not try to domesticate everything? First, ask *why* we domesticate. We domesticate because we seek stability. As Allen writes, "we are endowed with a love of stability and a need for realistic confidence (or, failing that, belief) about the future."[71] Living with complete indeterminacy is impossible because our artifactual performances, by their very nature, *stabilize* reality. But they also *create* reality because artifactual performances always have a set of unintended consequences associated with them. Only in a utopia (a settled, fixed, and idealized reality) does nothing ever happen.

As previously mentioned, human performance and indeterminacy are two sides of the same coin. I also mentioned that we must "face indeterminacy," and now I can elaborate further on this idea. When we domesticate less-socialized artifacts, we link and tighten our artifactual economies around them. We absorb them into our collective. As a result though, we absorb their indeterminacy as well. Their indeterminacy *drives* the collective forward.[72] Most of the time, however, we can accommodate this indeterminacy, that is, we can re-stabilize it and link more institutions around it. Take, for instance, the average barnyard chicken. When we domesticated it millennia ago, we had no idea that it would be a key actant of a future Avian flu pandemic. But as the chicken became associated with battery cages, antibiotics, global trade, the closer association between animals and their handlers, an exploding Asian population, and transcontinental jet travel—all of which are possible contributors to a world-wide outbreak of the Avian flu in humans—we also developed global communications, sophisticated medical institutions, microbiology, and so on—all of which are possible contributors to *preventing* such an outbreak. The threat of an Asian flu pandemic is now giving us serious pause about the way in which we treat our domesticated animals. We adjust our methods of chicken raising, we create institutions to find a vaccine, and so on. Reality takes another step forward.

The unique aspect of the less socialized entities that are of concern to environmental philosophy, however, is that they contribute to the success and

---

[71] Allen, *Knowledge and Civilization*, p. 239.

[72] For example, the domestication of animals introduced humanity to many deadly diseases (smallpox, measles, scarlet fever, and polio to name a few) as these diseases were originally found in livestock. Thousands of years of living in close contact with animals were optimal conditions for the original viruses to mutate and adapt themselves to human hosts. At first, these viruses were quite lethal. These versions did not survive, however, as a virus that kills its human host right away fails to replicate its genetic material because the victim is dead before he or she can spread the virus to others. Overtime, the viruses adapted to us in that they kept their victims alive a little bit longer to spread the disease, and we adapted to them as those people with a natural immunity lived to pass on their genes. For other cultures that did not have a history of animal domestication, e.g., native North Americans, contact between their culture and the Europeans was disastrous. It is estimated that in the two centuries following Columbus's arrival in the New World, native populations declined by about 95 percent due to the old world germs. Needless to say, a small, sick population is easier to conquer than a large, healthy one. See Diamond, *Guns, Germs, and Steel*, p. 211.

stability of our artifactual economies *without needing domestication.* They do this free of charge! As their reality grows, we find them everywhere, quietly contributing to innumerable concerted performances. We find the ozone layer in our genetic code protecting us from the sun's harmful UV rays. We find the microbial fungi in our soil, helping us to grow our food. Isn't this what we call "environmental consciousness," that is, the recognition that the artifacts all around you are supported and maintained by these silent helpers? What then, is the *point* of domesticating them? They help create the stability we crave. We give them the reality they need. *This* kind of relationship of stability/reality is mutually reinforcing and cooperative. Another word for "mutually reinforcing relationship" is "sustainability."

Yet the more *real* they become, the more they become active social actants. When faced with these active social agents, we find ourselves wanting to domesticate them, to absorb their indeterminacy into our collectives and control it. And why not? They are the newcomers, the strangers. Who knows what they will do next? They are as capable of destabilizing our collectives as they are of stabilizing them. The green revolution in India was not about surpassing nature's limits, it was about making crops predictable and controllable. Ensuring a stable food supply is a laudable goal. However, in this case we pay a dear price for predictability and control. We lose sustainability. Thoroughly socialized artifacts are no longer the quiet, silent helpers in our artifactual performances. They become domesticated. Again, think of the average chicken. Here is an artifact that is *so* domesticated that without the support of our artifactual economies, it would become extinct.

Facing indeterminacy then, is a process of letting the less-socialized entities continue to play a part in our artifactual performances *without* trying to absorb their indeterminacy. We do this by socializing them without domesticating them. In doing so, we can create a mutually supportive relationship. This will involve a process of folding the less-socialized into our artifactual economies without resorting to managing them or domesticating them.

What do I mean by "folding?" Folding is actually a baking technique, and it is a useful image to help explain my point. Ingredients are placed in a bowl, then they are carefully incorporated into each other without being completely blended. The purpose is to have distinct flavours in a single dish. Good soufflés, for example, depend on a chef's skill at folding. If you handle the egg whites too much, they will deflate and the soufflé will fail.

Taken in a different way, folding also challenges our traditional spatio-temporal understanding of the world. When I say that entities are folded into one another, I do not mean that they are merely connected to each other, like houses connected to telephone lines. Telephone lines traverse time and space, whereas folding *manipulates* and *transcends* time and space. A simple image will help to explain this point. Take a sheet of paper and fold it end to end. The ends that were once separated by spatial plane are now adjacent. Fold it again. Now the middle is next to the two ends. Work hard on your technique and you can turn

this piece of paper into an origami crane if you like, as you intricately fold the paper again and again. Returning to more pertinent examples, a tree farm has 11 000 years of agriculture, forestry engineers, construction workers, and consumers folded into it. The tree farm brings together all these actants that are separated by time and space into one entity.

Folding is also the antidote to Le Corbusier's Plan. The world, for Le Corbusier, could become ideally legible because he assumed that its reality could be adequately represented by a two-dimensional blueprint. His cities were best appreciated from above, either from an airplane or from gazing down at the plan. World view works in much the same way, as it is a perspective that we take *only* when we have pulled far back enough from our artifactual economies. The concept of folding, however, provides the much needed spatial and temporal depth that is absent from environmental thought.

Finally, when we appreciate how entities are folded into one another in all of our artifactual performances, we cannot maintain the sort of dualisms that plague environmental philosophy. Although I have chosen to concentrate on the urban environment, strictly speaking, there are no neat divisions that we can make between urban, rural, and wilderness areas. The urban environmental is a site of artifactual concentration that does a good job of sheltering us, however, this does not mean that our shelter does not depend on the less-socialized artifacts. Understanding objects as hybrid-objects or as actants whose composition has been created by multiple foldings prevents us from denying all the various "others" that have created its existence.

Some thinkers, such as geographer David Harvey, have drawn attention to our increasingly sophisticated ability to compress space by manipulating time.[73] I do not think this is peculiar to our present age of cell phones, cyberspace and satellite television although these artifacts seem to be particularly effective and efficient in this activity. Every artifact, even something as simple as a stone axe, manipulates space and time to a degree. A stone axe enrolls the wood that was once part of a distant forest and the stone that once lay quietly in a quarry in an urgent activity of cutting, hacking, and sawing. Indeed, how could our species survive if we could not manipulate time and space? The planet is too big and our lives are too short to live according to the spaces and rhythms of nature. Yet, as I have argued, if we continue to domesticate the less-socialized entities at our present rate, we will sacrifice the long-term sustainability of our artifactual economies.

There are examples other than culinary that illustrate our success of incorporating less-socialized artifacts into a successful performance that mutually benefits and sustains. Once again, take traditional (organic) agriculture as an example. The Tennessee Peach Fuzz tomato is a highly domesticated artifact. Incorporated, folded into its existence are a host of less socialized artifacts such as bees, fungal bridges, the water cycle, and so on. Organic farmers are particularly adept at creating food in concert with a host of other actants. They know how to

[73]David Harvey, *The Condition of Postmodernity* (Oxford, UK: Blackwell, 1989).

plant and what to plant in order to incorporate processes that need no domestication in order to work. Instead of *controlling* these processes, their techniques *cooperate* with these processes. The bees are induced to show up and pollinate. The lady bugs and other beneficial insects eat the harmful insects. The farmers have techniques that encourage the fungal bridges to transform the nutrients in the soil into usable nitrogen. These less socialized entities quietly contribute to the cultivation of our food. Organic farmers have a host of techniques at their disposal to fold these entities into our artifactual performances *without* domesticating them. But they can only do so by accepting their indeterminate nature. The yields are not always the same with open-pollinated plants. Sometimes there are too many aphids or too few aphids. Sometimes the tomatoes do not ripen before the first frost.[74]

Organic farmers, however, have a host of *other* techniques to deal with these indeterminacies. Indeed, the more they learn about the fickleness of insects, the more creative these farmers become. They grow companion plants that repel certain insects. They adjust growing times. They develop varieties that are less tasty to voracious aphids. As a result we get a rich history of agricultural practice that has sustained most of the human race for some eleven thousand years. But the sustainable relationship between farmers and the pollinators, the insects, the water cycle and so on, is maintained through these techniques that work *with* indeterminacy instead of trying to absorb it completely.

I am not suggesting that the development of sustainable agriculture is an easy task. The difference between socializing an entity and domesticating it is not always clear because the reality of an entity depends on its socialization in the first place. As previously mentioned, the question that I think environmental philosophy *must* address is: how do we fold these less-socialized entities into our collective without making them entirely dependent on our collective? How do we sustain their contributions to the stability of our collective without trying to absorb their indeterminacy?

For example, right now honey-bees are quietly contributing to the existence of supermarket fruit. However, supermarkets and their demand for the lowest possible price for fruits and vegetables (thus necessitating harmful pesticide sprays) are not contributing to the existence of the honey-bee. In general, there are two options open to us. On the one hand, we can try to domesticate or manage the bee, but we would have to change it. We could breed a new kind of insect that is resistant to the chemicals that produce unblemished fruit. When we do so, however, we absorb the bees' indeterminacy into our collective. We wrap our institutions around them and hope that they can weather the changes made by the unintended consequences that will arise from our effort at domestication. In principle, this option is always open to us; that is, we can always *try* to domesticate a less-socialized artifact. As mentioned, our urban environment has

[74] The kind of tomato plant that most likely won't have all its fruit ripen before a frost is actually called "indeterminate."

the resources to accommodate new domesticates because it provides both the shelter and the concentration of other artifacts that make domestication feasible. But I seriously doubt that we can domesticate everything we encounter. Already we know that our present configuration of artifactual economies is unsustainable. We need a new configuration if we are to survive.

On the other hand, we could fold the honey-bee into the supermarket in such a way that we do not domesticate it. Prima facie, I think we *can* do that. Folded into every organic tossed salad are honey-bees, fungal bridges, and earthworms. These collaborations have been going on for thousands of years. They appear to us as natural and obvious. Do not forget, however, that associations among artifacts *are not* "natural;" they have to be forged. As Latour argues, "there is no natural connection between a military man and a chemical molecule, between an industrialist and an electron; they do not encounter each other by following some natural inclination."[75] We have to work to make these alliances seem, in retrospect, inevitable.

So how do we forge a mutually supportive relationship between entities that seem to have *no* natural inclination toward each other? Well, how *did* we make a mutually sustainable collaboration between earthworms, farmers, honey-bees, and tomato plants that only now appears natural and inevitable? We used technique. "Technique" is the word that I want to use to refer to the forging of relationships among artifacts, the folding of entities into one another in a concerted performance. The word concerted implies a gathering together that is harmonious. What exactly is gathered together? Latour claims that technique is "the mediation of the relations between people on the one hand and things and animals on the other."[76] Quite simply, technique is at the heart of every artifactual performance.

It must be noted, however, that techniques are not a natural, inevitable, aspect of human activity. We are not born with techniques as we are born with eyes and hands. They have to be taught, maintained, and supported. It is not natural for *H. sapiens* to forage for food, build shelter, and so on, like birds building a nest. An immature *H. sapiens* needs a culture to maintain and teach him or her how to forge a relationship with artifacts.

Now we can understand why it is important to maintain genetic diversity. Whether we grow a tomato plant or protect a snow-leopard, we maintain and develop technique. Animals are difficult to protect. Plants are difficult to grow. When we grow a plant that itself was produced through a mutually beneficial concerted performance, it demands more of the same from us. It forces us to continue to practice the same beneficial set of relationships that produced it in the first place. We can look at an ordinary tomato plant then both as a living record of a set of mutually beneficial relationships and a teacher of technique.

---

[75]Latour, *Pandora's Hope*, p. 104.

[76]Bruno Latour, "A Door Must be Either Open or Shut: A Little Philosophy of Techniques," in *Technology and the Politics of Knowledge,"* Andrew Feenburg and Alastir Hannay eds. (Indianapolis: Indiana University Press, 1995), p. 272.

Technique, however, is difficult to analyze because we do not actually see technique. Instead, "we see only assemblies, crises, disputes, inventions, compromises, substitution, translations, and ordering that get more and more complicated and engage more and more elements."[77] Latour analyses a Belgium comic strip to explain how technique mediates the relations among artifacts. Gaston, the comic strip's hero, accommodates the different needs of his boss, a cat, and a seagull in reconfiguring the office door. In the first panel, his boss, Prunelle, is upset that the office cat demands to come and go as he pleases. The cat meows, and an angry Prunelle gets up from his desk, opens the door and complains that he is nothing but a doorman for cats. Indeed, humans and doors can exchange properties. In this case, a human becomes a substitute for a door in order to satisfy a cat. Gaston defends the cat. "Come on! Don't you know that a cat can't bear shut doors?!" Prunelle, however, is not pleased. Open doors mean drafty offices, and he does not want to get sick for the sake of a cat's whimsical freedom. Gaston mutters to himself, "I've found a trick to stop him from being the strongest..." He installs a cat-flap at the bottom of the door. With a saw, some hinges, and a little carpentry, the door is modified to keep the cat happy and the boss healthy. Latour writes, "a short detour, a small bill, and the crisis is resolved by technical bricolage which puts an end to the confrontation thanks to a compromise in which more non-humans are engaged."[78]

Unfortunately, Gaston has forgotten the seagull! The unexpected arrives and displaces the momentary peace. Apparently, Belgian offices are regularly visited by marine fowl and Gaston is compelled to accommodate this new actant. He could eliminate the bird, or ignore it, but he likes it too much. Seagulls, like cats, should be able to come and go as they please. Gaston does not expect the seagull to use the cat-flap as birds and cats do not mix. Gaston removes the top quarter of the door to allow his bird to fly in and out. His boss is skeptical of this further modification. A good-natured Gaston challenges his boss by saying, "come on, you can't be serious: the door's closed; right or wrong?" In light of Gaston's question, Latour asks:

> who could be ass enough not to recognize a door—admittedly a renegotiated one—in the innovation offered by Gaston? . . . [T]he door bends itself, complicates itself, to take on the conflicts between people and animals. The cat-flap appeases the cat; the seagull-gap satisfies the seagull; the remainder of the door restrains drafts and should pacify Prunelle—so long as he's not really an insincere bastard, who, indifferent to technical invention, forces Gaston and his menagerie back to the door, to power, and to moaning.[79]

---

[77] *Ibid.*, p. 277.
[78] *Ibid.*, pp. 275, 276.
[79] *Ibid.*

From the cat's perspective, the closed door was the only obstacle. The cat does not care whether Prunelle opens the door or whether he uses the cat-flap. Prunelle is concerned about drafts and the inconvenience associated with acting as a cat doorman. The seagull wants access to the office, but not through the cat-flap. Gaston places himself in the middle of these actants and "tries multiple combinations until he finds one . . . which pacifies everyone in the little circle he has assembled around himself."[80] We *can* speak of essences—the toolbox, the hinges, the saw and the psychology of cats and birds. These are not negotiable in *this* scenario. They act as foundations. In another scenario, they may be negotiable. We can also speak of existences—the concept of a door and Prunelle's psychology. These *are* negotiable. What if *nothing* were negotiable? Latour asks us to imagine a world of more essentialized actants: fragile animals that would die every time they encountered a shut door; bosses who could not accept a modified door; doors that could not be modified and so on. In such a world we could do nothing, make nothing, perform nothing. He concludes, "if there were only essences, there would be no techniques."[81]

Note that the seagull-gap only works provided that Prunelle accepts this new idea of a door, i.e., door *avec* cat-flap and seagull-gap. Technique extends a new set of qualities to actants. This is how we modify artifacts. In this case, Gaston offers his boss a set of qualities not previously owned by his boss, and offers a new set of qualities not previously owned by a door. If there was yet *another* actant introduced after the seagull, say a horse or perhaps *Prunelle's* boss, the peace may be disrupted and Gaston may be unable to find a technique to reestablish it. There is no guarantee that the renegotiated door will accommodate everyone who encounters it. For the moment though, the freedom of the cat and the seagull and Prunelle's desire to avoid drafts and work quietly at his desk, have been successfully folded into the door by a resourceful Gaston. The door *had* to change to accommodate and *sustain* this collection of actants.

Considering broader environmental matters, I do not know what might be negotiable and what should not be negotiated. My point, however, is that behind every concerted performance is technique. So if we want to successfully fold the less-socialized (e.g., cats and seagulls) into the more socialized (bosses and doors), as demonstrated by this little comic, we are going to have to address *how* we mediate the relations. Environmental philosophy then, must become a "philosophy of technique."

Recall my answer to the question: What is our relationship with the world? I argued that we make the world. I do not want to imply, however, that just because we make the world through our artifactual performances we all have an equal hand in the creation of our world. As we have seen in chapter one, powerful agri-businesses cooperated with the Indian government to change the Punjab farmers' traditional ways of agriculture. The negative effects were not felt

[80] *Ibid.*, p. 278.
[81] *Ibid.*

by the Monsanto CEOs—it was the farmers who committed suicide when they lost their crops. There are countless other examples of these sorts of power imbalances. If, as I have argued, world view no longer has the explanatory power that the recovery philosophers would like to assume it does, how then, can we focus on issues of power within the paradigm of artifactual economies and artifactual anthropocentrism?

Issues of power imbalances, I think, are best approached through an examination of ethics. I now return to an earlier promise to sketch out the ethical implications of artifactual anthropocentrism. It is important to remember, however, a previous claim; to even *be* a human being, one must engage and create artifactual economies. Ethics, then, is intimately bound up with issues of technique and technology.

In order to understand the connections between technique, technology, and ethics, consider once again the phenomenon of "black-boxing." Technologies tend to turn into black-boxes when they run smoothly and efficiently. For example, we forget about the inner workings of our desktop computer and focus solely on its inputs and outputs. Artifactual economies work in much the same way. For citizens in developed countries, the socio-technical chains that deliver our electricity, food, and water are mostly invisible in the sense that they have receded into the background of our daily lives. These black boxes, however, open up when there are problems, breakages or interruptions. Some problems have worse consequences than others. The power-outage that blackened Ontario and the Eastern Seaboard of the U.S. in August of 2003 affected food and water supplies along with halting subways services in New York and Toronto. Following the power-outage were calls to strengthen our power-grid. The black box called our electricity supply opened up when it broke down. Although some engineers took the opportunity to learn from the mistakes that led to North America's largest power failure, for most of us the electricity grid has once again faded into the background and will only assert itself when another technical problem arises.

Artifactual economies, then, reveal themselves when there is an interruption or a breakage. The multiple actants that are folded into one another in long lines of the socio-technical economies make themselves known when something or someone ceases to perform as we expect. Actants are also revealed when economies produce something new and surprising. In the mid-eighties, scientists revealed the long artifactual chains of CFC production and consumption when they explained the hole in the ozone layer.

As I previously argued, the concept of intrinsic value is inimical to the very idea of an artifactual economy because there are no actants that are unconnected to other actants. The consideration of an actant *on its own* is an empty and futile exercise. But this does not mean, however, that everything is a mere instrument. If everything were a mere instrument, then the entire history of humanity would have ground to a halt eons ago. Our actions (with artifacts) *always* produce more than our intentions. As Latour writes, "nothing, not even the human, is for itself

or by itself, but always *by other things* and *for other things*."[82] In other words, all actants are enrolled in artifactual economies. We do not need, however, a *technical* breakdown or an unintended consequence to reveal an actant's presence. Despite the problematic concepts of intrinsic and instrumental value, I think that the value in ethics itself is that it brings our attention to those multiple actants that are enrolled and folded into our artifactual economies. In other words, ethicists open up the multiple black-boxes that make up our smooth, efficient socio-technical economies. They prevent our urge to "close the box" on a technique or an economy by raising questions like: What are we doing to those actants involved in this economy? Are we harming them? Did they consent to be part of our economy? Are our actions justified?

We are now closer to answering the question: What are the ethical implications of artifactual anthropocentrism? I do not want ethics to merely oppose technology's tendency to black-box itself. Ethics should have something to say about *how* we proceed with our socio-technical economies in the first place. In other words, there should be a more complementary relationship between ethics and technology.

I think the complementary relationship between technology and ethics arises when we return to the issue of sustainability. It is likely the case that the present configuration of artifactual economies is ecologically unsustainable. The issue of sustainability, however, raises an interesting, but often neglected question: is our present configuration of artifactual economies *irreversible?* That is, have we created a trajectory for ourselves that will *necessarily* lead to more ecological destruction and possibly our annihilation? As previously argued, our food supply is entirely dependent on fossil fuels. Remove the fossil fuels within a space of a year or two and there is a good chance that we will not be able to feed ourselves. In principle, however, eliminating our dependence on fossil fuels is possible. Doing so may help reverse the damage that we have done to our soil, air, and water. There are a whole host of *other* economies that will have to adjust as we make a transition from one form of agriculture to another. Although we have folded the petro-chemical industry into our food supply, we can unfold and extract fossil fuels from it as well.

In contrast, there are other actants in our food supply that would hinder our ability to reverse our present trajectory. Critics of GMOs point out that once the genetic material of modified plants disperses into the wider ecological community, there is simply no getting rid of them. Who knows, many argue, what havoc such genes can create? The same goes for nuclear waste, the production of POPs (persistent organic pollutants), and the extinction of species. These are serious ecological issues precisely because they make a particular economy irreversible. If an economy is irreversible, all the black boxes in the artifactual chain slam shut. Backing up, slowing down, or reversing our path becomes more difficult.

---

[82]Bruno Latour, "Morality and Technology: The End of the Means," *Theory, Culture & Society* 19: 256.

Environmental ethics, therefore, must encourage the reversibility of our techniques in order to prevent ourselves from inadvertently establishing an economy that makes it impossible to retrace our steps or to undo the damage that we have created. Since "ought implies can" then let us first make sure that we *can* unfold and disentangle actants from each other when ethicists make their case that we *should* unfold and disentangle the actants from each other. Ensuring that our techniques are reversible, that we can undo some of the damage that we have created will not address all of the issues related to power imbalances, but it will certainly help. Making sure that our techniques are not inevitable, that we always leave our options open for viable alternatives is the least we can do for the actants around us and the future generations to follow.

If we are to find sustainability, we must, like Gaston, be willing to surround ourselves with humans and nonhumans and not dismiss anyone *a priori*. We must be willing to warp our artifactual assemblages to accommodate the surge of new actants demanding that we develop techniques to accommodate their needs. But where do we begin? Where do we find the *most* actants clamouring for our attention, demanding that we bend our artifactual economies? It is not in the wilderness. The needs of the wilderness are crucial, but environmental philosophy cannot *start* there to address those needs. There are too many volatile urban actants that would be excluded. We must start where the less-socialized entities are folded into our artifactual economies—the city. The city is the place where we are *producing* reality (and this reality includes wilderness) and sheltering it at the same time. For the meantime, our urban shelter affords us a certain amount of leeway for experimentation. It would be prudent of us to take advantage of this shelter while we can.

We cannot philosophize about the environment *without* first understanding exactly what constitutes our environment. It is not "nature." Nature was merely the fog that obscured our environment. There is no trick of the mind, no world view, no ecological perspective that can disentangle urban concerns from ecological concerns. It may seem counter intuitive to suggest that the further we are away from the wilderness, the more we can help it and ourselves. However, the visual bias of philosophy is misleading. As Wittgenstein once wrote, "a picture held us captive."[83] True environmental thinking begins when we look past the mountains and forests, to the artifactual economies that tie together humans and nonhumans. The existence of both depends on it.

[83]Ludwig Wittgenstein, *Philosophical Investigations*, trans. G.E.M. Anscombe, (Oxford: Basil Blackwell, 1953), p. 48.

Conclusion

I can understand why environmental philosophers may be reluctant to give up their understanding of nature. After all, what Barry Allen calls "onto-logic"—the position that deems the existence or "being" of nature as prior to what we say, think, or do—has deep roots in Western thought. Environmental philosophy gives this classic realist position a new life when it considers the causes and solutions to environmental degradation and destruction. Science tells us that we are hurting the very life-support systems on which we depend. We are pushing the limits of ecological sustainability every time we convert a field into a parking lot. We are creating a toxic environment that will ultimately harm our bodies. To borrow a phrase from the title of a book by the Canadian geneticist and environmental activist David Suzuki, we are undoing the "sacred balance" created by millennia of biological and hominid evolution.

The term "balance" suggests the necessity of an ontologically independent nature to provide the weight and solidity on one side to counteract the excesses of humanity. The environmental crisis compels us to establish limits and boundaries to our actions. An ontologically independent nature apparently provides those limits. It alone has the power to silence debate and solemnly judge our actions.

Of course, the only significant challenger to nature's role as Supreme Court for humanity is Modernity. Those I have termed "recovery philosophers" blame Modernity for instrumentalizing nature. They argue that we need to recover a true, *wild* nature that lies buried under our concepts and concrete. The most pure example of nature—wildness—can supposedly be retrieved if we recognize and recover within ourselves *our* own wild nature. Modernity may have driven the wedge between humanity and nature, but we can recover a relationship that we once had with nature before Modernity offered us the false promise of control and mastery of the world. At least, that's the idea.

These arguments made by the deep ecologists like Arne Naess, Laura Westra, George Sessions, Alan Drengson, and environmental philosophers Eric Katz and Keekok Lee contain problematic premises and dubious propositions. These philosophers argue that the denial of an independently existing reality is a pernicious anthropocentrism. If we start with ourselves, that is, letting what we know determine what is, then we are privileging our perspective over the rest of the world. To recovery philosophers, that is hubris. Who are *we,* they ask, to determine reality? We are the newcomers on the scene. There is a vast history that preceded us, and a world that will continue to exist long after we are gone.

These arguments may do something to humble a not-so-humble species but they are philosophically specious. *Who are we*?—we are *Homo sapiens*. We have language, the capacity for abstract thought, and the ability to extend social skills to nonhumans, among other talents. We cannot expect language and other practices to establish the existence of an external world and deny their human origin at the same time. Just because we can *imagine* the history that preceded us and the future that will continue long after we are gone, that does not mean that

thought establishes the reality of an independently existing natural order. Imagination, language, conjecture, and so on, are capacities that belong to *us*. When we cease to exist, they cease to exist. And, of course, do their products, including the metaphysical idea of a world in itself, an ontologically independent nature.

Why should environmental philosophy start with what seems to be such an extreme position? Why should we deny the existence of an ontologically independent nature? The first reason is that it is philosophically sound to do so. No matter how dearly one wants to maintain the idea that we are a part of a larger, grander whole that is unfolding according to timeless laws, if this position does not stand up to philosophical scrutiny, then philosophers have to abandon it for something else. I suggested that we have to start with the position that reality (that is, the only reality that matters to us and all we depend on) is artifactual.

We thereby avoid dividing the world into two parts; the "natural" and the "artifactual." Recovery philosophers argue that the solution to our environmental problems lies in overcoming the dualism between the "natural" and the "artifactual" that was created and fostered by Modernity. In their attempt to overcome the dualism, however, these philosophers only succeed in entrenching themselves further into the Modernist framework. They argue that the facts of evolution, genetics, and ecology mean that we are first and foremost biological beings. Culture, artifacts, language, and so on are secondary to the biological primacy of our existence. Acknowledge *these facts*, they argue, and we will be able to order our societies according to our most fundamental needs.

Their arguments, however, maintain the gap that the Moderns created between "things" or "facts" and "power" or "politics." Their Modernist stance is especially apparent when they confront social constructionist arguments that suspend issues of ontology. According to recovery philosophers, postmodernism and social constructionist arguments are another expression of anthropocentrism, yet they do not recognize that postmodernity is only an extension of the Modernist framework in which they, too, participate.

I do not want to fall into the same conceptual traps as the recovery philosophers. In order to avoid them, however, I had to go back to a time before Modernity. I went all the way back in our evolutionary past to see if we were ever "natural" beings. The results? Pure, wild nature was never our home. Our species was born to an economy of sheltering artifacts that predates our species by some two million years. We succeeded as a species not because we found an ecological niche. We owe our success to our ability to extend social skills to nonhumans. Nonhumans stabilize our social realm. They are, however, capable of destabilizing it too because they invariably exist in more or less complex economies, and the entire economy changes whenever we use or otherwise engage with an artifact. And we are *always* engaging with artifacts. We are always *performing* with them. That is what we do. Thus, our starting point for environmental philosophy must be "*artifactual* anthropocentrism."

Recovery philosophers give us a picture of humanity as passive entities hooked up to a life-support machine that they call the "wild." I argued that environmental philosophy has to start with the recognition that every performance is necessarily a concerted performance linking humans and nonhumans. The difference between passivity and performance is more than semantics. If environmental philosophy does not take into consideration *what we do,* then it will not have anything useful to say about what we make. And what we make, I argued, is *the world.* The world, however, is not an eternal "nature." Our reality consists of artifactual economies. As Latour argued, culture and nature are not timeless entities; they are categories that need to be explained. The categories of nature and culture are produced through the work of mediation, i.e., the creation and maintenance of our artifactual economies. Contrary to recovery philosophy, Modernity is not the culprit that *destroyed* nature—ironically, it *made* nature!

Substituting artifactual economies for nature creates the opportunity to take seriously the environment that more and more of us are occupying every day—the city. Environmental philosophy—to be truly *environmental*—cannot ignore the problems and consequences of urbanism. Recovery philosophers do not consider cities to be *philosophically* important. Given that artifacts are only the products of human intention and thus incapable of action, the built environment is assumed to be a reflection of our higher mental ideals and concepts. The concept of "world view" is very important to their analysis. Change a "world view" from "Modern" to "ecological" and the built environment is supposed to change accordingly.

Cities, however, *do* act. Cities pull other artifacts into their economy and transform them, especially by domestication. Given that artifacts always have the capacity to destabilize as well as stabilize our collectives because their natures are fundamentally indeterminate, when we are faced with the new or the strange, there is always this option to domesticate the newcomer. We can try to wrap institutions around it and absorb its indeterminacy. Sometimes we are successful. The myriad of extra-legal practices in France, and elsehere in pre-modern Europe eventually streamlined into an integrated legal and property system. Domestication, however, implies transformation. And there are some artifacts that we do not want, or may be unable, to transform. We cannot domesticate everything because ultimately we will sacrifice sustainability. Indeed, our present configuration of artifactual economies is unsustainable—what would *more* domestication mean but a harder and faster collapse?

The neat categories of "natural" and "artifactual" held by recovery and other environmental philosophers cover up the problems that urbanization creates. The more we domesticate, the more completely we make artifacts depend on our economies. However, the same economies *create* reality. So, the "less-socialized" entities *gain* reality within those same economies. The more *real* they become, the greater the potential to destabilize our collectives. Thus, we are compelled to manage and domesticate their existence. If domestication proceeds too far, however, they may lose their capacity to *sustain* our collectives. This is our dilemma. How do we socialize these entities *without* domesticating them?

How do we give them the reality *they need* and resist absorbing their indeterminacy at the same time? As long as we maintain an ontologically independent nature, blame Modernity for our crisis, and attempt to overcome a dualism that was never present in the first place, we will not see the bind that we have created for ourselves. We will never understand *what we do* as a species. What we do is create an indeterminate reality through the concerted performances of humans and nonhumans. I think that giving up an ontologically independent nature is worth this insight into our predicament.

The only way out of this dilemma, I argued, is to reorient environmental philosophy towards a philosophy of technique. Technique is at the heart of every artifactual performance. Relations among artifacts are not "natural;" they are forged among and extended to others. We cannot take technique for granted—technique sustains our species. If we are to find a sustainable configuration of artifactual economies, we cannot dismiss any artifact *a priori*, especially our most domesticated artifacts. We will need to bend and warp our artifacts to accommodate the newcomers that show up on the doorstop of our cities everyday. In a sense, we have *always* accommodated the newcomers with technique. This is how we make reality. We fold entities into each other.

Everyday there are *more* newcomers, and the familiar ones continue to surprise us with strange, new qualities. Environmental philosophy has to keep up with the pace that our species has already set for itself millennia ago. Our artifactual economies are expanding in all directions and creating *new* artifacts, and *stranger* associations. We can retreat to the safe, familiar territory of recovery philosophy and mourn the continuing loss of a "nature" that never actually existed. Or, we can take a chance and acknowledge that the world is truly one of our own making, but is never fully in our own control. The second option is the right choice for us now.

Bibliography

Aiken, William. "Ethical Issues in Agriculture." In *Earthbound: New Introductory Essays in Environmental Ethics,* edited by Tom Regan, 247-288. New York: Random House, 1984.

Allen, Barry. *Knowledge and Civilization.* Boulder, Colo.: Westview Press, 2004.

Andreoni, J. P., M. Brown, and L. Vesterlund. "What makes an allocation fair? Some experimental evidence." *Games and Economic Behaviour* 40, no. 1 (2002): 1-24.

Bacon, Francis. *The Insauratio Magna Part II: Novum Organum and Associated Texts.* Edited by Graham Rees and Maria Wakely. Oxford: Clarendon, 2004.

Berg, P. and R. Dasmann. "Reinhabiting California." *The Ecologist* 7, no. 10 (1977): 399-401.

Berman, Marshall. *The Reenchantment of the World.* Ithaca, NY: Cornell University Press, 1981.

Berry, Wendell. *Home Economics.* San Francisco: North Point Press, 1987.

Berthold-Bond, Daniel. "The Ethics of Place: Reflections on Bioregionalism." *Environmental Ethics* 22, no. 1 (2000): 5-24.

Blake, Peter. *Form Follows Fiasco: Why Modern Architecture Hasn't Worked.* Boston: Little, Brown, 1977.

Booth, Annie L. "Who am I? Who are You? The Identification of Self and Other in Three Ecosophies." *The Trumpter* 13, no. 4 (1996): 161-164.

Botkin, D. *Discordant Harmonies: A New Ecology for the Twenty-first Century.* New York: Oxford University Press, 1990.

Bowles, Herbert, and Samuel Gintis. *Democracy and Capitalism: Property, Community, and the Contradictions of Modern Social Thought.* New York: Basic Books, 1986.

Bradley, F.A. *Appearance and Reality.* Oxford: Oxford University Press, 1962.

Brennan, Andrew. "The Moral Standing of Natural Objects." *Environmental Ethics* 6, no. 1 (1984): 41-44.

_____. *Thinking about Nature: An Investigation of Nature, Value, and Ecology.* Athens, GA.: University of Georgia Press, 1988.

Brosnan, Sarah F. and Frans B.M. de Waal. "Monkeys Reject Unequal Pay." *Nature* 425 (2003): 297-299.

Cahen, Harley. "Against the Moral Considerability of Ecosystems." *Environmental Ethics* 10, no. 3, (1988): 195- 216.

Callicott, J., Baird. "Intrinsic Value, Quantum Theory, and Environmental Ethics." *Environmental Ethics* 7, no. 3 (1985): 257-275.

_____. "The Metaphysical Implications of Ecology." *Environmental Ethics* 8, no. 4 (1986): 301-316.

_____. *Beyond the Land Ethic: More Essays in Environmental Philosophy.* Albany: State University New York Press, 1999.

Callinicos, Alex. *Against Postmodernism: A Marxist Critique.* Cambridge: Polity Press, 1989.

Casey, Edward. *Getting Back into Place: Toward a Renewed Understanding of the Place-World.* Indianapolis: Indiana University Press, 1993. Albany: State University New York Press, 1999.

Caton, William Jr. and Riley Dunlap. "New Ecological Paradigm for Post-Exuberant Sociology." *American Behavioral Scientist* 24 (September 1980): 15-48.

Coker, F.W. *Organismic Theories of the State.* New York: Columbia University Press, 1910.

Cooper, James Fenimore. *The Pioneers.* London: Dent, 1929.

Christie, John Aldrich. "Thoreau as World Traveler." *American Geographical Society Special Publication* 37 (1965): 211-30.

Cronon, William ed. *Uncommon Ground: Rethinking the Human Place in Nature.* New York: W.W. Norton & Company, 1995.

Cuomo, Christine J. "Ecofeminism, Deep Ecology, and Human Population." In *Ecological Feminism.* Edited by Karen Warren, 88-105. New York: Routledge, 1994.

Deacon, Terrence. *The Symbolic Species: The Co-Evolution of Language and the Brain.* New York: Norton, 1997.

Descartes, René. *Descartes' Philosophical Writings.* Edited and translated by Norman Kemp Smith. London: Macmillan, 1952.

Degan, H. et al. *Chaos in Biological Systems.* New York: Plenum Press, 1987.

De-Shalit, Avner. "Is Liberalism Environment-Friendly?" *Social Theory and Practice* 21, no. 2 (1995): 287-315.

de Soto, Hernando. *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else.* New York: Basic Books, 2000.

Devall, Bill and George Sessions. *Deep Ecology.* Layton, Utah: Gibbs M. Smith, 1985.

Diamond, Jared. *Guns, Germs, and Steel: The Fates of Human Societies.* New York: W.W. Norton & Company, 1999.

_____. *Collapse: How Societies Choose to Fail or Succeed.* New York: Penguin, 2005.

DiZerga, Gus. "Re-thinking the Obvious: Modernity and Living Respectfully with Nature." *The Trumpeter* 14, no. 4 (1997): 184-193.

Donald, Merlin. *Origins of the Modern Mind.* Cambridge, Mass.: Harvard University Press, 1991.

Drengson, Alan. "How Many Realities?" *The Trumpeter* 13, no. 1 (1996): 2-3.

_____. "Wild Journeying Way." *The Trumpeter* 13, no. 4 (1996): 183-186.

_____. "An Ecophilosophy Approach, the Deep Ecology Movement and Diverse Ecosophies." *The Trumpeter* 14, no. 3 (1997): 110-111.

Dworkin, Ronald. *Taking Rights Seriously.* Cambridge, Mass: Harvard University Press, 1978.

Edelman, Gerald. *Bright Air, Brilliant Fire.* New York: Basic Books, 1992.

Elliot, Robert. "Faking Nature." *Inquiry* 25, no. 1 (1982): 81-93.

Emerson, Ralph Waldo. "Nature," in *Nature, Addresses and Lectures, The Collected Works of Ralph Waldo Emerson,* vol. 1, introduction and notes by Robert E. Spiller, 3-45. Cambridge, Mass.: Harvard University Press, 1971.

Falk, Armin, Ernst Fehr, and Urs Fischbacher, "On the Nature of Fair Behaviour." *Economic Inquiry* 41, no. 1 (2003): 20-26.

Farb, Peter. *Humankind.* Boston: Houghton Mifflin, 1978.

Folsom, Edwin L. "Gary Snyder's Descent to Turtle Island: Searching for Fossil Love." *Western American Literature* 15 (1980): 103-123.

Fox, Warwick. "Deep Ecology: A New Philosophy of Our Time?" *The Ecologist* 14, no. 9 (1984): 194-200.

_____. "What does the Recognition of Intrinsic Value Entail?" *The Trumpeter* 10, no. 1 (1993): 101.

_____. "The Deep Ecology- Ecofeminism Debate and its Parallels," *Environmental Ethics* 11, no. 1 (1989): 5-25.

_____. *Toward a Transpersonal Ecology: Developing New Foundations for Environmentalism.* Boston: Shambhala Publications, 1990.

Frye, Marilyn. *The Politics of Reality.* New York: Crossing Press, 1983.

Funtowicz, Silvo O., and Jerome R. Ravetz. "Uncertainty, Complexity and Post -Normal Science." *Environmental Toxicology and Chemistry* 13, no. 2 (1994):1881-1885.

_____. "The Poetry of Thermodynamics," *Futures* 29, no. 9 (1997): 791-810.

Gaard, Greta. "Ecofeminism and Wilderness." *Environmental Ethics* 19, no. 1 (1997): 5-25.

Gamble, Clive. *Timewalkers: The Prehistory of Global Colonization.* Cambridge, Mass.: Harvard University Press, 1994.

Geertz, Clifford. "The Impact of the Concept of Culture on the Concept of Man." In *The Interpretation of Cultures,* 33-54. New York: Basic Books, 1973.

Gell-Mann, Murray. *The Quark and the Jaguar: Adventures in the Simple and the Complex.* New York: W.H. Freemann, 1994.

Ghandi, M. K. *Food Shortage and Agriculture.* Ahmedabad: Navjivan Publishing House, 1949.

Gilbert, Walter. "A Vision of the Grail." In *The Code of Codes: Scientific and Social Issues in the Human Genome Project,* edited by Daniel J. Kevles and Leroy Hood, 83-97. Cambridge, Mass.: Harvard University Press, 1991.

Gleik, J. *Chaos: The Making of a New Science.* New York: Viking, 1987.

Gorz, André. *Critique of Economic Reason.* Translated by Gillian Handyside and Chris Turner. New York: Verso, 1988.

Goodman, Daniel. "The Theory of Diversity-Stability Relationships in Ecology." *Quarterly Review of Biology* 30 (1975): 237-266.

Goodman, Nelson. *Ways of Worldmaking.* Indianapolis: Hackett, 1978.

Gould, Stephen Jay. *Wonderful Life: The Burgess Shale and the Nature of History.* New York: W.W. Norton and Company, 1989.

Grinnell, George Bird. "The Boone and Crockett Club." In *American Big Game Hunting: The Book of the Boone and Crockett Club,* edited by Roosevelt and Grinnell. Edinburgh: D. Douglas, 1893.

Guha, Ramachandra. "Radical American Environmentalism and Wilderness Preservation: A Third World Critique." *Environmental Ethics* 11, no. 1 (1989):71-83.

Gunn, Alastair S. "Rethinking Communities: Environmental Ethics in an Urbanized World," *Environmental Ethics* 20, no. 4 (1998):341-360.

Hacking, Ian. *The Social Construction of What?* Cambridge, Mass: Harvard University Press, 1999.

Hardin, Garrett. "The Tragedy of the Commons." *Science* 162, no. 3859 (1968): 1243-48.

_____. "Living on a Lifeboat," *BioScience* 24, no. 10 (Oct. 1974): 561-568.

Holsten, James. *The Modernist City: An Anthropological Critique of Brasília.* Chicago: University of Chicago Press, 1989.

hooks, bell. *Yearning.* Boston: Sound End Press, 1990.

Hung, Edwin. *The Nature of Science: Problems and Perspectives.* Belmont, Calif.,: Wadsworth, 1997.

Jacobs, Jane. *The Death and Life of Great American Cities.* New York: Random House, 1961.

Jefferson, Thomas. *Notes on the State of Virginia.* New York: Harper Torch Books, 1964.

Jones, Barry. *Sleepers, Wake! Technology and the Future of Work.* Melbourne: Oxford University Press, 1983.

Homer-Dixon, Thomas. *The Ingenuity Gap.* Toronto: Knopf, 2000.

Kant, Immanuel. *Critique of Judgment.* Translated by Werner S. Pluhar. Indianapolis: Hackett, 1987.

Katz, Eric. "Organism, Community, and the 'Substitution Problem." *Environmental Ethics* 7, no. 3 (1985): 241-256.

_____. *Nature as Subject: Human Obligation and Natural Community.* Lanham, Md.: Rowman and Littlefield, 1997.

Kellert, Stephen. *In the Wake of Chaos: Unpredictable Order in Dynamical Systems.* Chicago: University of Chicago Press, 1993.

Kellert, Stephen and Edmund O. Wilson. *The Biophilia Hypothesis.* Washington: Island Press, 1993.

Kirkman, Robert. "Why Ecology Cannot Be All Things to All People." *Environmental Ethics* 18, no. 4 (1997): 375-390.

Latour, Bruno. *We Have Never Been Modern.* Translated by Catherine Porter. Cambridge, Mass.: Harvard University Press, 1993.

_____. "On Technical Mediation—Philosophy, Sociology, Genealogy." *Common Knowledge* 3, no. 2 (1994): 29-64.

_____. "A Door Must be Either Open or Shut: A Little Philosophy of Techniques." In *Technology and the Politics of Knowledge,"* edited by Andrew Feenburg and Alastir Hannay, 272-281. Indianapolis: Indiana University Press, 1995.

_____. *Pandora's Hope: Essays on the Reality of Science Studies.* Cambridge, Mass.: Harvard University Press. 1999.

_____. "Morality and Technology: The End of the Means," *Theory, Culture & Society* 19 (2002): 247-260

_____. *Politics of Nature: How to Bring the Sciences into Democracy.* Translated by Catherine Porter. Cambridge, Mass.: Harvard University Press, 2004.

Lease, Gary and Michael E. Soulé, eds. *Reinventing Nature? Responses to Postmodern Deconstructionism.* Washington D.C.: Island Press, 1995.

Le Corbusier. *The Radiant City: Elements of a Doctrine of Urbanism to Be Used as the Basis of Our Machine-Age Civilization.* Translated by Pamela Knight. New York: Orion Press, 1967.

Lee, Keekok *The Natural and the Artefactual: The Implications of Deep Science and Deep Technology for Environmental Philosophy.* Lanham, Md.: Lexington Books, 1999.

Leopold, Aldo. *A Sand County Almanac.* New York: Oxford University Press, 1966.

Lewontin, Richard. *The Triple Helix; Gene, Organism and Environment.* Cambridge, Mass.: Harvard University Press, 2000.

Light, Andrew and Jonathan Smith, eds. *Philosophy and Geography I: Space, Place, and Environmental Ethics.* Lanham, Md.: Rowman and Littlefield, 1997.

Lindeman, R.L "The Trophic-Dynamic Aspect of Ecology." *Ecology* 23 (1942): 399-418.

Locke, John. *Second Treatise of Government.* Edited by Thomas P. Peardon. New York: Liberal Arts Press, 1952.

Manes, Christopher. *Green Rage.* Boston: Little Brown and Company, 1990.

Mannheim, Karl. *Essays on the Sociology of Knowledge.* London: Routledge & Kegan Paul, 1952.

Martindale, D. *The Nature and Types of Sociological Theory.* 2nd edition. Boston: Houghton Mifflin, 1981.

Marx, Leo. "American Institutions and Ecological Ideals." *Science* 170 (1970): 945-52.

Matson, Wallace. *A New History of Philosophy.* Vol. 2 of *A New History of Philosophy.* San Diego: Harcourt Brace, 1997.

May, Robert M. "The Evolution of Ecological Systems." *Scientific American* (September 1997): 160-

McAllister, JoAnn. "Wilderness: Back to Basics, An Interview with George Sessions." *The Trumpeter* 11, no. 2 (1994): 65-68.

McTaggart, J. *The Nature of Existence.* Vol. 1 of *The Nature of Existence.* Cambridge: Cambridge University Press, 1921.

Meiggs, Russell. *Trees and Timber in the Ancient Mediterranean.* Oxford: Clarendon Press, 1982.

Merchant, Carolyn. *The Death of Nature: Women, Ecology, and the Scientific Revolution.* San Franscisco: Harper & Row, 1980.

Merrell, Floyd. *A Semiotic Theory of Texts.* New York: Mouton de Gruyter, 1985.

Michael, John. "Science Friction and Cultural Studies: Intellectuals, Interdisciplinarity, and the Profession of Truth." *Camera Obscura* 37, (1996): 125-58.

Miller, Peter. "Value as Richness: Toward a Value Theory for the Expanded Naturalism in Environmental Ethics." *Environmental Ethics* 4, no. 2 (1982): 101-14.

_____. "Descartes' Legacy and Deep Ecology." *Dialogue* 28, no. 2 (1989): 183-202.

Morowitz, Harold J. "Biology as a Cosmological Science." *Main Currents in Modern Thought* 28, (1972): 151-157.

Muir, John. "The Wild Sheep of California." *Overland Monthly* 12 (1874): 358-363.
_____. *Our National Parks.* Boston: Houghton, Mifflin, 1901.

Mugerauer, Robert. *Interpretations on Behalf of Place: Environmental Displacements and Alternative Responses.* Albany: State University New York Press, 1994.

Naess, Arne. "The Shallow and the Deep Long-Range Ecological Movements: A Summary." *Inquiry* (Oslo) 16 (1973): 95-100.

_____. "The Deep Ecological Movement: Some Philosophical Aspects." *Philosophical Inquiry* 8 (1986): 10-31.

Naess, Arne. *Ecology, Community, and Lifestyle.* Translated by David Rothenberg. Cambridge: Cambridge University Press, 1989.

Nash, Roderick. *Wilderness and the American Mind.* Revised editon. New Haven, Yale University Press, 1973.

Naugle, David K. *Worldview: The History of a Concept.* Grand Rapids, Mich.: Eerdmans, 2002.

Norris, Christopher. *What's Wrong with Postmodernism?.* London: Harverster Wheatsheaf, 1990.

Norton, Bryan G. and Bruce Hannon. "Environmental Values: A Place-Based Theory." *Environmental Ethics* 19, no. 3 (1997): 227-245.

Noss, Reed and A.Y. Cooperrider. *Saving Nature's Legacy.* Washington, DC: Island Press, 1994.

Odum, E.P. "Energy Flow in Ecosystems. A Historical Review." *American Zoologist* 8 (1968): 11-18.

O'Neill, R.V. "Paradigms of Ecosystem Analysis." In *Ecological Theory and Ecosystem Models,* edited by S.A. Levin, 16-19. Office of Ecosystem Studies, The Institute of Ecology, 1976.

Ophuls, William. *Ecology and the Politics of Scarcity.* San Francisco: W.H. Freeman, 1977.

O'Riordan, Timothy. *Environmentalism.* 2nd ed. London: Pion, 1981.

O'Riordan, Timothy and James Cameron, eds. *Interpreting the Precautionary Principle.* London: Earthscan Publications, 1994.

Patten, B.C., "Ecosystem modeling in the U.S. International Biological Program," in *Systems Analysis and Simulation in Ecology,* vol. 3, ed. B.C. Patten, 1-80, (New York: Academic Press, 1975.

Peacock, Kent. "Staying Out of the Lifeboat: Sustainability, Culture, and the Thermodynamics of Symbiosis," *Ecosystem Health* 5, no. 2 (1990): 91-103.

Phillips, D.C. "Organicism in the Late Nineteenth and Early Twentieth Centuries." *Journal of the History of Ideas* 31, no. 3 (1970): 413-432.

Pickering, Andrew. *Constructing Quarks: A Sociological History of Particle Physics.* Edinburgh: Edinburgh University Press, 1984.

Pickett, S.T.A. and P.S. White. *The Ecology of Natural Disturbance and Patch Dynamics.* Orlando, Fl.: Academic Press, 1985.

Pirages, Dennis and Paul R. Ehrlich. *Ark II: Social Response to Environmental Imperatives.* San Francisco: Freeman, 1974.

Plumwood, Val. *Feminism and the Mastery of Nature.* New York: Routledge, 1993.

Quinton, Anthony. "The Right Stuff," *New York Review of Books* 5 (December 1985)

Rawls, John. *A Theory of Justice.* Oxford: Oxford University Press, 1973.

_____. *Political Liberalism.* New York: Columbia University Press, 1993.

Regan, Tom. *The Case for Animal Rights.* Berkeley: University of California Press, 1983.

Rolston III, Holmes. *Philosophy Gone Wild.* Buffalo, N.Y.: Prometheus Books, 1986.

_____. *Environmental Ethics: Duties to and Values in the Natural World.* Philadelphia: Temple University Press, 1988.

Roosevelt, Theodore. "Wilderness Reserves: The Yellowstone Park." In *The Winning of the West, The Works of Theodore Roosevelt,* 311-312. New York, 1924-26.

Rosen, Robert. *Life Itself, a Comprehensive Inquiry into the Nature, Origin, and Fabrication of Life.* New York: Columbia University Press, 1991.

Ross, Andrew. *The Chicago Gangster Theory of Life: Nature's Debt to Society.* London, Verso, 1994.

Roszak, Theodore. *Where the Wasteland Ends: Politics and Transcendence in Postindustrial Society*. London: Faber and Faber, 1973.

Rowe, Stan. "From Shallow to Deep Ecological Philosophy." *The Trumpeter* 13, no. 1 (1996): 26-31.

Salleh, A.K. "Deeper than Deep Ecology: the Eco-Feminist Connection." *Environmental Ethics* 6 no. 4 (1984): 339-345.

_____. "The Ecofeminism/Deep Ecology debate." *Environmental Ethics* 14, no. 3 (1992): 195-216.

Sawin, Janet L. "Making Better Energy Choices." In *State of the World 2004: A Worldwatch Institute Report on Progress Toward a Sustainable Society,* edited by Linda Starke, 24-43. New York: W.W. Norton, 2004.

Scott, James C. *Seeing like a State: How Certain Schemes to Improve the Human Condition Have Failed.* New Haven: Yale University Press, 1998.

Seed. John, et al. *Thinking like a Mountain: Toward a Council of All Beings.* Philadelphia: New Society Publishers, 1988.

Sessions, George. "Ecological Consciousness and Paradigm Change." In *Deep Ecology,* edited by Michael Tobias, 28-44. San Marcos, CA: Avant Books, 1984.

_____. "Postmodernism, Environmental Justice, and the Demise of the Deep Ecology Movement?" *Wild Duck Review* 5 (1995): 14-16.

_____. "Reinventing Nature, The End of Wilderness? A Response to William Cronon's *Uncommon Ground.*" *The Trumpeter* 13, no. 1 (1996): 33-37.

Stone, Christopher D. "Should Trees Have Legal Standing?" *University of Southern California Law Review* 45 (1972): 450-501.

Shepard, Paul. "A Theory of the Value of Hunting." *Twenty-Fourth North American Wildlife Conference.* Washington, D.C.:1957, 505-06.

_____. *Nature and Madness.* San Francisco: Sierra Club Books, 1982.

Shiva, Vandana. *The Violence of the Green Revolution.* London: Zed Books, 1991.

Sire, James. *The Universe Next Door: A Basic World View Catalogue*. Downers Grove, Ill.,: Intervarsity Press, 1976.

Smith, Mick. "Against the Enclosure of the Ethical Commons: Radical Environmentalism as an 'Ethics of Place.'" *Environmental Ethics* 19, no. 4 (1997): 339-353.

_____. "To Speak of Trees: Social Constructivism, Environmental Values, and the Future of Deep Ecology." *Environmental Ethics* 21, no. 4 (1999): 359-376.

Snyder, Gary. *Turtle Island.* New York: New Directions, 1974.

_____. "A Place in Space: Ethics, Aesthetics, and Watersheds." *Environmental Ethics* 18, no. 3 (1996): 321-326.

Snyder, Howard A. *EarthCurrents: The Struggle for the World's Soul.* Nashville, Tenn: Abingdon Press, 1995.

Sorokin, P.A. *Contemporary Sociological Theories.* New York: Harper, 1928.

Sparrow, Robert. "The Ethics of Terraforming." *Environmental Ethics* 21, no. 3 (1999): 227-245.

Stein, Daniel. Preface to *Lectures in the Sciences of Complexity,* edited by Daniel Stein, Santa Fe, N.M.: Addison-Wesley, 1989.

Taylor, A.E. *Elements of Metaphysics.* London: Methuen, 1961.

Taylor, Paul. "The Ethics of Respect for Nature." *Environmental Ethics* 3, no. 3 (1981): 97-218.

_____. *Respect for Nature: A Theory of Environmental Ethics.* Princeton: Princeton University Press, 1986.

Tenner, Edward. *Why Things Bite Back.* New York: Knopf, 1996.

Thoreau, Henry D. "Walking," in *The Essays of Henry D. Thoreau,* ed. by Lewis Hyde, 149-177, New York, North Point Press, 2002.

Tilman D., and J.A. Downing. "Biodiversity and Stability in Grasslands." *Nature* 367 (1994): 363-65.

Turner, Frederick Jackson. *The Frontier in American History.* New York: Holt, Rinehart and Winston, 1962.

Vogel, Steven. "Environmental Philosophy After the End of Nature." *Environmental Ethics* 24, no. 1 (2002): 23-39.

Warren, Karen. "The Power and the Promise of Ecological Feminism." *Environmental Ethics* 12, no. 2 (1990): 125-146.

Watt, K.E.F. "Critique and Comparison of Biome Ecosystem Modeling." In *Systems Analysis and Simulation in Ecology*, edited by B.C. Patten, 139-152. New York: Academic Press, 1975.

Wenz, Peter. *Environmental Justice.* Albany: SUNY Press, 1988.

Weston, Anthony. "Beyond Intrinsic Value: Pragmatism in Environmental Ethics." In *Environmental Pragmatism*, edited by Andrew Light and Eric Katz, 285-306. New York: Routledge, 1996.

Westra, Laura. *An Environmental Proposal for Ethics: The Principle of Integrity.* Lanham, Md.: Rowman and Littlefield Inc., 1994.

_____. *Living in Integrity: A Global Ethic to Restore a Fragmented Earth.* Lanham Md.: Rowman and Littlefield, 1998.

White, Gilbert. *The Natural History of Selborne.* New York: Harper, 1942.

Wittgenstein, Ludwig. *Philosophical Investigations.* Translated by G. E. M. Anscombe. Oxford: Basil Blackwell, 1953.

Worster, Donald. *Nature's Economy: A History of Ecological Ideas.* Cambridge: Cambridge University Press, 1985.

Wynne, Brian. "Uncertainty and Environmental Learning: Reconceiving Science and Policy in the Preventative Paradigm." *Global Environmental Change* 2, no. 2 (1992): 111-127.