

THE "NATURES" OF NATURE: AN ECO-CRITICAL ANALYSIS OF
THE METAPHORS WE USE TO UNDERSTAND
THE MORE-THAN-HUMAN WORLD

by

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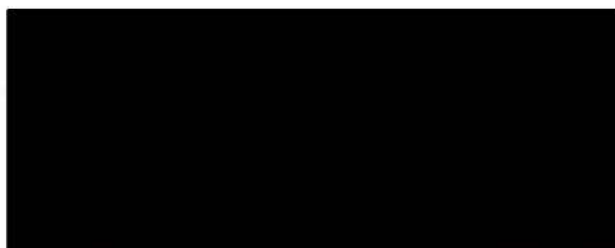


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Recent advances in cognitive science have demonstrated that our conceptual system is largely metaphorical. The magnitude of the global environmental crisis requires a critique of the inherited and dominant metaphors of nature used by contemporary society, and an exposure of their limitations and destructive implications. This thesis identifies, compares and contrasts several prevalent categories of metaphors diverse human societies use to construct "nature," including Nature as Object, Nature as Person, and Nature as Social Structure/System. It includes a discussion of Eco-Criticism, Worldview Theory, and Metaphor Theory as analytical approaches.

This thesis concludes that "nature" is far too complex to be adequately captured by a single metaphor. Various cultures use multiple metaphors to understand "nature," each of which entails a limited set of inferences, which shape human perception, interpretation and behavior toward the environment. Therefore, certain metaphorical constructions are more pragmatic in particular situations or contexts than others.

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DEDICATION

To My Parents,
Mel and Nancy Leiserowitz

TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION.....	1
Eco-Criticism.....	1
Objectivism.....	4
Metaphor Theory.....	8
Metaphor, Ideology and Hegemony.....	11
Worldview Theory.....	15
II. METAPHORS OF "NATURE"	20
Introduction.....	20
Cautionary Note.....	24
III. NATURE AS OBJECT (CLASSICAL).....	26
IV. NATURE AS PERSON	38
Nature as Organism.....	40
Nature as Human Being.....	41
Nature as Body.....	43
Nature as Mother.....	46
Birth Mother	48
Genetic Mother	50
Marital Mother.....	51
Nurturant Mother.....	52
Critiques of Nature as Mother.....	53
Nature as Sexual Partner	59
Conclusion.....	61

Chapter	Page
V. NATURE AS SOCIAL STRUCTURE/SYSTEM.....	64
The Family of Nature.....	64
Hawaiians.....	65
Lakota Sioux.....	65
Hopi	66
Kinship.....	69
Strict Father Model	76
Nurturant Parent Model	77
Moral Politics and the Environment	77
Nature as Many Societies	81
Ojibwa.....	81
Pacific Northwest Tribes.....	82
VI. CONCLUSION.....	85
BIBLIOGRAPHY.....	89

LIST OF FIGURES

Table	Page
1. Faces or Vase?.....	2
2. Mother Cluster Model	48
3. Cybernetic System Model.....	71
4. Family System Model	73

CHAPTER I

INTRODUCTION

Recent advances in cognitive science have demonstrated that our conceptual system is largely metaphorical. The magnitude of the global environmental crisis requires a critique of the inherited and dominant metaphors of nature used by contemporary society, and an exposure of their limitations and destructive implications. This thesis identifies, compares and contrasts several prevalent categories of metaphors diverse human societies use to construct "nature," including Nature as Object, Nature as Person, and Nature as Social Structure/System. It includes a discussion of Eco-Criticism, Worldview Theory, and Metaphor Theory as analytical approaches.

This thesis concludes that "nature" is far too complex to be adequately captured by a single metaphor. Various cultures use multiple metaphors to understand "nature," each of which entails a limited set of inferences, which shape human perception, interpretation and behavior toward the environment. Therefore, certain metaphorical constructions are more pragmatic in particular situations or contexts than others.

Eco-Criticism

Eco-criticism is a new field and theoretical perspective emerging from the humanities, in particular English and Philosophy. Eco-criticism is also a movement within the academy to confront the ever-growing environmental crisis. There were a few scholars, as early as the mid-19th century, who questioned the Western relationship with nature (notably George Perkins Marsh¹), but such thinkers were relatively solitary.

¹George P. Marsh, Man and Nature: or Physical Geography as Modified by Human Action, 1864.

Environmental awareness has grown slowly, with the emergence of ecology as a new scientific field.

Ecology developed a new paradigm, emerging from Darwinian evolution, which challenged the root metaphors of Western science. Over time, it became evident that nature is not a clock-like machine and as such, cannot be merely broken down into constituent parts and analyzed. The operating assumption had long been that we could understand how each piece worked, create an exact mirror of its processes in theory, and then put these pieces of theory together to mathematically model and understand the workings of the whole.

Ecology operates from a different premise -- that nature must be understood holistically, as a set of interrelationships. This fundamentally different approach led scientists to look at and notice entirely different aspects of "reality" -- a paradigm shift. The aspects of "reality" that had once been figure (individual *objects*) now became ground - - while what had once been ground, became figure (*relationships* between and among objects). This is an example of a basic figure-ground Gestalt shift, which is best visually represented by the classic optical illusion of "faces or vase" in which the observer can see one, but not the other.

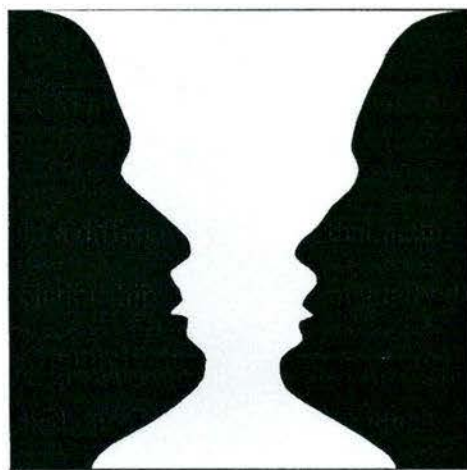


FIGURE 1. Faces or Vase?

This new paradigm has emerged to challenge fundamental assumptions in almost every human endeavor. Our particular moment in history appears to mark the transition period between these two modes of thinking. Paradigm shifts are responses to some kind of crisis -- either from external factors, such as war, or internal factors, such as a preponderance of new evidence within a field that cannot be explained with the old theory. The present shift appears to be the result of both internal factors (within science) and the growing public consciousness of the magnitude of the environmental crisis.

Eco-criticism is the extension of this new approach into the humanities. The term is an umbrella for a number of related movements and lines of inquiry. For instance, Ecocriticism is much more than simply the latest form of literary criticism. It has an essential component of cultural criticism, of questioning the deepest unconscious values and meanings of the West, as inscribed and transmitted through language.

At the same time, many other academic disciplines have begun to question their own fundamental assumptions. Within the social sciences and humanities, increasing critical attention has been paid to the ecological ideas, beliefs and values of earlier Western cultural structures (i.e. Renaissance, Medieval, Judaeo-Christian, etc.) and non-Western cultures around the world (i.e. Indigenous traditions, Hinduism, Taoism, etc.).

Recently, a trans-disciplinary movement, made up of linguists, philosophers, anthropologists and psychologists, has begun to study the process of human cognition itself, including how we perceive, reason about, and interpret the world. These processes are what give the objects and events of the world human *meaning* and *value*. The empirically-based findings of cognitive science are revolutionizing how we think about how we think, and how our epistemologies influence how we act.

Objectivism

Perhaps the most revolutionary aspect of cognitive science is the toppling of Objectivism, which has dominated Western philosophic thought for over 2,000 years. This still dominant paradigm dates back thousands of years. Underlying it is a commitment to the existence of a real world. But Objectivism goes beyond this to assume that reality comes with "a unique, correct, complete structure in terms of entities, properties, and relations. This structure exists, independent of any human understanding."² Objectivists believe that reality is organized according to rational principles, and includes categories that objectively exist in the world, separate from human beings. Human beings have acquired the ability (reason) to recognize and name these objective categories.

The existence of such categories also implies the existence of logical relations among them:

Since the entities of the world fall into objective categories, there are logical relations among those categories -- logical relations that are purely objective and independent of any minds, human or otherwise...Some categories, for example, may be completely included in other categories. Suppose category G is included in category F. Thus, everything that is a G is an F. That is, everything with the properties that characterize G also has the properties that characterize F. Or suppose F and G are mutually exclusive. Then nothing that is an F is a G, and nothing that is a G is an F. Thus, the existence of classical categories in an objectivist world guarantees the existence of logical relations within that world.³

All reasoning about the world is therefore assumed to be subject to the philosophic study of logic -- logic, properly applied, will provide complete and accurate knowledge about the relations between objects in the world.

²George Lakoff, Women, Fire and Dangerous Things, p. 159.

³Ibid., p. 162.

Objectivists thus assume that the real world is inherently logical and rational. Human beings, through the manipulation of abstract symbols, can exactly mirror reality in thought. These abstract symbols -- words, concepts, ideas -- are believed to be discrete and complete units of meaning, like bricks, which have direct reference to real objects in physical reality. These discrete units can then be assembled, brick by brick, piece of knowledge by piece of knowledge, into an exact replica of physical reality.

But bricks vary in quality -- some sentences, or units of meaning, are true, and some are false. Each literary construction, sentence, or phrase has to be analyzed and judged by how well it satisfies essential truth conditions -- is this statement true or false? By examining each sentence, as one would examine individual bricks, objectivist philosophers of language hope to discard all flawed statements, leaving a set of meanings by which one can construct a rock-solid linguistic model of "reality." This is also the traditional hope of science -- that by breaking down the clock-like universe to its constituent parts, and analyzing those individual parts, one can then piece together the understanding of each part and create a theoretical structure, or mathematical model, that perfectly mirrors "reality." Human reasoning is correct when it accurately mirrors the logical relations in the objective world.

Philosophy became a discipline devoted to "proofs" -- responsible for analyzing the truth claims of various statements and of the logical principles relating them. Philosophers were to act as final arbiters of truth, through the exercise of right reason. In this view, the human mind is conceived of as a proposition cruncher. True or false propositions are fed in one end and true or false knowledge is the result. Thus, Objectivists often view the mind as a kind of computer, running series of calculations, to make true or false claims about the world. Garbage in, garbage out. Truth in, truth out.

Metaphor, however, seemed quite out of place in such a system. Metaphors are decidedly not about truth or falsity, in fact they seem to play upon falsity. "Lawyers are leeches" is obviously not a literally true statement, as lawyers are human beings, not leeches. Therefore, metaphor was deemed an irrelevant area of study, or even worse, became labeled "figurative" language as opposed to "literal" language. Philosophy was about "literality" -- meaning truth. Figurative language was obviously faulty reasoning and therefore was not only unworthy of study, but became an epithet, as the negative opposite of "literal truth."

(Objectivists) see the mind as a mirror of some God-given reality that can be best described in simple, nonmetaphorical terms, language that more closely reflects underlying "truths" about the world. Figurative or poetic assertions are distinct from true knowledge, a claim first made by Plato in his famous critique of poetry. To think or speak poetically is to adopt a distorted stance toward the ordinary world, one that is held in disdain by most philosophers, scientists and educators.⁴

This led to the denigration of figurative language (and its study) throughout the academy:

There remains on the part of many scholars a deep mistrust toward all things figurative ("tropophobia," or fear of tropes)...For instance some contemporary textbooks on writing and rhetoric warn that figurative language is at odds with clarity and literal thought and therefore must be repressed in the interest of making meaning transparent. As stated in one college textbook:

Figurative language...is tricky as it is useful. When you intend an abstract meaning, you must make sure that your metaphors stay good and dead. And when you wish to be figurative, see whether you are getting the necessary vividness and consistency. If not, go back to literal statement; it is better to make plain assertion than litter your verbal landscape with those strange hulks.⁵

⁴ Raymond Gibbs, *The Poetics of Mind*, p. 1.

⁵Ibid., p. 3.

Objectivism is, of course, far more complex than this brief outline. But the following summary by George Lakoff should help distinguish some of its fundamental assumptions:

The objectivist account of cognition, meaning, and rationality makes no mention of the nature of who or what is doing the thinking. The nature of the human organism and the way it functions is irrelevant to the objectivist account of meaningful thought and reason. Thought is characterized as symbol-manipulation. Concepts are characterized as symbols in a system bearing a fixed correspondence to things and categories in the world. Those symbols are made meaningful *only via* symbol-to-word correspondences. Correct reason is viewed as symbol-manipulation that accurately mirrors the rational structure of the world. Meaning and rationality are *transcendental* -- they transcend the limitations of any particular kind of being. Rational beings merely partake of transcendental rationality.⁶

Yet, recent advances in cognitive science have demonstrated that reason and the construction of knowledge are processes which are fundamentally metaphoric.⁷ We are now finding that metaphor, rather than being a fringe use of language, is in fact central, not only to language, but to the conceptual systems that underlie language itself. Metaphor lies at the heart of our conceptual system.

The concepts that govern our thought are not just matters of the intellect. They also govern our everyday functioning, down to the most mundane details. Our concepts structure what we perceive, how we get around in the world, and how we relate to other people (and nature). Our conceptual system thus plays a central role in defining our everyday realities....our conceptual system is largely metaphorical...the way we think, what we experience, and what we do every day is very much a matter of metaphor.⁸

⁶Lakoff, p. 174.

⁷For example, George Lakoff and Mark Johnson, Metaphors We Live By, 1980; George Lakoff, "The Contemporary Theory of Metaphor," 1993.; the journal Metaphor and Symbolic Activity; Raymond Gibbs, The Poetics of Mind, 1994.; Eve Sweetser, From Etymology to Pragmatics, 1990.; George Lakoff, Women, Fire and Dangerous Things, 1987.; George Lakoff and Mark Johnson, Philosophy in the Flesh, (in press).

⁸Lakoff and Johnson, Metaphors We Live By, p. 3.

Thus, a major role for Ecocriticism is to analyze and critique the root metaphors and rhetorical strategies of Western and non-Western traditions. What are the ecological implications of conceiving of nature as a machine, or as a natural resource, or as Gaia? Each of these perspectives relies on conceptual metaphors that entail a limited set of inferences. If we use the metaphor "Nature Is an Enemy," we will think about nature and notice particular phenomena in a very different way than if we use the metaphor "Nature Is a Mother." Ecocriticism also includes questioning and breaking down the strict dichotomies and dualisms in Western thought, such as mind/body, human/nature, and man/woman.

Different individuals and groups often emphasize a particular set of metaphors, which shape their world view. Conflicts between world views are thus often the result of different groups using different root metaphors to understand "reality." Therefore, groups often find it impossible to reach compromise, because there is so little common ground between their positions. This is particularly true of the contemporary debate over the proper relationship between humans and the more-than-human world, especially as manifested in environmental policy.

Metaphor Theory

The concept of metaphor has been misunderstood since Aristotle. Aristotle claimed that metaphor is a process of taking one object and relating it to a different object, which forces you to recognize the *similarities* between them. This is still called the Comparison Theory of Metaphor. This view argues that "A is B" is a comparison that means A is like B, in respects P, Q and R. Thus, "Lawyers are leeches" assumes that lawyers and leeches literally share certain properties P, Q and R.

But in fact, metaphors are not about literal similarities. Metaphors are devices by which we understand one conceptual domain in terms of another kind. We "map" our knowledge of the structure of one conceptual domain onto another conceptual domain. For example, if a man says to his partner, "This relationship is at a dead-end" she immediately knows exactly what he is talking about -- the relationship is probably over. But how does she understand this? Love relationships do not literally reach "dead-ends."

This metaphor is a sub-mapping of a deep, conceptual metaphor that underlies much of our thinking -- LIFE AS A JOURNEY -- onto the concept, "love." We conceive of our lives as purposeful journeys. We constantly talk about "getting on the right track," "I chose the road less traveled," "I got diverted," "I'm spinning my wheels," etc. We talk about life in these terms because we have a massive, embodied, experiential knowledge of journeys -- from the earliest days of our childhood, we experienced the purposeful moving of our bodies through space towards our mother's breast, a favorite toy, etc. This childhood knowledge is expanded and exercised every day of our subsequent lives. This massive experiential knowledge of the schematic structure of journeys (which include movement, direction, a destination, obstacles, etc.) gets "mapped" onto our conception of life (or in this example, love relationships).⁹

<u>Source Domain</u>		<u>Target Domain</u>
"journey"	----->	"love relationship"
travelers	----->	lovers
vehicle	----->	relationship
destination	----->	goals
enabling conditions	----->	money, trust, commitment, etc.
impediments	----->	difficulties
path	----->	course

⁹George Lakoff, "The Contemporary Theory of Metaphor," pp. 206-212 .

So, we map the schematic structure (the entities and relations) of journeys onto the abstract concept "love relationship." For example, journeys often encounter obstacles and these obstacles stop our forward movement towards our destination. We must either find a way over the obstacle, through the obstacle, around the obstacle, or change destinations. We take this spatial experiential knowledge and use it to reason about our relationships. For example, conflicts are reasoned about as if they were physical obstacles. So when a man says, "This relationship is at a dead-end," his partner knows that there are very few options available -- the two lovers-travelers must either abandon the relationship-vehicle, or turn around and try to find a different "path." Relationships are not actually journeys, but we use our experiential knowledge of journeys to reason about relationships.

This is not the only metaphor we use to reason about love relationships, however, and the different inferences of different metaphors often leads to conflict. For example, if one spouse conceives of the marriage as a "journey," while the other conceives of it as a "safe harbor" to retreat to after "weathering the storm" of the work-day world, there will be conflict, because one metaphor implies forward movement, overcoming obstacles toward a common goal, while the other implies safety, calm, and the lack of motion.¹⁰

There are hundreds of these deep metaphors at work in our conceptual system, almost entirely at the unconscious level. These metaphors structure virtually all of our abstract concepts, including notions of causation, of mind, and of time.¹¹ Conceptual metaphors develop out of our embodied experience of the world. Reason itself, long-believed to be a transcendent human faculty, is based upon embodied, metaphorical thinking. Most of our abstract concepts are in fact rooted in embodied experiences, like up

¹⁰See Naomi Quinn, "Understanding the Experience of Marriage in Our Culture," in Dorothy Holland and Naomi Quinn, Cultural Models in Language and Thought.

¹¹See Lakoff and Johnson, Philosophy in the Flesh.

and down, front and back, the manipulation of objects, and physical movement through space. For example, "time," one of the most abstract of concepts, is conceived using several different metaphors, such as TIME IS A MOVING OBJECT, relative to a stationary observer. Thus, we say, "time flew by," "time seemed to slow to a halt," "the time is coming," and "the time has arrived." Alternatively, time can be understood as TIME IS A LOCATION, relative to a moving observer. Thus, we say, "we're coming up on Christmas," "as we go through the years," and "we're approaching the end of the century." Yet another basic conceptual metaphor is TIME IS A RESOURCE, which is limited and valuable. Thus, we say "this was a waste of time" "time is money" and "I'm running out of time."

TIME IS A RESOURCE is a particularly Western conception of time. People who think of time in this way, think of their actions in economic terms -- time is "scarce," thus "valuable," thus we need more "efficiency" and less "waste." They will become frustrated by activities which seem to "waste" time or require "too much" time, while someone operating with the metaphor TIME AS LOCATION experiences time quite differently.

Each of these metaphors has entirely different implications for how we perceive and experience time and thereby affects our behavior. Thus, metaphors structure our perceptions, interpretations and behaviors with regard to ourselves, other people and the more-than-human-world. We *live* by these metaphors.

Metaphor, Ideology and Hegemony

As George Lakoff and Mark Turner state in their book, More Than Cool Reason, metaphors "implicitly embody *ideologies* -- views of man and his relation to nature, society, and the cosmos."

Thus, metaphors are central to the process of social organization and control. Societies with wide social inequalities are often prone to instability between dominant and subordinate groups. This natural instability is counterbalanced by a set of basic images and worldview assumptions (often metaphorically based) about the nature of the world. These are the underlying presuppositions that serve to explain, justify and maintain the social inequities of a particular culture.

A distinction should be made, however, between ideology and hegemony. As anthropologist Michael Kearney describes¹², ideologies are the intellectual product of a certain identifiable group (i.e. specific agents, such as priests, teachers, politicians, writers) in a society. Ideologies are thus found in official texts, pronouncements and teachings.

Hegemony, on the other hand, refers to ideas that are less associated with a particular group and are more pervasive in society. These are ideas that cannot be traced to any specific individual or group. They are often considered just “common sense” -- simply the “way things are.” Hegemonic ideas tend to be found in folklore, figures of speech, social values and underlying worldview presuppositions.

This is not to say that Ideology and Hegemony are completely separate categories. There is a continuum between them, as both are usually present in ideas with important political implications.

Hegemonic, and especially ideological ideas, have their social origin primarily in the class, gender, or ethnic group that these ideas define as superior. Thus, it is hardly surprising that the dominant “nature” metaphors in use in the West today (i.e. as Resource, Commodity or Machine) reflect both the ideological stance of the economic and social elite and the hegemony of capitalism as a way of life. In fact, in our increasingly globalized

¹²Michael Kearney, “Worldview,” pp. 1380-1384.

economy, these metaphors are extended beyond “nature” to describe and reason about human beings (i.e. corporate “human resource departments,” labor as “input,” and brain “mechanisms” of cognition) and even knowledge itself (the “commodification” of knowledge in universities).

Thus, social and intellectual history can be read, in part, as a conflict over the dominant metaphors of a society. Through the process of reification, particular metaphors of nature in Western society become “naturalized” -- assumed to be inherent aspects of the world and the human condition, rather than socially constructed historical products. Metaphors for nature are often ideologically conservative. They tend to “naturalize” existing social conditions, identities, and power relations. For example, Social Darwinism at the turn of the 20th century drew upon a metaphorical construction of nature as “red in tooth and claw,” as “survival of the fittest.” This construction of nature was then used to rationalize and justify the accumulation of wealth by the “robber barons.” Their extreme wealth was simply the way of nature. The social elite were rationalized as superior in intellect, ambition, and moral character than the masses, and the poor deserved their lowly, weak status. Thus, “nature” was used to justify the social conditions and processes of the time.

We still continue to describe and reason about social affairs using the phrase “survival of the fittest” which implies an almost fatalistic attitude about events. Yet, it is interesting to note that this concept has been misunderstood since the days of Darwin. It is actually a misnomer. It would be better stated as “extinction of the unfit.” Evolution does not select only the best and the brightest, the fittest or the strongest. Rather, natural selection works only by “weeding” out the sick, the old and most mutations. As long as an organism is “fit enough,” it will survive and reproduce itself. Thus, “extinction of the unfit” directs our attention not merely to those individual organisms at the highest level of

“fitness,” but more importantly towards the threshold between the unfit and “good enough” (the “floor” not the “ceiling”). Likewise, more recent evolutionary theory has demonstrated that cooperation is as essential to evolution as competition. Biologists such as Lynn Margulis have shown that symbiosis and cooperation are crucial survival strategies, which have been used by countless species, ranging from flowers and bees, to the mitochondria in our own cells.¹³

Another important example of an ideologically and hegemonically potent metaphorical construction of nature is the Great Chain of Being, often attributed to the Neoplatonist Plotinus (205-70 C.E.)¹⁴. The Great Chain not only arranges nature in a spiritual hierarchy (with God at the apex, then angels, humans, and lastly all of unspiritual nature), but was also used to arrange humans in a hierarchy -- men over women and children, who were viewed as more irrational, emotional and instinctual, thus closer to the level of animals. This basic metaphor (analyzed by Lakoff and Turner in More Than Cool Reason) served to rationalize and justify a patriarchal society and its domination and exploitation of all “inferior” beings. It also underlay much of colonialist thought as countless native peoples were described and treated as inferior, unthinking “animals” fit only for slavery or hard labor. The Great Chain continues to profoundly shape our thought today. Some have dropped spirituality as the “yardstick,” but have instead adopted “consciousness,” rationality, language, or tool-making ability, as the defining distinction separating humans from animals, fish, insects or plants, despite increasing evidence from biology that none of these are exclusively human abilities. These are differences of degree, not of kind.

¹³Lynn Margulis and Dorion Sagan, What is Life?, pp. 104-107.

¹⁴David Kinsley, Ecology and Religion, p. 107.

Thus, the metaphors we use are ideologically and hegemonically loaded. They often derive from and support source domains (such as industrialism) which benefit particularly powerful social groups and classes. The struggle over metaphor (as George Lakoff amply describes in his book Moral Politics) is a deeply social, economic and political one. Different groups operate using different worldviews, which are described, argued for, and reasoned about in metaphorical terms.

Worldview Theory

The worldview 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 worldview comprises images of Self and or all that is recognized as not-Self, plus ideas about the relationships between them.¹⁵

[A] world view is not merely a philosophical by-product of each culture, like a shadow, but the very skeleton of concrete cognitive assumptions on which the flesh of customary behavior is hung. World view, accordingly, may be expressed, more or less systematically, in cosmology, philosophy, ethics, religious ritual, scientific belief, and so on, but it is implicit in almost every act.¹⁶

In his book Worldview, anthropologist Michael Kearney describes seven worldview universals (Self, Other, Relationship, Classification, Causality, Time and Space) of which Self, Other and Relationship are the most fundamental. There are many different cultural notions of Self, including the Self as singular, identified with the body, separate from the body (i.e. a separate soul or spirit), multiple; split, or nonexistent. Each of these different cultural notions draws on a fascinating variety of metaphorical source domains, but a detailed analysis of these metaphors is beyond the scope of this thesis. Instead, in this study I am focusing attention on the various metaphorical constructions of

¹⁵Michael Kearney, Worldview, p. 41.

¹⁶Anthony Wallace, Culture and Personality, p. 143.

the “Other” -- in this case “nature” -- which imply particular kinds of relationships between Self and Other. A substantial literature¹⁷ has recently grown in the field of Social Psychology on comparative, cross-cultural models of worldviews, mostly originating from the ground-breaking work of Florence Kluckhohn and Fred Strodtbeck.¹⁸ They identified three fundamental types of power relations between Self and Other, or Humans and Nature:

- 1) Self dominated by Other -- Humans dominated by Nature;
- 2) Self has mastery over Other -- Humans have mastery over Nature;
- 3) Self in harmony with Other -- Humans in harmony with Nature.¹⁹

Some cultures (such as the Nyaka of India, Batek of Malaysia and Mbuti of Zaire) and/or individuals assume (as part of their worldview) that humans are totally dependent upon the providence of “nature” (often personified as an unconditionally providing “mother”). Other cultures and/or individuals (notably the modern, Judaeo-Christian West) presuppose that humans have mastery over “nature,” as exemplified in Genesis 1:26-29,

Then God said, “Let us make man in our image, after our likeness; and let them have dominion over the fish of the sea, and over the birds of the air, and over the cattle, and over all the earth, and over every creeping thing that creeps upon the earth....Be fruitful and multiply, and fill the earth and subdue it...”²⁰

¹⁷For example, David M. Buss and Kenneth H. Craik, “Contemporary Worldviews: Personal and Policy Implications,” *Journal of Applied Social Psychology*, Vol. 13 No. 3, 1983; Peter B. Smith and Michael Harris Bond, *Social Psychology Across Cultures*, 1994; Gargi R. Sodowsky, et. al. “World Views of White American, Mainland Chinese, Taiwanese, and African Students,” *Journal of Cross-Cultural Psychology* Vol. 25 No. 3, September 1994; Jane G. Treviño, “Worldview and Change in Cross-Cultural Counseling,” *The Counseling Psychologist*, Vol. 24 No. 2, April 1996.

¹⁸Florence R. Kluckhohn and Fred L. Strodtbeck, *Variations in Value Orientations*.

¹⁹Ibid., p. 13.

²⁰The Holy Bible: Revised Standard Version. Much controversy has surrounded the meaning of the words “dominion” and “subdue” as some have claimed they refer to a stewardship, rather than despotic rule. However, while “dominion” is translated from the Hebrew word *radah*, meaning “to rule over” “subdue” is translated from the Hebrew word *kabas*, meaning to “stamp down.” As Peter Marshall writes in

This idea of human mastery over nature is pervasive throughout Western history, as extensively documented by numerous environmental historians,²¹ and continues as the prevailing presupposition of the West today.

Lastly, some cultures perceive themselves to be engaged in a dialectical, reciprocal, participatory and harmonious relationship with nature. These cultures (such as many Native North and South American and Australian Aboriginal tribes) have extensive belief systems, rituals, rites and practices which continually attempt to maintain or repair a delicate harmonious balance with the more-than-human world.

Michael Kearney traces these three constructions of the Self-Other (Human-Nature) relationship to two main factors²²:

- 1) The patterns of pleasure and pain each developing child experiences.

Shortly after birth...the infant experiences its first deprivation. At this point its "world" begins to be cleaved into two nebulous realms -- all that is Self and all Other that is the source of comfort and pleasure. It soon begins to perceive also that the Other is further composed of perhaps cold, pains, and visual and auditory things that appear and disappear. Presumably too, it becomes aware that parts of its body, its fingers and skin, are in some sense parts of itself. But all of these other discriminations are elaborations of the paramount distinction between Self and Other...Piaget...bases much of his model of cognitive development on the progressive elaboration of this distinction between Self and Other...²³

Nature's Web, p. 98. "Both words are used throughout the Old Testament to mean a violent assault or crushing; to describe the act of enslavement; they evoke the image of a conqueror placing his foot on the neck of an enemy in total domination."

²¹For example, Lynn White, "The Historical Roots of Our Ecologic Crisis," *Science* 155 (March 10, 1967), 1203-1207.; Carolyn Merchant, The Death of Nature; Morris Berman, The Reenchantment of the World; Roderick F. Nash, Wilderness and the American Mind and The Rights of Nature.

²²Michael Kearney, Worldview, p. 71.

²³Ibid.

The infant child thus learns that pleasure and pain originate to some degree from Other. If a child experiences more pleasure than pain, an awareness of well-being and security will predominate and Other will be viewed as a source of pleasure. If the child experiences deprivations and traumas, however, Other will be considered a source of frustration and pain.

Pleasure and pain may fluctuate regularly or unpredictably. Thus the child may come to perceive Other as regular, ordered and predictable, and might even perceive regularities between its own state of being or behavior and whether Other provides pleasure or pain. Therefore the child may develop an image of Self that can affect or even control Other -- self-efficacy or agency.

If Other is unpredictable, however, the child may come to see itself as relatively powerless and incapable of affecting its own state of being or aspects of the Other. Of course genetic factors (nature) of temperament and personality play an important role, but much recent research in early childhood development demonstrates that abused children (nurture -- or the lack thereof) become "hardwired" to be more sensitive and reactive (often leading to later violence or social misbehavior) to perceived threat or pain than children raised in a warm, safe, nurturing environment.²⁴ This is ancient knowledge: "What is done to children, they will do to society." (and nature) -- Pliny the Elder

George Lakoff, in his book Moral Politics, cites the results of much of this psychological research as the basis for his claim that Nurturant Parent morality is superior to Strict Father morality as a philosophy for raising children. We will return to this theme later.

2) The second crucial factor Kearney identifies is the role of culture. Each individual is born into a particular culture and worldview, just as they are born into a

²⁴See George Lakoff, Moral Politics, pp. 396-409 for an extensive bibliography of child development literature.

particular language. Individuals are exposed and trained from their earliest days to accept the reified social constructions of their culture as tacit, unquestioned assumptions about “the way things are.” We examined this process above, in the section on Metaphor, Ideology and Hegemony.

CHAPTER II

METAPHORS OF "NATURE"

Introduction

"Nature" has been called "perhaps the most complex word in the (English) language."²⁵ Raymond Williams describes three main meanings:

- a) the essential quality and character *of* something;
- b) the inherent force which directs either the world or human beings or both;
- c) the material world itself, including or not including human beings.

For the purposes of this study, I am focusing on meanings c and b -- in other words, on the various metaphorical understandings of the physical, sensually-experienced world and its driving processes.

I have identified nearly 100 different metaphorical conceptions of "nature" used by different cultures and different eras. These metaphors seem to fall into a limited range of superordinate categories (which are not mutually exclusive -- some metaphors have inferential extensions across these categories). These categories include:

Nature as Object Metaphors (including human artifacts) -- This category includes sub-mappings such as Nature as Machine, as Text, as Stage, as Commodity, and as Resource, among many others.

Nature as Person Metaphors (often as human, but not always) -- This category includes sub-mappings such as Nature as Enemy, as Mother, and as Kin, among many others.

²⁵Raymond Williams, Keywords, p. 219.

Nature as Human Social Structure/System Metaphors -- This category includes sub-mappings such as Nature as Family, as Community, as Economy, and as Organization.

Nature as Geography -- This category includes Nature as Container, as Bounded Region, as Proving Ground, and as Edge/Frontier.

Metonymies of Nature -- This category includes Nature as Wild Animal, as Web, and as Living Organism.

Each of these metaphors uniquely structures what we perceive, and how we reason about and interpret the world around us. A metaphor superimposes or projects a source domain pattern or schema structure (cognitive topology) onto "nature." Each metaphor thus directs our attention to notice similar schema structures between the source and target domains.

Each metaphor can be thought of as a "lens" that frames, colors and filters reality in a particular way (of course this is itself a limited metaphor). A lens focuses on some aspects of reality while ignoring others. Each metaphor thus "captures" certain patterns of reality, while missing others. When a culture reifies one or a few metaphors over all others (i.e. Nature as Commodity or Machine), it predominantly and logically acts upon the world within the frame or parameters of these metaphors. Such a culture is similar to the small child, who upon learning how to use a hammer, then proceeds to treat the entire world, including tables, chairs, siblings, pets and parents, as if they were a nail.

Metaphors, however, are also open-ended. They are open to novel and elaborate extension -- the work of the *creative* artist, philosopher, writer or scientist. Yet, each metaphor constrains and structures thought in particular ways, as we take our specific knowledge of the source domain and use it, via conceptual mapping, to construct a

corresponding knowledge of the target domain. Each metaphor thus entails a limited set of inferences. If we use the metaphor "Nature as Enemy," we will think about nature and notice particular phenomena in a very different way than if we use the metaphor "Nature as Mother." These different metaphorical constructions of reality thus lead us to perceive, interpret and ultimately act in very different ways.

Here is a hypothetical example. Suppose a hurricane is approaching the Florida coastline. There are two caricatured groups of people, one operating with the metaphor Nature as Enemy, the other with Nature as Mother. How will these two groups respond to the oncoming storm? The Nature as Enemy group can immediately draw on the vast set of inferences and associations deriving from our human experience of enmity, and in particular, *battle*. This group may understand itself as under "attack" by an opponent that means them harm. This may lead to rational actions within this metaphorical frame -- such as "warning the troops," "establishing lines of communication," "setting up field hospitals," "getting civilians out of harm's way," "fortifying the defenses," "gathering intelligence about the enemy's movement" and so on. None of these sub-metaphors accurately explain an approaching hurricane (which is not actually a living, sentient, self-willed, motivated and aggressive human enemy). Yet this group is quite likely to take actions, based on this metaphor, that will in fact lead to better protection of human life and property.

In contrast, the group operating within the Nature as Mother metaphorical frame will probably not think or act in these ways. Most conceptions of Nature as Mother infer a being that has given birth to, provides for, nurtures and loves us as children. When natural disaster does strike, the empirical evidence of death and destruction is likely to cause immense cognitive dissonance -- "How could our mother do this to us?"

Will this group consider the evidence and give up the metaphor? Probably not. Instead, following the logical entailments of the metaphor, we often decide that "Mother Nature" is *punishing* human beings, for something we have done wrong. Humans have somehow failed to reciprocate, to honor or obey "Mother Nature." This is perfectly logical, within the parameters of the metaphor. (This is not to say that all human cultures respond in the same way -- cultures with different social roles for mothers than our own, would perhaps interpret natural disasters differently, i.e. societies in which mothers are responsible only for the provision of unconditional love and never for punishment.) Conflicting with our *expectations* of a "Mother Nature," "she" often fails to provide us with food or water, protect us from harm, or demonstrate love.

So within the context of this example, we might say that, at least on a pragmatic level, the Nature as Enemy metaphor is more useful than Nature as Mother. This does not hold for all contexts, however. If we expand the scale to the entire relationship between humans and the biosphere, the metaphor Nature as Enemy is not only misguided, it is likely to result in our own extinction. We are *not* at "war" with the biosphere. If we act as if we are, however, we are likely to fundamentally disrupt the ecological and biophysical processes of which we are part, and upon which we critically depend for life itself. In this broader context, in fact, Nature as Mother is probably the more useful metaphor -- entailing a whole host of mutual obligations, respect, humility, care, reciprocity and love -- all behavioral norms which are more likely to promote ecologically sustainable behavior and human survival as a species (and many others as well).

Thus, Nature as Enemy is a very useful metaphor in a short-term, threatening context -- it focuses our attention on crucial needs to gather information, organize people and resources, and act in ways that will "defend" us against the "violence" and "fury" of the approaching "enemy." Yet this metaphor is also limited -- it has enormous "blind

spots." A caricatured group (of course no group is actually this simplistic) using only this metaphorical frame is unlikely to direct much attention to appreciation or protection of those aspects of the natural world that are not a threat. They will tend to see the world as a dangerous, violent and malevolent place. They will also be blind to their fundamental dependence on the more-than-human world for air, water, food, health, and so on. We might say that they will have a "fortress mentality." The Nature as Mother metaphor, however, is largely the inverse, usually focusing attention on the nurturing and protecting aspects of the more-than-human world, while often neglecting the destructive ones.

Thus, metaphors have tremendous real-world, empirical implications for how we think and act. This is not to claim, however, that metaphors are the sole determining cause of human behavior (the idealist view of causality), but that metaphors do play a very important role in human cognition and behavior, which are dialectically engaged with socio-cultural, political, economic and environmental variables. This is a cybernetic or systems view of human behavior, in which human cognition is only one variable of a dynamically changing "web" of causation.

Cautionary Note

Before we explore the varieties of nature metaphors, I hasten to point out that first, each of these metaphorical frames is not *exclusive* in its culture, merely *prevalent*. Second, these complex, variable and changing cultures cannot be reduced to mere elaborations of a single metaphor. All cultures use multiple and often inconsistent metaphors, in different contexts and/or by different subgroups. This is especially evident in our own, increasingly global culture which, through writing, sound-recording, film and computer communication technologies, has brought together and made relatively accessible the full polyglot of human metaphors across time and space. Each of the nearly 100 metaphors I have

identified is available for use (though not equally due to the current predominance of modern, Western epistemologies, technologies and practices). This is in contrast to the relatively limited and closed metaphorical systems of indigenous people with limited contact with radically different worldviews. These societies are more likely to have available, and to rely on, a smaller range of metaphorical constructions of "nature."

CHAPTER III

NATURE AS OBJECT (CLASSICAL)

In the examination of the broad range of metaphorical constructions of "nature" used by different human societies across time and space, two very general patterns emerge. First, that the predominant modern, Western metaphors of "nature" assume it to be largely an inanimate, non-sentient *object* (fundamental presuppositions) -- Nature as (classical) Object. This is the commonly described subject-object (Martin Buber's "I -- It") relationship, in which only human beings are subjects, while the various manifestations of "nature" are objects. These assumptions support the common, contemporary sub-metaphors of Nature as a Stockpile of Resources, as Commodity, and as a Machine/Mechanical System. The first two sub-metaphors support modern capitalism, the third Newtonian physics and many scientific disciplines today.

Understanding our experiences in terms of objects and substances allows us to pick out parts of our experience and treat them as discrete entities or substances of a uniform kind. Once we can identify our experiences as entities or substances, we can refer to them, categorize them, group them, and quantify them -- and, by this means, reason about them.²⁶

Our embodied experience with objects thus provides an incredibly rich and powerful source domain for reasoning about nature. We speak of nature as an object, at many different scales. "Nature" refers to the universe at large, the planet Earth, and particular places, e.g. "wilderness" areas (a particularly Western construct). In fact, it is largely our daily experience with the "objects" of nature that give rise to the source domain in the first place. For example, "orange" refers to a particular, discrete object in the world,

²⁶Lakoff and Johnson, Metaphors We Live By, p. 25.

which we categorize as distinct from the same-level category "apple," while both are part of a superordinate category "fruit." We also count oranges, assign monetary values to them and ship them around the world. In fact, many of us learned basic lessons of arithmetic and categorization using word problems about "apples and oranges." Thus at the level of material reality (Williams's definition (c) -- "the material world itself"), "nature" is often understood as an object.

In general, objects have particular qualities, such as big or small, hard or soft, fragile or resilient. These qualities pepper our descriptions of "nature" -- we speak of the "fragility" of the earth or the "resiliency" of ecosystems in response to disturbance.

But this basic ontological metaphor of "object" allows much further elaboration. We constantly speak and think about "nature" as particular *kinds* of objects. One of the most pervasive in modern Western society is Nature as Machine. This metaphoric construction dates back to the dawning of the industrial revolution. In particular, it represents the transition between two paradigms: pre-Enlightenment conceptions of Nature as Organism and modern conceptions of Nature as Machine. As Carolyn Merchant writes,

As the unifying model for science and society, the machine has permeated and reconstructed human consciousness so totally that today we scarcely question its validity. Nature, society, and the human body are composed of interchangeable atomized parts that can be repaired or replaced from the outside...Because (of the Scientific Revolution) nature was now viewed as a system of dead, inert particles moved by external, rather than inherent forces, the mechanical framework itself could legitimate the manipulation of nature. Moreover, as a conceptual framework, the mechanical order had associated with it a framework of values based on power, fully compatible with the directions taken by commercial capitalism.²⁷

Thus, this metaphoric shift had profound implications for the ways human beings perceived, interpreted and acted with regard to the natural world.

²⁷Carolyn Merchant, The Death of Nature, p. 193.

Our experience of "nature," however, is not only of physical, material objects. We also experience the *processes* of "nature," such as the hydrologic cycle, the passage of seasons, day and night, etc. This is Raymond Williams's meaning (b) -- "the inherent force which directs the world." As George Lakoff and Mark Johnson detail in their manuscript Philosophy in the Flesh (forthcoming) we often understand processes in terms of the metaphor, External Events are Large Moving Objects. For example, history is a series of events, yet we often speak of them as large, moving, *noun*-objects in their own right. "The Revolutionary War made an impact on the American mind." "The Great Depression swept across the nation." "The Cold War split the world in half." Likewise, we often describe natural events as if they were objects. "The fire got out of control." "The earthquake shook California." "The tornado tore through Memphis." "Last winter crushed my spirit." In each of these examples, we take an event or process of nature and transform it into an object -- a discrete entity, which can be referred to, categorized, quantified and reasoned about. We do this so pervasively, so unconsciously, that it is difficult to recognize how profoundly these metaphors structure the way we think about the "driving forces of nature." As Alan Watts writes,

...the child has to be taught not only what words stand for what things, but also the way in which his culture has tacitly agreed to divide things from each other, to mark out the boundaries within our common experience. Thus scientific convention decides whether an eel shall be a fish or a snake, and grammatical convention determines what experiences shall be called objects and what shall be called events or actions. How arbitrary such conventions may be can be seen from the question, "What happens to my fist [noun-object] when I open my hand?" The object miraculously vanishes because an action was disguised by a part of speech usually assigned to a thing! In English the differences between things and actions are clearly, if not always logically, distinguished, but a great number of Chinese words do duty for both nouns and verbs -- so that one who thinks in Chinese has little difficulty in seeing that objects are also events, that our world is a collection of processes rather than entities.²⁸

²⁸Alan Watts, The Way of Zen, p. 19.

We often speak of both mountains and ecosystems as if they were distinct "objects." But where exactly does a "mountain" begin? At what point does a climber reach the base of a mountain? What separates it from the surrounding landscape? This is a futile question because, of course, a mountain *emerges* from the surrounding landscape -- it is not a strictly defined, separate object at all. Likewise, "ecosystems" are especially difficult to "pin down." Ecology is filled with endless debates about where a particular ecosystem begins and where it ends. Do we define it by watershed? By amounts of precipitation? By types of plant communities? By climate?

No ecosystems are truly separate and distinct objects. They are all connected to wider-scale systems, as well as containing countless systems within them.²⁹ Thus the Willamette Valley ecosystem is both connected to the larger Cascadia bioregion as well as containing prairie grasslands, freshwater river systems, and white oak forests, among many others. We talk, reason and study the Willamette Valley as if it were an isolated object, because, despite ultimately being an illusion, it is nonetheless a highly productive one -- we can learn a lot about natural processes by drawing these relatively arbitrary lines. We get into trouble, however, when we take this limited heuristic too seriously (reification), and ignore the larger and smaller scales the valley ecosystem is nestled between. Thus we make policy decisions (about air pollution for example) without considering the full range of influencing factors and impacts.

The Nature as Object metaphor thus allows the more-than-human world to be abstracted, quantified, divided, taken apart, analyzed, reduced, modeled mathematically, valued in commensurate monetary terms, sold, and traded. These metaphors are built upon the underlying presuppositions that "nature" is lifeless, inert, static, and non-sentient.

²⁹This is the pattern better evoked or activated by the metaphor Nature as Web. A Mandelbrot fractal provides perhaps an even better image/illustration of these recurrent patterns within patterns within patterns.

Thus nature is often thought to have little or no moral standing. Rather, nature is a neutral substrate -- conglomerations of inanimate matter that may be transformed at will by human beings into energy and material culture. These metaphors do, however, imply the possibilities of limits, degradation, waste, inefficiency, and breakdowns (among many, many others), metaphoric extensions which (without questioning the metaphor Nature as Object) can be successfully used to argue for more ecologically sustainable behavior.

In fact, a great deal of environmental literature describes, analyzes and critiques the contemporary human-nature relationship without questioning this presupposed, dominant metaphor. Classic works such as Beyond the Limits (Donella Meadows, et. al.) describe the earth as a finite, limited set of resources (objects), most of which are being squandered, wasted, degraded, overexploited or used inefficiently. The conservationist branch of the environmental movement ("founded" by Gifford Pinchot) consistently uses these basic metaphors and descriptions of "nature" and argues that this "stockpile" of "resources" must be *managed* more efficiently for utilitarian human needs. Resource management requires accurate "inventories," "accounting procedures," "cost-benefit analyses," and "strategic development plans." Scientists and managers attempt to *count* fish "stocks," and *measure* old-growth forests in terms of "millions of board-feet" and wilderness areas in terms of "acreage." In 1997, Robert Costanza (a leading ecologist) attempted to provide "The Value of the World's Ecosystem Services and Natural Capital" -- the unaccounted trillions of dollars humans receive as a "subsidy" gratis from nature (i.e. clean water, clean air, soil erosion mitigation, etc.).³⁰

The services of ecological systems and the natural capital stocks that produce them are critical to the functioning of the Earth's life-support system. They contribute to human welfare, both directly and indirectly, and therefore represent part of the total economic value of the planet. We have estimated the current economic value of 17

³⁰Robert Costanza, et. al., "The Value of the World's Ecosystem Services and Natural Capital," *Nature*, 1997.

ecosystem services for 16 biomes, based on published studies and a few original calculations. For the entire biosphere, the value (most of which is outside the market) is estimated to be in the range of US \$16--54 trillion per year, with an average of US \$33 trillion per year. Because of the nature of the uncertainties, this must be considered a minimum estimate. Global gross national product total is around US \$18 trillion per year.³¹

Thus, Nature as an Object is a pervasive and usually unquestioned metaphor, or worldview presupposition, that underlies much of our economic, political and cultural discourse and behavior.

The Nature as Object metaphor, however, has recently come under great scrutiny and criticism, and not only with the toppling of Objectivism by contemporary cognitive science. In a parallel movement, ecology (having already directed scientific focus to the importance of the *interrelationships* between objects, not just the objects themselves) has begun to question the underlying premise of a world composed of classical objects. Classical objects, as described by George Boas in The History of Ideas, are unified, coherent, stable, enduring entities, with distinct boundaries separating them from their surroundings, i.e. other "objects." A rock is a prototypical example of such an "object." Thus, a fundamental characteristic of classical objects is their non-changing, ahistorical, and permanent qualities.

This is an idea that we exercise and depend on every day. When I put my shoes in my closet at night, I expect them to still be there the next morning -- they do not seem to transform, change or move. This is our typical, everyday experience of the vast majority of objects in our lives. We then project this embodied experience onto more ambiguous target domains, such as the human soul, which has long been described and understood within the Western tradition as a separate, distinct, immutable object housed (or imprisoned) within the human body. Likewise, we commonly claim we have a "true self,"

³¹Ibid., p. 253.

a single, unified, coherent, individual and unchanging part of us which defines who we "really" are, our "essence." This is the Self as Object (classical), which can be "lost," "found," "possessed," etc. (which implies that we really have object-object relations between Self and Other, humans and nature). The Tibetan teacher Tsultrim Gyatso describes it like this:

To have any meaning such a self has to be lasting, for if it perished every moment one would not be so concerned about what was going to happen to it the next moment; it would not be one's "self" anymore. Again it has to be single. If one had no separate identity why should one worry about what happened to one's "self" any more than one worried about anyone else's? It has to be independent or there would be no sense in saying "I did this" or "I have that." If one had no independent existence there would be no-one to claim the actions and experiences as its own...We all act as if we had lasting, separate, and independent selves that it is our constant preoccupation to protect and foster. It is an unthinking habit that most of us would normally be most unlikely to question or explain.³²

This is a description of the Self as a (classical) Object. He goes on, however, to deconstruct this notion of a "lasting, separate and independent" self-object from the perspective of Buddhist meditation:

...all our suffering is associated with this pre-occupation. All loss and gain, pleasure and pain arise because we identify so closely with this vague feeling of selfness that we have. We are so emotionally involved with and attached to this "self" that we take it for granted...The meditator does not speculate about this "self." He does not have theories about whether it does or does not exist. Instead he just trains himself to watch...how his mind clings to the idea of self and "mine" and how all his sufferings arise from this attachment. At the same time he looks carefully for that self. He tries to isolate it from all his other experiences. Since it is the culprit as far as all suffering is concerned, he wants to find it and identify it. The irony is that however much he tries, he does not find anything that corresponds to the self.³³

Francisco Varela, Evan Thompson and Eleanor Rosch, in their book The Embodied Mind, describe how we often identify our selves with our bodies:

³²quoted in Francisco Varela, et. al., The Embodied Mind, pp. 62-63.

³³Ibid.

Is our body our self? Think how important our body and possessions are to us, how terrified we become if the body or important possessions are threatened, how angry or depressed we become if they are damaged. Think of how much effort, money, and emotion we spend on feeding, grooming, and caring for the body. Emotionally we treat the body as though it were ourself. Intellectually we may do so also. Our circumstances and moods may change, but the body appears stable. The body is the location point of the senses; we look at the world from the vantage point of the body, and we perceive the objects of our senses to be related spatially to our body. Though the mind may wander, sleeping or daydreaming, we count on returning to the same body.³⁴

Yet, as much as we do identify the body as our "self" we also frequently understand the self as something separate. If we lose a finger or any other body part, we do not normally feel we have completely lost our identity (Although it is interesting to note the anguish of identity for many men when they become impotent or develop prostate cancer. Similarly many women encounter an identity crisis upon losing a breast to cancer, or upon reaching menopause. Athletes who suddenly become paralyzed also struggle to redefine "who they are."). This shift in self-identification with the body or without it, often happens instantaneously. For example, if, while playing a game of soccer, I kick the ball past the goalie and into the net, I am likely to run around claiming that "I scored the goal." If while celebrating, however, I trip and stub my toe, I may limp to the sideline and upon being asked by a teammate what is wrong, will reply "My foot is killing me!" Suddenly, the same foot which kicked the goal, and was identified as part of Self, is now Other and is hurting Self. This is an example of a kind of figure/ground Gestalt shift that we do all the time.

Beyond this example, however, modern medical research and ecology are demonstrating that the body is not the lasting, separate and independent "object" that we commonly assume. We now understand that the body is constantly exchanging molecules and atoms with its environment -- with every inhale and exhale, with every morsel of food

³⁴Ibid., p. 65.

or drop of water incorporated and subsequently excreted. Every cell is not a static object, but a constant process of construction and deconstruction. It is estimated that within a single year, every cell and every atom in the body has been replaced. Who I am now (in terms of my body) is literally not who I was 5 minutes ago. The body is better understood as a temporary and transient collection of atoms held for a moment (or moments, as bones "turn over" slower than stomach linings) and then released back into the surrounding environmental flux.

Likewise, we now understand that our bodies are not wholly "ours." According to biologist Lynn Margulis, our bodies harbor as many microbial cells (prokaryotes) as animal cells (eukaryotes), most of them playing an essential role in our metabolism³⁵ -- we can't live without them. Our mouths and digestive systems are filled with countless microorganisms such as (helpful) acidophilus bacteria as well as harmful microbes, for which we have evolved immune systems to "defend" ourselves. Ecologist Edward Goldsmith writes, "(Rene) Dubos traced the source of disease to a breakdown in critical balance between man and his microbes, precipitated by different factors: old age, malnutrition, low-level radiation, chemical pollutants, or virus that disrupts the immune system."³⁶ Thus, we are beginning to understand that the human body is better described not as an object, but as an *ecosystem* nested within and interconnected to the larger ecosystems of which we are a part, locally to globally. This conception of the body has radically different implications for our understanding of Self, Other and the relationships between them.

At the same time, the natural sciences are increasingly calling our common-sense conception of "objects" into question. From the study of geology, for example, we find

³⁵quoted in Edward Goldsmith, *The Way*, p. 31.

³⁶Ibid., p. 31.

that rocks are not the stable, non-changing and ahistorical "objects" we experience. The crucial distinction is one of temporal scale. We experience rocks from a human-centered scale of time. Geology informs us, however, that in fact rocks do change and move, albeit at a much slower rate than we do. Likewise, from the study of quantum physics, we find that rocks are not the non-changing, ahistorical, distinctly bounded "objects" we experience. In this case, the crucial distinction is one of spatial scale. We experience rocks from a human-centered scale of space. Quantum physics informs us, however, that in fact, rocks are swirling and vibrating with energy, constantly exchanging atoms with their surroundings, and moving (although imperceptibly to our gaze).³⁷

What we find therefore, is that classical objects are in fact *processes* -- which imply dynamism, change, fluidity, and openness to "external" influence. Objects begin to look

³⁷David Bohm describes the paradigmatic shift from an Object-based, mechanistic understanding of "reality" to this more "fluid" conception: "Relativity theory was the first important step away from the mechanistic vision...Instead of having separate little particles as the constituents of matter, Einstein thought of a field spread through all space, which would have strong and weak regions. Some strong regions, which are stable, represent particles. If you watch a whirlpool or a vortex, you see the water going around and you see that the movement gets weaker the farther away it is from the center, but it never ends. Now the vortex does not actually exist; there is only the moving water. The vortex is a pattern and a form (an image schema) your mind abstracts from the sensations you have of moving water. If two vortices are put together, they will affect each other; a changing pattern will exist where they modify each other, but it will still be only one pattern. You can say that two exist, but this is only a convenient way of thinking. As they become even closer together, they may merge. When you have flowing water with patterns...none of those patterns actually has a separate existence. They are appearances or forms in the flowing movement, which the mind abstracts momentarily for the sake of convenience. The flowing pattern is the ultimate reality, at least on that level. Of course, all the nineteenth-century physicists knew this perfectly well, but they said that *really* water is made of little atoms, that neither the vortices nor the water are the reality: the reality is the little atoms out of which it is all made. So the problem did not bother them.

But with the theory of relativity, Einstein gave arguments showing that thinking of these separate atoms as existent would not be consistent. His solution was to think of a field not so different from the flowing water, a field that spreads through all space and time and in which every particle is a stable form of movement, just as the vortex or whirlpool is a temporarily stable form that can be thought of as an entity which can be given a name. We speak of a whirlpool, but one does not exist. In the same way, we can speak of a particle, but one does not exist: "particle" is a name for a certain form in the field of movement. If you bring two particles together, they will gradually modify each other and eventually become one. Consequently, this approach contradicted the assumption of separate, elementary, mechanical constituents of the universe. In doing so, it brought in a view which I call "unbroken wholeness or flowing wholeness." The universe is one seamless, unbroken whole, and all the forms we see in it are abstracted by our way of looking and thinking, which is convenient at times, helping us with our technology, for example." David Bohm, "Postmodern Science and a Postmodern World," p. 345-346. in Carolyn Merchant, ed., Ecology: Key Concepts in Critical Theory.

less like separate and distinct entities, and more like whirlpools in a flow of energy. Just as a whirlpool has no objective status (the whirlpool is merely a pattern and a form your mind abstracts from the sensations you have of moving water), no "object" is truly independent or permanent. The Buddhists are right when they claim that all is impermanence. At the temporal scale of geologic or cosmological time or the spatial scale of atoms and quanta, all is impermanent.

This is a revolutionary, paradigmatic change of perspective which draws upon radically different metaphors. Yet, in many ways, it runs contrary to our everyday experience, to our "common sense," i.e. what our senses tell us. In fact, this perspective is relatively inappropriate in our daily actions. From our human-scale perspective, "objects" like rocks or our own bodies appear lasting, separate and independent. We assume that objects act in classical (Newtonian) ways and for the vast majority of our interactions with the world, this assumption works exceptionally well. "Objects" maintain a certain mass, a certain shape, move with calculable force and speed (useful when trying to cross a busy street), and when at rest, seem to stay at rest.

In a similar fashion, our embodied, phenomenological experience tells us that the world is stable, unmoving and relatively flat. The vast majority of our actions in the world take this experiential knowledge for granted. We may occasionally remind ourselves that in fact the world is spherical, spinning, wobbling and moving at several thousand miles an hour through space, but this is usually abstract knowledge. We don't actually experience these facts bodily. Most of us go about our daily lives blissfully unaware of this constant instability. The difficulty arises when we mistakenly assume that these embodied level experiences can accurately describe the workings of *all* Nature. What we experience as "truth" at our embodied, human scale often turns out to be "false" at either larger or smaller scales of time or space. Yet we depend upon these human, embodied level "truths"

to successfully navigate and act in the world. Pragmatically speaking, these "truths" are true enough for the vast majority of our daily acts. They are useful heuristics. We will continue to treat the "objects" of the world as if they were lasting, separate and independent because for most purposes and in most contexts, this conception works.

When we shift our attention to the global environmental context, however, we find that "objectification," when reified to the status of absolute Truth, leads to ecologically devastating effects, as it allows us to ignore the interconnections between and underlying unity of Self and Other. Ecology and other natural sciences have thus questioned not only the traditional focus on objects instead of the interrelationships between them, but are also beginning to question the very notion of "object" itself.

A second general pattern of metaphorical constructions of "nature" is the predominant pre-Enlightenment (Western) and non-Western understandings of "nature," which assume it to be largely animate and sentient. Since human beings are also animate and sentient, these presuppositions imply the need for proper *relationships* with nature -- drawing on the rich, embodied, experiential knowledge all human beings have as social creatures. This is the commonly described subject-subject (Martin Buber's "I -- Thou") relationship, in which human beings *and* the various manifestations of "nature" are subjects. Thus arise a whole host of relationship metaphors used to perceive, interpret and ultimately act toward the natural world. Let's take a closer look.

CHAPTER IV

NATURE AS PERSON

...most American Indians, lived in a world which was peopled not only by human persons, but by persons and personalities associated with all natural phenomena...the typical traditional American Indian attitude was to regard all features of the environment as enspirited. These entities possessed a consciousness, reason, and volition, no less intense and complete than a human being's. The Earth itself, the sky, the winds, rocks, streams, trees, insects, birds, and all other animals therefore had personalities and were thus as fully persons as other human beings.³⁸

We have already briefly looked at two prevalent relationship metaphors -- Nature as Enemy and Nature as Mother -- which lead to contrasting assumptions and expectations about the world. There are, however, many more. Different cultures have emphasized different types of relationship, each of which entails its own particular set of inferences. As anthropologist Michael Kearney writes,

...people draw on their experiences and understandings in other areas of life, and fashion the answers out of this material. This process is referred to as *projection* and the ideas, the symbols, the false knowledge so created are uncritically assumed to be "out there" in the real world. These images are thus *reified*, and assumed to be aspects of the environment, when in fact they are reflections of that environment, especially of social structure...Projections are in a sense metaphors of reality. Like metaphors, they make that which is relatively intangible, abstract, or poorly apprehended appear more concrete by likening it to something that is more directly experienced, e.g. time *flows*, love is *sweet*....By means of projection and reification a people thus provide themselves with the content and structure of their religion, myths and other forms of folklore.³⁹

The Nature as Person superordinate category is quite diverse and complex, as it potentially draws upon the entire range of human experience with living, sentient beings.

³⁸J. Baird Callicott, "Traditional American Indian and Western European Attitudes Toward Nature: An Overview," p. 305.

³⁹Michael Kearney, *Worldview*, pp. 117-118.

First, it is important to note that "personhood" is not necessarily limited to human beings. Many cultures presuppose (unquestioned worldview assumptions) that humans are not the only conscious, sentient beings with agency. Many cultures understand animals, plants, insects, rivers, sun, moon and the earth itself to be "persons" who think, feel, choose, and willfully act. In this sense, humans and nature were fundamentally the same. Both shared an ontology of life, sentience, and agency, though these qualities were manifested quite differently by different beings. Just as individual human beings have different personalities, desires, motivations and forms of expression, so too did the various beings of nature. Just as individual human beings form a variety of relationships with one another, so too did the various beings of nature -- among themselves (bear with other bear), with other beings of nature (bear with trees), and with humans (bear with me!).

Second, the issue of scale is critical. Different personhood metaphors are used, depending on what scale of "nature" is being contemplated. For example, while the cosmos as a whole is often called "Mother Nature," it does not usually evoke body-part sub-mappings, that is, we do not speak of the "foot," "shoulder" or "face" of the universe. When, however, we contemplate relatively more human-scale "nature," such as a particular geographic feature or landscape, we often do evoke body-part sub-mappings, speaking of the "foot," "shoulder" or "face" of a mountain. Thus at the level of human phenomenological experience, we tend to use more elaborate metaphorical projections of "personhood" onto "nature."

So "nature" may be conceived as either a human or non-human *organism*. I am defining this as a very generalized category, with relatively few specific mappings (this is not a complete mapping, just several important examples to demonstrate the metaphoric projection):

Nature as Organism

<u>Source Domain</u>	<u>Target Domain</u>
Organism ----->	Nature
Life ----->	Nature is Alive/Animate
Death ----->	Nature can Die
Life Cycle ----->	Seasonal Cycle
Body ----->	Earth, Celestial Objects
Motion ----->	Processes of Nature (seasonal cycle, weather, day and night, etc.)
Reproduction ----->	Spring and Summer, new plants, animals, fish
Health ----->	Homeostasis/Stability of Ecosystems
Aging Process ----->	Entropy

Many cultures conceive of "nature" (especially the metonymy "earth") as alive.

Just one example is the Kogi of Northeastern Columbia, who state,

The earth has its blood and it has its water. When we bleed we die. When they dig things out of the earth, when they take stones out, they are bleeding this world and it could die. Taking the gold out of the earth like this it can die. -- Kogi elder⁴⁰

This example not only demonstrates the basic idea that the earth is alive, but also highlights a further metaphorical construction -- the earth has a *body* in which gold is the equivalent of blood. I will discuss this level in further detail in a moment.

Carolyn Merchant's pathbreaking work on changing views of nature in Western history is itself entitled The Death of Nature. She describes how pre-Enlightenment

⁴⁰Alan Ereira, The Elder Brothers, p. 156.

Europe predominantly believed nature was an organism, a living being. As just one example, the 16th century alchemist Basil Valentine wrote,

The quickening power of the earth produces all things that grow forth from it, and he who says that the earth has no life makes a statement flatly contradicted by facts. What is dead cannot produce life and growth, seeing that it is devoid of the quickening spirit...This spirit is the life and soul that dwell in the earth, and are nourished by heavenly and sidereal influences...This spirit is fed by the stars and is thereby rendered capable of imparting nutriment to all things that grow and of nursing them as a mother does her child while it is yet in the womb...If the earth were deserted by this spirit it would be dead...⁴¹

Within the overarching category of organism, however, there is one particularly important kind -- the human being. It is not surprising that human beings predominantly use themselves as the source domain to map onto "nature." At this level we encounter both anthropomorphism and the pathetic fallacy. Here is a brief mapping, which is not intended to be comprehensive, merely suggestive:

Nature as Human Being

<u>Source Domain</u>	----->	<u>Target Domain</u>
Human	----->	Nature
Consciousness/Sentience	----->	Consciousness/Sentience
Emotion	----->	Weather, Natural Disasters, etc.
Oral Language	----->	Sounds of Nature
Written Language	----->	Entities of Nature

At this level, various human attributes are projected (rightly or wrongly) onto various scales of "nature." Nature is personified as a willful, emotional, communicative

⁴¹Carolyn Merchant, The Death of Nature, p. 27.

being. We speak of "listening" to or "communing with" nature as if it were a being that speaks.

Did you know that trees talk? Well they do. They talk to each other, and they'll talk to you if you listen. Trouble is, white people don't listen. They never learned to listen to the Indians so I don't suppose they'll listen to other voices in nature. But I have learned a lot from trees: sometimes about the weather, sometimes about animals, sometimes about the Great Spirit. -- Walking Buffalo of the Stoney Tribe (Canada)⁴²

This quote is representative of many animist traditions, which perceive all living beings as conscious, sentient agents. As Walking Buffalo states, human beings can *learn* a lot from these other beings, if we will only stop to "listen."

Likewise, Nature has often been constructed as a written text, often of divine origin, waiting to be "read" by human beings. Perhaps the most famous illustration of this metaphor is the statement of the "father of modern science;" Galileo Galilei,

Philosophy is written in that vast book which stands ever open before our eyes, I mean the universe; but it cannot be read until we have learnt the language and become familiar with the characters in which it is written. It is written in mathematical language, and the letters are triangles, circles and other geometrical figures, without which means it is humanly impossible to comprehend a single word.⁴³

Nature is also often metaphorically constructed as a sensitive, emotional being. For example, even today it is nearly impossible to hear to a weather forecast that doesn't mention the "wrath" of nature.

The Roman compiler Pliny (AD 23-79), in his *Natural History*, had specifically warned against mining the depths of Mother Earth, speculating that earthquakes were an expression of her indignation at being violated in this manner: "We traced out all the veins of the earth, and yet...are astonished that it should occasionally cleave asunder or tremble: as though forsooth, those signs could be any other than

⁴²J. Donald Hughes, *American Indian Ecology*, p. 49.

⁴³R. Collingwood, *The Idea of Nature*, p. 102.

expressions of the indignation felt by our sacred parent! We penetrate into her entrails, and seek for treasures...as though each spot we tread upon were not sufficiently bounteous and fertile for us!⁴⁴

As with the Kogi and Basil Valentine examples above, this quote demonstrates a multiplicity of metaphorical constructions -- Nature as Organism, as Human, as Female, as Mother, and as Embodied. Thus, "mother" earth has "veins" and "entrails," "trembles," is "indignant" and can be "violated" -- all of which presuppose the "personhood" of nature.

At the sub-level of Nature as Human *Body*, we find an incredibly elaborated set of metaphorical constructions. Nature at many different scales is described and reasoned about in terms of the human body. A few salient mappings:

<u>Source Domain</u>	<u>Target Domain</u>
Human Body ----->	Earth
Microcosm ----->	Geocosm
Body Parts Integrated into a Whole ----->	Nature's Parts Integrated into a Whole
Body as Hierarchical System ----->	Nature as Hierarchical System
Internal Processes ----->	Nature's Internal Processes

As Carolyn Merchant details,

The Renaissance view of nature and society was based on the organic analogy between the human body, or microcosm, and the larger world, or macrocosm...The primary view of nature was the idea that a designed hierarchical order existed in the cosmos and society corresponding to the organic integration of the parts of the body -- a projection of the human being onto the cosmos...The macrocosm theory...likened the cosmos to the human body, soul, and spirit with male and female reproductive components. Similarly, the geocosm theory

⁴⁴Carolyn Merchant, The Death of Nature, p. 30.

compared the earth to the living human body, with breath, blood, sweat, and elimination systems.⁴⁵

These are relatively generic, superordinate mappings. At the level of specific body parts, however, we find an enormous array of metaphors. For example, the Kogi equate blood with gold, while we continue to speak of "veins" of valuable minerals. The "mouths" of volcanoes "vomit" from the "bowels" of the Earth, while earthquakes and floods "swallow" whole villages. Humans alter the "face" of the Earth while rock climbers scale cliff "faces." Strip mines, clearcuts and plowing "wound" and "scar" the "skin" of the earth, while penetrating deep into the Earth's "flesh" which is often called an act of "rape." We speak of "muscular" hills, "naked" earth, and forests "clothing" mountainsides. Hurricanes have an "eye" while mountains have "shoulders," "flanks," "feet," and "heads" -- which are either "bearded" with vegetation or "bald." Ridges are described as "bony" "spines" exposing the "skeletal structure" of the earth. Many mountains are described as breasts -- some explicitly -- including the "Grand Tetons" in Wyoming, the "Paps of Jura" in the Inner Hebrides, and "Sannie's Tits" in South Africa.⁴⁶ The earth and sea are also often described as breasts, while caves, mines and lagoons have long been associated with the vagina.

The Kogi (who are the sole remaining intact pre-Columbian civilization in the New World) call Western civilization the "younger brother" and themselves the "elder brother." They recently invited a British historian to visit and film their remote mountain city (forbidden to all non-Kogi) in order to deliver a warning message to the Western world:

The earth is decaying, it is losing its strength because they have taken away much petrol, coal, many minerals. Younger Brother thinks, "Yes! Here I am! I know

⁴⁵Ibid., pp. 5-6, 23.

⁴⁶J. Douglas Porteous, "Bodyscape: The Body-Landscape Metaphor," pp. 2-12.

much about the universe!" But this knowing is learning to destroy the world, to destroy everything, all humanity...

The Mother is suffering. They have broken her teeth and taken out her eyes and ears. She vomits, she has diarrhoea, she is ill.

If we cut off our arms, we can't work, if we cut off our tongue we can't speak, if we cut off our legs, we can't walk. That is how it is with the Mother. The Mother is suffering. She has nothing.

Does the Younger Brother understand what he has done? Does he?⁴⁷ -- Kogi elder

At the sub-level of Nature as a *Female* Human, we especially begin to notice the importance of social and cultural constructs, e.g. what "female" means to the culture in question. Thus, in the modern West, we find constructs of the female gender as "passive," "receptive," or "irrational," all of which then get metaphorically projected onto nature. A major contribution of the ecofeminist movement has been to point out this equation of females with nature by a patriarchal society. Just as women have been exploited, oppressed and deemed inferior by a predominantly patriarchal society, so has "nature" been described and treated by this society in parallel fashion. As Carolyn Merchant describes the depiction of nature in Spenser's "Faerie Queen,"

The earth in Spenser's poem is passive and docile, allowing all manner of assault, violence, ill-treatment, rape by lust, and despoilment by greed. No longer a nurturer, she indiscriminately, as in Ovid's verse, supplies flesh to all life and lacking in judgment brings forth monsters and evil creatures. Her offspring fall and bite her in their death throes. The new mining activities have altered the earth from a bountiful mother to a passive receptor of human rape.⁴⁸

All of these metaphors -- Nature as Organism, as Human, as Female, and as Embodied -- are brought together in perhaps the single most prevalent and powerful metaphor for nature found across time and space -- Mother Nature:

⁴⁷T.C. McLuhan, *The Way of the Earth*, pp. 366-367.

⁴⁸Carolyn Merchant, *The Death of Nature*, p. 39.

Nature as Mother

The metaphoric construction of Nature as Mother is pervasive -- from T-shirts and bumper stickers with pictures of the Earth and a caption admonishing us to "love our mother;" to weathermen describing the "fury of Mother Nature." This is also one of the most powerful, cross-cultural and transhistorical metaphors for nature. Conceptions and descriptions of the "fertile earth, " and the worship of nature and earth goddesses (often portrayed as divine "mothers") can be found among human cultures around the world and throughout recorded history.

Yet, there is also the persistent sense that this metaphor misses something important, and thus mischaracterizes the environments in which we live. The conception of nature as Mother is a metaphoric mapping from the source domain of mothers onto the target domain of abstract nature. Mother, however, is a much more complex source domain than most, as it is a cluster model, with prototype effects.

As George Lakoff details in Women, Fire and Dangerous Things, "Mother is a concept that is based on a complex model in which a number of individual cognitive models combine, forming a cluster model."⁴⁹ Mother is a radial category, with four distinct idealized models of "motherhood" which are either closer or farther away from the central member of the prototype, made up of all four.

The first is the "Birth Model" and refers to the individual who actually gave birth to the child. The second is the "Genetic Model" and refers to the individual who contributed the genetic material to the child. In the past, this was always the same as the Birth Mother, but recently, with the invention of artificial insemination and surrogate mothering (a woman who carries another woman's child to term), this distinction has come into being. The third is the "Nurturance Model" and refers to the female person who nurtures and

⁴⁹George Lakoff, Women, Fire and Dangerous Things, p. 74.

raises a child. The fourth is the "Marital Model" and refers to the wife of the father. A fifth category is identified by Lakoff, the "Genealogical Model" which refers to the closest female ancestor of the child. In other cultures this may refer to what we would call the "aunt." This concept, although not part of Western culture, may give these cultures another way of conceiving of Nature As Mother, not available to us. For the sake of this discussion, however, I will focus on the first four models.

In our culture, the prototypical mother meets all four conditions -- the same person who gives birth is married to the father, provided half the genetic material and raises the child. A surrogate mother, however, who only gives birth to the child, meets only one condition, and thus is farther from the central prototype. A mother who provides the genetic material and gives birth, but does not marry the father or raise the child, but puts it up for adoption, is a case in between these other two extremes. It is this kind of mother that has led to such confusion and conflict among adopted children -- some consider her their "real" mother, while others consider the woman who raised them their "real" mother - - a conflict between the genetic/birth cognitive model and the nurturance cognitive model. Like other radial categories, the closer to the central prototype an example is, the more quickly and confidently a person identifies the example as a "mother." Here is a diagram:

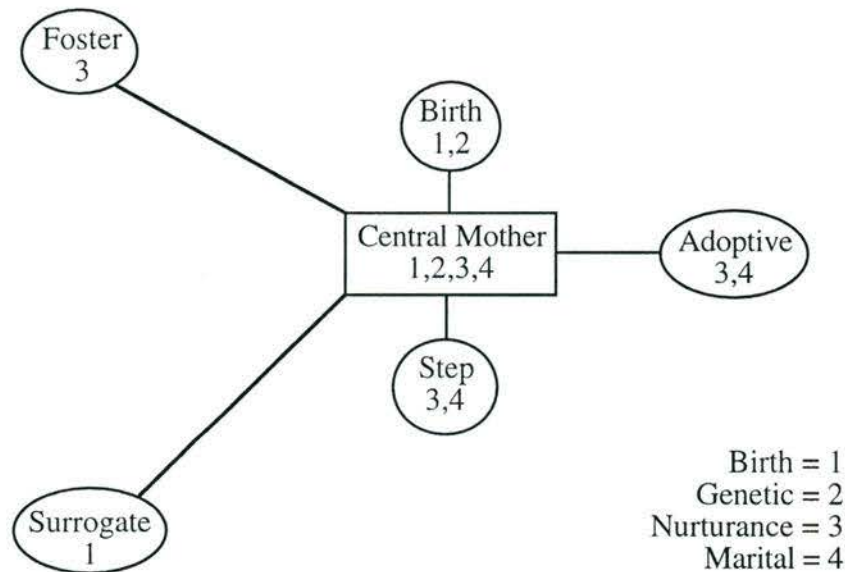


FIGURE 2. Mother Cluster Model

(Note that the adoptive mother, although also meeting two of the conditions, is a little farther away from the central prototype than birth or step mothers. This is because the adoptive mother is often married to a nurturant father of the child, not the genetic father. Connecting this diagram to one for fathers would complicate this further.)

So we see that there are four idealized cognitive models of "mother" -- each of which is valid, yet not equally valued. This understanding of the complex and differing understandings of human mothers helps us understand some of the conflict over what is meant by the metaphor Nature As Mother.

Birth Mother

Source Domain

Target Domain

Human Reproduction -----> Nature Reproduction

Mother and Father -----> Earth as Mother, Sun as Father

Fertility -----> Spring, Soil, Animals

Sterility/Barrenness	----->	Deserts, Rocks, Ice, Drought
Coitus/Impregnation	----->	Falling Rain, Sunshine, Seeds
Mother's Womb	----->	Nature/Earth's Interior
Warmth of Womb	----->	Warmth of Earth's Interior
Fetal Development	----->	Minerals/Metals grow in Earth
Mother Gives Birth	----->	Annual Cycles of Plant Growth Animal, Fish, Mammal Birth Human Birth
Birth Pains	----->	Spring Storms
Children	----->	Humans, Plants, Animals, Soil, Water, Air, Minerals, etc.

These sub-metaphors are entailments of Nature as a Birth Mother. This is common in many indigenous societies, which understand Nature (or the metonymy -- Earth) as the birth mother who carried the world, plants, animals, birds, fish and/or humans in her womb, giving birth to all in the mythic past. Often, the physical process of each human birth is conceived as a recapitulation of this original, mythic birth.

The above mapping is not comprehensive; rather it includes several pertinent examples from the range of human culture and history. This is not to claim that all cultures and all eras used each of these metaphors. For example, alchemists in pre-Enlightenment Europe inferred that since the Earth was a Mother, then metals "grew" inside of her body, metaphorically mapping human fetal development onto metals and minerals. As Carolyn Merchant has extensively documented, "For most traditional cultures, minerals and metals ripened in the uterus of the Earth Mother, mines were compared to her vagina, and metallurgy was the human hastening of the birth of the living metal in the artificial womb of the furnace -- an abortion of the metal's natural growth cycle before its time."⁵⁰ This

⁵⁰Carolyn Merchant, *The Death of Nature*, p. 4.

example demonstrates how a concept that seems bizarre to the modern reader, is perfectly logical when understood within the metaphorical frames of the era.

Many cultures have considered the sun or sky a "father," who impregnates the "mother" Earth with sunshine or rain, a clear metaphorical projection from human reproduction. This metaphor was used by countless tribal cultures, such as the Navaho and Lakota, as well as pre-Enlightenment Europe:

We can see that the sky and the earth are not merely large parts of the world universe, but are of primary -- even principal rank...They are like mother and father to all the others...in the constitution of all things the earth and sun enter respectively as mother and father. -- Bernardino Telesio, Italian Philosopher, De Rerum Natura (1565)⁵¹

A famous passage in On the Revolutions of the Celestial Spheres (1543) by Nicolaus Copernicus (1473-1543), reviver of the heliocentric hypothesis...“Meanwhile, the earth conceives by the sun and becomes pregnant with annual offspring.”⁵²

[every human being was] a citizen and servant of the world, a child of Father Sun and Mother Earth. -- Giordano Bruno (1548-1600)⁵³

Genetic Mother

Gets extended to Social Structure/System category of Nature metaphors:

Nature as Family

Other Species as Kin (both in traditional native cultures and modern genetics)

Many tribal societies also have a Genetic conception of Nature As Mother. This conception is not understood in modern biological terms, yet some of these societies do think of themselves as fundamentally related to nature. This understanding is often

⁵¹Ibid., p. 25.

⁵²Ibid., p. 16.

⁵³Ibid., p. 25.

metaphorically extended to define the various non-human aspects of nature as siblings or kin -- plants, animals, etc. as blood relatives. I will provide some examples of this metaphoric extension below in the discussion on Nature as Human Social Structure/System metaphors.

Marital Mother

The Marital Model can also be found in some indigenous traditions, such as the Hopi, that conceive of the world as the product of "Father Sky (or sun)" and "Mother Earth." (I will provide some further examples of this below in the discussion on Nature as Human Social Structure/System metaphors.) It is interesting to note, in this context, that the Judaeo/Christian/Islamic cosmology posits only a "Father" God, who created the world without need for a mother -- a non-reproductive act of creation. This is part of the reason few Westerners understood nature in terms of this idealized Marital model. Yet not all -- the alchemical tradition in pre-Enlightenment Europe reasoned extensively about nature using this marital metaphor:

There is in every star and in this elemental world a certain principle which is the "bride of the sun." These two in their coition do emit semen, which seed is carried in the womb of nature. But the ejection of it is performed invisibly and in a sacred silence, for this is the conjugal mystery of heaven and earth, their act of generation, a thing done in private between particular males and females; but how much more think you between the two universal natures. Know therefore that it is impossible for you to extract or receive any seed from the sun without this feminine principle which is the wife of the sun...The one is not without the other, God having united them in His work of creation in a solemn, sacramental union. It will then be a hard and difficult enterprise to rob the husband of his wife, to part those asunder who God has put together, for they sleep both in the same bed, and he that discovers the one must needs see the other. -- Thomas Vaughn (1622-1666), alchemist⁵⁴

⁵⁴Carolyn Merchant, The Death of Nature, p. 19.

Nurturant Mother

To Earth, Mother of All -- Homeric Hymn XXX

I shall sing of well-formed Earth, mother of all and oldest of all, who nourishes all things living on land.

Her beauty nurtures all creatures that walk upon the land, and all that move in the deep or fly in the air.

O mighty one, you are the source of fair children and goodly fruit, and on you it depends to give life to, or take it away from, mortal men...Hail mother of the gods and wife of Starry Ouranos (sky)!⁵⁵

The one idealized model which seems to unite all cultural understandings of Nature As Mother, and by far the most important, is that of Nurturant Mother. This is the sense that Lakoff identifies in Moral Politics,

The nature-as-mother metaphor sees nature as nurturer and provider. The normal relationship of a child to a nurturant mother is one of attachment and love, something of continuing inherent value that cannot be bought and sold -- a relationship that gives meaning to one's life....The relationship is one of mutuality, of interdependence. And it is not a weak or temporary relationship, it is a continuing commitment.⁵⁶

This is the metaphorical relationship between humans and nature that many in the environmental movement promote, from the Sierra Club to Deep Ecologists, from scientists to native peoples. This is not a recent, or newly invented metaphor. In fact, it has probably been the dominant conception of "nature" in the vast majority of human societies throughout human history. It shows up in animist religious traditions around the world and in the archeological remains of nature goddess-worshipping cultures throughout Europe and the Middle East. This metaphor implies that nature intends and is motivated to act on the behalf of living beings -- to provide care, protection, and support. This is a

⁵⁵Apostolos N. Athanassakis, The Homeric Hymns, pp. 67-68.

⁵⁶George Lakoff, Moral Politics, p. 216.

personification of nature, and in many societies this role is gendered as female. It also implies a set of duties and responsibilities from child to mother, including love, respect, gratitude and reciprocation.

Critiques of Nature as Mother

How is this metaphor useful?

The Nurturant idealized cognitive model of mother as metaphor does seem to capture some of our experience of nature. Humans, like all forms of life, are dependent upon the more-than-human world for our very existence and continuing survival, just as we (as mammals) were once completely dependent upon our nurturant mothers. Our absolute dependence upon our mothers in the womb, linked by an umbilical cord, does provide a powerfully resonant metaphoric connection with our biological dependence on "nature" for the fundamentals of human life (air, water, food, shelter).

In contrast, what are the "blind spots" of this metaphor -- what aspects of nature does it ignore?

Motherhood, however, is associated with *human* mothers. Human mothers are self-conscious, sentient, intentional and motivated beings. A human mother is biologically motivated to nurture her child -- feeding, cleaning, protecting and loving. When we map this conception of mother onto nature, however, we begin to notice some troubling features. Non-living nature (by modern scientific understanding) is not a self-conscious, sentient, intentional and motivated being. The metaphor fails with each devastating tornado, hurricane, flood, earthquake, tsunami, volcano, and drought. Non-living nature is not a person, but a collection of ongoing, dynamic and interrelated processes that care not one iota for human or non-human life.

This is one of the hardest facts to accept about nature, because as human beings, we are socially evolved creatures, with a genetic propensity to look for intentionality and motivation in one another and other forms of life. We are intuitively impelled to seek motivation and *human* reasons for the events and phenomena we experience. We project our own human qualities onto the rest of the world, which is a powerful, but limited heuristic (something which helps us discover, learn and predict features of the world).

When we project our own qualities on other human beings, we are often able to accurately predict behavior (though not always, because we have also evolved capacities for deception). When we project our human qualities on animals, we are also often able to accurately predict behavior to the extent that that particular species demonstrates similar behavior (i.e. social animals like wolves, whales or birds). When, however, we project these qualities on natural forces like plate tectonics, solar radiation, and the hydrological cycle, we soon run into problems. These forces are predictable (to some degree) but not by anthropomorphization. Or rather, anthropomorphization is a much weaker predictor of these forces than it is of human and other living beings' behavior.

What kind of mother kills her own children with floods, fires and earthquakes? It is unfair and inaccurate to portray these forces as the product of an intentional being, yet we do it all the time. Many cultures, including our own, have understood "nature" by use of this metaphor. When disaster does strike, the empirical evidence of death and destruction causes immense cognitive dissonance -- "How could our mother do this to us?"

As I argued above, do we consider the evidence and give up the metaphor? Almost never. Instead, following the logical entailments of the metaphor, we often decide that "Mother Nature" is *punishing* human beings, for something we have done wrong. Humans have somehow failed to reciprocate, honor or obey "Mother Nature." This is perfectly logical, within the parameters of the metaphor. Conflicting with our *expectations*

of a "Mother Nature," "she" often fails to provide us with food or water, protect us from harm, or demonstrate love.

What are other implications of this metaphor -- in this time, in this culture?

A number of eco-feminist scholars are beginning to question the usefulness of this metaphor as a way of motivating people to act in ecologically responsible and sustainable ways. Catherine Roach argues that we must also consider the social context in which we use this metaphor. In a predominantly patriarchal society, the definition of motherhood (the source domain of the metaphoric mapping) is itself highly problematic. Our society, she argues, does not "unambiguously love" mothers. Their housework and childrearing is unpaid, seldom recognized or appreciated, and mothers are often abandoned to raise children alone.

[The idealized] Mother in patriarchal culture is she who provides all of our sustenance, and who makes disappear all of our waste products, she who satisfies all our wants and needs endlessly and without any cost to us. Mother is she who loves us and will take care of us no matter what. The last thing the environmental movement should do is encourage us to think of the environment in these terms.⁵⁷

Kathleen Dean Moore, in her recent book Riverwalking, also traces some of the negative logical entailments of the Nature as Mother metaphor in modern society:

Last spring, I saw a student on campus in a T-shirt that said, "Love Your Mother," and showed an astronaut's photo of the cloud-splashed Earth. To be honest, the T-shirt irritated me, and so did the student. I wondered if he ever wrote to his mother or remembered her birthday. I wondered if the student had figured out what it means to think of the Earth as a mother. I wondered if he had even thought about it, if he had any idea how complicated the analogy is, if he was ready to take a stand as to exactly how -- in what particular way -- we are supposed to understand the connection between the Earth and a mother, and what difference that connection makes for the way we live, what obligations it imposes.

⁵⁷Catherine Roach, "Loving Your Mother: On the Woman-Nature Relation," in Karen J. Warren, ed., Ecological Feminist Philosophies, p. 55.

Maybe he's pointing out that the Earth, like a mother, is productive, reproductive, and that we humans are born of the earth, just as the Earth is born of star-matter spinning in long spirals from the explosion of the Big Bang. But what difference does that relationship make? Humans may be made of earth-matter, but so are Oldsmobiles, and that doesn't make the Earth into the Mother of Oldsmobiles, and it doesn't explain the source of our obligations.

Sometimes I think the earth-mother analogy is just wishful thinking. It's comfortable to have a mother around the house. Mothers can usually be counted on to clean up after their children. Mothers provide for their children; they cook regular meals and pack healthy snacks. Mothers are warm-hearted and forgiving; they are the ones who follow crying children to their rooms and stroke their hair, even if the child's sorrow is shame at his treatment of his mother.

What great fortune it would be for us if the Earth were a mother like this. If people are going to bury metal cylinders of strontium-90 inside sacred desert mountains, if we are going to poison coyotes and hang their corpses on barbed-wire fences, if we are going to send sulfur into the sky until the needles fall off pine trees, if we are going to poison the water we drink and the fruit we eat, then I suppose it is nice to think that the Earth is a mother who will come behind us and clean up the mess and protect us from our mistakes, and then forgive us for the monstrous betrayal.

Or is the college boy's T-shirt really saying something important about our obligations, telling us to treat the Earth as lovingly as we would treat our own mothers? The thought made me uneasy; I wanted to run after the student and warn him to be careful, to learn more about history, to study Europa or the Sabine women, to think about how he treats his own mother, before he wears a shirt that gives such reckless advice.

Analogies, once drawn, are powerful, magical, impossible to control. This one cuts in ambiguous and dangerous ways.⁵⁸

Kathleen Moore's critique of the logical entailments of "Love Your Mother" highlights a crucial distinction between cultural constructs of "motherhood." Some cultures define an ideal "nurturant mother" as one that provides *unconditionally* and without end. Others, such as our own, have a more fluid and changing definition. That is, an ideal "nurturant mother" should provide unconditional love to an infant, but as the child grows and matures into an adult, the relationship changes from one of *dependency* to *interdependency* and *reciprocity*. Thus grown children in our society are expected (ideally) to participate with their parents in a relationship with mutual obligations, duty and respect.

⁵⁸Kathleen D. Moore, *Riverwalking*, pp. 67-69.

This is a dramatic shift in the balance of power between parent and child which, when metaphorically projected onto "nature" has profound ecological implications. Anthropologist Kay Milton (in a critique of the Western tendency to ascribe nature wisdom to *all* native peoples) describes a fundamental difference between cultures which believe "mother earth" will always provide unconditionally, versus those which believe humans (as grown-up children) must *participate* in a *reciprocal* relationship -- that not only will humans suffer if "mother earth" stops providing, but that humans are likewise responsible for maintaining the "health" of "mother earth."

Drawing on her own experience among the Nayaka, and comparative material on the Mbuti of Zaire and the Batek of Malaysia, all of whom have immediate-return systems, (anthropologist) Bird-David argued that these groups trust their environments to fulfill their needs by giving freely to them without imposing obligations or asking for any return.⁵⁹

Thus, when tribal cultures, who hold the unconditional provider view, begin to adopt Western technologies, they often overexploit their environments no less than Westerners do (who hold the Nature as Object/Commodity view). Since "mother earth" is a limitless, unconditional provider, conservation and sustainable use make little sense. Many of these cultures have overharvested their reefs and forests, polluted their rivers, and degraded their soils. Other tribal cultures, however, such as the Kogi, Australian Aborigines, and Native Americans, who also conceive of the Earth as Mother and acquired the same sophisticated technologies, did not overexploit their resources, because they viewed themselves as engaged in a co-dependent relationship with the natural world, with mutual obligations and self-restraint. Thus different cultural constructions of an idealized "mother" lead to dramatically different ecological behaviors.⁶⁰

⁵⁹Kay Milton, *Environmentalism and Cultural Theory*, p. 119.

⁶⁰*Ibid.*, pp. 109-127.

Nature As Mother is one of the most complex metaphors we have for understanding our relationship to the more-than-human world. It is highly problematic, in that it blinds us to significant features and experiences of nature, and has often impelled humans to react to natural disasters in various ways -- often with profound consequences (purification of religious faith, persecution of scapegoats, and sacrifices -- all in the attempt to re-establish the nurturant relationship with "mother nature.") and sometimes counter-productively (not moving from a flood-plain, active volcano, or drought-stricken area because one believes "nature" cares for her human children).

Yet, Nature As Mother is also one of the most pervasive and powerful metaphors we have to encourage ecologically sensitive behavior. It is immediately understandable by all human beings -- almost all of us have embodied experience of a mother, and/or have rich cultural *ideals* of a nurturant mother, which impose mutual duties and obligations upon children. Like nurturant human mothers, nature provides us with far more than we can ever repay -- air, water, food and life itself. Like all metaphors, Nature As Mother captures some important aspects of our human experience, yet misses others. It is thus a powerful conceptual tool, that can do a lot of work for us, in some situations and not others. As Catherine Roach argues, in a post-patriarchal world, perhaps we could use the metaphors of mother, father, parent, sister, child, at different times -- sometimes emphasizing our interconnection with nature, sometimes emphasizing "our unique role as observers and shapers of the environment."⁶¹ Fortunately, we have many such metaphors, that draw on many different source domains, in type and in kind.

Nature as Person metaphors can thus draw on the diverse range of human-human relationships as a way of understanding the human-nature relationship. Nature can thus be personified as Mother, Enemy, Teacher, Companion, Older Sibling, Younger Sibling,

⁶¹Catherine Roach, "Loving Your Mother: On the Woman-Nature Relation," in Karen J. Warren, ed., *Ecological Feminist Philosophies*, p. 60.

Grandparent, and so on. Each of these sub-metaphors, while similar in many ways (such as presupposing life, sentience, agency, and embodiment) also activate the unique metaphoric entailments of the specific example. Thus, Nature as Mother implies a relationship quite different than Nature as Younger Sibling (a common Confucian metaphor, which implies a role for humans as "guardian" or "caretaker" for nature⁶²). The sub-metaphor Nature as Sexual Partner demonstrates the logical entailments of a particular metaphor, and their influence on human perception, interpretation and behavior.

Nature as Sexual Partner

An example of this metaphor can be found in the Mistassini Cree hunter's relationship with his prey. The Cree often describe hunting as an act of sexual intercourse and their mythic relationship with prey animals as one of marriage.⁶³ This metaphor links myth, hunting ritual and rites. Anthropologist Nurit Bird-David writes, "The supernatural side of the hunt from beginning to end is inferentially consistent with a sexual narrative (i.e. courtship/seduction/abduction; consummation; and procreation/reproduction.)"⁶⁴

<u>Source Domain</u>	----->	<u>Target Domain</u>
Sexual Partner	----->	Nature (animal prey)
human/human marriage	----->	human/animal marriage
courtship	----->	voluntarily gives its life
seduction	----->	coerced to give its life

⁶²(Confucianism) "If all creatures are kin, brothers and sisters, human beings are in some sense the eldest brothers and sisters. That is, they have a particular responsibility in encouraging and facilitating the smooth functioning of the ongoing transformative cosmic processes...to become a guardian, steward, or elder sibling to the rest of creation..." David Kinsley, *Ecology and Religion*, pp. 77-78.

⁶³Adrian Tanner, *Bringing Home Animals*, p. 148.

⁶⁴Nurit Bird-David, "Tribal Metaphorization of Human-Nature Relatedness," p. 113.

sexual intercourse	----->	killing
offspring	----->	animal carcass

Anthropologist Adrian Tanner describes a hunting myth about a young man who is hunting caribou with his family. During the hunt, he suddenly becomes able to experience it from the caribou perspective -- he enters "caribou reality."

He sees what to him appears to be a beautiful young woman, while to the hunters this appears as an ordinary female caribou. After the boy marries the caribou girl he joins the other caribou, who to him appear as Indians, living in small hunting groups." During a caribou hunt, the hunters see the caribou running from them, but the young man, watching the same event, "sees a person wearing a white cape running away and then throwing off the cape, which the hunter then picks up as the carcass."⁶⁵

This brief excerpt is rich with different metaphorical constructions of "nature." This describes caribou as *human beings* on a different level of reality. On this level, humans and caribou can be *married*. Additionally, this story describes animals living in small, hunting groups, just as the Mistassini Cree do, which involves a metaphoric projection of human social structure onto caribou social structure. Thus, social interactions between humans and animals are possible. Tanner writes,

...the victim can be represented as the female lover of the hunter...Preston has recently made a similar point in a study of the Cree of the East Coast of James Bay. By using material from hunting songs, myths and accounts of divinatory dreams, he concludes that there is a love relationship between the hunter and his prey...the relationship to the beaver is also analogously sexual, but whereas the caribou gives itself to the hunter eagerly (analogous to sexual lust) the beaver gives itself to be killed with the more decorous attitude of generosity.⁶⁶

Before a hunt, the hunter awaits a divinatory dream, in which a young woman, a stranger, appears, who is identified in waking life as his animal prey. He then dresses in

⁶⁵Tanner, p. 137.

⁶⁶Tanner, p. 138.

special garments, decorations and charms to "court," "seduce" and have "sex" with the animal. Bird-David also argues that the resulting carcass is brought home and, contrary to many other cultures around the world, given to the women to properly take care of -- "mothering" the "offspring" of the hunt. The feast in which the carcass is distributed is similar to feasts held after the birth of a baby. Additionally, Tanner reports that this metaphor is inverted back into the human sphere. Cree often use hunting terminology in descriptions of sexual intercourse.⁶⁷

Sexual relationship, while not the only metaphorical construction used by the Cree, is nonetheless prevalent. This metaphorical frame structures Cree perception, interpretation and behavior. Although thinking of "nature" as a human sexual partner seems very strange to us (in contrast to Nature as Mother) it is interesting to note that this relationship metaphor has been explored and extended by the contemporary nature writer Terry Tempest Williams, in her concept of the "erotics of place."⁶⁸ In Desert Quartets she extends this metaphor to its logical, experiential limit. Recalling an experience in a narrow desert canyon,

The silence that lives in these sacred hallways presses against me. I relax. I surrender. I close my eyes. The arousal of my breath rises in me like music, like love, as the possessive muscles between my legs tighten and release. I come to the rock in a moment of stillness, giving and receiving, where there is no partition between my body and the body of Earth.⁶⁹

Conclusion

We have examined only a few of the dozens of sub-metaphors of the Nature as Person category, but it should be clear just how powerful and pervasive, even within

⁶⁷Tanner, p. 178.

⁶⁸Terry Tempest Williams, "Yellowstone: The Erotics of Place," pp. 81-88.

⁶⁹Terry Tempest Williams, Desert Quartet, p. 10.

modern Western society, such metaphors are. Conceiving of nature as a person has had profound moral and behavioral implications for many cultures. Mircea Eliade, the historian of religion, documents cases from around the world of sowing or plowing performed nude, frequently by women, out of the belief that this would stimulate fecundity in the soil.⁷⁰ He notes also the Australian Aboriginal practice of men performing ritual intercourse on seed furrows with artificial phalluses, a widespread custom of women running naked across fields during times of drought to provoke rain from the sky, and ritual orgies at planting or harvest times to supercharge the environment with generative energy and to bring into the human community nature's own powers of creation and increase.⁷¹

The contrast and conflict between two metaphors for nature is exemplified in a famous mid-1800s quote by the Wanapum (Columbia Basin) spiritual leader Smohalla, who was being pressured by the Americans to give up his territory and adopt white ways. Here we see a direct confrontation between two worldviews, one which views Nature as Mother, and the other as Object.

You ask me to plow the ground! Shall I take a knife and tear my mother's breast? Then when I die she will not take me to her bosom to rest. You ask me to dig for stone! Shall I dig under her skin for her bones? Then when I die I cannot enter her body to be born again. You ask me to cut grass and make hay and sell it, and be rich like white men! But how dare I cut off my mother's hair?⁷²

Finally, as Carolyn Merchant describes the ethical and behavioral implications of the transition in Europe from an Organic to a Mechanistic view of "nature,"

⁷⁰Mircea Eliade, *Patterns in Comparative Religion*, pp. 332-334.

⁷¹Ibid., pp. 260, 356-357, 359.

⁷²James Mooney, "The Ghost Dance Religion and the Sioux Outbreak of 1890."

One does not readily slay a mother, dig into her entrails for gold or mutilate her body, although commercial mining would soon require that. As long as the earth was considered to be alive and sensitive, it could be considered a breach of human ethical behavior to carry out destructive acts against it.⁷³

These metaphors imply a continuing, participatory, and reciprocal relationship between humans and the more-than-human world. They suggest and often demand the need for respect, humility and restraint towards nature. As such, they have long restrained human behavior, leading to more sustainable use of the environment.

⁷³Carolyn Merchant, The Death of Nature, p. 3.

CHAPTER V

NATURE AS SOCIAL STRUCTURE/SYSTEM

A third superordinate category of nature metaphors is Nature as a Social Structure or System. This category is related to the Nature as Person category, in that individual species are personified, but believed to interact in human social arrangements. Two such examples are "Nature as Family" and "Nature as Many Societies."

One of the most common and powerful kinds of metaphorical relationships is that between persons connected by blood or marriage -- members of the same family -- or kinship. These metaphors are especially potent, as they draw upon the biological instinct to love, nurture and protect those individuals with whom one shares genetic material. Here are several different sub-metaphorical examples found in different native cultures:

The Family of Nature

<u>Source Domain</u>		<u>Target Domain</u>
Family	----->	Nature
Father	----->	Sky
Mother	----->	Earth
Each child	----->	Each living thing (plants, animals, humans)
Siblings	----->	Every other living thing
Family moral relations	----->	Nature moral relations

Hawaiians

In the Hawaiian creation myth, the world (the Hawaiian islands) and the first human child, a daughter Ho'ohokukalani, were created by the procreation of a mother figure, "Papa" and a sky-father "Wakea." Through an involved series of circumstances, Wakea (father) mates with Ho'ohokukalani, who gives birth to the taro plant (the staple food), and Haloa the Chief (progenitor of the Hawaiian chiefs and people). The Hawaiian people are thus represented as the younger siblings of their major food source, the taro. Taro, land and people are all children of Earth and Sky.

Hawaiian scholar Lilikala Kame'eleihiwa states, "throughout Polynesia it is the reciprocal duty of the elder siblings to feed the younger ones as well as love and care for them. The relationship is thereby further defined; it is the land and the taro which feeds, clothes, and shelters its younger brothers and sisters, the Hawaiian people. So long as Hawaiians love, serve, and honor their elders, the elders will continue to do the same for them, as well as provide them with all their physical needs."⁷⁴ Here the emphasis is on the reciprocation expected between related siblings, a family model which is metaphorically mapped onto nature, defining the "proper" relationship between humans and the more-than-human world.

Lakota Sioux

In Lakota cosmology, the sky is a father and the earth is a mother. In the words of Black Elk, "Is not the sky a father and the earth a mother, and are not all living things with feet or wings or roots their children?...the earth, [is] from whom we came and at whose breast we suck as babies all our lives, along with all the animals and birds and trees and

⁷⁴Lilikala Kame'eleihiwa, *Land and the Promise of Capitalism*, pp. 33-34, cited in J. Baird Callicott, *Earth's Insights*, p. 113.

grasses."⁷⁵ This world view, like the Hawaiian, also conceives of plants and animals as siblings, or kin. What is different, however, is that in this cosmology, the Earth is mother, rather than sibling. Nature is seen as a large, extended family, with mutual duties and obligations among all forms of life, earth and sky.

According to J. Baird Callicott, the Lakota "regarded non-human lifeforms as, if anything, superior to themselves. Indeed, animals and plants, in permitting themselves to be taken for legitimate human needs, are said to 'pity' people and to voluntarily sacrifice themselves for the sake of their younger siblings, the human beings."⁷⁶

Hopi

The Hopi also seem to posit a family relationship among all living things, as the result of the procreative act of a father god (the sun) and a mother god (the earth). Contrary to Hawaiian and Lakota cosmologies, however, the Hopi see themselves as having been made in their creators' image and as having been given the right to rule over the "lesser creatures" (plants and animals), similar to the Judeo-Christian account of Genesis. The Hopi creation myth, however, suggests a Nurturant Parent Morality in contrast to the Strict Father Morality of the Old Testament. This story also represents an interesting and very common theme in other creation myths -- an inanimate body (often made of clay) which requires a separate spirit for life. When this spirit departs, the body again is inert and lifeless.

This Hopi creation story begins with the male Sun God -- Tawa, and the female Earth Goddess -- Spider Woman. The two gods lived in the Underworld and had different

⁷⁵John C. Niehardt, *Black Elk Speaks*, p. 3.

⁷⁶J. Baird Callicott, *Earth's Insights*, p. 124.

powers. Tawa controlled the mysteries and power of the Above, while Spider Woman controlled the magic of Below.⁷⁷

[Tawa and Spider Woman decided that] they would make the Earth to be between the Above and the Below where now lay shimmering only the Endless Waters." So they sat together and sang the birds, beasts and fish into being -- Spider Woman molding their forms from clay. But they did not breathe or move until the two gods placed a white blanket over their forms and made an incantation, infusing them with spirit.

"Now, let us make ones like unto you and me, so that they may rule over and enjoy these lesser creatures," sang Tawa. Spider Woman shaped the figures of man and woman, but the blanket magic failed to bring them alive. So Spider Woman cradled them to her bosom, while Tawa gazed upon them. The two gods sang the magic Song of Life and thus humans were born.

Tawa then said, "Now that was a good thing and a mighty thing. So now all this is finished, and there shall be no new things made by us. Those things we have made shall multiply, each one after his own kind. I will make a journey across the Above each day to shed my light upon them." Then Tawa went to blaze upon the waters and cause the Dry Land to appear -- creating the first day on Earth.

Meanwhile, Spider Woman divided the people into groups, naming each -- Hopi, Zuni, Pah-Utes, and so on. She then led the people through the Four Great Caverns of the Underworld, until finally they emerged at the lowest depth of the Colorado River. Spider Woman then chose an animal to lead each clan to their home territory. Each clan then bore the name of this animal.

Spider Woman then told them that the woman of the clan shall build the house and the family name shall descend through her (a matrilineal society). Women shall mold the storage jars for food and water, shall grind the grain, and rear the children. The man of the clan shall build kivas to pay homage to his gods, where he will make sand paintings of colored sand.

Spider Woman then told the people that Lightning would "strike the earth to fertilize it, Rain Cloud will pour down waters, and Tawa will smile upon it so that green things will spring up to feed my children....I go now, but have no fear, for we Two will be watching over you...Obey the words I have given you and all will be well, and if you are in need of help call upon me and I will send my sons to your aid." She then stepped upon the whirling sand and disappeared into the earth.

This creation myth describes a world created by two nurturant parent Gods, one male and the other female. Like many other creation stories, plants, animals and birds are

⁷⁷G. M. Mullett, *Spider Woman Stories: Legends of the Hopis*, pp. 1-6.

brought into being before humans. One of the more interesting aspects of this story is that neither humans nor the plants, animals and birds come alive until the gods perform a special magic over them. This seems to indicate an idea of a separation between body and animating spirit. The body without spirit is simply a lump of clay.

One of the universal experiences of all humans is the observation of death -- that something (like a hunted animal, or a human companion) that was once alive, moving and animated, is suddenly inert, cold and lifeless. The body remains, yet the animating force seems to have disappeared. This observation and subsequent belief in an animating spirit makes "common sense." The observation of death may have added to the cross-cultural conclusion that there is an essential Subject, which in Western philosophy became a radically free ego separate from and transcendent of the body.

This creation story does not only explain how the Earth and its creatures came into being. It is also a promise of nurturance by both gods, Tawa and Spider Woman. She tells the first people that Lightning will fertilize the earth, Rain Cloud will water it, and Tawa himself will cross the sky each day to smile upon the land, so that plants to feed her *children* will grow, as well as to constantly keep watch over them. This is very important, as it sets up a particular kind of relationship between humans and the gods -- humans are their children. As long as the children "obey the words I have given you...all will be well." This implies that when things go awry, it is probably because the people have somehow disobeyed their parents. In addition, Spider Woman tells them that she and Tawa have not abandoned their children on the earth; rather, they are always watching over them and "if you are in need of help call upon me and I will send my sons to your aid." This is a nurturant parent model.

In these examples, we can see how these metaphorical constructions of "nature" structure human perception, interpretation and behavior. The metaphor of Nature as

Family entails a whole host of mutual obligations, responsibilities, particular roles, respect, and humility. All of these serve to *restrain* human behavior. Just as we restrain our individual wants and desires in day-to-day social relations (I can't just take whatever I want from my friends and family, if I want them to remain my friends and family), so conceptualizing "nature" as a family works to restrain individual human behavior.

Kinship

It is interesting to note that with the elaboration of Darwinian evolutionary theory, an increasing number of Western scientists, especially biologists and geneticists, are arguing for a return to this basic kinship metaphor of the human-nature relationship. Human beings share an estimated 98.4% of their DNA with chimpanzees⁷⁸, and lesser amounts with every life form on the planet. Thus, from a genetic perspective, we *are* all kin, to some degree.

We are human animals, related to all other life as descendants of the firstborn cell. We share with these kin a common history, written in our genes.⁷⁹ -- David Suzuki

The evolutionary unity of humans with all other organisms is the cardinal message of Darwin's revolution for nature's most arrogant species.⁸⁰ -- Stephen J. Gould

The past few years have made us aware as we have never been before of the depth of kinship among all living organisms...So all life is akin, and our kinship is much closer than we had ever imagined.⁸¹ -- George Wald, Nobel-Prize-winning biologist.

⁷⁸Jared Diamond, The Third Chimpanzee, p. 23.

⁷⁹David Suzuki, Time to Change, p. xv.

⁸⁰Stephen J. Gould, The Mismeasure of Man, p. 324.

⁸¹George Wald, "The Search for Common Ground," p. 46.

Astronomers often describe the Big Bang as the birth of the universe (nature), which highlights the birth metaphors we use to understand the process of coming into being. Carl Sagan, like Suzuki, also uses the Genetic model to describe nature,

And until we find more intelligent beings elsewhere, we are ourselves the most spectacular of all the transformations -- the remote descendants of the Big Bang, dedicated to understanding and further transforming the Cosmos from which we spring.⁸²

One of the most interesting aspects to the Nature as Kin or Family metaphor is the startling parallels between it and modern systems ecology -- both share a similar cognitive topology⁸³ or schematic structure. Systems theory (or cybernetics) is a revolutionary understanding of causality (one of the worldview universals). The classical view of causality derived from Newtonian physics, in which causation was believed to run in unilateral, linear chains of cause and effect: A -----> B -----> C. A causes B which causes C. By the logic of this example, cause runs unilaterally from A to C. The classic examples of this in the real world are dominos and billiard balls, both of which were often used to explain Newtonian physics (as well as international politics -- i.e. the "Domino Theory" that if the communists won in Vietnam, all of Southeast Asia would soon fall). It was long argued that if we only knew the initial position and velocities of all the atoms⁸⁴ in the universe, the entire history of nature up to this point could be explained, as well as the entire future of the universe perfectly predicted. Thus, nature was regarded as entirely deterministic.

⁸²Carl Sagan, *Cosmos*, p. 12.

⁸³George Lakoff, "The Contemporary Theory of Metaphor," p. 215.

⁸⁴Long thought to be the ultimate "objects" in nature -- the "building blocks" of everything else -- an assumption quantum physics demolished.

Systems theory, however, offers a radically different way of understanding how nature works. In systems theory, entities are not static, separate “objects.” Instead, entities are inherently dynamic, open and interrelated to one another. Causation is produced by webs of *feedback* between entities, which lead to changes in the overall system. Here is a diagram:

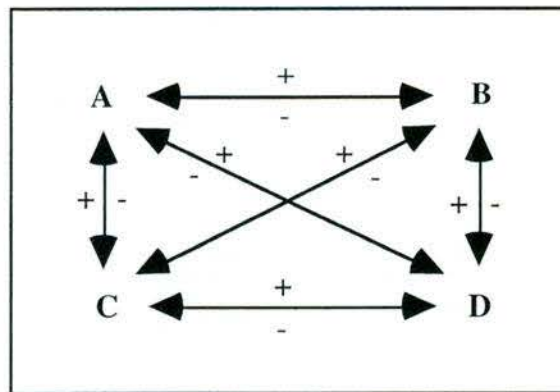


FIGURE 3. Cybernetic System Model

In this schematic, there are *feedbacks* -- represented by the arrows, which can be either positive or negative, at different intensities and frequencies (length of time to influence) -- between each of the entities (A, B, C, D). A change to any member of the system ends up changing (potentially) the entire system. As you add more and more entities, the system quickly becomes more and more complex, and difficult to predict. This is a basic, simplified model of systems theory.

A decrease in the wolf population may increase the elk population, which may decrease the shrub population, which may decrease the bird population, which may cause an increase in parasitic insects, which may lead to a decrease in wolf population, and so on. Thus, nothing is isolated or separate. Everything is interconnected with everything else through an incredibly complex web of ripple effects.

In addition, contemporary ecologists are recognizing that not all species are equally important in the maintenance of ecosystem stability. High trophic level predators such as the spotted owl may be removed from the system without altering the overall ecosystem to any great degree, largely because competing species will soon fill the vacant niche. Other species, however, are considered *keystone* species, without whom the entire ecosystem would dramatically change, because no other species exist which can fill their critical roles. "Beaver are keystone species in northern forests, because their ponds provide unique habitat for aquatic species, water birds, and amphibians."⁸⁵ Likewise, the Ochre Sea Star (*Pisaster*)⁸⁶ (another keystone specie) along the Pacific coast preys on blue mussels, thereby opening the intertidal zone to colonization by barnacles, sea stars and many other organisms, thus creating more diversity and complexity in the ecosystem. If the Ochre Sea Star were to go extinct, the entire ecosystem would dramatically change.

The amount of complexity and possibility in natural systems is truly staggering and seems extremely difficult to conceptualize as a whole. Yet this theory is perhaps not as difficult to understand as it might seem. Human beings, in fact, have a vast amount of embodied, experiential knowledge of how systems theory works in our daily lives. Consider the following diagram:

⁸⁵David A. Perry, Forest Ecosystems, p. 247.

⁸⁶Robert T. Paine, "Food Web Complexity and Species Diversity."

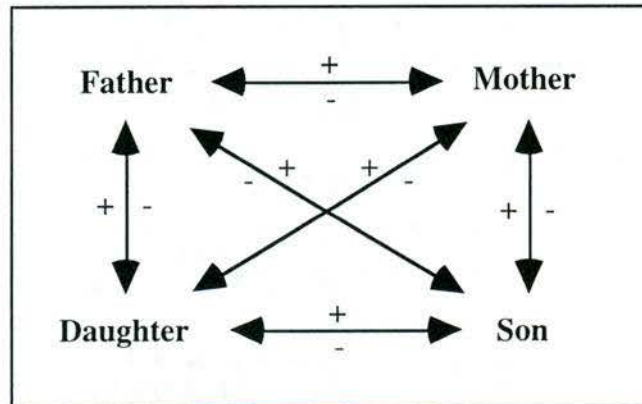


FIGURE 4. Family System Model

This is a systems model of the (American) nuclear family and depicts something we all have some embodied experience of. The relationship between any two members of the family is immediately altered as soon as another person enters the room. A son and daughter may be arguing, for example, but as soon as Mom walks in, the argument may stop (or at least change its tenor). Likewise, if one member of the family comes home in a rotten mood, it can quickly alter the mood of everyone else, either in sympathy or in reaction.

Each individual has a lifetime of practice learning how to balance oneself in relation to the changing needs, desires, emotions and experiences of the other human beings one is engaged with. We learn when it is appropriate to speak our minds, to perform certain actions, to ask particular favors, etc. In a broader sense, this is the day-to-day practice we all have as *political* animals, constantly judging the balance of our relationships and learning when to act, negotiate, bargain, or surrender. Politics is fundamentally about knowing how to recognize opportunities to change the system in one's own favor (or for one's cause). "Politics is the art of the possible" -- knowing when the complex system of relationships (alliances and enmities) have reached a critical threshold or bifurcation point, where one's actions can change the direction and balance of the entire system. All families

are thus like an ecosystem, constantly striving to achieve a homeostatic balance, yet constantly encountering disturbances from inside or outside the family system (which is, of course, linked to wider social systems, and the natural environment as well).

The family system also suggests that not all members affect the others equally. As a child, the son has a relatively more limited capacity to change the overall family dynamic than does the father (unless the son does something out of the ordinary, for example, getting into trouble, or getting very sick). Thus, a parent is a relatively more important figure in the functioning of the family system than, say, a 10th child. If the child dies, the system is undoubtedly affected (physically, emotionally, etc.) but will usually continue to function relatively intact. If the father or mother dies, however, the effects are usually far more dramatic.

From a systems theory perspective therefore, tribal societies which view Nature as a Family actually are using an experiential model (or source domain), *which more accurately parallels and describes the way ecosystems work*. Ecosystems and family systems share a very similar cognitive topology or schema structure. Both emphasize dynamics, openness and change. They also highlight the importance of *interrelationships* between entities. In fact, we should notice the polysemy of this crucial word -- relationship. Even the most positivistic, reductionistic, deterministic scientist (who attempts to describe and reason about an assumed material world composed entirely of nonsentient components) speaks of the "relationships" between variables -- a metaphoric mapping from the source domain of our embodied experience of human relationships.

Thus, the Nature as Family metaphor has very important implications for scientists and scholars attempting to explain and persuade decision-makers and the general public to adopt more ecologically sustainable behavior. We can throw the first diagram (modeling the interrelationships between A,B,C and D) up on an overhead as a way of illustrating the

interconnected dynamics of ecosystems, and watch people's eyes glaze over. On the other hand, relating the systems model to an embodied, experiential source domain, such as our human to human relationships within the family, provides an immediate and powerful explanation of essential ecological principles. At the same time, it validates the ecological understanding and even wisdom of tribal peoples around the world who have historically understood Nature as Family, and continue to do so today.

The Nature as Family metaphor is therefore very powerful and useful. Most human beings have a rich, embodied experience of kinship (both biological and social). Kinship also provides a metaphorical frame that, drawing on both biological instinct and universal social norms of co-dependence, respect, humility, love, value, nurturance, protection, loyalty, mutual obligation, and responsibility towards one's own kin, tends to restrain our worst impulses, such as egoistic greed and short-term thinking. This metaphor may be particularly useful in arguing for a whole host of environmental actions, including species preservation, habitat protection and ecosystem restoration. Of course, the metaphor hasn't kept human beings from killing one another, but in part that is because most people do not presently think of all other human beings as kin. Instead we usually operate with a very narrow conception of kinship, phrases such as "the brotherhood of mankind" or the "family of man" notwithstanding. Perhaps this conception, and the persuasiveness of the metaphor, will be expanded as understanding of the genetic kinship between all humans and all living creatures becomes more widespread.

But, of course, it is not quite this simple. There are many diverse kinds of family structure, which distribute power and authority in very different ways. In his book, Moral Politics, George Lakoff does an extensive and elaborate analysis of the root metaphors underlying the conservative/liberal debate in our nation's political system.

Strict Father Model

Lakoff claims that conservatives and liberals operate with fundamentally different worldviews, which, while using much of the same language, leads them to reason and value quite differently. His conclusion is that both sides share a single metaphoric model. We think about our nation as if it were a "family." This, however, is where the similarity ends. "At the center of the conservative worldview is a Strict Father model:

This model posits a traditional nuclear family, with the father having primary responsibility for supporting and protecting the family as well as the authority to set overall policy, to set strict rules for the behavior of children, and to enforce the rules. The mother has the day-to-day responsibility for the care of the house, raising the children, and upholding the father's authority. Children must respect and obey their parents; by doing so they build character, that is, self-discipline and self-reliance. Love and nurturance are, of course, a vital part of family life but can never outweigh parental authority, which is itself an expression of love and nurturance -- tough love. Self-discipline, self-reliance, and respect for legitimate authority are the crucial things that children must learn. Once children are mature, they are on their own and must depend on their acquired self-discipline to survive. Their self-reliance gives them authority over their own destinies, and parents are not to meddle in their lives.⁸⁷

This worldview has traditionally encouraged corporal punishment as a fundamental means of instituting authority. Moral authority is wielded by a system of 1) rewards for respecting authority, developing self-discipline and self-reliance, and; 2) punishments for failing to do any of the above. Punishment is considered moral and an act of "tough love" that will instill the proper values.

⁸⁷George Lakoff, Moral Politics, p. 33.

Nurturant Parent Model

"The liberal worldview, however, centers on a very different ideal of family life, the Nurturant Parent model:

Love, empathy, and nurturance are primary, and children become responsible, self-disciplined and self-reliant through being cared for, respected, and caring for others, both in their family and in their community. Support and protection are part of nurturance, and they require strength and courage on the part of parents. The obedience of children comes out of their love and respect for their parents and their community, not out of fear of punishment. Good communication is crucial. If their authority is to be legitimate, parents must explain why their decisions serve the cause of protection and nurturance. Questioning by children is seen as positive, since children need to learn why their parents do what they do and since children often have good ideas that should be taken seriously. Ultimately, of course, responsible parents have to make the decisions, and that must be clear.

The principal goal of nurturance is for children to be fulfilled and happy in their lives. A fulfilling life is assumed to be, in significant part, a nurturant life -- one committed to family and community responsibility. What children need to learn most is empathy for others, the capacity for nurturance, and the maintenance of social ties, which cannot be done without the strength, respect, self-discipline, and self-reliance that comes through being cared for. Raising a child to be fulfilled also requires helping that child develop his or her potential for achievement and enjoyment. That requires respecting the child's own values and allowing the child to explore the range of ideas and options that the world offers. When children are respected, nurtured, and communicated with from birth, they gradually enter into a lifetime relationship of mutual respect, communication and caring with their parents.⁸⁸

Moral Politics and the Environment

Conservatives use the Strict Father model of the family, while liberals use the Nurturant Parent model to *reason metaphorically* about the proper relationship between government and society.⁸⁹ These two models of the family give rise to different moral

⁸⁸Ibid, pp. 33-34.

⁸⁹It is important to note that these models are *idealized prototypes*. In reality, few individuals or

systems and different discourse forms, that is, different choices of words and different modes of reasoning. Lakoff also argues that conservatives have learned that politics is largely about family and morality, about myth, metaphor and emotional identification, and over the past 25 years have managed to forge conceptual links in voters' minds between morality and public policy. They have carefully worked out their values, comprehended their myths, and *designed a language* to fit those values and myths, so they can evoke them with powerful slogans, repeated over and over. Liberals, on the other hand, have tended to ignore the moral, mythic, and emotional dimensions of politics, and as long as they stick to policy, interest groups and issue-by-issue debate, they will continue to lose political ground.

In his chapter on "Regulation and the Environment," Lakoff argues that conservatives, whose morality is based on a hierarchy of domination (Kluckhohn's "Humans have Mastery over Nature" power relationship) -- God over human; humans over nature; parents over children -- have a particular view of the "right" human/nature relationship, which is conceptualized and reasoned about using a system of metaphors:

- Nature Is God's Dominion (given to man to steward wisely).
- Nature Is a Resource (for immediate human use).
- Nature Is Property (for the use of the owner, and for sale and purchase).
- Nature Is a Work of Art (for human appreciation).
- Nature Is an Adversary (to be conquered and made to serve us).
- Nature Is a Wild Animal (to be tamed for our use).
- Nature Is a Mechanical System (to be figured out and put to use).

groups are this single-minded. Just as most individuals use multiple and often contradictory metaphors to understand "nature" so too do most individuals use multiple and often contradictory elements of Strict Father and Nurturant Parent moralities. Thus, the political spectrum is composed of many variations and mixtures of these two idealized models.

These conceptual metaphors are immediately recognizable as the basis of the dominant paradigm as critiqued by Eco-Criticism. They also, with the possible exceptions of Adversary and Wild Animal, are based on the presupposition that Nature is a (classical) Object. Nurturant Parent morality, however, sees our relation to nature in a very different light. Nature is what gives us life, what makes all of life possible, and what sustains us. This view is conceptualized and reasoned about using a different system of metaphors:

- Nature Is a Mother (who provides for us).
- Nature Is a Whole (of which we are inseparable parts).
- Nature Is a Divine Being (to be revered and respected).
- Nature Is a Living Organism (whose needs must be met if it is to survive).
- Nature Is a Home (to be maintained and kept clean).
- Nature Is a Victim of Injury (who has been harmed and needs to be healed).⁹⁰

These conceptual metaphors are also recognizable throughout many environmental movements and philosophies, including eco-feminism, deep ecology, nature spirituality, and ecological science. They are also, with the possible exceptions of Whole and Home, all based on the presupposition that Nature is a Person.

Lakoff goes on to explain that, given these very different moral conceptions of the relationship between humans and nature, it should come as no surprise that liberals and conservatives have opposing views on environmental policy. He discusses the EPA as an example. Liberals see the EPA as a nurturant, protector of society and the environment. Thus, liberals support increasing EPA regulation of auto emissions, water pollution, etc., as well as protecting nature and humans by cleaning up the environment. This is why it is called the Environmental *Protection* Agency. Conservatives, however, see the agency as

⁹⁰Ibid., pp. 212-216.

constraining and punishing free enterprise and self-reliance, which is anathema to the conservative worldview.

Another example is the fight over old-growth forests. A Nurturant Parent morality assigns inherent value to these forests -- loved not for what they can do for humans, but for their own sake -- a transference or mapping of the Nurturant Parent model of loving and nurturing children, onto nature. Conservatives, however, are outraged, because the most central features of Strict Father morality are being challenged.

The Morality of Reward and Punishment, the very basis of Strict Father morality, is being challenged in two forms. The first is a challenge to unrestricted free enterprise, the unrestricted freedom to seek private reward for your labor and investments. If investors in the logging companies cannot realize profits on their investments, then that freedom has been limited. The second is a challenge to the unrestricted use of private property, the unrestricted freedom to do whatever you want with the fruits of your labor, namely your property. Logging companies own some of these old-growth forests. If they cannot cut them down for profit, then restrictions have been placed on the use of private property. In addition, the very moral order has been challenged: the idea that man, by God's will, has dominion over nature and that nature is a resource for man's use. Loggers -- ordinary, hardworking, moral, law-abiding folks -- may lose their source of income. What is more important, people or owls? Common sense -- the common sense of Strict Father morality -- says people!⁹¹

Thus, much of the conflict in politics is due to the fact that opposing sides operate with fundamentally different root metaphors, reason based on these metaphors, and reach contradictory conclusions. It would seem that the literary study of rhetoric should be invaluable in analyzing the environmental debate, including questions like; What root metaphors are various sides arguing with? What are the implications of each conceptual metaphor, both for the debate and for the ultimate "health" of the biosphere? Environmentally and liberally-minded rhetoricians can also make a crucial contribution to these debates, helping to generate a moral language based, for example, on Nurturant

⁹¹Ibid., p. 220.

Parent metaphors, to argue for certain policies, as well as critiquing the weaknesses in conservative metaphors -- then exposing and exploiting them.

As we saw above, from the perspective of systems theory, ecological systems and the family share very similar cognitive topologies, or schema structures. Extending this Family metaphor to "nature," while problematic, nonetheless provides powerfully resonant and motivating language and rationales for conservation, preservation and restoration efforts.

Nature as Many Societies

Ojibwa

The Ojibwa (a woodland tribe living around Lake Superior), however, did not share the Nature as Family Metaphor. Instead, according to historian Calvin Martin,

Nature, as conceived by the traditional Ojibwa, was a congeries of societies. Every animal, fish and plant...functioned in a society that was parallel in all respects to man's. Wildlife and plant life had homes and families just as man did.⁹²

In this worldview, the relationship between humans and animals was based on the metaphor of reciprocal exchange.

The representation of the relations between human persons and animal and plant persons is modeled on intertribal exchange. Just as one tribe may commerce with another -- trading, say, obsidian arrowheads for copper ornaments -- so animals are portrayed as enthusiastic trading partners with human beings...If a hunter broke the rules of interspecies trade, the keeper of the injured species would find out and would withhold further specimens from the offender or sometimes visit a harsher reprisal on him. The animals were bound by corresponding obligations. If a hunter extended an animal all the appropriate courtesies and offered the appropriate tokens of exchange (utensils, clothing, earrings, or tobacco), then the animal was obliged to surrender itself to his weapons.⁹³

⁹²Calvin Martin, Keepers of the Game: Indian-Animal Relationships and the Fur Trade, p. 186.

⁹³Callicott, p. 127.

Pacific Northwest Tribes

Salmon alone provided 80 to 90% of the Pacific Northwest Indian diet with other fish and shellfish providing the bulk of the rest, along with some plants, berries and nuts. Salmon thus represented life itself and were viewed in deeply spiritual terms, with very strict customs and taboos to regulate the activities connected with fish and fishing.

It was a general belief along much of the southern coast that the salmon were really people who lived in villages in a magical place under the sea, at the edge of the horizon. Five villages housed the five tribes of Salmon People, each with its own habits and breeding places. At specific times of the year these people transformed themselves into fish and swam up the rivers after journeying through the sea. Some fishermen believed the fish were led by their chief, who would then be the first one caught, and therefore must be accorded such honour as befits a chief. But others believed they sent scouts out ahead, and if the scouts were not treated with courtesy and respect when caught, then other salmon would not follow to ascend the river.⁹⁴

The chief religious ceremony of Northwest Indians was the first-salmon ceremony held at the beginning of a salmon run. With many minor variations, tribes "barbecued the first salmon of the run over an open fire. It was then parceled out to all, in small morsels or portions so all could participate. During this, all bones were saved intact. Then, in a torchbearing, dancing, chanting and singing procession they proceeded to the river, where they cast the skeleton of the salmon into the stream with its head pointing upstream, symbolic of a spawning salmon, so the run of salmon would return a thousandfold."⁹⁵

Indians universally cut the salmon lengthwise, not crosswise, as it was believed the latter would insult the salmon and it might never return. This myth served a practical

⁹⁴Hilary Stewart, Indian Fishing, pp. 171-172.

⁹⁵Frank Wright, 1964 Chairman of the Puyallup tribe in Vine Deloria, Jr., Indians of the Pacific Northwest, p. 28.

function as the lengthwise cut is much cleaner and easier than a crosswise one. Broiling the first salmon was also almost universal, as opposed to the many other ways Indian women prepared the fish, including boiling, roasting, steaming or just serving it raw. Indians believed that broiling caused the spirit of the salmon to rise with the smoke of the fire and observe the thankfulness of the people. When white settlers arrived in the region, Indians refused to sell them the first run of salmon for fear that the whites, in their ignorance, would boil the fish rather than broil it, thereby driving the fish away.

There were strict taboos governing the proper ways to catch, clean and cook salmon. Prayers were offered to the salmon at each stage of the process. A typical example from a Kwakiutl fisherman's wife to the salmon before she cuts it open:

Thank you Swimmers, you Supernatural Ones,
that you have come to save our lives,
mine and my husband's,
that we may not die of hunger,
you Long-Life-Maker.
Only protect us that nothing evil may befall us,
you, Rich-Maker-Woman,
and this also, that we may meet again next year,
good, great Supernatural Ones.⁹⁶

Thus, the Nature as Many Societies metaphor implies a host of practical and ethical obligations, responsibilities and practices. Communities, societies, and nation-states that depend upon and trade with one another must continually work to maintain harmonious relations. This is the underlying logic of American foreign policy -- that democratic, capitalist-based trading nations are too "invested" in and dependent upon one another to risk war. War for such interconnected societies is tantamount to stabbing oneself. Conceiving of "nature" as a set of parallel human, animal, plant, insect and fish societies -- all of which engage in and depend upon active "trade" with one another, thus draws upon

⁹⁶Stewart, *Indian Fishing*, p. 164.

practical and moral imperatives deriving from a rich source domain of human group relations.



CHAPTER VI

CONCLUSION

I have briefly examined three of the most prevalent superordinate categories of nature metaphors: Nature as Object, Nature as Person, and Nature as Social Structure/System. Each of these categories includes many sub-mappings we did not consider, such as Nature as Text, as Law, as Teacher, or as Economy. Likewise, we did not consider the other superordinate categories, such as Nature as Geography or as Metonymy. These categories include common sub-mappings such as Nature as Edge/Frontier, as Wild Animal, or as Web. Thus, it should be evident that we have and use multiple metaphors to understand "nature" (perhaps the most complex concept in the English language).

Historically, certain metaphors become ideologically and hegemonically predominant in a society, due to worldview assumptions, power relations, and changing modes of production (hunting, fishing, agriculture, industry, service and information) and the technologies associated with them which often serve as powerful source domains for nature metaphors.

Each individual metaphor maps its own particular cognitive topology or schema structure onto the incredibly diverse, dynamic and fluid phenomenon we call "nature." Each directs our attention like a searchlight to certain aspects of the world, while leaving vast regions black. Thus, "nature" and the human experiences of it are far too diverse to ever be completely "captured" by a single metaphor.

Yet, different metaphors of "nature" are more pragmatic or appropriate in particular situations or contexts, e.g. constructing a hurricane as Enemy vs. an act of Mother Nature

will lead to widely divergent explanations of the causality of this event, and widely divergent responses to it, with real-world implications.

As we near the end of the 20th century, however, we confront a largely self-induced environmental crisis of truly global proportions. In an aptly entitled article, "Human Domination of Earth's Ecosystems" in the July 25, 1997 issue of *Science*, a group of leading global change scientists detailed six global-scale indications of the current state of the biosphere:

- 1) 1/3 to 1/2 of Earth's land surface has been transformed or degraded by human action. At one extreme of intensive use, 10-15% of the Earth's land surface is occupied by row-crop agriculture or urban-industrial areas, with another 6-8% converted to pastureland.
- 2) Humans appropriate more than 1/2 of world's surface fresh water. In the United States, only 2% of the rivers run unimpeded, and by the end of this century the flow of about 2/3 of all Earth's rivers will be regulated.
- 3) There has been a 30% increase in atmospheric CO₂ since the beginning of the Industrial Revolution. The consensus of the Intergovernmental Panel on Climate Change (the world scientific organization of thousands of global change scientists) is that there is no longer any doubt that human activities are enhancing the greenhouse effect, which has already altered climate detectably and will drive substantial climate changes in the next century.⁹⁷
- 4) More atmospheric nitrogen is fixed (combined with carbon, hydrogen or oxygen -- thus usable by most organisms) each year by humanity than by all natural terrestrial

⁹⁷Intergovernmental Panel on Climate Change, *Climate Change 1995*.

sources combined. Fixed nitrogen controls (at least in part) the productivity, carbon storage, and species composition of many ecosystems. Most fertilizer nitrogen washes out of soils or dissipates into the air producing nitrous oxide (a greenhouse gas) and great increases of nitrogen in coastal waters, leading to algal blooms and red tides that devastate local marine ecosystems.

- 5) The biodiversity crisis. We are causing the 6th massive extinction event in Earth's history, at a rate, scale and intensity comparable only to the asteroid impact which wiped out the dinosaurs 65 million years ago. 25% of all bird species have become extinct in past two millennia, almost all as a consequence of human activity. Currently, 11% of the remaining birds, 18% of the mammals, 5% of the fish, and 8% of plants species on Earth are threatened with extinction.
- 6) Marine Fisheries -- 2/3 of fisheries are already fully or over-exploited.

...all of these seemingly disparate phenomena trace to a single cause -- the growing scale of the human enterprise. The rates, scales, kinds and combinations of changes occurring now are fundamentally different from those at any other time in history; we are changing Earth more rapidly than we are understanding it...It is clear that we control much of Earth and that our activities affect the rest. In a very real sense, the world is in our hands -- and how we handle it will determine its composition and dynamics, and our fate.⁹⁸

The magnitude of the current global environmental crisis requires a critique of inherited and dominant metaphors of nature used by modern society, an exposure of their limitations and destructive implications (which are having real-world effects). The postmodern revolution currently sweeping through our culture is recognizing, revitalizing, validating and giving voice to the beliefs and perspectives of many previously ignored or oppressed groups, including women and minorities, greatly enriching the human

⁹⁸Peter M. Vitousek, et. al., "Human Domination of Earth's Ecosystems," *Science*, Vol. 277, 25 July 1997, pp. 498-499.

conversation. The ecological imperative, however, is casting postmodernism itself in a new and critical light as we struggle to reconcile the diverse worldviews of all humanity. We are only beginning to recognize, revitalize, validate and give "voice" to the needs of the truly (human) voiceless -- the teeming multitudes of other living beings with whom we share our shrinking world -- our *kin*.

As we have seen, our worldviews are fundamentally shaped by the metaphors "we live by." Yet, metaphoric thought is an inherently creative, imaginative act. Our environmental crisis requires the devotion of our finest writers, artists, scientists, scholars, activists, government officials, business people, and religious figures to recast our old metaphors and create new ones, in order to attain a more sustainable and harmonious relationship between humans and the more-than-human world.

It ain't about natural history. It's about a complete revision of the driving forces of Western civilization. -- Barry Lopez

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