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Ontology of Close Human-Nature Relationships

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ONTOLOGY OF CLOSE HUMAN-NATURE RELATIONSHIPS

BY

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DISSERTATION

Submitted to the University of New Hampshire

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in

Natural Resources and Environmental Studies

May, 2016

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DEDICATION

To my wife, Mariya, for her love, care and encouragement, and for supporting me through the long odyssey this dissertation became.

To my kids, Max and Rosie, for listening to the birds with me.

To Martín and Hanna Prechtel, for their teaching, limitless generosity and dedication to teaching students like me about what is really happening out there.

To Eleanor and Marilyn, whose very way of carrying themselves through this magical the world is an inspiration.

To my family in Philadelphia, for keeping me going through it all with laughter and love.

To all the nonhuman beings out there with whom I've been close or have tried. Thank you for putting up with me and showing me all the amazing things that you have.

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ABSTRACT

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University of New Hampshire, May, 2016

The world's environmental problems call out for solutions. At root, many of the solutions currently being offered revolve around how modern humans relate to the environment. An array of theorists have offered perspectives and prescriptions for improvement of this relationship, with many seeking to promote a sense of closeness between human and nonhuman. But, in attempting to offer perspectives on how this might be achieved, theorists tend to neglect the relational structure and dynamics that produce closeness or, if exploring it, tend to characterize the nonhuman as incapable of participating in it as a truly close, relational partner. In this dissertation, I argue that the rejection of nonhumans as potential close relational partners rests upon *a priori* ontological commitments that erroneously contain what ecofeminists call "human/nature dualisms." The work of this dissertation is to root out those dualisms, correct for them, and through that, begin to rehabilitate the ontological possibilities for human-nature relational closeness. I begin my work by articulating, and committing to, a basic human-nature relational model rooted in the "interdependence" theory of close interhuman relationships offered by Kelley et al. (1983). Leveraging that model, I then go on to show that humans and nonhumans have both the capacity to enter into close relations with each other and more than ample opportunity to do so in their daily lives. The effects of this ontological reorientation are

broad-ranging, and call out for fundamental correction of the way that predominant, modern human-nature relationships are carried out, from techniques for environmental education to prescriptions for sustainable development.

INTRODUCTION

I'm sitting in a rented cabin on the coast of Maine with big, split-pane glass windows wrapping me in a sea of mist-soaked spruces and oaks when, with my wife in bed with a stomach flu and me downloading articles via my neighbor's Wi-Fi, I happen upon a paper by Martin (2007). In it, he explores the applicability of Nel Noddings' (1984; 2002) care theory to environmental ethics, and through that, to environmental education. As I read it, I found myself wholeheartedly agreeing with his attempt to try to adapt Noddings' particular, relational ethic to the human-nature relationship. In fact, I was thinking of doing that very thing in my own dissertation, which is why I was downloading care ethics articles in the first place. But when I got to page 59 in his essay, I realized that something antecedent was missing.

On that page Martin (2007) was describing two other authors' critiques of Warren's (1990) first-person account of a woman having a relationship with a cliff she was climbing. And to their suggestions that this person had either "fantasized" (Martin, 2007, p. 60) the relationship or was being "anthropomorphic" (p. 60), Martin responds by saying, "Suggesting that people's relationships with entities in the environment have structural similarities to interpersonal relationships is clearly open to criticism" (p. 60). He says this because, as he correctly points out, empirical support for such a similarity has been scant. But, instead of going on to suggest that it is true nonetheless and requires more, or a different kind of, empirical inquiry, instead he retreats completely by saying, "My purpose here is [only] to raise the *possibility* of such a likeness becoming a pedagogical *tool* [emphasis added] or means of informing educational practice" (p. 60). In other words, noting the difficulty of making the case for human-nature relationships to have "structural similarities to interpersonal relationships" he withdraws into the

abstraction of relationship with nonhumans as a metaphor, and in so doing, undercuts the possibility of the real relationship that he himself notes is crucial to development of care for the environment.

I remember being angry when reading that, partly because he abandoned so easily the possibility of real relationship simply because it was “open to criticism.” “Of course it’s open to criticism,” I thought, “the entirety of modern civilizations is such that to attempt to speak of humans and nonhumans relating in a way structurally similar to interhuman relationships is to risk being called a kook!” And maybe it was because I had had enough relational experiences in my own life with nonhumans, and had no place to “put” those experiences except in the realm of spirituality or unsubstantiated belief instead of in what common sense told me was simple reality and knowledge, that it was exactly in answering the question: “Could we, or could we not, have a real, caring relationship with nature?” that I realized scholarship was sorely needed. In realizing that, I also understood that it necessitated first answering another question. That is: “What are nonhumans like, or, what do we take them to be like?” Only after answering *that* question could we know whether and what kind of relationship we were having with nonhumans, or that it would be possible to have. In the end, my dissertation is inspired by these first questions—as much as it is by the sea-cloaked spruces and the Osprey out on the point of land that weekend, my heart leaping the next day as I got her, perched on the tallest tree out there, to respond when I broke out the Osprey call that I’d been working on for years. It’s a whistle whose air comes from deep down in the diaphragm, the lips a simple reed to shape that air, to blow it out into that green, stone-shouldered place with a piercing, descending cry. And though she offered only one response to me before returning to her conversation with another of her kin across the inlet, when I struck that shrill cord for the first time, she turned and looked down, ratcheting out a long call

of...annoyance? No matter. She *noticed* me—as I had her from far up the long, private driveway that I descended to reach that place where she was—where she surveyed with such elegant fierceness everything tethered so meekly to the Earth beneath her. It is from that place that my dissertation begins.

Environmental Problems as Problems of Relationship

Fields and disciplines centered on natural resources and the environment focus on the function of environmental systems and their interactions with human society. One of the chief reasons for this foci is solving environmental problems. It may appear obvious, but in order to offer solutions, it's crucial to understand exactly what the "problem" is. And though issues like climate change, loss of biodiversity, and other ecological catastrophes are unquestionably problematic, I suggest that to take them as the *root* problems of modern societies' interactions with the environment is to miss what I take their actual role to be. Specifically, I see them as symptoms of much deeper, and more intimate, set of environmental problems that, when compounded into much larger, and at times global, sets of interactions, delivers the destructive environmental changes modern societies have wrought. What is this deeper, more intimate problem? It is that the modern human has a faulty relationship with the nonhuman beings around her.

In some sense, humans having a flawed or faulty relationship with nonhumans is obvious. That's why all the fields and disciplines focused on environmental problems seek to alter how humans interact with the environment. At a material or physical level, it's unavoidable that a flawed interaction is taking place between humans and nonhumans. After all, it's hardly controversial that environmental problems are anthropogenic (Vitousek, Mooney, Lubchenco & Melillo, 1997; Turner et al., 1990). But, while it is largely accepted that environmental problems

play out in the interaction between humans and nonhumans, it's still possible not to *source* them in a flaw or set of flaws in the structure and dynamics of each individual interaction—or *relationship*—between human and nonhuman. For example, some see the solution to large-scale environmental problems as primarily mathematical, and prescribe the reduction of various consumptive human behaviors as the solution. In this logic, if humans “drove less” or “recycled more,” environmental degradation would be reduced. Such an approach is the primary one espoused in the sustainability and sustainable development literature (e.g., Bruntland, 1990; Fiksel, 2006; Wackernagel & Reese, 1998). In this construal of environmental problems, once human impacts drop below some defined threshold for sustainability, they no longer exist. But, such a perspective assumes nothing inherently flawed in the way that a particular human relates with a particular nonhuman. In other words, the approach never examines what is happening at the individual level of interaction such that they can accumulate into large scale problems.

As an example of problems at an individual level, imagine a college professor taking a group of students into the field for a dendrology lab. As the professor leads the students into a forested area to study deciduous leaf structure and function, she has two choices. She can go over to a tree, pick off a leaf and bring it to the students to show them its various features. Or, she can bring students to the tree, pull the branch gently toward the gathered students and, leaving the leaf attached, deliver the same information. While the difference in approach may seem insignificant, I suggest that the leaf-picking approach is a microcosm of the relationship with nonhuman beings that produces large-scale rainforest destruction. You either ignore the tree as a relational Self and impose your will—perhaps calculating that, at a material level, one leaf picked is not hurtful or destructive—or you don't. I pause here to say that when I use the term Self, I refer to an individual-in-relation that is worth consideration as a full relational

partner. A subject with his or her own purpose (teleology), agency and individuality in a relational exchange. I'll define what I mean by these elements more fully later in this dissertation, but here simply state that those contributions can include cognitive, emotional, and other factors that support close relationships in an interhuman sense.

To return to the tree in the dendrology lab, I suggest that to ignore him or her as a Self—to pick the leaf—is a precise microcosm of large scale rainforest destruction. One must be willing first—at this personal level—to discount a nonhuman being as a Self, or to at least ignore or hide from the legitimacy of her existence as a Self in order to tolerate the scaling up of such actions to levels that create massive impacts. Both require a centering of the action on human desire and a substantial, if not total, disregard for the nonhuman being(s) affected. In contrast, if the individual tree were treated as a relational Self, then large-scale deforestation would essentially be unthinkable—it would be tantamount to genocide. Thus, the disregard *has to* begin at the individual level. If one is willing to entertain such an interpretation, then ultimately, environmental problems are relational, personal and intimate in their origins.

Some might still counter my suggestion by stating the quantitative “fact” that if humans did consume less, environmental problems would disappear. To counter this, I'd first suggest that the problem isn't gone, it's simply dormant. Second, I point out that if the problem really were mathematical, then all the public service and environmental education campaigns to inform the public of what changes need to be made in our habits of consumption would meet with unmitigated success. Yet, this has not been the case (Kollmuss & Agyeman, 2002). The fact that we know what we need to do and choose not to means that the problem is not wholly, or even primarily, mathematical. Of course some might respond by saying that the problem is still wholly human—we don't reduce our levels of consumption of fossil fuels, for instance, because

we want to drive wherever and in whatever vehicle we desire. But, such a desire itself is already “infected” with a disregard for the effects of human action on nonhumans. It still originates in a relationship humans have with nonhumans that makes it so that humans don’t want to, don’t have to, or don’t think it right or important to, relate in any fundamentally different way with nonhuman beings. To put it plainly, if modern humans think the nonhumans with whom they interact are not relational Selves, then the way is paved (please pardon the pun) for the relatively unproblematic (to the human in the very short term, at least) picking of the leaf from the tree.

I’m also aware that by using the term “faulty,” implicit within it is the suggestion that there are correct and incorrect ways to understand nonhuman beings and our interactions with them, which may not sit well with the entirety of the environmental ethics field, amongst many others, who put the issue of how humans interact with nonhumans on an ethical footing—by characterizing it as a difference in human values. But, if the issue turns on a rooting in well-argued ethical stances, each view of how nonhumans are and ought to be treated is of equal validity to every other well-argued and supported view, regardless of how different they are from each other. This is generally the landscape of the discourse on human-nature relationships today. But what is missed in such a framework of consideration is that the determination of what human-nature relationships are is taken to originate in human conceptualizations of those relationships, not where I believe they must originate: within a human-nature relational context where the nature and functioning of the human-nature relationship is determined by both the humans and nonhumans participating in it.

If it is to originate there, then one of our first tasks must be to define what we take humans and nonhumans to be like, and thus what they are capable of in their interactions with each other. Only when we know what *can* happen can we determine what *ought to* happen. In other words, the ethical determination must be preceded by an ontological one. Ontology is the study of

“...the nature or essence of being or existence” (“Ontology”, 2009). Thus, what human-nature relationships *ought to be* is not a matter first of values, but of perception of humans and nonhumans in the reality *out there*—outside of any *post hoc* human conceptualization of what is actually happening between a human being and nonhuman being in any particular interaction. Ultimately, this is why I suggest that modern human-nature relationships are flawed: because I believe the environmental problems we face today to be rooted not in differences in values, but in *mistakes in the human perception of the human and nonhuman world, and thus inaccuracies in assessing the possibilities for interaction between them.*

To reinforce my suggestion that environmental problems are problems of relationship, I note that this stance is echoed by others. Foster (2000), for example, says of the “most contemporary social-scientific analyses of environmental problems” that they are “centered on what is now widely believed to be a global crisis in the human relation to the earth” (p. 16). Bell and Russell (2000) also encapsulate the issue nicely when they say, “Of primary concern and interest to us are relationships among humans and the ‘more-than-human world’ (Abram, 1996), the ways in which those relationships are constituted and prescribed in modern industrial society, and the implications and consequences of those constructs” (p. 190). Lastly, one of environmental education’s two founding documents, the Belgrade Charter (UNESCO, 1974), has as its ultimate goal for the kind of environmental action fostered by environmental education, “To improve...the relationship of humanity with nature” (p. 14). What that relationship is and ought to be, and how ontological perspectives on humans and nonhumans influences that determination, forms the substance of this dissertation.

‘Human,’ ‘Nature,’ and ‘Human-Nature Relationships’

The term “human-nature relationship” that I made use of above appears in the literature of various disciplines and fields. In this sense, then, any reference I make to the “human-nature relationship literature” is not discipline-specific, but instead is the literature of a nexus of fields and disciplines that, through their own analytic lenses, address human-nature interactions. For example, there are the fields of environmental studies, environmental management and environmental education, the disciplines and subdisciplines of natural resources, recreation management, conservation psychology, environmental ethics, ecology and so on. And finally, there are numerous theories emerging from here and elsewhere, of which I’ll consider several in this dissertation. There is *place attachment* theory from the sociology discipline, various *pro-environmental behavior* theories from the environmental education field, and *sustainability* and *sustainable development* theories emerging from an interdisciplinary framework. Several human-nature relationship theories focus on affective dimensions, such as emotional affinity theory (Kals, Shumacher & Montada, 1999; Müller, Kals & Pansa, 2009) and significant life experience theory (Cachelin, Paisley & Blanchard, 2009; Chawla, 1998; Tanner 1980). And finally, various “connectivity to nature” theories (Schultz, 2002; Mayer & Frantz, 2004, Hinds & Sparks, 2008; Nisbet et al., 2008; Dutcher, Finley, Luloff & Johnson, 2007) address both cognitive and affective dimensions of the human-in-relationship with nonhumans. Ultimately, then, when I discuss the “human-nature relationship” and its literature, it is to this diverse body of scholarship that I refer.

To clarify my use of the terms *human*, *nonhuman* and *nature*, I begin by saying that in this dissertation I have chosen, for human beings, to use the term *humans* to refer to multiple human individuals and *human*, singular, as either an adjective to describe some quality that is unique to humans, as a noun to refer to a single human, or as an overarching noun to describe

something about human beings as a group, such as, “It is distinct to the human.” In contrast, when referring to all beings that are not human, I use the term *nonhuman* to designate an individual, and *nonhumans* to designate multiple individuals. At times, I also use *nature* as a designation for nonhumans equivalent to my use of “human” as an overarching noun, but I avoid using it to mean multiple nonhumans. I do this because using “nature” as a plural means the potential of failing to recognize nonhumans as individuals in a way equal with humans as individuals. Coupling *humans* and *nature* collectivizes nonhuman beings as a monolithic “other” category, not as a group or groups of individual nonhuman beings or Selves with whom humans are in actual relationship. In combination, then, I use *human* and *nature* as overarching nouns or as adjectives, *humans* and *nonhumans* to refer to multiple individuals of each, and *human* and *nonhuman* to refer to single individuals of each. In articulating this, I also recognize that the cultural convention of using the term “nature” as a plural form of nonhumans is so strong in modern discourse that I feel confident that I will not catch every instance of my own use of the collective term in the dissertation. My hope is that my recognition of the difference here, and my rigorous yet not infallible attempt to uphold it, will be sufficient to underscore a recognition of these nuances.

One other point of clarification is, I recognize that the use of “human” and “nature” has been criticized as creating a false divide between humans and nonhumans where humans are not seen as part of an overarching nature (deftly explored by Cronon, 1996, see also Gerber, 1997). While I participate in this by using nature to mean nonhuman nature myself, and while it’s true that the border between human and nonhuman is far murkier than some suggest, I hold that this distinction is a legitimate reference point for considering the ways in which these very conceptual divisions have real impacts on the human-nature relationships.

Parallels Between Interhuman and Human-Nature Relationships

Theorists contributing to the human-nature relationship literature attempt to both explain the structure and dynamics of human-nature relationships and to offer prescriptions for the rehabilitation of poorly functioning ones. To do this, they study both good and bad human-nature relationships with the hope that an increased understanding of the former will facilitate improvement of the latter. For example, Brooks, Wallace, and Williams (2006) seek to understand how visitors to wildlands settings build relationships with those places over time so that they can offer guidance to public lands managers seeking to provide visitors a good experience with the nonhuman beings in such a setting. This research is indicative of a larger trend: that of theorists attempting to draw parallels between human-nature relationships and interhuman ones (Martin, 2007; Mayer & Frantz, 2004; Sanders, 2003, Nisbet et al., 2008). For example, Martin (2007) suggests that there is a possibility of “people’s relationships with entities in the environment hav[ing] structural similarities to interpersonal relationships” (p. 60). In addition, many theorists have noted that in some well-functioning human-nature relationships, the humans are having the kind of relationship with nonhuman beings such that their behavior toward the environment is more benign than the behavior of other human beings toward the environment. What theorists have noticed in particular is that the former human beings are having relational experiences with nonhuman beings that mirror the kinds of close, personal relationships that human beings have with each other. For example, Mayer and Frantz (2004) attempt to adapt social psychological concepts of “interpersonal closeness, perspective taking, and altruism” (p. 504). Sanders (2003), in researching close relationships between humans and their companion animals, characterizes his work as an attempt to “reexamine close relationships [in order] to move beyond the limiting anthropocentric orthodoxy that presents the bonds and interactions between humans and nonhuman animals as qualitatively different from—and, by implication, inferior to—those

between humans” (p. 406). In discussing the roots of pro-environmental behavior, Nisbet et al. (2008) say that “[p]ersonal relationships with nature may provide some insight into the way people treat the environment” (p. 2). In my example of the work of Brooks, Wallace and Williams (2006) above, they ask, “Do visitors develop deep lasting committed relationships with [Rocky Mountain National Park]? How are these bonds similar to relationships people have with human partners...?” (p. 332).

Still other researchers, while perhaps not speaking to the concept of “closeness” specifically, have focused on understanding human-nature relational elements that are identical to ones that figure prominently in interhuman closeness. These include relational “bonds” (Williams, Patterson, Roggenbuck & Watsonet, 1992, 30), “care” (Saunders, 2003, p. 138), “love” (Kals, Shumacher & Montada, 1999, 180), “oneness” (Dutcher et al., 2007, p. 479), “kinship” (Warren, 1990, p. 143), and “intimacy” (Rogan, O’Connor & Horwitz, 2005, p. 156). Thus, whether explicit or not, a portion of those studying the human-nature relationship attempt to understand and prescribe remedies for human-nature relationships that move them *toward* closeness in an interhuman sense.

Close Human-Nature Relationships

To better understand how researchers interpret close human-nature relationships, it’s useful to consider some examples of humans having close relational experiences with nonhumans. To begin, I note that it is the hallmark of indigenous cultures for humans to have close relationships with nonhuman beings (Cocks, 2006; Pierotti & Wildcat, 2000; Salmon, 2000). For example, Australian Aborigine Bill Neidjie (1989) says, “all that animal [animal, bird or snake] same like us. Our *friend* that” (p. 139). Though I use an example of an indigenous person here, moving forward I will refer very little to these kinds of views on human-nature

relationships in an explicit sense. I take this tack intentionally, though not to obfuscate the heavy contribution of indigenous thinking to my own. I have had no greater teacher than Martin Prechtel, who has taught me so much and so deeply that this dissertation would be inconceivable without the generosity and kindness he has shown me and others in sharing with us some small part of what he knows. But, what I've come to realize with his help is that his kind of knowledge is so consistently characterized by modern thinkers as originating from a "different worldview" (Aikenhead & Jegede, 1999; Toledo, 2001) that a sense of irreconcilability with the modern view seems inevitable. This in turn serves, at some root level, to forestall further consideration. For example, indigenous humans believe that "everything is alive" (Castellano, 2000) while modern humans do not. Burton (2002) contrasts the indigenous Lakota view of Bear's Lodge/Devil's Tower National Monument as a sacred place for renewal of the tribe's place relationship with that of modern public lands managers view that it is to be managed for outdoor recreation, conservation and "multiple uses" (p. 5). These are two very different views that appear ontologically irreconcilable. But, if I were to say that indigenous humans *know* that everything is alive and modern humans do not, then the issue becomes one of the accuracy of interpretation of the human-nature experience itself. In other words, when positioning the interpretation of experience as a matter of "belief" and not "knowledge," the modern perspective assumes that the salient features of the close human-nature relational experience are established inside the human in her beliefs and projected outward onto some ill-defined, *tabula rasa* of the nonhuman world. The beliefs are not rooted in the experience of the relationship itself or with contributions from both human and nonhuman to it. But whether a stone sitting in the moonlight is alive is not a thing a human can bestow with her beliefs. If the stone *is* alive, then the modern human's *post hoc* conceptualization that it is not is a *mistake in thinking*. It is a *lack* of knowledge. It is, therefore, a less accurate view. By characterizing the difference this way, one diffuses the irreconcilability

mainly because resolving the opposition of views becomes an exercise in discovering and correcting mistakes in perception, not in changing one or the other group's foundational beliefs.

If I am correct in my analysis of the roots of this issue, then the work of improving human-nature relationships and through that, solving environmental problems, lies not in offering indigenous worldviews as alternatives, but instead in penetrating to the depths of the mistakes in modern conceptualizations on their own merits, and correcting them. From the indigenous view I simply inject the possibility that nonhumans *can* have the qualities and capacities necessary to support close relationships as we understand them when they occur between human beings. From this, like a radioactive dye we can trace the effects such an interpretation of reality has on the areas of modern thinking that are at odds with it. Thus, going forward in this dissertation I'll make very little reference to indigenous knowledge, though my hope is that by allowing what I've been taught to work on my own thinking, I will be able to contribute to the modern discourse on the human-nature relationship such that it moves a bit closer to being founded in the kinds of knowledge that I take indigenous persons to possess.

To begin the work of showing how the predominant modern view is faulty, I note that some number of modern humans have powerful experiences of closeness with nonhumans. For example, Nobel Prize winning geneticist Barbara McClintock says of working with corn that "it surprised me because I actually felt as if I were right down there [with the corn] and these were my friends" (Keller et al., 1983, p. 117). Of those plants she says, "I know them intimately and I find it a great pleasure to know them" (p. 198). Nature writer and philosopher Barry Lopez (1992) says, "It has been my privilege to travel, to see a lot of country, and in those travels I have learned of several ways to become intimate with the land" (p. 14). As to what kind of intimacy Lopez means, he tells us it is the kind of intimacy "one would [cultivate] with a human being" (p. 13). The literature examining the orientation of modern children to nonhuman beings is

particularly relevant here, as they often engage with nonhuman beings as close relational partners. For example, Loughland, Reid and Petocz (2002) found that some students, and primary school-aged students more than older, secondary-aged ones, had experiences with nonhuman beings sufficient to define the belief that “people and the environment are...in a mutually sustaining relationship” (p. 194). The authors offer example statements from children’s self reports such as “we should care for [nature] and it will look after us” and the environment is a “a place where we coexist in harmony” (p. 195). Chawla (1990) has also worked extensively with children’s interactions with nonhuman nature. For example, in one study she notes various intense feelings of communion between the child and the nonhuman world. She describes some of these feelings as a “mutual sense of belonging” (p. 21) and quotes one autobiography where the author describes his childhood experience by saying,

The woods befriended me...I was usually with a group of boys as we explored the woods, but I tended to wander away to be alone for a time for in that way I could sense the strength of the quiet and the aliveness of the woods (p. 20, originally 7).

Famed art historian Bernard Berenson (1949), for example remembered that as a child, one morning he “climbed up a tree stump and felt suddenly immersed in Itness. I did not call it by that name, I had no need for words. It and I were one” (p. 18). Louv (2005), in an interview with a young poet, describes her as she recounts to him the destruction of her “special part of the woods” when she was a child: “[the] young poet’s face flushed. Her voice thickened. [And she said,] ‘And then they just cut the woods down. It was like they cut down part of me.’” (p. 14).

Lepidopterist Robert Michael Pyle (1993) says of his childhood,

My own point of intimate contact with the land was a ditch...From the time I was six, this weedy watercourse had been my sanctuary, playground, and sulking walk...Even if they don’t know ‘my ditch,’ most people I speak with seem to have a ditch somewhere...These are places of initiation, where the borders between ourselves and other creatures break down...It is through *close* and intimate contact with a particular patch of ground that we learn to respond to the earth, to see what really matters. (p. 4)

Hoffman (1992) refers to an account from the childhood of a thirty-three-year-old German woman, who said,

I always felt that nature had a definite soul. In our backyard an old maple tree stood...I would hug this old tree, and I always felt that it spoke to me...Not only the trees could speak to me, but also the plants, streams, and even the stones...When I would find an especially beautiful rock on the road, I would take it, feel it, observe it, smell it, taste it and then listen to its voice... (p. 24)

What I find particularly interesting about these childhood experiences is that younger children tend to feel more of a relational orientation than older children (Loughland, Reid, Walker & Petocz, 2003). While some attribute this to a younger child's greater imagination (Gleason, Jarudi, & Cheek, 2003) or as an error in thinking (Bullock, 1985), I suggest the opposite, that children's perceptual capacities may be far more *open* and *accepting* of external reality, and it is only as they grow and learn what their societies or cultures conceptualize to be true, possible, and acceptable in regard to the human-nature relationship that they learn to compartmentalize and categorize their perceptions as true or not true—as reflective of experience or as *post hoc* conceptualization and projection. Thus, the older one gets, the *harder* one's imagination works to hide from consciousness the relational experiences humans are having, or could have, with nonhuman beings. Loughland et al. (2003) find an interesting statistic that could be seen to support my assertion. They say that “increasing [environmental] knowledge reduces the odds of the ‘relation’ [as opposed to ‘object’] conception by a small but statistically significant amount!” (p. 13). While they attribute this effect to “environmental knowledge...being learned in such a way that relation concepts are not being developed” (p. 13), I suggest instead that the relation concept is not something that can be learned in a factual sense. In fact, it's not even a concept, but instead is felt intuitively by children directly from the nonhuman beings with whom they are interrelating.

I will explore in more detail the means by which this might occur later in the dissertation, so conclude here by suggesting again that a close relational experience may be what is happening at a perceptual/experiential level, with objectification of nonhuman beings a *post hoc* alteration that distorts or reduces that power and complexity of that reality. If these close relationships do exist or have the potential to exist, then imagining that they don't is a mistake in perception. The remainder of the anecdote from the German woman in Hoffman (1992) brings this possibility home most forcefully. She recounts the methodical destruction of her close interactions with nonhuman beings by saying,

Then school began, and everything changed. Because of my intense involvement with nature, I couldn't relate well to other children...[O]ne day when my classmates saw me talking to a big chestnut tree in front of the schoolyard...they told the teacher, who requested a meeting with my parents the next day...My parents recounted the conversation to me and clearly showed how ashamed they were "to have such a crazy child." From that day onward, my magic was systematically ruined or destroyed...So it happened, that I started believing that nature was mute and couldn't speak to me." (p. 25)

What's clear from these examples is that many modern human beings are having, or have had, close relational experiences with nonhuman beings. The next step is to see how these experiences are, and ought to be, interpreted.

Existing Human-Nature Relationship Theories

Given the work of human-nature relationship theorists to extrapolate the experience of interhuman closeness to human-nature relationships, one might expect them to have developed clear models to explain the structure and dynamics of the human-nature relationship itself. Yet, this is generally not the case. If articulated at all, the articulation of these elements tends to be quite vague and carry a heavily anthropocentric orientation. For example, Mayer and Frantz (2004) loosely adapt an interhuman relationship model from Aron, Aron, Tudor & Nelson (1991), but do so without acknowledging that Aron et al. position their work outside the

mainstream of interhuman relational theory. Instead of being focused on the “mutual influence...[and] interdependence” (p. 241) of relationships, Aron et al.’s work revolves around the “cognitive significance...for each person” (p. 241). This and other aspects of Aron et al.’s work applied to human-nature relationships puts the individual human at the center of consideration with the nonhuman either at the periphery or out of the frame entirely. While use of such work to model human-nature relationships provides safe harbor to theorists seeking (consciously or otherwise) to focus their attention on the human side of the relational experience, it cannot be used to model the *reality* of the relevant relational elements without justification. Many other examples of this anthropocentric modeling can be found, such as in Saunders’ (2003) view of the field of Conservation Psychology where reciprocity of human-nature relationship is conceived of as what humans receive and what they give, instead of an actual reciprocal exchange where both human and nonhuman give and receive. When Brooks, Wallace, and Williams (2006) characterize “relationship to place as the active [human] construction and accumulation of place meanings” they center the definition of the relationship in the action of the humans within it. Van den Born, Lenders, Groot and Huijsman (2001) offer support for my suggestion that nonhuman beings are improperly dislocated from this relational epicenter when they say, “An extensive body of research focuses on environmental behaviour, attitudes and values...[but] the problem with this body of research is that [nonhuman] nature is only a marginal element in the approach” (p. 66).

The marginalization or omission of nonhumans from close human-nature relational theory could be characterized as simple oversight, but even if this is unconsciously the case, I believe it to be indicative of a deeper, unexamined assumption at work. That is, that nonhuman beings *ought to be* thought of as peripheral, if thought of at all. If a nonhuman being is considered a less

“weighty” relational partner to the more central human, then it makes sense that theorists would leave relational structure and dynamics largely untended when building their theories. In such views there is very little relationship in a realistic, reciprocal sense *to* model. But, this cannot be uncritically asserted [averred]. One of the founding suggestions of this dissertation is that this peripheralization is based almost purely in human assumption, not in any empirical data gathered and then later incorporated into human-nature relationship theories. I’ll argue extensively in this dissertation to support my suggestion, but introduce it here to raise the notion that the work of determining whether nonhumans ought to be thought of as peripheral must begin with the understanding of what humans and nonhumans are taken to be like as they relate with each other. In other words, the work must begin in the ontological.

Experiences of Closeness Through an Ecofeminist/ Pragmatist Lens

To contrast this peripheralization of nonhumans, let’s suppose they are seen as central to the structure and dynamics of human-nature relationships. This immediately opens the door for acceptance of the examples given above where human close relational experiences with nonhumans are externally, relationally accurate. The German woman in Hoffman’s text, then, *was* intensely involved with nature and the woods *did* befriend the author in Chawla’s (1990) account. I root the potential for this kind of *prima facie* acceptance in the philosophical orientations of both ecofeminism and American pragmatism (hereafter “pragmatism”), which source truth in what ecofeminists call “particular...experiences” (Warren, 1990, p. 113) and what pragmatists call “primary experience” (Dewey, 1929, p. 3). The key feature of both are that truth does not begin in theory but in experiences that occur prior to any conceptualization about them. In these schools of thought, theories are only “good” if they comport with the phenomena *as experienced*, and must be continually checked against that experience to ensure their veracity. In

these schools of thought, since experience is the vessel of truth then if some humans are having close relationships with nonhuman beings, we can allow for the possibility that this is exactly what is happening, and that the experience is the best and truest source for this information. Is it possible that a human can be mistaken in this—perhaps experiencing a hallucination? Yes, but ontologically speaking, nothing precludes her *experience* of closeness from being the best and most accurate description of what is happening between her and the nonhuman being(s) with whom she is having such an experience. Of course, what exactly constitutes these close experiences is the lynchpin of how these relationships ought to be understood, but that they can be close in the interhuman sense is ontologically unproblematic in this view.

Influence of Ecofeminist Dualisms on Human-Nature Relationship Theories

If close human-nature relationships are ontologically unproblematic, then where might the opposing view that nonhumans exert little substantive influence over close human-nature relational experiences originate? I suggest it is to be found in what ecofeminists have identified as *human/nature dualisms*. In a general sense, a *dualism* is the ontological or metaphysical notion of reality being made up of two foundationally distinct elements. Descartes is one of the best known dualists, believing that mind and body were ontologically distinct. His brand of dualism is most often referred to as a “substance dualism” or “Cartesian dualism.” I’ll use the latter term when referring to it through the rest of this dissertation. Ecofeminists use the term “dualism,” however, to describe how two things which may or may not be ontologically distinct are *post hoc* conceptualized to be so in such a way that one half of the dualized pair is positioned as inferior to the other (Plumwood, 1993, p. 47). Since I use the term frequently throughout the rest of this dissertation, when referring to dualism in the human/nature, ecofeminist definition of it, I add no qualifier and simply refer to it is “dualism.”

As ecofeminist dualisms relate to the human-nature relationship, Plumwood says that “the western model of human/nature relations has the properties of dualism...[which] results from a certain kind of denied dependency on a subordinated [nonhuman] other...in which the denial of the relation of domination/subordination shape the identity of both” (p. 41). Here, she is describing how the human depends on a subordinated nonhuman, and that this subordination is accomplished and/or justified through *post hoc* dualist conceptualizations of the nonhuman as inferior. In human-nature relationship theories, then, the peripheralization or elimination of the nonhuman isn't the result of the nonhuman actually being inferior or peripheral. It is achieved through the *post hoc* operation of undetected dualisms on what nonhumans are understood to be like, and thus what is taken to be relationally possible between them and human beings. In this dissertation, I take these dualisms to be the most foundationally undermining modes of thought in the human-nature relationship literature. Their pervasiveness and persistence there can best be described by Plumwood, who notes that dualisms “may lurk in the background in unexamined and concealed form...[and] form a web or network. One [dualism] passes easily into the other, linked to it by well-traveled pathways of conventional or philosophical assumption” (p. 45). So subtle and pervasive are they in established scientific and academic discourse that I believe them to have formed a hegemonic constellation of thought that reflexively reinforces its own position not through evidence, but by installing, without substantiation yet still positioned as ontologically correct, its own perspective. It then uses that positioning as leverage to marginalize and negate any perspective or line of thought not in accord with its own. Dualisms have become so powerful and deeply rooted in modern thinking that most of the time, those offering theories carrying them are rarely even aware of their presence.

I'll explore dualisms in more detail in the Critical Lens chapter below, but here note that in human-nature relationship theories, when dualisms are present they can reduce nonhumans to being passive (Merchant, 1980; Plumwood, 1993), largely material (Plumwood, 1993; Evernden, 1992), objects of instrumental-only value (Plumwood, 1993; Gaard, 2010). Given such reductions, it's easy to see how nonhumans become marginalized. What it's equally easy to see, however, is just how out of keeping such a reduced relational partner is with the nonhuman relational Self that occupies the experiences of many modern humans, some of whose examples of which I offered above.

What ultimately emerges from the operation of these dualisms in explanations of close human-nature relationships then is a deep tension between the experiences of human-nature relationships as close and most modern theories developed to explain them. In its essence, the tension is drawn between close human-nature relationships with both human and nonhuman as relational Selves capable of entering into close relationship in the interhuman sense of the term, and humans acting largely alone, fabricating a facsimile of closeness out of internal cognitive and affective elements and projecting them outward onto the relationally inert nonhuman world. These competing perspectives are well articulated by Milton (2002), who describes the former as modern humans "*discover[ing]* the personhood of nature and natural things by perceiving..." and the latter as modern humans believing that they "make nature and natural things *into* persons, that [they] *construct* them as persons" (p. 44). Given this tension, one can also see that human-nature relationship theorists have allowed themselves to be painted into a conceptual corner. By relying heavily on interhuman relational constructs of closeness while adhering to dualistic ontological positions that undermine closeness' most foundational feature: reciprocal

exchange between relational Selves, they've constructed an unresolvable impasse between experience and theory.

I believe that this tension between closeness as experienced and closeness as fabrication can be traced to two possible sources. The first is the "reality" that humans and nonhumans simply don't have the qualities and capacities that, combined, can support a close human-nature relationship with similarities to close interhuman relationships. If that's the case, all experiences of closeness by humans are the internal-to-human concept they're predominantly portrayed to be in the human-nature relationship literature today. If this is the most accurate reading of reality, then one ought to primarily appeal to the psychology disciplines for understanding the conditions under which humans conceptualize their interactions *as relational* with that relationally inert partner. Understanding the conditions under which those interactions might become more environmentally benign then becomes the main work of solving environmental problems. In such a view, promoting a feeling of closeness with nature in, for example, environmental education programs, becomes an elaborately cloaked form of hypnotism. The human is encouraged to feel as if he is close to nature when true closeness is not possible. The second possibility is that humans and nonhumans *do* have the necessary qualities and capacities to engage in close relationships, but the predominant, modern human conceptions of humans, nonhumans, and the possibilities for their interaction are somehow flawed, perhaps through the operation of dualisms that conceptually obfuscate the qualities and capacities in nonhumans that enable such closeness.

If the first possibility is true, then any further attempts to use close interhuman relationship models in human-nature relationship theory are at best metaphoric. Ecofeminist King (1991) directly addresses the trouble of employing a metaphor in his response to Warren's

(1990) first-person narrative of a human having a close relationship with a cliff when he asks, “The rock is personified as a partner and friend...[but w]hat...is gained by the metaphors of conversation, partnership and friendship when these are taken out of their human context...?” (p. 85). My answer to King’s question is: If the closeness is only a metaphor, not very much. To me, it seems at the very least naive to expect all the benefits of the behavior of someone in a real close relationship—the strength, vigor and tenacity of love and care, when no relationship actually exists. I suggest that such a false relational construct has neither the power to truly improve human-nature relationships, nor the conceptual “gravity” to explain the bonds, love, care and intimacy that *are* being experienced by many humans in relationship with nonhumans. Ultimately, if the closeness is metaphoric, its use by human-nature relationship theorists is of marginal value at best and ought to be discarded.

If, on the other hand and as I suggest, the second possibility is correct and there *are* flaws in the conceptions of the qualities and capacities that humans and nonhumans have, and how they interoperate in the human-nature relationship, then there is valuable work to be done in articulating what those flaws are and correcting them. It is the substance of this dissertation to undertake such an effort so that prescriptions offered for the improvement of human-nature relationships effectively address these roots.

If at this juncture the reader is wondering exactly which nonhumans I take to be capable of being a relational Self, it is every known and knowable thing in the world—from stars to slime molds to Killer Whales. For all things in existence, Part III of this dissertation contains an extensive exploration of both the dualistic denial of, and the alternative possibility of the capacity for, the thoughts, feelings and actions that I will lay out in the Critical Lens chapter as the necessary elements to conduct close human-nature relationships.

Chapter Overview

Chapter 1 contains the construction of a basic, close, human-nature relational model (and the critical lens it affords) by wedding close interhuman interdependence theory with the critical power of ecofeminist-identified human-nature dualisms. Part 2 (Chapters 2, 3 and 4) contains the application of that lens to a critical examination of the current literature on human-nature relationship theories. Given the conceptual nature of my dissertation, Part 2 will stand as the literature review. Part 3 (Chapters 5 through 8), first contains an articulation of some key features for a relational ontology that can underpin close human-nature relationships. It then goes on to explore the kinds of dualism-expunged thoughts and feelings that both humans and nonhumans can contribute to form relational closeness.

CHAPTER 1 CRITICAL LENS

In this chapter, I will develop a two-part critical lens for use in the rest of the dissertation. I will articulate what dualisms I believe are applicable to the human-nature relationship literature and a baseline close human-nature relational model. These two elements will form the critical lens I'll use in both through the rest of the dissertation.

Explication of Dualisms

I stated my belief above that many human-nature relationship theories are underpinned by ontologies that carry dualisms. In this section, I'll explore the ones most relevant to this dissertation. In Part III, I will explore in greater depth my assertion that such dualisms lack empirical support.

The first dualism is the defining of the nonhuman as *passive object* instead of “active subject” (Merchant, 1980, p. 400). Plumwood (1993) notes that defining the nonhuman nature thusly positions it as “empty, passive and without value or direction of its own” (p. 111). The effect this passive-object definition of nonhumans has on human-nature relationship theories is that it limits or eliminates nonhumans as relational Selves. For example, Batisse (1982) explores the merits of creating biosphere reserves as an environmental conservation measure and notes three objectives to doing so. First, it is meant to “conserve for present and future use the diversity...of biotic communities...”, second to “...provide areas for research...”, and third to “...provide facilities for education and training” (p. 102). In all three, the nonhuman is only defined as material, and only those material elements of instrumental value to human desires and goals. Whatever goals or purposes the nonhuman has for his own sake are either denied or

deemed irrelevant by the dualistic lens through which the nonhuman is considered. The survival of the nonhumans within such a biosphere reserve—and that as an end unto itself, is ignored.

The second dualism I consider is *materialism*. Plumwood (1993) suggests that what is dualist is a “materialist reductionism” which “conceiv[es] not only nature and animals but also the human itself in mechanistic and reductionistic terms” (p. 121). One effect such a reductive materialism has is to portray nonhumans as “stripped of psychological or mindlike attributes, [where a]ll talk of teleology, of agency, of goals, of striving, of choice and freedom is exorcised...[and] leaves nature as a sphere voided of meaning, a mere endless movement of matter” (pp. 121-122). Evernden (1992) says that “if subjectivity, willing, valuation, and meaning are securely lodged in the domain of humanity, the possibility of encountering anything more than material objects in nature is nil” (p. 108). Here again there is a denial of a Self-ness to nonhuman beings. If one defends such a position by, for example, claiming that things such as teleology, agency and goals are *post hoc* human constructs superimposed on an external reality that does not contain them inherently, I’d suggest that such a stance itself relies on a dualist ontological assumption that they do not exist. This is a claim that it is one of the central purposes of this dissertation to refute. Thus I state here, and will offer support for in Part III, that teleology and other elements can exist in nonhumans and thus can be perceived by human beings.

In addition, though Plumwood above only goes so far as to suggest that the mechanistic nature of reductive materialism is dualist, I take all purely materialist positions to be this way. I base this on the fact that though there are myriad forms of materialism, all appear to eliminate more-than-material ontological possibilities for thoughts, feelings, intuition, spiritual entities, etc., through *post hoc* conceptual reduction instead of empirical evidence. For example, in

Foster's (2000) excellent account of Epicurean materialism, he eradicates the possibility of spiritual ontological elements through *post hoc* qualification of experiences of "teleology, vitalism, idealism...or whatever one likes to call it" as a postmodern conceptual response to "the one-sided determinism of [Democritus' mechanistic materialism]" (p. 11). Since in a materialist ontology in general, more-than-material elements cannot exist, theorists like Foster are free to attribute experiences of them to some form of internal-to-human, *post hoc* conceptual response to a material, external reality. Within such ontological constraints, then, spiritual elements are at best a benign psychological projection and at worst, outright pathology. In making his claim, Foster relies on the materialist ontological constraint that spiritual elements *can* only be internal-to-human concepts as support for his contention that they are. This is circular logic. It is not based in any experience, but in a dualistic line of reasoning that elevates the material by assumption, and from that vantage point is enabled to reduce or negate the potential for any more-than-material ontological elements.

Further, in characterizing the two equally implausible ontological extremes as mechanistic materialism and reactionary "idealism...[and] spiritualism" (p. 19), respectively, Foster is not alone. Pragmatist philosopher John Dewey (1929) also sees these as the two ontological extremes for which either a middle ground, or escape from the spectrum entirely, is the solution. In positioning ontology this way, the middle ground Dewey seeks is the chaotic flux of "primary experience" (p. 3) that precedes both of these human-generated, conceptual overlays. For Foster (2000), that primary experience is material. What neither author sees, however, is that a view of reality as primarily chaotic and/or material itself depends upon a *a priori* assumption that this is the "most basic" reality. This is not fact, but assumption, as I'll argue in greater detail in the Relational Ontology and Human-Nature Closeness chapter. That it

may *seem* like fact to the reader is, in my estimation, testament to the hegemonic force with which materialism and its underwriter, chaos, have pushed their way into the deepest recesses of established, contemporary academic and scientific thought. Given materialism's power to supplant not only more-than-material elements, but to act as a foundation for arguing that only humans have most of the qualities we'd attribute to a Selves able to enter into close relationships, I suggest that materialism is perhaps the most powerful dualism. I'll return to this theme in more detail throughout this dissertation, but will conclude here by saying that, if it seems "unfair" to materialist perspectives to characterize them as dualist, I'd point out that they are most often wielded in a logically inconsistent manner. That is, it is erroneous to allow the ontological position of materialism to self-reinforcingly eradicate more-than-material ontological possibilities while also asking those holding more-than-material ontological positions to both refrain from the same activity and to include materialist evidence as a refutation of its own position. That is why I suggest that materialism, much more often than more-than-materialism, is wielded dualistically.

Moving beyond materialism, another dualism is that of nonhumans possessing only *instrumental* (to human ends) value. I trace this dualistic form of valuing to a predictable extension of the ontological portrayals of nonhumans as passive objects of a material nature. I mean this in the sense that, given those definitions, it's virtually impossible to argue for ethical consideration of nonhumans as ends in themselves. Plumwood (1993) says that within this instrumentalization "the other appears only as a hindrance to or as a resource for the self's own needs, and is defined entirely in relation to [the human's] ends" (p. 145). One of the many examples of the instrumental value of nature in human-nature relationship theories is in the notion of "place identity" (Williams & Vaske, 2003, p. 831), which is described as "an emotional

attachment” that is a “repository for [human] emotions and [human] relationships that give meaning and purpose to [human] life” (p. 831). I’ll explore this in detail in Place Theories section of the Connections with Nature chapter below. Even before exploring any theories, terms like “natural resources” immediately threaten to eliminate nonhumans as Selves. *For whom* are these nonhumans resources? The human of course. This kind of dualist valuation largely obscures any other value that nonhumans might have and that contributes to a very different kind of human-nature relationship.

Yet another relevant dualism is *individualism*, defined as “the view that selves are essentially solitary, separate, isolated, atomistic individuals defined apart from the social contexts and relationships in which they find themselves” (Warren, 2000, p. 90). In the case of a human/nature dualism, this context includes interactions with nonhuman beings. Its main operation is to sponsor a version of relationships as emerging from the primary and precedent individual. I’ll explore this in more detail when it comes in the form of *substantivism* in the Relational Ontology and Human-Nature Closeness chapter below, so suffice it to say here that in individualism, when a relational experience occurs between human and nonhuman, individualism empowers the human to see herself as the source of that experience—or at least its most salient relational features. It aids the overwhelming human focus in human-nature relationships that I discussed in the Introduction.

The result of defining the nonhuman as passive, material object with instrumental-only value upon whom individual humans project various feelings of closeness is a decidedly *anthropocentric* view—another dualism—of humans and the resultant human-nature relationship. While some might argue that these dualisms are the result of anthropocentric thinking, I suggest it’s equally plausible that anthropocentrism is the result of these other

dualisms. If in a dualist fashion, nonhumans are defined as passive, material, and instrumental objects devoid of their own significance and/or meaning, agency, and intelligence, then there really is only one relational partner that *can* be an active, purposeful subject with significance and meaning, agency, and intelligence. This is the human.

Ultimately, these dualisms have a self-reinforcing effect in the development of theories to explain human-nature relationships. The more they form the conceptual underpinnings of the definitions of human, nonhuman and their resultant relationship, the more they preclude interpretation of elements of that relationship in any way that falls outside this pre-codified dualist ontology. Thus, even were there to appear contradictory evidence coming through directly to the human in his experience with nonhumans, it will go undetected. That, or the *post hoc* conceptual lens through which it's interpreted will either reduce it out of existence or “buttonhook” it instrumentally back to being a function and/or product of the human mind. Such ontological sleight of hand cannot uncritically stand as a valid way to interpret experiences of human-nature relationships. More is required if we are to learn about and try to improve human-nature relationships.

Material and More-than-material: Basic Categorization

Thus far I've made scatter reference to more-than-material ontological elements without explaining exactly what I mean by the term. While I'll explore in far greater detail below why I come to hold these as two distinct ontological categories, and why I place certain elements of experience in one, the other, or both, here I'll begin by articulating what I take to fit into each. For example, here I will state that emotions have irreducibly more-than-material components, and in the Relational Ontology and Human-Nature Closeness chapter articulate a more fulsome argument for how emotions can have a more-than-material ontological root.

To begin, then, I take material elements to be those which, through experience, appear to be physical or manifest materially in the world external to oneself, and internal to oneself in the Cartesian sense of “body.” Thus, a horse’s body is material as is my body. A field across which he gallops is also material. I’m aware that it is the convention of those drawing the boundaries around that which is “material,” that energy is also taken to be material, and yet for me, at times it still resists such easy qualification. Energy as electricity, perhaps, ought to be considered material, but what about when one talks of the human body’s energy, such as the *qi* in Chinese medicine that is manipulated by such things as acupuncture (Kaptchuk, 2002)? At one level, it is accessed by material means and considered by some to be a tangible, electromagnetic energy. But if a body dies, does the *qi* die with it? Or, it being energy, is it disbursed into the material world in the sense of Joule’s law of the conservation of energy, or into another kind of existence such as an afterlife? At some level, I’m not sure that *qi* has nothing to do with the soul.

Conversely, I take *emotions* to have irreducibly more-than-material elements and at least partial origins. And feelings are not just things humans feel, but at least animals, as well. For animals, these have been shown to include fear, joy, happiness, shame, embarrassment, resentment, jealousy, rage, anger, love, pleasure, compassion, respect, relief, disgust, sadness, despair, and grief (Bekoff, 2000, p. 861). Why I don’t take them to be material in origin given the growing body of data showing material influences on emotion (Panksepp, 1998; LeDoux, 2000, etc.) I will explore in the Relational Ontology and Human-Nature Closeness and Feelings chapters below.

I also take *cognitive* elements such as attention, memory, categorization, language, problem solving, and tool use to have irreducibly more-than-material components. I discuss this in detail in the Thoughts chapter below, so here state that I don’t source the mind in the brain

either, despite growing material evidence for a tight correlation between the two. I will argue below that the finding of material correlates does not imply causation, and only does when the *a priori* assumption of a monist materialist ontology is present.

Finally, non-material “things” that are not necessarily *in* a being, such as relations, love, and spiritual elements such as a soul (in humans or nonhumans) and spiritual beings such as deities (or G-d, if one is inclined in a monotheistic direction) are also included in my conception of what is more-than-material. The remainder of this dissertation will consist of an expansion and justification of these categories, and their essentiality to close human-nature relationships.

A Close Human-Nature Relationship Model

Close Relationship Theory

As I alluded to in the Existing Human-Nature Relationship Theories section of the Introduction above and will explore in more depth in the Critical Examination portion of the dissertation below, a relational model that explains the feeling of closeness between human and nonhuman is either underdeveloped or absent from the human-nature relationship literature today. Since I’ve argued that one cannot uncritically assume a peripheral nonhuman partner, some relational model is sorely needed within which to openly examine not only the qualities and capacities of human and nonhuman in relationship, but any *a priori* dualisms in ontological operation therein. To allow for the possibility that I assert in this dissertation: that close human-nature relationships are akin to close interhuman ones, then a likely source for such a model is the literature on close interhuman relationships.

Here I’ll briefly explore and make use of one of the more widely known of these theories—interdependence theory. One thing to note: I recognize that there is a vast and diverse literature on close human relationships. My goal is not to undertake an extensive examination of

this literature, but to make use of one of its well-established models to “snap a line” as it were, against which one can hold the capacities of humans and nonhumans to engage in reciprocally relational closeness. I chose Interdependence theory over, for example, two other well-established close relationship theories: Communal Theory (Clark and Mills 1993) and Attachment Theory (Hazan & Shaver, 1994), due to its clear articulation of how thoughts, feelings and actions interoperate to form closeness. Since, in Part III, I will examine the capacity of nonhumans to have the kinds of thoughts and feelings that can support a reciprocally close human-nature relationship, interdependence theory is a natural fit.

Interdependence Theory

Kelley et al. (1983) suggest that a relationship between two persons can be understood to exist most basically “when their two chains of events (of thoughts, feelings, actions, and other attributes) are *interconnected*” (p. 36).

Figure 1 depicts the interaction of these elements of thought, feeling (“affect” in the figure) and action between two persons according to Kelley et al. As can be seen, each person’s

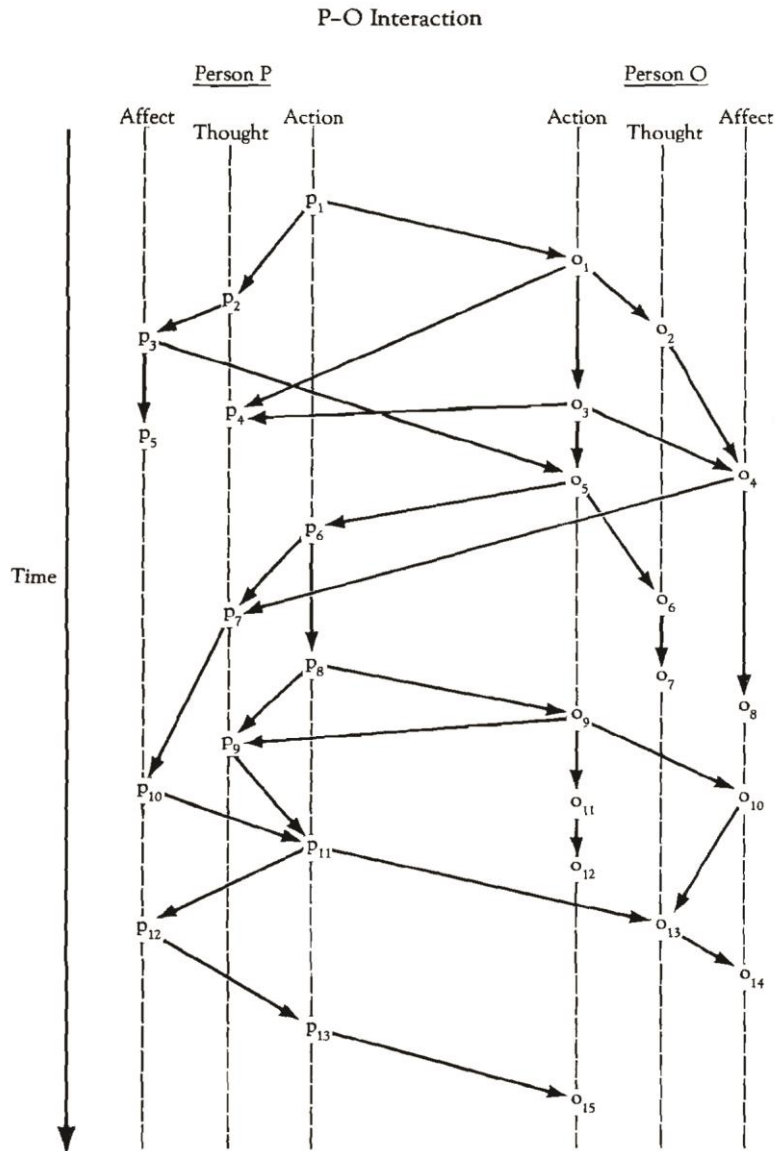


Figure 1. Close Interhuman Relationship Diagram showing interaction of Affect, Thought and Action vectors between two persons. Reprinted from *Close Relationships* (p. 28), by Kelley et al., 1983, New York: W.H. Freeman.

thoughts, feelings and actions can affect any and all of the elements in the other person, and vice versa. Also, while in interdependence theory one does not see direct feeling to feeling

interaction, as I'll explain in the Relational Ontology and Human-Nature Closeness chapter, I believe this vector of interaction to also be possible.

Building on this basic notion of interdependence, Kelley et al. define the kind of interdependence in a *close* relationship as being “strong, frequent, and diverse...[and lasting] over a considerable period of time” (p. 38). In a *positive* close relationship such as those between close friends or husbands and wives, the authors say that their interdependence has “symmetry; and high mutual facilitation” (p. 37). By symmetry is loosely meant a reciprocity where each contributes elements contributing significantly to the closeness. This as opposed to other positive close relationships Kelley et al. note such as parent-child relations, which can be quite asymmetrical.

To explain each of these close relationship elements in a bit more detail, the authors say that interdependence is *strong* when a change produced in one participant by the other is “great, involv[es] single responses of large amplitude...[and] invokes numerous” or “long chains of responses” (p. 33). Strength is also indicated when changes are produced “with short latency or with high dependability” (p. 33). The relationship has high *frequency* of interconnection when the rate of interconnection, or “number of interconnections per unit of time” (p. 34), is high. A relationship's *diversity* can be seen in “the number of different kinds of events that are interconnected” (p. 34). In close relationships, the diversity is greater, with a “broad, richly textured interaction” (p. 34). This strength, frequency and diversity of interconnection can be along all three vectors of thought, feeling and action in the chain of events of interaction between the two relational partners. The length of time over which a close relationship lasts, or its *duration*, can be measured in the time period over which the attributes of strength, frequency and diversity are reported by participants, or observed, to be above a certain threshold. *Symmetry* is

the degree to which interconnections from one participant to the other are similar for both participants. For example, in a romantic couple there is closeness based, in theory, on symmetry. In a parent-child relationship the closeness is asymmetrical. *Facilitation* is the interconnection of one participant to the other helping the other reach certain goals.

Lastly, Kelley et al. suggest that the causal context of interaction in a close relationship has four conditions. They are “personal” (p. 96), “relational” (p. 103), “social” (p. 105), and “physical environmental” (p. 106). The “personal conditions” are constant qualities that each participant possesses such as genetic propensity, internalized rules or norms, age, gender, education, and social, cognitive and affective skills. The “relational conditions” arise out of the combinations of the participants’ attributes in both the present interaction and deriving from their past interactions. Then there are “social conditions” (p. 105), which are the surrounding or “other relationships [that affect] the frequency and patterning of...[the present] relationship” (p. 105). Finally, there are “physical environmental” conditions that, because I am laying the groundwork for a relationship with that “environment,” means that it is no longer applicable as a backdrop. In the context of human-nature relationships, I suggest that personal or social conditions have a great influence on whether a human, for example, enters into a close relationship with a nonhuman. Imagine how odd or even frightening it would be to feel love toward an animal or piece of land if there is little experience of having done so in the past—or if other humans within one’s social context call such love a form of either self-indulgent anthropomorphism or worse, mental imbalance. In tongue-in-cheek fashion, Turner (1989) suggests that most modern attitudes toward feelings like these would be that they were “an emotional mistake—like being in love with the number 2” (p. 85). From the nonhuman side, past relational conditions can also have an influence over a willingness to form close

relationships with humans. Most people have heard stories of a shelter animal having a fear of humans wearing certain clothing, like a baseball cap, because of past association with an abusive owner who wore one.

Interdependence theory's reliance on discernible events and their interplay greatly facilitates the measure of relationships and their closeness. In attempting to determine whether human-nature relationships are close, establishing that both human and nonhuman have the capacity to think, feel and act in relationally reciprocating ways is crucial. Part III of this dissertation will focus primarily on establishing that nonhumans have the capacity for thoughts and feelings that support closeness as defined in interdependence theory. While personal, relational and social conditions, as well as strength, frequency, diversity, duration, and the tendency toward facilitation are just as important, time and space do not permit an exhaustive treatment of them as well. While leaving a more thorough exploration to future work, in the dissertation Conclusion I will revisit the model I define next, and do still briefly touch on them.

Basic Model for Close Human-nature Relationships

Alice Walker's "Am I Blue?" I've chosen a close relationship model containing elements of thought, feeling and action to apply to nonhumans as well as humans. As I'll argue in Part III, the capacity for thoughts and feelings is ontologically unproblematic even for "inanimate" nonhuman beings, thus this model is applicable in all human-nature relationships.

How such a model would work to explain human-nature interactions is best served with an example. I begin by quoting at length Alice Walker's (1989) encounter with a horse named Blue:

It was quite wonderful to pick a few apples, or collect those that had fallen on the ground overnight and patiently hold them...up to [the horse, Blue's] large, toothy mouth...I had forgotten the depth of feeling one could see in a horse's eyes.

I was therefore unprepared for the expression in Blue's. Blue was lonely. Blue was horribly lonely and bored. I was not shocked that this should be the case; five acres to tramp by yourself, endlessly, even in the most beautiful of

meadows—and his was—cannot provide many interesting events...No I was shocked that I had forgotten that human animals and nonhuman animals can communicate quite well; if we are brought up around animals as children we take this for granted...

But then, in our second year, something happened in Blue's life. One morning...I saw another horse, a brown one, at the other end of Blue's field. Blue appeared to be afraid of it, and for several days made no attempt to go near. We went away for a week. When we returned, Blue had decided to make friends and the two horses ambled or galloped along together, and Blue did not come nearly as often to the fence underneath the apple tree.

When he did, bringing his new friend with him, there was a different look in his eyes. A look of independence, of self-possession, of inalienable *horseness*. His friend eventually became pregnant. For months and months there was, it seemed to me, a mutual feeling between me and the horses of justice, of peace. I fed apples to them both. The look in Blue's eyes was one of unabashed "this is *itness*."

It did not, however, last forever. One day, after a visit to the city, I went out to give Blue some apples. He stood waiting, or so I thought, though not beneath the tree. When I shook the tree and jumped back from the shower of apples, he made no move. I carried some over to him. He managed to half-crunch one. The rest he let fall to the ground. I dreaded looking into his eyes—because I had of course noticed that Brown, his partner, had gone—but I did look...The children next door explained that Blue's partner had been 'put with him'...so that they could mate and she conceive. Since that was accomplished, she had been taken back by her owner, who lived somewhere else.

Will she be back? I asked.

They didn't know...

Blue was like a crazed person. Blue *was*, to me, a crazed person. He galloped furiously, as if he were being ridden, around and around his five beautiful acres. He whinnied until he couldn't. He tore at the ground with his hooves. He butted himself against his single shade tree. He looked always and always toward the road down which his partner had gone. And then, occasionally, when he came up for apples, or I took apples to him, he looked at me. It was a look so piercing, so full of grief, a look so *human*, I almost laughed (I felt too sad to cry) to think that there are people who do not know that animals suffer...But most disturbing of all, in Blue's large brown eyes was a new look, more painful than the look of despair: the look of disgust with human beings, with life; the look of hatred. (pp. 4 - 8)

Figure 2 depicts the initial part of Walker’s interaction with Blue, showing a link between Blue’s feelings of loneliness and boredom and Walker’s perception and thoughts about them.

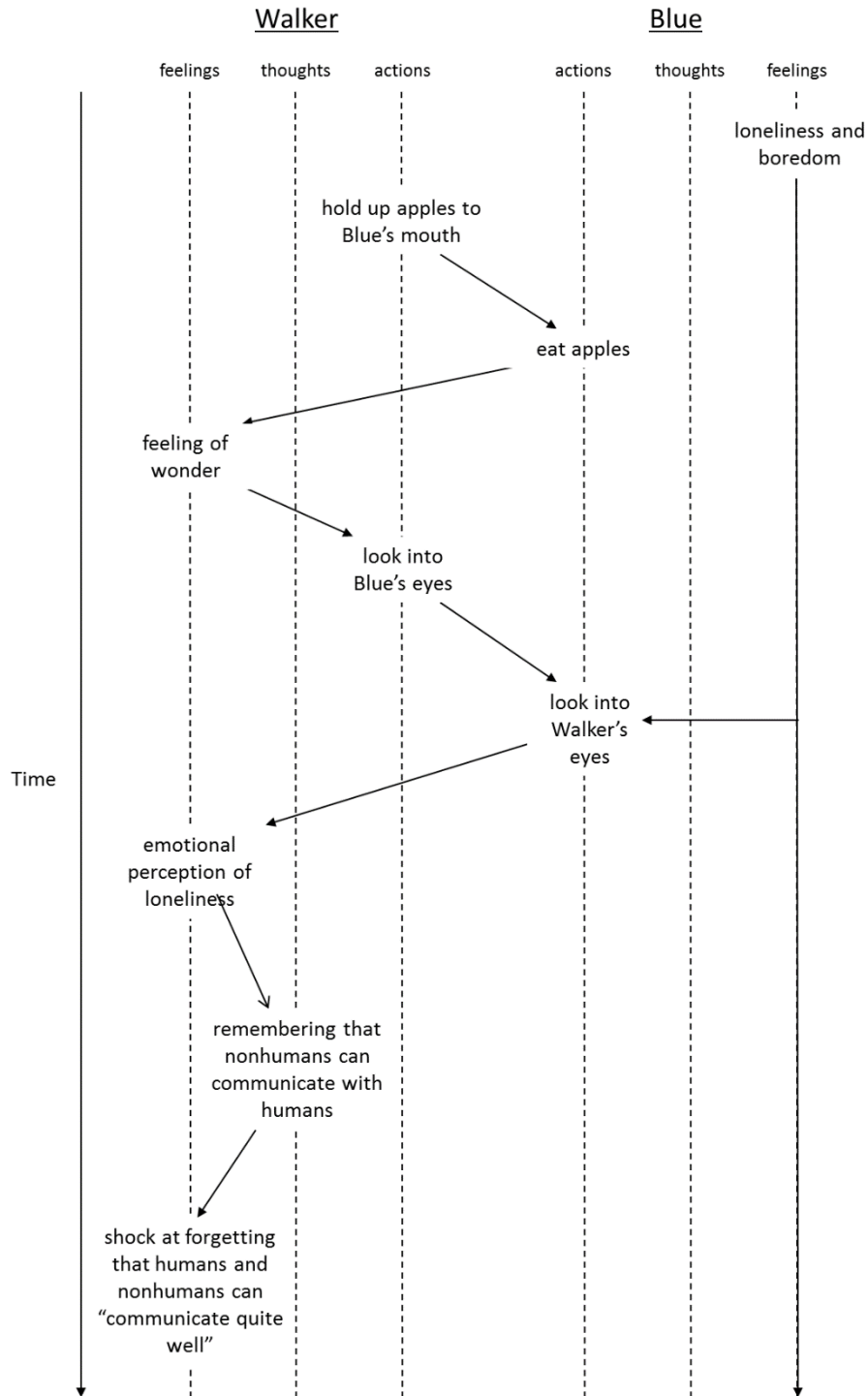


Figure 2. Initial interaction between Walker and Blue. Shows link between Blue's feelings and Walker's thoughts about them.

Within this interchange one sees the interaction of feelings that I will claim in the Relational Ontology and Human-Nature Closeness chapter is direct and unmediated by thought or other material means. In Figure 3, one sees the interdependence of Walker and Blue when Blue is in

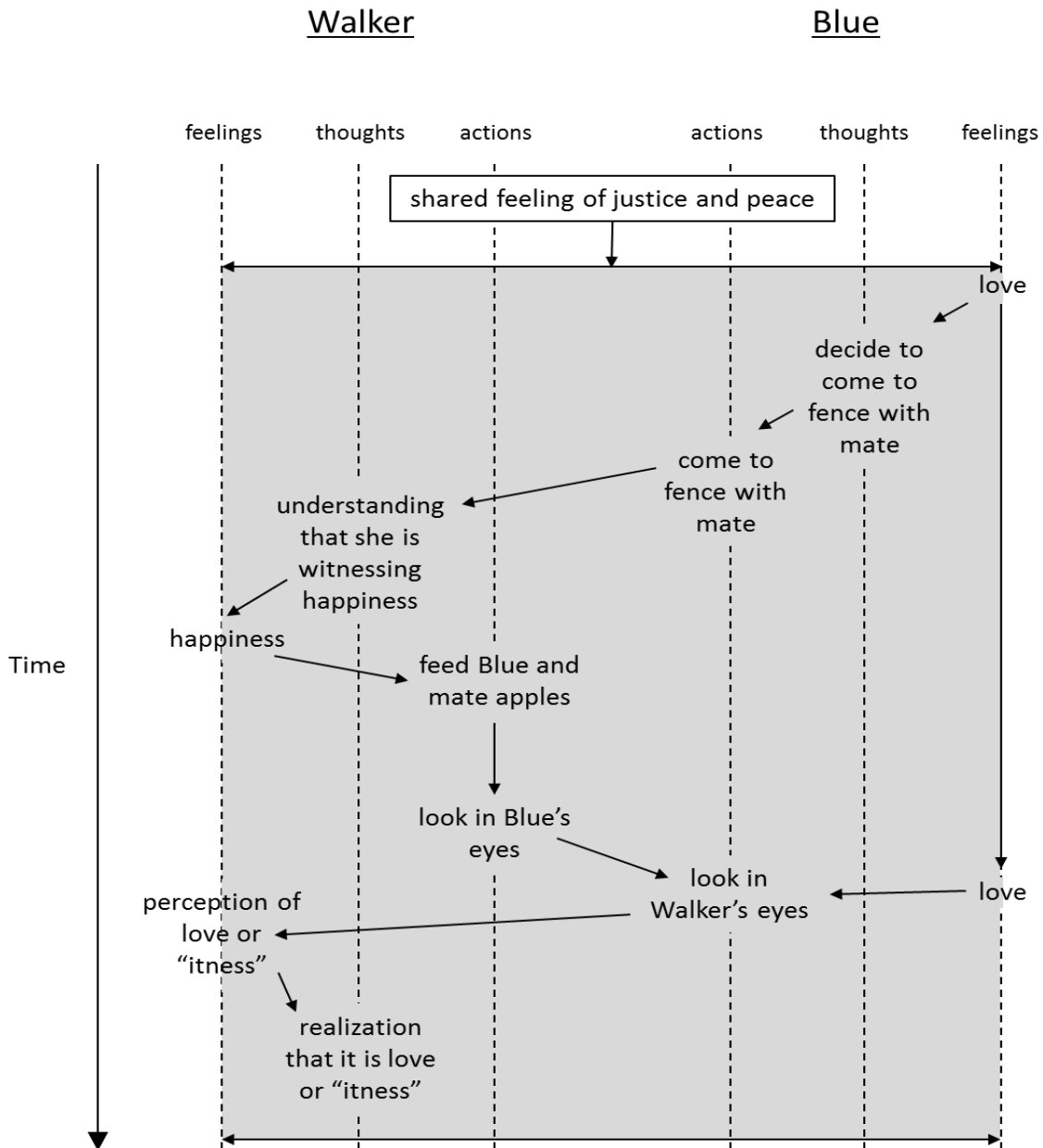


Figure 3. Interdependence of Walker and Blue. Shows comingling of thoughts and feelings between Walker and Blue when Blue is in love with his mate.

love with his partner. Here, one can see Walker's perception of Blue's arrival with his mate

leading to her emotional response of happiness. One can also see that I've depicted Walker's statement regarding a "mutual feeling between me and the horses of justice, of peace" (depicted as a gray background) as a suffusing phenomenon whose existentiality I'll also argue for in the Relational Ontology and Human-Nature Closeness chapter. Because I don't take feelings to be purely materially sourced, they can exist as phenomena within which an individual relational participant can exist. In Walker's description, both she and Blue do exist within it over a period of time, the duration of which contributes to a feeling of closeness between Walker and Blue. One can see also that there is a strength of response between the two, Blue with his love for his

mate intermingling with Walker's witnessing of this to create powerful feelings of peace and justice.

Lastly, Figure 4 depicts the interaction of Walker and Blue once Blue's mate is taken

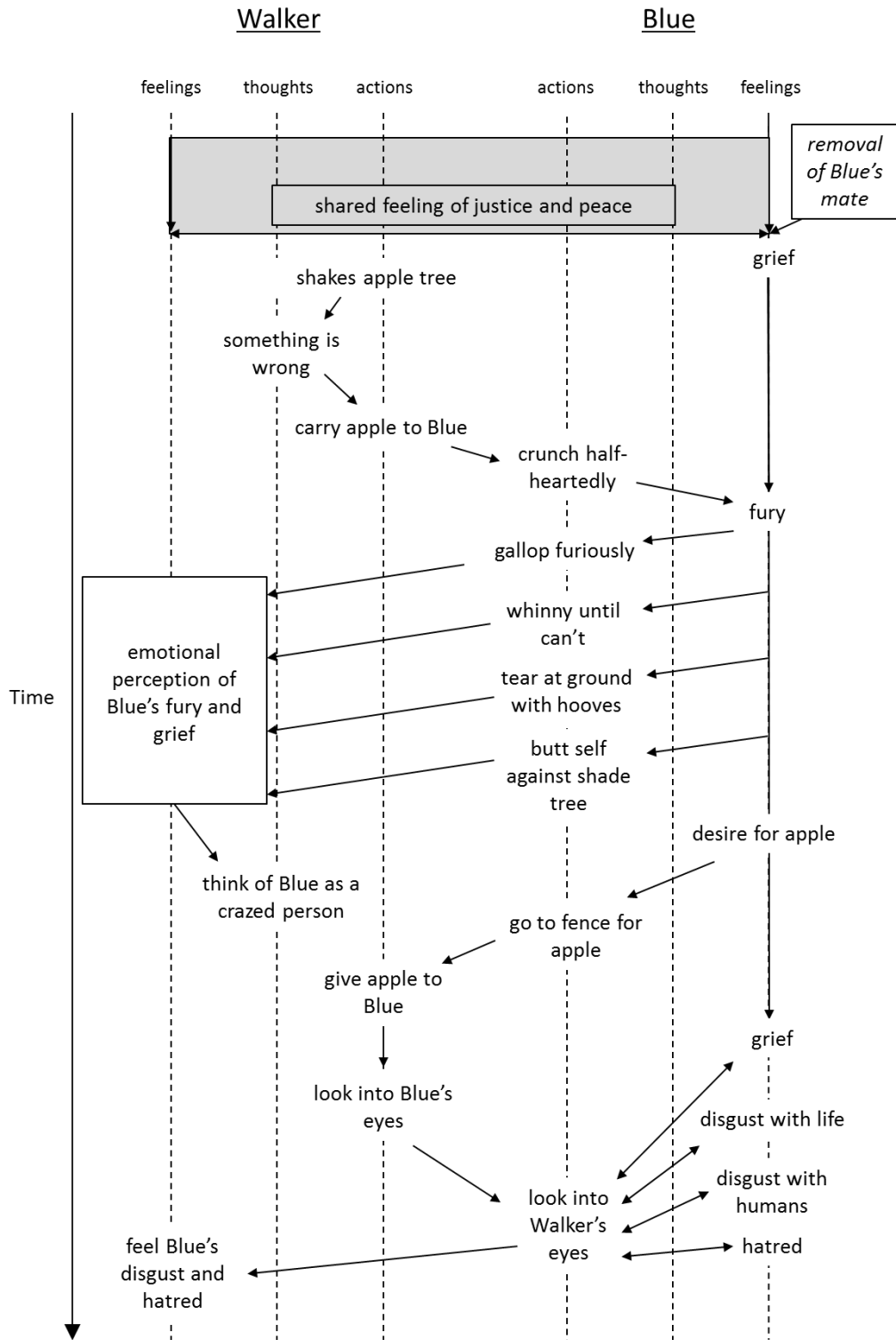


Figure 4. Interaction of Walker and Blue after removal of Blue's mate. Interaction shows emotional and cognitive interdependence leading to disgust and hatred.

away from him. One can see that the removal of Blue's mate sparks a cascade of thoughts and feelings between Walker and Blue. Something about Blue's action makes her think that something is wrong. In trying to give Blue an apple, she sees his fury, moving directly from feeling to actions such as tearing at the ground with his hooves. The grief, then disgust and hatred that Blue feel, are all communicated through his eyes to Walker. One can also see a decrease in the frequency of interaction over time due to Blue's grief. Thus, what might've been a developing close relationship between Walker and Blue has stopped. What's more, the element of mutual facilitation that is so important in positive close relationships is absent from Walker's response to Blue's fury.

Putting such an interaction into a different context, when a U.S. Forest Service District Ranger develops a land management plan for a national forest, one can see that the Forest Service's imperative to base plans on the principle of Multiple Use Sustained Yield (MUSY, Coggins & Evans, 1982), tends very little to anything mutual in a relational sense between human and nonhuman. The very notion of human "use" of nonhumans implies this relational imbalance. That's why I see Walker's essay less about what happens between Blue and his mate and more about what the dynamic is or could be between the human, Walker, and the nonhuman, Blue.

Walker's description of this relationship shows that the closeness that might've developed between them but failed to do so, or at least to do so over an extended period of time. And while land management plans guided by MUSY may not guarantee this failure of closeness, they do nothing intentional to allow for closeness to develop unless the human wants to "use" a national forest to get close to the nonhumans living there. Further, my reading of the events between Walker and Blue suggest that the failure of close relations was not because Blue didn't

have the qualities and capacities to support closeness, just as the failure of the Forest Service to plan for humans and nonhumans to become close has nothing to do with whether the nonhumans living in a national forest have the qualities and capacities to engage in this activity either. Neither does Walker, for her part, suggest that nonhumans are missing these things. Instead she attributes the failure of closeness to Blue's grief turned to hatred and disgust for all of humanity. But I suggest something different.

I think closeness failed to develop in this case in part because Walker *failed to act on Blue's behalf* as an individual human in relationship with him, an individual horse. By generalizing the object of Blue's disgust and hatred to all humanity, she abstracts and thus masks its very real, tangible and personal targets. Such strong negative feelings are never, at least at first, abstract or general. Blue's owner, Brown's owner and Walker fail to act on Blue's behalf, to ease the suffering that was so obvious, and so obviously a result of their actions or their lack. This is precisely what I meant when, at the outset of the Introduction, I suggested that human-nature relationships are flawed first at a personal level. Blue hated those three people and they failed to relationally respond to that hatred in any relationally ameliorative way. This is precisely what I meant when, at the outset of the Introduction, I suggested that human-nature relationships are flawed first at a personal level. Rainforest deforestation occurs because that very same suffering is ignored on an individual-by-individual basis until it reaches some massive, biome-disrupting scale. Just the same, clearcutting in national forests continues because land managers charged with the care of those places fail to recognize the possibility of these individual-level close relationships and the suffering caused by their fracture.

Certainly, other factors contribute to this ignoring of close relational possibilities. To reference interdependence theory, Walker's social conditions may have played a role in that, if

she *had* protested to Blue's owner, she'd certainly be risking the owner responding to her as if she had fallen in love with the number 2. But, wasn't it Walker's responsibility *to Blue as a relational partner* to overcome such an internalized obstacle and register her objection anyway? Blue included her in his feelings for Brown. He waited and then brought his mate to the fence to meet her. He deliberately waited and then did this, in the process showing her his "independence...self-possession...[and] inalienable horseness." And Walker was a willing witness to that blossoming love, sharing in and benefitting from the feelings of peace and justice it created. Then, when someone stepped in and took that all away, Walker did nothing, save a tepid inquiry into Brown's fate posed not even to Blue's owner, but the owner's children—individuals hardly in a position to bring Blue's mate back.

The lessons she chose to distill from the experience are indeed powerful—they are *some* kind of response—but they are not allowed to influence her interactions with Blue as a relational partner. As such, they become a *using* of Blue and his grief that may be to a less abusive degree than the using of Blue by his or Brown's owner—or the using of a forest by land managers—but it seems to me a difference of degree, not kind. What's more, Walker's use of Blue in this way misses perhaps a deeper lesson: that the potential for a close human-nature relationship existed between her and Blue, and that it is her (and all of our) failure as modern humans to hold up our end in such encounters—to see the nonhuman Self as a Self—that so often derails such closenesses from coming to fruition.

Walker recognizes that communication of thoughts and feelings is possible between animals and humans. That she does not take that a step further and act in a way that would benefit Blue—and that Blue would be able to identify her as having done—is the real failure. I don't know if Walker could've brought Blue's mate back. The modern world is constructed to

treat nonhumans such as horses as slaves, as Walker is right to point out. But Walker could have given Blue's owner an earful anyway. Even if she had no confidence that it would work, the possibility would be registered with the owner and the wider world—a world that might've included Blue if she'd done it out in the open near his pasture. Perhaps Blue would have seen her yelling at the owner and pointing at him. He might've *felt* her care. And perhaps in response to witnessing this, instead of Blue arriving at the fence by the apple tree the next time with hatred and disgust for a humanity that included her, he might've come there to rub that great viola-case of a grief-stricken head against her shoulder to salve his broken heart with one who cared enough for him to protest—to feel *with* him instead of about him. In interdependence theory, all the thoughts and feelings in the world won't amount to a hill of beans without the third vector of *action*. Walker appears to have chosen not to act in her relationship with him.

Every day we modern humans engage in a multitude of such failures to act—most of it sponsored by a failure to think and feel, at least consciously, with our nonhuman relational partners. The filling in of a wetland to build a road that I drive down every day puts the count of lost possibilities for closeness in the thousands. The twinge of remorse or the notion that “this is wrong” felt by a logger clearcutting old growth in a Southeast Alaska national forest may not be the logger's feeling, but his internal response to the beating of the feelings of the trees against the dualistically hardened exterior of his consciousness. If he doesn't respond with action, the relationship remains both material and the worst sort of “use.” In such a view, even the smallest act of weeding one's garden appears to be a relational catastrophe. I suggest that it may very well be that! Such characterizations of course require justification—and so it is the business of this dissertation to offer them—to pry open the steel jaws of self-reinforcing dualisms that deny this possibility so that some other ontological position may enter. This is not my way of saying

that we shouldn't alter land or that we should become Jainist Buddhists sweeping the bugs from our path as we walk (unless we feel compelled, by paying attention to our human-nature relationships, to do so). But, it is to say that as we move through the world, if we do so with the conscious knowledge that thoughts, feelings, and actions are being exchanged between humans and nonhumans, a radical alteration in how modern human-nature relationships unfold will be the inevitable result. I'm afraid to say that MUSY will cease to exist as a tenable relational directive. Through the rest of this dissertation I will use views of human-nature relationships modeled on elements of interdependence theory I've explored here both as a model for the workings of close human-nature relationships and as a critical lens through which to examine the human-nature relationship literature as it currently exists.

Conservation Psychology Through a Close Relational Lens. To give an example of what happens in my model when dualisms are at work, I explore Saunders' (2003) pivotal essay on the nascent field of conservation psychology. It offers an excellent example of how this model can help identify dualism's marginalizing or negating effect on nonhumans and their contributions to human-nature relationships.

Conservation psychology is defined by Saunders (2003) as "the scientific study of the reciprocal relationships between humans and the rest of nature" (p. 138). As such, it has importance in discussion of human-nature relationship theories, and is one of the notably few disciplines that consider the relationship between humans and nonhumans in "reciprocal" terms. But, like many other approaches to study of the human-nature relationship, it carries dualist conceptual underpinnings that work to flatten or collapse the reciprocal structure and dynamics expected in the real reciprocity of my model.

The first way this can be seen is in Saunders' portrayal of the qualities and capacities of nonhumans. In her article, there are only four brief mentions of them. The first is in regard to getting a better understanding of "the restorative and healing aspects of nature" (p. 139), the second in the "ability to perceive beauty in nature" (p. 144), the third in how "interactions with nature positively affect multiple dimensions of human health" (p. 143), and the fourth in "the effect of nature on [human] spiritual well-being" (p. 143). Of these four mentions of nature's conditions, three of them position nature as only having instrumental value. The "restorative and healing aspects of nature" are restorative and healing *for humans*. The qualities of nature (themselves not described) that positively affect human health and human spiritual well-being are also only noted for their instrumental value. 'Beauty' is the only non-instrumental quality that nature has in Saunders' discussion, though if it's mentioned because of the purpose it serves in human recognition of it, or whether or not that beauty is material, goes unspecified. Given this scant articulation of nature's Self qualities, what results in her characterization of her field is both an instrumental and reduced material view of nonhuman beings, and also a potentially anthropocentric view of the reciprocity dynamic of the relationship.

One key place where the latter appears is when Saunders, in order to emphasize this very "reciprocal quality of relationships between humans and the rest of nature" (p. 141), suggests two main areas of study. The first is "how humans behave toward nature" (p. 141). And if one believed that a real relational reciprocity with nonhuman Selves was possible, then one might expect the second major area to be "how nature behaves toward humans." But this is not the case. Instead Saunders suggests that the second area of study ought to be "how humans care about/value nature" (p. 141). By stating the other half of the reciprocity in this way, Saunders "deactivates" nonhumans as substantive participants with contributory qualities and capacities,

and transforms them into unknown entities to which value is attached or onto which it's projected by the human. This move undercuts the mutuality implied by the notion of reciprocity and relocates its substance to the human's internal value assignments projecting outward from a relational center that only the human occupies. It also subverts the dynamics of close relationships portrayed in my interdependence model. The reciprocity becomes instead a consideration of human actions alone: either as actor *toward* nature, or as assigner of value *to* nature's (otherwise irrelevantly valued, it must be assumed) workings. This instantiates a dualist

anthropocentrism predicated on an unspoken assumption about nature's qualities and capacities, or a lack of them.

The effect this has on the structure and dynamics of my close relationship model is shown in Figure 5, which I've modified from the original Figure 1 in the Interdependence Theory section above. As one can see, the thoughts, feelings and actions of nature have been eliminated as influential over the human, and the human thoughts, feelings, and the actions that

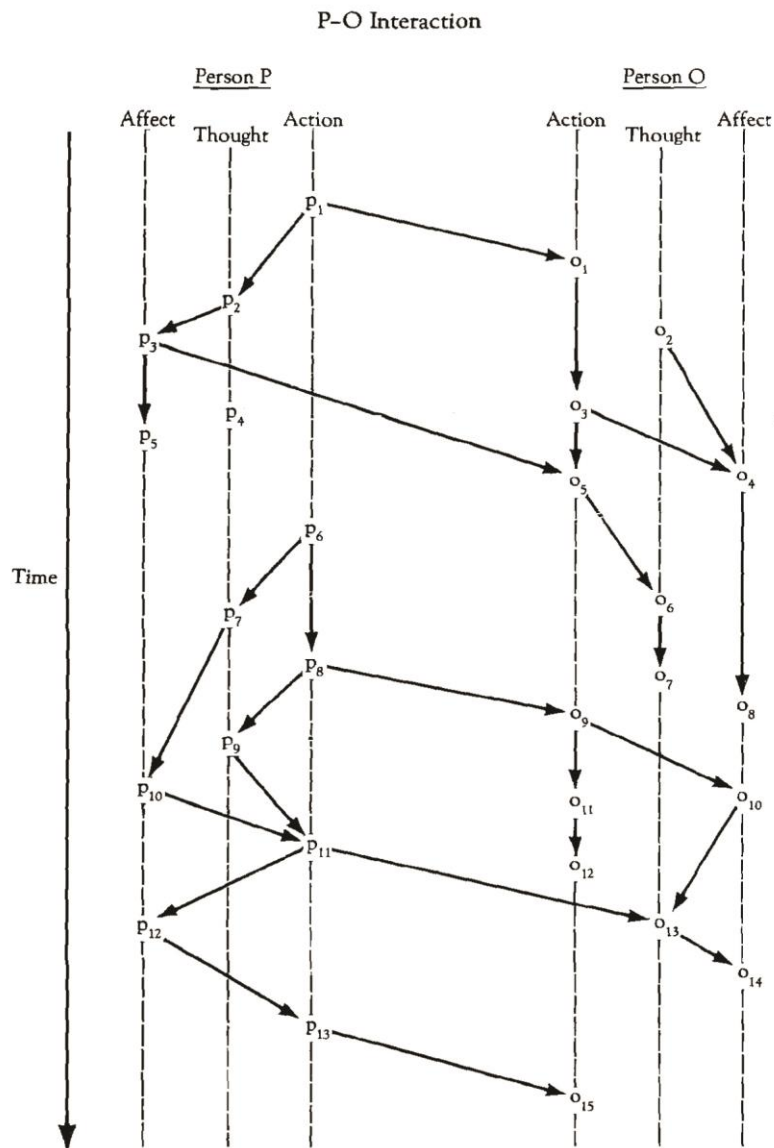


Figure 5. Adapted Close Relationship Diagram from Kelley et al. (1983). Reciprocal nonhuman actions removed.

emerge from the human to influence nature emerge from some unspecified place within the human (not in *response* to nonhumans' thoughts, feelings or actions, which is the very definition of interdependence and reciprocity). I acknowledge that some in the Conservation Psychology field might disagree with my interpretation of their framework. Specifically, they might claim that theirs does not *eliminate* nonhumans' influence over humans since, in humans assigning value to nature, nature is having an effect that elicits such a valuing. In response, though, I'd point out that in Saunders' article there is no discussion of how the valuing is to be conducted. Thus, nowhere is there an assurance that the valuing of nonhumans that humans undertake is tied to the thoughts, feelings or actions of nonhumans. In fact, from the tenor of her discussion, it seems that such a valuing process is sourced somewhere wholly within the human, and thus outside the reach of nonhumans' influence. One is forced, therefore, to assume that it is not an imperative in her view of the human-nature relationship that human valuing of nonhumans come in response to being in relationship with nonhumans at all. The relationship could instead be the *post hoc* result of an ontologically distinct set of human circumstances. Figure 5 shows this loss of reciprocity, and thus of true interdependence, via this unidirectional dynamic.

In defense of Saunders' (2003) portrayal, one might suggest that an internal-to-human focus for understanding the human-nature relationship is appropriate for a subdiscipline of psychology that hers is. But, I'd suggest that study of the "self-in-relation" (p. 138) as Saunders puts it, is not synonymous with the study of self-*as*-relation—the latter of which Saunders' portrayal of conservation psychology is in danger of proffering. The failure to account for relational structure and dynamics that, in part, *determine* psychological and other human

qualities and capacities, is not a mere isolation of focus along disciplinary lines, but a lack of accuracy.

The dualistically driven collapse of interdependence or reciprocity goes even further when, by failing to include any nonhumans' qualities and capacities in the model of relationship, regardless of what one might take them to be, Saunders allows dualistic ontological conceptions of nature as an instrumental, material-only, passive object to intrude unchallenged, even if this

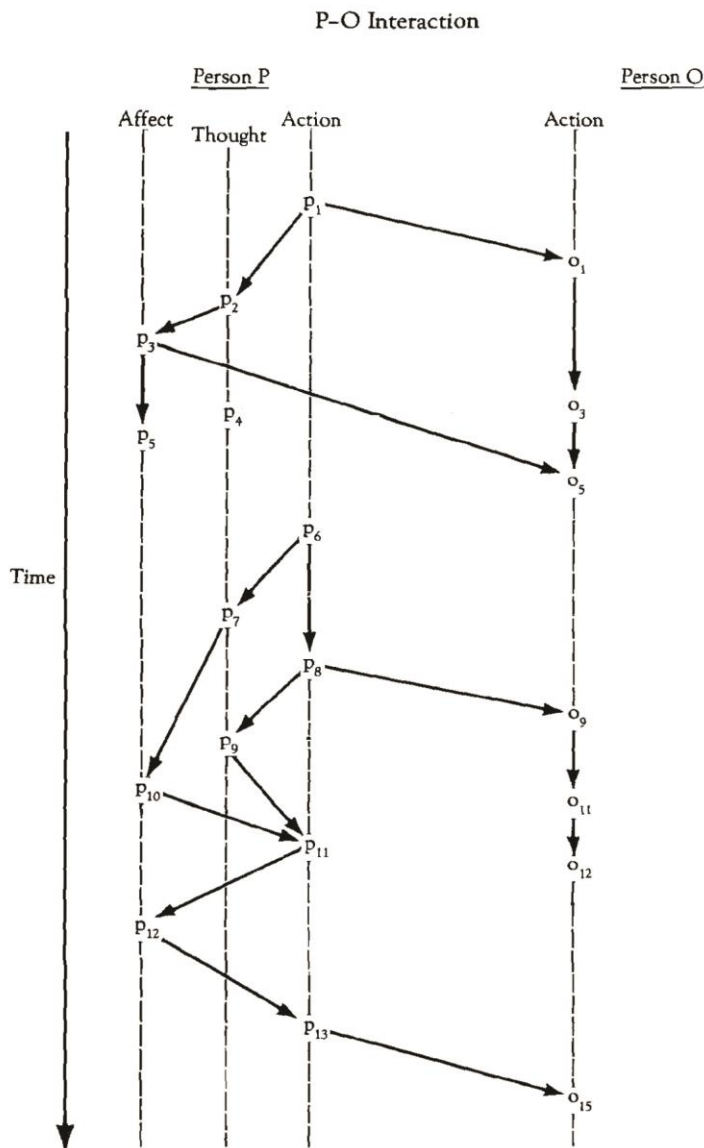


Figure 6. Adapted Close Relationship Diagram from Kelley et al. (1983), with nonhuman thoughts and feelings also removed.

allowance is unintentional. The effect this has on the structure and dynamics of my model is depicted in Figure 6, where the only qualities and capacities nonhumans have is to either receive the output of nonhumans toward them, and to respond through purely materially observable actions.

This means that totality of the human interaction and response to nature can easily have almost nothing to do with nature's actual contribution to the relationship. If that's the case, the *entire way* that reciprocal relationships work collapses. The actual relationship is replaced with an internal-to-human facsimile of one to which nonhumans contribute their dualistically constrained passive material qualities and capacities. They become receptacles, not relational partners. In response, I suppose some might suggest that *all* relationships are just a "self" acting and assessing meaning and value to an "other's" actions, but such a conceptualization is itself dualist in an ontologically individualist sense.

To qualify my discussion, I say that Saunders' dualistic portrayal of human-nature relationships is far from unique, as my consideration of various literatures touching on the human-nature relationship in the Critical Examination section next will show. In fact, hers is perhaps the most common view. My purpose here is to show that, when seen through the critical lens afforded by a human-nature relationship model based in a real, interhuman reciprocal model, much of what are advanced as reciprocal, interdependent theories of human-nature relationships are not particularly descriptive of a relationship in any real sense. Again, I don't attribute this to nonhumans lacking the qualities and capacities necessary to form real human-nature relationships, but to dualistic conceptual underpinnings that *post hoc* collapses the structure and dynamics of real relational experience through the obviation of nonhuman contributions to them.

To this point I've explored and defined some of the human/nature dualisms I believe to be at work in the human-nature relationship literature. In addition, I have articulated a baseline

close human-nature relational model. In this section, I'll use these two elements as a critical lens through which to identify what I believe to be the ontological flaws in conceptual explanations of close human-nature relationships in the human-nature relationship literature.

CHAPTER 2 CONNECTIONS WITH NATURE

To this point I've explored and defined some of the human/nature dualisms I believe to be at work in the human-nature relationship literature. In addition, I have articulated a baseline close human-nature relational model. In the next three chapters, I'll use these two elements as a critical lens through which to identify the ontological flaws in conceptual explanations of close human-nature relationships in the human-nature relationship literature.

I begin my critical examination of the human-nature relationship literature in this chapter by gathering two groupings of literature under the heading Connections with Nature. The first is a set of place theories rooted in the sociology disciplines. They are relevant in that they are heavily used in natural resource, land, and recreation management decisions. The second is a looser collection of theories speaking in more philosophical ways to the human connection with nonhumans. Since both are focused on shedding light on what makes the human-nature connection what it is, I consider them together under this Connection rubric.

Place Theories

“Place,” “place attachment” and “sense of place” are a family of theories (hereafter referred to collectively as “place theories”) developed from the sociology, human geography and environmental psychology disciplines to explain the role of place in the human experience. I'll begin by critically examining them, analyzing them through the critical lens I developed in the previous chapter.

Definitions of “Place”

The Oxford English Dictionary (OED) defines “place” as: “A particular part or region of space; a physical locality, a locale; a spot, a location” (“Place”, 2009). In place theories,

however, the definition tends to be more anthropocentric. For example, Jorgensen and Stedman (2001) say that place “is a center of meaning or field of care that emphasizes human emotions and [human] relationships” (p. 233). Williams et al. (1992) say that “[p]hysical space becomes place where we attach meaning to a particular geographic locale” (p. 31). Jorgensen and Stedman also quote another author as saying that ““a place...takes in the meanings which people assign to the landscape through the process of living in it”” (p. 233). So, while in the OED definition of place and locale are equivalent, in place theories locales are purely physical and only become “places” when meaning or value are given to them by human beings through their activities there. In such a view, nonhumans are construed to have neither influence over what that meaning or value, nor standing as relational Selves in the contributions they do make. While a human attachment to place is certainly bound up with what activities a human or group of humans engages in there, that can only be positioned as the totality of the definition of place if one presupposes that nonhumans are not Selves. As I began exploring in the Introduction and will expand upon in Part III, this is not something that can be assumed or introduced without support, yet place theorists do just that.

Instrumentalization

One cascade effect from anthropocentrically removing Self-ness from nonhumans, is that the only meaning or value that nonhuman beings then *can* have is instrumental to humans ends. For example, place theorists Greider and Garkovich (1994) say,

Our understanding of nature and of human relationships with the environment are really cultural expressions used to define who *we* were, who *we* are, and who *we* hope to be at this place and in this space. Landscapes are the reflection of these cultural identities, which are about *us*, rather than the natural environment. (p. 2)

By “we” and “us,” the authors mean human beings, thus the value that the authors see for nonhumans is as a vehicle for the formation of human cultural identity. Again, social and

cultural elements are influenced by place, but place's sole value cannot uncritically be assumed to lie in serving this purpose unless one takes value only to be a human construction. But this again cannot be assumed, it must be openly argued and supported.

Another example of instrumentalization is in two subtheories of place attachment called *place dependence* and *place identity*. Place dependence is described as a “functional [place] attachment” (Williams & Vaske, 2003, p. 831) that indicates “how well...the place serve[s] instrumental values or [human] goal achievement” (Jorgensen & Stedman, 2001, p. 236). Place identity is described as “an emotional [place] attachment” (Williams & Vaske, 2003, p. 831) that is a “repository for emotions and [human] relationships that give meaning and purpose to *life*...As such...[it] has been described as a component of self-identity...that enhances self-esteem” (p. 831). It's clear that in these characterizations the central value of nonhumans is instrumental to humans. Now, if these characterizations were presented as fitting into a larger web of relationships, where the nonhuman others with whom humans are relating are simply left out of the discussion for the sake of focusing on how an individual becomes involved with place in general, such characterizations might be less problematic. That's because, implicit in such a portrayal would be the knowledge that there *are* others in the relationship, contributing what they do to it. For example, when discussing an individual human's connection to her human family, one might focus on what she gets out of those interactions while knowing that she puts something back into them, and others contribute and take from those connections as well. The issue here is that in the context of these place relationships, it's assumed that the individual or group of humans get nothing from the place itself, they only create attachment, sense of place, or other place affiliation by the activities in which they engage while in the physical locality.

Without an examination and discussion of the role of the nonhuman participants, the assumption that there isn't one is dualistic.

To wit: in place theories, intrinsic meaning or value for nonhumans has been largely, conceptually eradicated. For example, Williams et al. (1992) say that "...a place's value is assigned by individuals, groups, or society, without necessarily involving a strong correspondence between the physical attributes of the place and its meaning" (p. 32). Such an eradication is a two-step process. First, nonhumans are dualistically denied all but physicality and then, because mere physicality is generally taken by modern humans to carry little or no intrinsic meaning or value, by extension nonhumans have none. While in itself this definition may not give theorists any conceptual trouble, when applied to the notions of place attachment that Williams et al. are addressing—a term carrying a distinctly relational connotation—it quickly becomes so. By rooting the notion of attachment in human conceptualization and its projection onto the material nonhuman world, the very notion of attachment loses meaning. Within such a conceptual framework, a well-engineered virtual reality experience would have to be thought of as equivalent.

Intuitively, however, such a substitution for nonhuman beings by human artifice strikes this author as troublesome. Williams et al. (1992) see this as well when suggesting that instrumentalization "perpetuates the notion that recreation settings are theoretically interchangeable...[and] even reproducible" (p. 30). Of this, they say that it is "[o]f particular concern [given] that recreation settings are very often one-of-a-kind places that cannot be designed or engineered like so many makes of automobiles" (p. 30). These authors attribute this problem to the extreme instrumentalizing tendency of the natural resource and recreation management fields, who look at nonhuman nature as a "commodity" (p. 30) to be managed, and

“as means rather than ends” (p. 30). Williams and Vaske (2003) rightly counter such purely instrumental perspectives by noting that “society increasingly values natural resources in ways not easily captured by the...production metaphor of ‘use’ and ‘yield’” (p. 830). But, while these authors recognize the problem, their conception of an alternative fails to move their theory of attachment outside of an instrumentalizing, and thus dualist, framework. By contrasting a “use” and “yield” perspective with one where “society increasingly values natural resources” in more benign ways, the valuation is still wholly within the purview of the human valuer. This reveals an ontological commitment to the valuation of nonhuman beings that is wholly consistent with that which produces the “use” and “yield” approach. In their view, any benefits that accrue to nonhumans from less aggressive forms of “use” are still incidental, and carry no inherent ethical or ontological force of their own. Use is use. If a land manager doesn’t want to clearcut a forest tract because he knows humans recreate in it and in so doing, valuing it as a unique physical locale, he has no standing to contradict the timber company that wants the trees for pulp production. Since all value is determined by one group of humans vs. another—the value of recreation vs. the value of timber production—the valuation process never escapes the human instrumentalization that is its core orientation. By leaving intact a human-nature relationship that denies nonhuman value outside of human utility, a natural place is still just Williams and Vaske’s “automobile,” even if it has become one of a kind.

More Extreme Forms of Nonhuman Reduction

Beyond anthropocentric definitions of place and the instrumentalization it leads to, at times place theories reduce nonhumans even further. For example, Jorgensen and Stedman (2001) refer to “place” as encompassing the “plethora of concepts describing the relationship between people and *spatial settings* [emphasis added]” (p. 233). Here, the nonhuman

contribution to place is as “space” which has the salient features of being devoid of any inhabitant at all. Just as European settlers arriving in North America pretended to have found “virgin territory” which was actually populated by various Native American tribes, here a place populated by nonhuman beings is emptied of them by the *post hoc* conceptualization process intended to portray their role in human interaction with place. Tuan (1977) uses this kind of terminology when referring to place by saying, “[W]hat begins as *undifferentiated space* [emphasis added] becomes place as we...endow it with value” (p. 6). At its furthest extreme, the characterization of nonhuman nature as empty space occurs in Jorgensen and Stedman’s (2001) quotation of Ryden’s statement that, ““a place...is much more than a *point in space* [emphasis added]...but takes in the meanings which people assign to that landscape through the process of living in it”” (p. 233). While I don’t think Ryden meant that nonhuman nature actually only exists geometrically in one dimension (literally what a “point in space” is), his description is characteristic of the degree to which nonhumans are conceptually reduced in place theories.

Part of the cause of this reduction can be traced to the evolution of theories such as place attachment from the environmental psychology and human geography disciplines (e.g., Raymond, Brown & Weber, 2010; Williams et al. 1992). These disciplines root their notions of external-to-human contributions to “place” in built environments. Thus, it makes some sense that place attachment theory might emerge from such disciplines with very little room for a definition of “setting” beyond inert space. Leaving aside the implications of treating even built environments in this way, I note that the reductionist assumptions made about built environments cannot be transferred uncritically to natural ones. That is, no real argument has been presented by these theorists to establish that nonhuman nature is as empty or inert as, say, a cinderblock-walled classroom. If place theorists assume that, despite any differences between built and

natural environments, the contributions of the nonhuman are still purely material, this itself is predicated on an assumption about the qualities and capacities of nonhuman beings—on ontological commitments as to the nature of nonhuman beings—that are rife with the dualisms I have noted thus far. Thus, they cannot be uncritically accepted. For example, if one were to manage a “place” such as a marine reserve, I suggest that most modern humans would recoil at any kind of management decision to eradicate migrating Right Whales so that recreational activities such as powerboating could be made safer for the humans choosing to attach to place in this way. One might counter my suggestion by noting that a sports fan would feel a similar sense of loss of attachment if the stadium in which he grew up watching his favorite team play was demolished. But, I’d point out that while there is attachment to both the stadium and the whales, it’s possible (and I will argue below, true) that the latter is more like the attachment one feels toward a spouse and what’s more, that the whales have contributed to the attachment in ways that the stadium has not. One cannot uncritically suggest that a human’s attachment to his spouse is like his attachment to a stadium primarily because the attachment is to a reciprocating other. I suggest that the only reason that nonhuman beings can be seen as not having the capacity to attach to, and be the subject of attachment with, humans in a spousal way is due to dualistic ontological commitments, not to any evidence or justification offered by place theorists.

Though by and large absent, defenses for dualist constructions of nonhuman beings as passive material backdrops *have* been offered. One example is the chain of logic that says that, because the same physical setting can carry different place meanings for different humans, the physical settings themselves can’t have meaning or significance of their own. For instance, Gustafson (2001), defends his anthropocentric definition of place by referring to Massey’s claim that “places do not necessarily mean the same thing to everybody” (p. 6). Greider and Garkovich

(1994) expand upon this notion by saying that “The open field is the same physical thing, but it carries multiple symbolic meanings that emanate from the values by which people define themselves” (p. 1). Essentially, what’s being argued is that because there is a physical locale and it means different things to different human beings, that it can’t have any value, meaning or Selfness of its own. But such a claim is unsound. To my point, the very same dynamic of differential perception occurs in relationships between human beings. No two human beings will interpret the qualities, meaning, or value of a third human being in the same way even though that third human being is the same physical entity. It would be foolish to suggest that because of this, the third human being has no inherent significance, value, meaning or Selfness beyond that which is projected onto her by the other two humans. Thus, it does not follow that because a thing has material presence and is perceived differently by different perceivers that it has no value, meaning, Selfness or other relational capacities and qualities.

Ultimately, the only way that such a claim can be made about nonhumans is if there *already exists* a supposition that nonhuman beings have no qualities beyond the material. That is, there is an *a priori* belief that nonhumans *can’t be* relational Selves. Thus, what is offered as support for the position that nonhumans aren’t relational Selves is the assumption that they can’t be relational Selves. This is circular and empty.

Is Unilateral Attachment Possible?

As I’ve explored above, place theories assume that sense of place or attachment to place result from the unilateral, human manufacture of feelings of connection projected outward onto a passive, material-only nonhuman world. Given that little in the way of explicit argument for such a structure and dynamics is offered in these theories, one might hope to find a clearer justification for such a mechanism in some of the theories upon which place theories are based.

For example, place attachment theory is rooted in “attachment theory,” which is the study of the attachment humans form with each other (Bretherton, 1985). But, instead of the unilateral mechanism of place theories, here one finds its opposite. Human attachment theorists Collins and Feeney (2000) say that “[human] attachment theory explicitly acknowledges that social support is a *dyadic process* that involves the interaction of two distinct behavioral systems: *the attachment system* and *the caregiving system* [emphasis added]” (p. 1053). Human attachment theory, then, is foundationally reciprocal, involving equal emphases on the contributions of the one attaching and the one(s) with whom the attachment is made.

Drawing parallels between human and place attachment theories, in place attachment the “attachment system” would belong to the human and the “caregiving system” to the nonhuman. But, in the transformation of attachment theory into place attachment theory, the caregiving system is entirely lost. Since no argument is made for its abandonment, one must assume that either the caregiving system was inconsistent enough with pre-existing ontological commitments to the marginal role of nonhumans that it was simply ignored, or that this ontological commitment sponsored an assumption that no justification for its disposal was necessary. Either way, such a radical departure from the structure and dynamics of interhuman attachment calls into question the utility of attachment as an explanatory framework for the feelings that theorists suppose are formed by humans toward nonhumans. Ultimately, either attachment as an explanatory framework, or the belief that it can form unilaterally, must be abandoned.

As I note in the Critical Lens chapter, one of the hallmarks of dualist interpretations of the nature of nonhuman beings is a denial of all but passive, material roles in the human-nature relationship. Since no strong evidence or argument is offered to support these definitions of

nonhuman beings in place theories, it is now highly likely that this *post hoc*, dualizing reduction is responsible.

Acknowledging the Absence of Nonhumans from Place Theories

In the disciplines that contribute to place theories, the absence of substantive consideration of nonhuman beings is noticed by some. For example, Mueller (2002) says of the place attachment literature that there is a general “failure to mention the natural world” (p. 19). In addition, Murphy (1995) says that “sociology...has been suspicious of...any claims that the natural has influence over human relations” (p. 690). Gustafson (2001), who refers to Canter saying that “the influence of physical [setting] attributes on psychological and behavioural processes deserves more attention” (p. 6). Even in these examples, though, nonhumans are referred to in a way that positions them as still largely passive and material. Thus, dualist ontology still works against nonhumans in place theories. Fox (1997) reinforces this when she says,

It is rare to discover a [written] piece about a relationship with nature outside a role as backdrop...or resource that contributes to the human recreational experience...If leisure is a focus or connection with nature..., it is crucial to examine this relationship and how it may be supported or inhibited by the philosophy and frameworks inherent in current leisure philosophy and practice.
(p. 164)

Problems with Relational Structure and Dynamics

In place theories, the notion of place is located almost entirely within the human. This presents real problems for the notions of attachment, bonds, or relationship upon which place theories depend for their coherence. Such relational elements are commonsensically understood to be *between* two entities, yet place theories are employed as unilateral feelings that develop inside an individual human in response to what appears to be an unimportant, material, set of external elements. In interhuman relationships, no such facile reduction of such radically

relational terms would be permitted, and so I suggest here that, without supporting argumentation, the same intolerance must apply.

As an example of the problems that arise from reducing what are foundationally relational terms to individual ones, I note that Williams et al. (1992) say that “emotional bonds [with places] are associated with long-term relationships to places” (p. 32). Thus, if the bond with a place correlates with a long-term relationship with place, is it really sensible to think of the relationship as one that exists wholly inside the human, and only “acted out” as it were, in an otherwise relationally inert natural setting? If so, what is the point of using terms like “bond” or “relationship” at all? Such a quote would be far more sensible within the definitions of the place theory literature if it read something like this: *emotional attractions to the affective and cognitive elements a human internally associates with certain physical settings correlate with pre-existing, long-term internal connections that a human has made between his idea of himself and his idea of the importance of an external setting.* But, when bonds and relationships are filtered in this way through the main concepts of the place theory literature, it shows just how labored they can become, and just how out of keeping they are with the particular experiences of closeness many humans have with the nonhumans that constitute places.

Not only do these anthropocentric, instrumental, reduced definitions of relational terms become labored and awkward, at times they aren't even used consistently by the theorists advancing them. For example, Beckley (2003) suggests that “sociologists have rarely turned their attention explicitly to the relation between humans and places themselves” (p. 106). Here, “place” seems to stand for external nonhuman beings. And while one might critique Beckley for not being clear on the use of term since he is not a sociologist by training, sociologists theorizing about place show this confusion as well. Jorgensen and Stedman (2001) quote Stokols and

Shumaker's definition of place dependence as an "occupant's perceived strength of association between him or herself and specific places" (p. 234). Jorgensen and Stedman themselves say that some "have suggested that [place] attachment 'involves an interplay of affect and emotions, knowledge and beliefs, and behaviours and actions in reference to a place'" (p. 234). In these examples, place seems again to be nonhuman beings and the emotional response to them internal. Are these verbal missteps where the theorists meant locale, location or space and just used "place" accidentally? One would think that if a theorist was clear on her construction of the notion of place, that she would not make such a mistake. If it's not a confusion of terminology and the theorists mean place as they've defined it in these statements, then the statements themselves quickly become circular. The human's "ideas, thoughts and feelings" (Johnson, 1998, p. 5) about place become responses to...her ideas thoughts and feelings about...her ideas thoughts and feelings. It is self-referential, circular, and at some point insensible. I think the most likely explanation for this confusion is neither a mistake in terminology nor a collapse into circularity, but instead is a lack of clarity on the part of theorists as to what really does constitute a "place." Here is where I believe the lay, OED kind of definition of place reasserts itself. In the very act of trying to define place as something other than what most people take it to be, at times place theorists betray that they, too, don't always take place to be the largely human creation they claim it is.

A further problem introduced by this confusion lies in its confounding effect on attempts to measure human relationships with places. For example, Jorgensen and Stedman's (2001) scale item asks respondents to "identify a position on the scale that best reflected their relationship to the *place* in question" (p. 235). If, in such scale items the authors intend for respondents to understand the authors' own construction of the term "place" as an external locale

infused with the respondent's own meaning and value, then the authors aren't gathering support for their construction of the concept of place, only those elements of a respondents' construction that already align with it. If there are other elements that are not in alignment, they are missed. An alternative possibility is that Jorgensen and Stedman think that respondents see "place" as an external, relational Self, while the authors "know better" and correctly *post hoc* differentiate the physical space from the respondent's "ideas, thoughts and feelings" about it. But, since empirical work is meant to offer support for such *post hoc* interpretations instead of imposing that interpretation through a *pre-existing ontological position*, this explanation is flawed. In addition, if the conflation of the two notions of place (physical locale impregnated with value/meaning vs. OED definition of distinct locale) is intentionally included by researchers, then the authors are guaranteeing confusion over the term by participants and undercutting the validity of any results that support their constructions of place. If, on the other hand, the confusion of terms is unintentional, it reveals that theorists themselves are confused, which leaves the same undercutting effect intact.

Conclusion

Place theorists suggest that attachment to, or sense of, place is something almost wholly constructed inside human beings. This contradicts human experiences of external locales and their inhabitants as relational Selves, and threatens to make meaningless the very notion of interacting with place as most understand it. These theories are right to recognize that humans can feel attachment, closeness and other strong relational feelings with nonhuman beings, but by leaving intact dualist ontological commitments that force the substantive relational action to be within the confines of the human, they fail to move the discussion of what constitutes the human-nature relationship beyond more openly self-serving human definitions and the practices based

upon them. Anyone hoping to solve environmental problems through reliance on such theories finds herself at a disadvantage. Her desire to do so remains on equal footing with those that seek to log, mine or otherwise use nonhuman beings in the most short-sighted and selfish ways. If human relationship with place is not relational at root, the human-nature relationship doesn't really exist. Thus, it has no power to govern human actions that, whether conceptually acknowledged or otherwise, operate wholly *within* its bounds.

Connection to Nature Theories

While the conceptual undergirding of place theories is fairly uniform, the next set of theories form a looser constellation of discourse. These theories mostly emerge from the psychology disciplines (and to a lesser extent, sociology) and involve exploration of both cognitive and affective dimensions of human *connection* with nature.

The “Nature” of Connection

Connection or *connectedness* with nature is defined in various ways in this body of literature. Schultz (2002) says that “[c]onnectingness refers to the extent to which an individual includes nature within his/her cognitive representation of self” (p. 67). Such a notion of connection is rooted in Aron et al.’s (1991) suggestion that the degree of closeness two humans feel in relationship with each other is measured by the degree to which each individual cognitively defines her “self” as including the other person. Here, then, connection is not an external, or necessarily externally produced, relational condition, but instead is an internal-to-human construction. Schultz (2002) affirms this when he says that connection “is a psychological [notion where]...the extent to which an individual believes that s/he is connected to nature has cognitive, affective and behavioral components” (p. 62). This indicates that Schultz’s human-nature relationship does not follow my close relational model’s reciprocating,

interdependence along vectors of thought, feeling and action. Mayer and Frantz (2004) mirror Schultz's construction when, in wondering about the effects of connection to nature they say that they must "evaluate whether this sense of *feeling* [emphasis added] connected to nature leads to...ecological behavior" (p. 504). Here, instead of asking whether a human's relational "connection with nature" leads to ecological behavior they ask if the *feeling* of being connected does. Thus, what would've been part of an external relational dynamic of actual connection is relocated inside the human, making any actual relational dynamic *a posteriori* to the unilateral human feeling that is its progenitor.

The work of Hinds and Sparks (2008) also carries a greatly reduced nonhuman relational partner. For example, in referring to connections with nonhumans, they take the position that research on "direct experiences of an object" (p. 110) show that "[r]epeated exposure to an attitude object may also be instrumental in the growth of positive affective connections with that object" (p. 110). Here, nonhuman beings are objects and don't necessarily carry any qualities themselves to provoke the positive affective connections humans feel with them. The only dynamic that creates those connections is the repetition of exposure and the human response to it.

Nisbet, Zelenski and Murphy (2008) also subscribe to connection as a psychological notion, but do so at least in a *potentially* more relational (i.e., external to any particular individual) manner. They suggest that their construct of "nature relatedness" (p. 2) describes "individual levels of connectedness with the natural world" (p. 4) and also "encompasses one's appreciation for and understanding of our interconnectedness with all other living things on the earth" (p. 4). Here, it is welcome to find more "room" for the possibility that nonhuman beings could relationally stimulate the connection whose appreciation and understanding is the authors' focus. However, the focus is still on human appreciation and understanding. What's important

in the theory, then, is the human. Thus, the focus rests almost purely on the human instead of on the structure and dynamics of the *interaction* between human and nonhuman. Once more, the nonhuman as relational Self is pushed to the periphery, if not out of the frame entirely.

Though in connection to nature theories these kinds of psychological treatments are the predominant ones, not all maintain such a view. For example, Dutcher et al. (2007) suggest that “[c]onnectivity attempts to describe the perception of a force or essence that holds the universe together—the same essence or force that runs through all creation” (p. 479). In this sense, they see the connection between human and nature as an energetic or spiritual (since they use the term “creation”) phenomenon, and so position it as an external, relational condition that humans perceive. Whether they do so in a way that escapes the dualisms that distort accurate interpretation of close human-nature relational experiences I will discuss further below.

External Connection

In noting that many connection theorists see connection in the relationally provocative sense as an internal-to-human construct, in the context of this critique, it’s useful to explore just what they see the external connection to be. My suspicion is that, just as in place theories, the external interchange is purely physical or material. Of course there is a material element to such connections, and attending to the reality of that connection as sustainability theory does, can provide some relief to environmental problems, but if environmental problems are at root relational problems, then we must press past the dualistic assumption of a material-only relationship to see what more might be there.

Schultz (2002) provides some clues as to what connection theorists might take human-nature relational connections to be by referring to Aldo Leopold, who explains that “human activity will be guided by the impact that it will have on the natural environment...[thus] we

must know about nature: about ecology, about plants and animals, and about the effect that our behavior has on this ecology” (p. 65). This indicates that the actual external connection is thought by Leopold to be ecological, and thus largely material. To support this, Schultz suggests that the “implicit consideration of the similarities between humans and nature” is the result of such ecological knowledge and leads to human and nature being “connected symbiotically” (p. 65). Adding to that, he quotes a reference that Leopold makes to Darwin as support for the kind of “similarities” he means. Because Darwin’s explanation of evolution is materially based, Schultz invoking his theory implies that the external connection contributing to the human psychological experience of connection is also material.

In this sense, then, any feelings or experiences where “people experientially view themselves as egalitarian members of the broader natural community...[and] feel a sense of kinship with it” (Mayer & Frantz, 2004, p. 505) have to be explained through a materialist ontological lens. This is dualistically reductive, and seems to fly in the face of the definition of “kin,” which is familial and carries a shade of meaning different from that of the purely material. For example, if I were to suggest that my feeling of kinship with my two sisters was due to our material interconnection, this would seem to miss a core meaning. While many holding to a materialist ontology would ultimately attribute even that connection to material origins, I think it’s safe to note that there is an important difference between my connection with my sister and Mayer and Frantz’s depiction of connection with nonhuman beings. If, in response, one suggests that sibling relationships are qualitatively different than human-nature relationships, I’d suggest that such an assertion is based on an *a priori* ontological assumption that nonhumans cannot contribute what humans can to relationships in general. But, as in my discussion of place theories, there is little or no evidence presented in these theories to support this assumption.

While the vast majority of the connection literature has this orientation, I noted Dutcher et al. (2007) as an exception above, as they take a community sociology approach that “emphasizes an intuitive rather than a material connection between people and their environments” (p. 478). In the next section, I’ll explore the ontological implications of this with respect to the qualities and capacities of humans and nonhumans.

Internalized Connections

Another way that nonhumans are dualistically reduced in human-nature relationships is by portraying relationships to be the sum of their individual participants. Combined with an unexamined assumption of the relational inferiority of nonhumans, human individuals come to dominate. For example, Schultz (2002) says, “At the heart of the discourse on human-nature relations is the recurring theme about a *relationship* with nature...But at the core is the [human] individual, and his or her understanding of his place in nature (p. 66).” Here, the relevance of the human-nature relationship is awarded to the human. This nonhuman irrelevance can be seen elsewhere in Schultz’s work, such as his listing of possible “uses” of nature. He asks, “What value does nature have? An economic value, recreational value, aesthetic value, religious value?” (p. 64). We must note that regardless of which values he cites, all are anthropocentric, instrumentalizing values to the nonhuman. This is repeated in others’ work, for example in a scale item that Hinds and Sparks (2008) develop to ask what the result of respondents engaging with the natural environment would do. The only possibilities offered are anthropocentric, such as “...allow me to experience beautiful scenery...help me escape the stresses of life...[or] give me a sense of connection with nature” (pp. 112-113). Even in the last response, the connection itself is not the subject, but the *sense* of one, which again is wholly inside the human.

I contrast this view with Dutcher et al.’s (2007) attempt to build “a spiritual community in which humans and nature are members” (p. 480), and where “[n]ature as a part of community

can be understood intuitively” (p. 480). It seems here that not only are nonhumans and humans peripheral to the centrality of relationship, but that the nature of the connection is intuitive, or more-than-material in my ontological frame of reference. Their work does hold promise as a relational approach to connection, but since Plumwood suggests that dualisms lurk everywhere, we must dig further to understand what their intuitive “identification and connection” (p. 480) yields.

Given the promise of their views to add nonhumans as relational Selves based on a more-than-material element, it strikes me as particularly important that they robustly support such an assertion. Alas, they do not. What support they do give for a more-than-material basis for connection comes in the form of quotes that hinder as much as aid their efforts. As just one example, they quote Finley saying that what’s needed is a “holistic viewpoint..., according to which natural resources can be seen, not only as attributes of the physical environment, but as attributes of the social and cultural order as well” (p. 481). Finley’s statement carries a dualizing characterization of nonhumans as material “natural resources.” In addition, these nonhumans serve human sociological and cultural ends, but never either their own or that of the relationship as central. Thus, though Dutcher et al attempt to put humans and nonhumans on equal relational footing, by leaving intact modern, dualistic ontological commitments to human superiority, their efforts ultimately don’t carry us as far as we need to go. I’ll explore their views a bit more below.

Inclusion of Nonhuman Other in Human Self

If nonhumans are dualistically negated as all but material relational partners, theorists are much freer to move nonhumans wherever they’d like within the structure and dynamics of human-nature relationship concepts. For example, connection theorist Schultz (2002) develops a notion of connection by extending Aron and Fraley’s (1999) work with interhuman close

relationships. He quotes them saying, “The basic element of interpersonal closeness is cognitive, an overlap of knowledge structures of self and other, such that in a close relationship each individual includes aspects of the other as part of his or her notion of self” (p. 336). Schultz (2002) notes that in Aron et al.’s (1991) work, not only is there “overlap with many shared qualities...[but t]aken to the extreme, self and other become one” (p. 68). Schultz (2002) follows on this by saying that the overlap “is the central aspect of inclusion with nature. Individuals who define themselves as part of nature have cognitive representations of self that overlap extensively with their cognitive representations of nature” (p. 68). Mayer and Frantz (2004) echo this notion by suggesting that certain human actions with nonhumans “lead to a greater self–other overlap” (p. 504). One such act is “perspective taking” (p. 504), where the self takes the perspective of the other.

But, it is imperative that a differentiation be made here. On the one hand, Schultz (2002), Aron et al. (1991), and Mayer and Frantz (2004) suggest that in self-other overlap “self and other become one” or the “other” becomes “confused with the self” (Aron et al., 1991, p. 242). On the other hand, Dutcher et al. (2007) see connection as the “understanding [that] people and nature...[are] part of the same community” (p. 479). In the former construction, there is a conceptual collapse of self and other, in the latter, there is a similarity that is never confused with sameness. Further, if one digs more deeply into the basis of the notion of “perspective taking” proffered by the self-other merging group of theorists as an example of what they mean, one does not find a merging, but instead a specific warning against it. In discussing perspective taking Mayer and Frantz (2004) refer to Davis, Conklin, Smith, and Luce (1996), but the latter authors state the following: “It is important...to be explicit regarding what it means for the mental representations of two social objects to be merged” (p. 714), and go on to say,

[M]erging in this sense refers simply to the fact that the two mental representations come to share an increased number of features. The self and the other are merged, therefore, in the sense that the features associated with each one are increasingly intertwined, rather than remaining as...[non-overlapping] sets of descriptors. (p. 714)

In Davis et al.'s account of merging, then there is no possibility of the "other" being "*confused* with the self." The merging isn't of identity, but of individual traits. Unfortunately, this distinction is largely lost on the connection theorists referenced above. For example, Mayer and Frantz (2004) say that when attempting to foster ecological behavior through expanding oneself, "[I]f the self is expanded to include the natural world, behavior leading to destruction of this world will be experienced as self-destruction" (Roszak, 1995)" (p. 504). Nisbet et al. (2009) echo this usage by stating that "damage to the planet is seen as damage to the self" (p. 3). Even, Dutcher et al. (2007), who refer to sameness only of community, succumb to this:

One of the more interesting implications of connectivity [is] the elimination of the debate about whether helping behavior is truly altruistic or merely a function of enlightened self-interest. Connectivity regards helping behavior as serving both self and others in the context of a diminished consciousness of the distinction between the two. (p. 479)

I note here that such descriptions of altruism-as-self-help are both anthropocentric and instrumentalizing of the other participant (be it human or nonhuman). After all, if helping the other is motivated either consciously or otherwise by the "fact" that it is really a helping of the self, then the altruism loses its meaning *as* altruism.

I believe that the conceptualization of human-nature connection as the merging of nonhuman with human self-identity is best characterized by ecofeminist theorist Whatmore's (1997) concept of the "imperialism of the self" (p. 45) where the human individual's wants, qualities and agency subsume all with whom it interrelates. Such a subsuming being sponsored by dualisms that reduce or negate nonhumans to the extent that their identity, and their contribution to connection, is either irrelevant or post hoc conceptually eradicated. Such

dualistic activity does not necessarily operate consciously, however, since I see the conflation of the notions of self-other identity with self-other commonality as an outgrowth of *a priori* ontological assumption rather than any observations or conscious logical argument. As a result, when connection theorists look at connections between human and nonhuman, they have difficulty differentiating the two opposing concepts. As support for this, note that Mayer and Frantz (2004) see Leopold's views as evidence of merging of identity, yet their explanation of his views carry absolutely no such connotation:

For Leopold...[humans being part of the broader world means] understanding the extent to which people experientially view themselves as egalitarian members of the broader natural community; feel a sense of kinship with it; view themselves as belonging to the natural world as much as it belongs to them; and view their welfare as related to the welfare of the natural world. (p. 505)

I believe that Mayer and Frantz have captured Leopold's views perfectly. But, if one considers oneself a member of a broader community, feels a sense of kinship, and belongs to the natural world, it seems discordant to then suggest that this broader world becomes a literal part of one's own sense of identity. If *belonging* is "really" an internal state, what meaning does it have as a relational term? Very little, in my estimation.

The Basis of Self-Other Overlap

Another issue with the notion of self-other merging or overlap, especially in a human-nature relational context, is the determination of the basis of that overlap. If it is the "many shared qualities" (Schultz, 2002, p. 68) between human "self" and nonhuman "other", as Schultz suggests, one is left to wonder exactly what those qualities are. In Davis et al.'s (1996) research on *interhuman* perspective taking, some of the "adjectives" (p. 715) or "traits" (p. 715) for which overlap was sought were immaturity, shyness, pleasantness, being carefree, being imaginative, etc. But, if nonhumans are only taken to contribute materially to the human connection with them, then which of those qualities would engender a feeling of connection?

Further, if the adjectives or traits that overlap are seen as having only a material basis, one must question whether they'd have the power to invoke the "extreme" self-other merging which connection theorists suggest can occur with nonhuman beings. Place theorists have argued that strong feelings of relationship with physical elements of one's environment can occur, but I've already argued against the likelihood of unilateral formulation of strong relational feelings, and what's more, one need not fall back to such a position when no case has been made against nonhumans being relational Selves that contribute far more to the human-nature relationship. Thus, either connection with nonhumans is real (i.e., reciprocal along material and more-than-material lines) and the material-only characterization of nonhumans must be abandoned, or one must characterize as fantasy the feelings of connection that humans have, regardless of the object of one's connection. I suggest that the former is far more in keeping with the close relational experiences some humans have with nonhumans. Further, by eliminating dualisms and challenging dualist thinking that assumes the absence of nonhuman relational Selves, there is nothing ontological impeding the operation of a reciprocal human-nature relationship along more-than-material lines.

Collapse of the Structure and Dynamics of Relationship

Conceptualizations of close human-nature relationships by connection theories carry many dualisms. As I've noted, one outcome of allowing these dualisms to operate in theories of human-nature relationships is that nonhumans are reduced to being passive material backdrops of instrumental value to the central human endeavor. As I've pointed out thus far in this dissertation, the reduction of nonhumans in turn reduces portrayals of the structure and dynamics of the human-nature relationship. One excellent example of this in connection theories is from Schultz (2002), who says,

One of the central aspects of a close relationship is a feeling of intimacy - the feelings of closeness and affection in a relationship. Intimacy involves a sharing of oneself with another, and a deep level of knowledge about the other. This knowledge about the other person produces a feeling of closeness...Although intimacy typically develops through a process of self disclosure, it seems an easy extension to suggest that people can have a sense of intimacy, or at least caring, for an animal or place. (p. 68)

Schultz's portrayal of intimacy here has at least three problematic features in the context of the point I just raised. First, I suggest that intimacy must be a reciprocal thing. While it's true that "Intimacy involves a sharing of oneself with another" by failing to point out that intimacy equally involves the sharing of the other with the self, Schultz obscures any consideration of it. Another problem with Schultz's description of intimacy occurs when he roots intimate feelings for another in the acquisition of "a deep level of knowledge" about the other. This causes me to wonder if it is really *knowledge* that inspires intimacy, or if instead it is a sharing of feeling—a reciprocating positivity that is as emotional as it is epistemological. Yet a third problem I see is in his transformation of intimacy into a unidirectional human emotion. In the last sentence of his description, he says that "people can have a sense of intimacy...*for* [emphasis added] an animal or place" (p. 68). Throughout the human-nature relationship literature I have found this use of prepositions telling as to the ontological positions of those employing them. For example, Müller, Kals and Panza (2009), the authors talk about adolescent affinity *toward* nature, which makes the affinity a human-originated, relational element unilaterally projected toward the passive nonhuman. But, they seem to slip up in places, once using the terminology "affinity with" (p. 59) in the body of the article and then also mistakenly using it as part of the title when it appears in the running head of the article! In Schultz, he uses "for" to follow "intimacy." But, "for" is not the preposition most often associated with intimacy. That preposition is "with." Intimacy is a reciprocal relational element involving contributions from both relational partners. The only way it falls into this more awkward construction is if nonhumans have been

conceptually eliminated as substantively contributing to the intimacy. That this elimination appears fully formed in the foundational conceptualization process of what human-nature relationships are like (in Schultz's work along with many others) is evidence for a) its pre-existing establishment and b) its uncritical acceptance.

If nonhumans don't have the qualities and capacities to contribute relationally to intimacy, it's not surprising that Schultz (2002) can say that "it seems an *easy extension* [emphasis added] to suggest that people can have a sense of intimacy...for an animal or place" (p. 68). Contrast this with ecofeminist King (1991) when he notes that there are "real difficulties in...fostering the growth of concrete, multi-faceted, caring relations among individuals, societies, and...nonhuman beings" (p. 79). If it's solely within the human domain to create intimacy, then another human, an animal, or one's cobblestone driveway are equally viable candidates. I note that seeing human-nature relationships in this way not only does a disservice to the capacity for feeling and thought in nonhumans that I explore in later chapters, but makes humans look, frankly, emotionally stunted. To Schultz and many others, though, it's not the human who is stunted, it's that intimacy really is that non-relational and thus, simple. It is a garden hose one turns on, the waters flowing over whatever ground they find and only in our minds does the fruit of such watering come to bear. I feel confident in saying that to characterize human intimacy this way, is controversial. Thus, as I've mentioned above more than once, either the use of relational terms such as intimacy must be abandoned in the context of human-nature relationship theories, or the role of nonhumans as relational Selves must be revisited.

As with place theory, even theorists who espouse connection as a predominantly internal-to-human construction show deviations from such an interpretation. One might ascribe such deviations to the simple fallibility of human theorizing, but for one who takes the pragmatist and

ecofeminist approach that what is reliably experienced is what is true, such deviations offer potential support for the position that such theories are just inaccurate. As an example, there are items on the Connection to Nature Scale (CNS) that Mayer and Frantz (2004) develop that appear to contradict the dualist conceptual underpinnings of the connection to nature theory that they espouse. One item from their scale is “I often feel like I am only a small part of the natural world around me, and that I am no more important than the grass on the ground or the birds in the trees.” Another is “I recognize and appreciate the intelligence of other living organisms” (p. 513). Any interpretation of affirmative responses to such items as support for connection as an internal-to-human construction projected onto material nonhumans borders on the outlandish. Just as in the examples of place theory scale items above, here again one finds the language of reciprocal connection, with nonhumans as relational Selves, coupled with an interpretation that is its diametric opposite. I take such incongruity to be support for both the veracity of relationally reciprocal human-nature connection and, even if it is at some unconscious level, theorists’ awareness of it.

CHAPTER 3 SUSTAINABILITY

Introduction

One does not have to look deeply into today's environmentally related endeavors before encountering the term "sustainability." The US Environmental Protection Agency (USEPA) says that sustainability is "a guiding influence for *all* of our work" (USEPA, 2015). US News & World Report (2013) says that Sustainability is one of eleven "hot majors" for college students. And while some critiques of the concept suggest that "[t]oo often the word becomes appropriated as a band-aid, cure-all additive that can be applied as environmental/ecological veneer" (Progressive Reactionary, 2009) its central notion *has* found purchase on a sweeping scale in modern society. Its central notion being the desire for humans to somehow live within their environmental "means" for an indefinite period of time.

In one sense, the notion that we ought not borrow endlessly against our environmental future is obvious. If we live beyond our "means," wasting "resources" that cannot be replenished as quickly as they're consumed, then sooner or later the "bill" is going to come due to some future generations of humans and nonhumans alike. At this level, then, to advocate sustainability is simply good accounting.

But, if all that was required to begin to make better the worst of our global environmental problems—climate change, loss of biodiversity, etc.—was to correct an error in accounting or to fill in some knowledge that was heretofore lacking, as I suggested in the Introduction, this would've been accomplished long before now. In part, sustainability's belief in this class of remedy overlooks the fact that modern societies depend for their very existence and functioning on unsustainable human-nature relationships. As Spehr (1999) notes in his Marxist critique of

sustainability, “destruction of nature and non-sustainability are part of the social program of industrial capitalism” (under “Introduction”).

So, then, it’s possible that what sustainability is attempting to address is not that modern humans don’t know what they’re doing to the environment, it’s that the very workings of modern societies—their social and economic structures—*require* unsustainable environmental relationships. Because of this, as Spehr notes, the industrial practices of modern societies cannot “just be willfully discarded” (under “Introduction”) simply by putting industrialism on “a diet” (under “Capitalism on a Diet?”). Of course the potential incompatibility of modern economic/social structures and environmental well-being has been explored by others (Hawken 1994, Vedeld 1994), but what has garnered less attention is just how this incompatibility came to exist in the first place. Why is it, after all, that some humans feel enabled to *choose* to sacrifice nonhumans as part of good economic or social practices, and why is that the rest of society is constructed in such a way that humans can either shield themselves from this reality or see it as an acceptable cost?

As I’ve suggested thus far, ontology plays a part in nonhumans being treated this way.

Bonnett (2002) notes this when he says,

Western culture...is increasingly dominated by a set of motives which preclude the possibility of an approach to environmental issues which is genuinely open to nature. In such a culture, everyday values will need to be examined with a view to radical transformation. (p. 12)

As it relates to sustainability, Jickling (2002) says that “the only just and respectful way to ensure sustainability...lies in challenging societies’ most basic assumptions about human-nature relationships” (p. 151).

But what would such a challenge look like? Is it simply to admit the need for a focus on the human-nature relationship? At some level, that focus is already part of sustainability’s core

orientation. For example, in UNESCO-UNEP, MIO-ECSDE's (1995) document *Re-orienting Environmental Education for Sustainable Development*, the authors note that "Sustainable development requires that...the harmonious relationship between man and nature should become a global issue and an everyday reality" (p. 34). In addition, when discussing sustainability, USEPA (2015) says that "To pursue sustainability is to create and maintain the conditions under which humans and nature can exist in productive harmony to support present and future generations." And Jenkins (2009), in discussing sustainability theory, says that "part of the challenge of sustainability is to understand the mutual relations of humanity and nature" (p. 383).

In the context of those definitions (and to respond to Jickling's (2002) challenge), then, it seems necessary to explore exactly what sustainability theorists believe constitute the harmonious and mutual relations they advocate. "Harmony" and "mutuality" are fairly strong relational terms, and whether the creators of those definitions consciously intended it, their use of these terms reveal the deeply relational nature of the unsustainability problem. That, and the difficulties presented by holding a facile, or unexamined, definition of them. After all, harmony and mutualism have specific definitions that require certain capacities or conditions of its participants that are not generally examined in the sustainability literature. Mutualism, which can also be thought of as reciprocity, suggests that each participant must give something to the other to promote the well-being of both. As I'll show in this chapter, there is virtually no mention of what humans give to nonhumans in the literature. Instead, humans are portrayed as so self-interested that the only "giving" they are capable of is that of "taking less." Harmony, on the other hand, implies agreement or synchronized effort between participants. But, most of the sustainability discourse only considers human activity, and when it does, does not seek to align it

with nonhuman activity but instead only unilaterally tries to fit it into the supposed capacities of nonhumans to withstand it. This strays fairly far from common understandings of harmony.

In order for sustainability to be coherent around the relational concepts it routinely employs, it is of foundational importance for theorists to examine the ontology in which they ground them. Without a thorough exploration of the definitions of humans, nonhumans and the resultant relationships, it's impossible to know what harmony and mutuality mean in the human-nature relational context that is sustainability. Bonnett (2002) echoes this when he says that “an adequate response to our environmental predicament...requires a metaphysical [could be read as: ontological] transformation” (p. 12). As I've suggested above, I believe that dualist conceptual underpinnings are at work in most modern definitions of the human-nature relationship, and the analysis below shows this to be the case in the sustainability literature as well.

In this chapter I will not add to the already robust critique of sustainability along the lines of a) the potential incompatibility of economic and environmental focus to which I refer above, b) some of its deeply anthropocentric orientations, or c) its instrumentalism. Instead, my critique will work along the dualist lines of the materialism and individualism that are prevalent in the sustainability literature to show that even in critiques that address some of the more straightforward dualisms above, subtler forms of it still threaten to confound achievement of sustainability's self-professed goals of relational mutualism and harmony.

Human “Nature”

Since it's my contention that the possibilities for human-nature relationships depend to a great degree upon the definitions held of humans and nonhumans (i.e., ontology), I note that one of the main impediments to sustainability's mutually relational goals is its conception of human nature. Sustainability, as it's generally prescribed, depends upon two main types of human

nature definitions. The first is that of human beings as universally self-interested and fundamentally consumptive. The second expands such notions to admit the possibility of altruistic or reciprocal inclinations, but usually does so either by characterizing these inclinations as either a function of education or behavior modification (and thus still not of human *nature*), as ultimately sourced in anthropocentric ends (and thus not really altruism), or by failing to see them *as functions of* the human-nature relationship within which they are embedded.

The first type of human nature definition is exemplified by Goodland (1995), who says that “Protecting human life is the main reason *anthropocentric* [emphasis added] humans seek environmental sustainability” (p. 71). In the context of the author’s discussion, he is not referring to *some* humans as anthropocentric, or as all humans as sometimes anthropocentric, but is instead suggesting that all humans are, by nature and fundamentally, anthropocentric. He also suggests that the fundamental role of nonhumans in relation to humans is as a source of consumption or a receptacle for waste. Through a relational lens, I believe this portrayal to be quite inaccurate. One contrary example can be found in Snyder (1990). When speaking about the old European system of a commons, he makes the point that it was at once a physical area and also a “community institution that...defines...rights and *obligations* [emphasis added]” (p. 30). In his account, there is a sense of the reciprocal where one not only uses the land, but also must do her part in its upkeep and maintenance.

Moving back to defining human nature as fundamentally consumptive, Johnson (1993) offers another example when he says, “The notion of sustainability...seems to offer a middle ground between choosing extremes: ill-informed, inefficient, short-term, and unsustainable consumption on the one hand and no consumption at all (sustainable for the environment perhaps but not for humans) on the other” (p. 11). What he seems to be suggesting is that the only

possibility for human relationship with nonhumans is one of consumption (without it, the author believes we would not be able to sustain ourselves). I note here that the root of the word “consume” is the Latin, *consumere*, which means “to destroy, wear away, exhaust, devour, to use up, to swallow up” (“Consume”, 2009). In that sense to *consume* generally means to use in a way that fails to then restore—that is, that is neither mutual nor reciprocal. One need only look at the practice of restoration ecology (Falk, Palmer & Zedler, 2006) to note that there are non-consumptive orientations for humans to adopt in their relationships with nonhumans.

If one were to practice low-impact farming, hunting and other food gathering for a group of people, and then continually invest effort into replenishing or otherwise promoting the well-being of the land and its nonhuman inhabitants, then it’s possible to actually achieve a net gain of promoting overall nonhuman well-being. In other words, “taking” is unavoidable, whereas consuming—with its unidirectional, non-reciprocal connotation—is entirely avoidable. What’s more, if “taking” is linked inextricably with subsequent restoration and/or promotion of nonhuman well-being, then it will become only one element of the healthy, whole functioning of place, and of humans within it.

Others writing on sustainability also assume a more self-centered notion of human nature. Carpenter (1998) says “The problem of sustainability is...human nature. We are all aware that humans willingly pay almost any magnitude of long term, uncertain cost for the most trivial immediate certain gain to their personal well-being” (p. 291). Jepson (2004) also notes this view of humans as having short-term, self-centered thinking when he notes in humans an “inherent disinclination to extend our sphere of concern [beyond ourselves]” (p. 4) and a tendency to “let our preferences be the guide to our decisions rather than the facts” (p. 4). All the traits detailed so far can be conceptually condensed, I believe, to a portrait of human tendency toward being

self-centered and, for lack of a better way of expressing it, lazy both physically and intellectually. Granted, one cannot deny that these elements are dominant in modern societies, but this is not the equivalent of offering robust evidence for the view that it is “human nature.” The latter notion positions them as biological imperative, and as such, implies a much more limited ability to change them.

It cannot be underestimated what effect these self-centered definitions of human nature have on prescriptions for sustainability. If humans can only consume, then the mutuality suggested by sustainability theorists is unobtainable. Mutuality requires reciprocity. By definition, it is both taking *and* giving. But, if it’s only within the human capacity to take, and the range of possibility of action is along the spectrum of too much taking and very little taking—then mutualism is simply not possible. That, or the “taking less” in which humans might choose to engage has to be defined, rather awkwardly, as our own version of “giving.” Based on this ontological conception of humans, the prescription for sustainability has to be targeted at limiting, by whatever external means necessary (laws, population restrictions, etc.), human influence. Goodland and Daly (1996) suggest exactly this when they say that “[r]educing impacts of human activities upon the environment can be achieved only by... (1) limiting population growth; or (2) limiting affluence; or (3) improving technology” (p. 1011). In their view, humans themselves can’t actually change. They are taken as a constant—a constant that can be counted on to impact the environment in certain uniform, measurable and unsustainable ways when gathered at a certain scale. Further, by saying that these three ways are the “only” ways to reduce human impacts is to suggest that human individuals do not possess the will, foresight or intelligence to undertake changes to their own behavior.

Such a view of human nature hampers efforts of environmental education to promote sustainability as well. If it's human nature to act selfishly, then it will always be an "uphill climb" to get humans to act altruistically or relationally. This explains the tendency in at least U.S. environmental education circles to try to modify human *behavior* (Noel Gough, personal communication, May 11, 2009) instead of calling for a deeper exploration of the human-nature relationship as a means to recognizing different human *traits* available in those relationships. It's also why, in the process of relationally analyzing the sustainability literature, one tends to find anthropocentric calls for human sustainability juxtaposed, without any apparent recognition of the tension in doing so, with calls for mutual or harmonious human-nature relationships. If human nature is anthropocentric after all, then the outer limit of defining mutual relations *would* resemble a reduction in the consumptive, human half of the reciprocal human-nature relationship that Johnson (1993) or Goodland and Daly (1996) describe.

Other authors do attempt to move beyond such a constricted view of human nature. But, in doing so, they still leave intact the implicit notion that humans are only self-centered by nature. Wheeler (2004), for example, suggests that

human potential is shaped by the surrounding social and cultural environment...[such that it can] counter pessimistic views of human nature as warlike and competitive (p. 21). In acknowledging social and cultural influences, he says that a change in human potential is to be achieved by "evolv[ing] towards more conscious, compassionate and sustainable modes of existence. (p. 21)

By offering evolution as the mechanism for that change, however, he is saying that it *is* human nature to be warlike and competitive (i.e., self-interested) currently, and it is only through the "nurture" of a better way that humans can change their behaviors and become more sustainable in the future.

Given that the economics disciplines play a substantial role in sustainability theories, one would expect their traditional definitions of human nature to have some influence here as well.

Siebenhüner (2000) notes this when he says that in economics there has been a predominant “assumption of a rational, self-interested, and utility-maximizing individual” (p. 17). He disagrees with such characterizations, and explores the research into human nature that offers an alternative view. As it applies to the human-nature relationship, he notes that

many animals arouse our special sympathy, that landscapes full of variety appear to us spontaneously as beautiful, and that flowers usually make us feel better...it seems to be a universal human trait to feel some kind of happiness in intact natural scenery. These feelings must also have proven to be helpful for the survival of human beings. (pp. 19-20)

So, here it is not just human potential, but basic human nature that is cast as less self-interested and more relational. But, while Siebenhüner’s efforts make a positive contribution by trying to move away from purely self-interested conceptions of human nature, through a relational lens he still ultimately portrays these traits as emerging unilaterally from the human, instead of as a product of the human-nature relationship. For example, he says that “Sustainers inevitably need a certain emotional relationship *towards* nature which leads to caring and respectful action...[and] a kind of permanent and positive emotional affectation” (p. 19). As my critical examination of place and connection theories above suggests, here again the human is relationally isolated from nonhumans, and the reciprocal dynamics of common relational terms are reduced to the unilateral “relationships *toward*” instead of “relationships *with*.”

Even when the author suggests that these traits might be the *product* of the human-nature relationship instead of its determiner, as when he says that flowers make us feel better, his portrayal of the relationship is both anthropocentrically instrumentalized and materialist. He shows this by suggesting that the source of these human responses is that “all humans share needs for a natural environment which allows them to survive properly” (p. 20). Here then, what inspires the more-than-material emotional response of the human is an interchange whose ends are the material survival of humanity, not an emotional or relational response as an end in

itself—as an ontological root. In addition, those emotions are ultimately, anthropocentrically, directed back to human welfare. The flowers make *us* feel better.

Caldwell (1998) also does a nice job of acknowledging external effects on human behavior when he says that it “may be not so much basic human nature that must be changed...[but instead] those cultural circumstances...that shape the way in which human behavior finds expression” (p. 7). As with Siebenhüner (2000), however, Caldwell (1998) doesn’t extend the influence over human behavior to nonhumans since the external influence he cites is “cultural.” Also as with Siebenhüner, he seems to suggest that basic human orientations are still self-centered, and that what needs to be changed is the societal constraint on that orientation. He says that for “development to be sustainable, ways must be found to direct perceived self-interest...away from unsustainable short-term interest” (p. 11). Ultimately, whether he means that this perceived self-interest is part of human nature, or that it is a perception that is potentially erroneous he does not specify. Regardless, his suggestion that society ought to manipulate this perception instead of replace its conception with a less self-centered one leaves open the idea that a self-interested orientation is still the “baseline” of human nature with which we must work.

In light of recent research that suggests that altruism is as innate a human tendency as self-interest (Warneken & Tomasello, 2006; Fehr & Fischbacher, 2003; Singer et al., 2006), one is left to wonder whether the descriptions of an anthropocentric “altruism” like those to which I refer in Siebenhüner are the only valid interpretations. Couldn’t an alternative explanation position altruism as an evolutionary adaptation not for self-interested survival, but for maintaining others and through that, perhaps, the whole of nature? Kropotkin (1955) certainly lays the groundwork for such a notion when he suggests that, at least amongst the same species,

there is not a “bitter struggle for the means of existence” (p. vii) but instead “Mutual Aid and Mutual Support carried on to an extent which made me suspect in it a feature of the greatest importance for the maintenance of life, the preservation of each species, and its further evolution” (p. ix). Therefore, the notion of altruism as mutual aid or cooperation for the furthering of a group, community, or potentially the wider world certainly seems plausible from an ontologically relational perspective.

From such an orientation, the innate human capacity for self-interest could be conceived of as the means of perpetuating self and species long enough for it to make a contribution to the well-being of the whole. At a material level, this contribution could be to an ecosystem or the biosphere. At a material *and* more-than-material level together, it could be the contribution to an emotionally, intuitively *and* materially interconnected community of humans and nonhumans. For example, Jacoby (2001), in describing the perspectives of the early European settlers that lived in what became the Adirondack Park, he notes the heartbreak that many felt when interloper hunters from the city came to their land and shot the buck that they had all, as a community, refused to hunt “out of respect for his great size, endurance, and beauty” (p. 60). Of the death of this buck at the hands of the foreign hunters, a local poet wrote in lament,

We miss Brave Golden from his herd, we miss him from his home,
We miss him from each grove and glen through which the king did roam;
Our hounds will never strike his track to make the valley ring;
The stranger’s cruel, deadly shot laid low our noble king. (p. 60)

This kind of human-nature relationship is a far cry from what predominates in the sustainability literature—that is, a concept of humans as evolutionarily crawling out of a brute, self-interested past toward a relational future. And if that’s a misplaced conception, and altruism is an earlier evolutionary mechanism for maintenance of mutual or harmonious relations, then conceptions of self-interested humans “flip” to become part of a later development. This view of

human nature become the products of, perhaps, the dualist worldviews that have risen to prominence in the last three or four centuries, and that have been moving us ever further, perhaps, from how we have seen ourselves in the past: as fundamentally relational in nature. This is ecofeminism's position, though cast here in a somewhat different light.

To portray humans as having had a precedent relational orientation is supported by Merchant (1980), who notes that pre-Enlightenment/Scientific Revolution views of nature were of nature as a living organism of which humanity was only a part. One example that reinforces Merchant's view of this progression is that of the "enclosure movements" that took place in England from the 15th through the 19th centuries. They were, in essence, the privatization of publicly held lands. Of the damage these enclosures did to those for whom the commons meant a way to live sustainably and in mutual relation with nonhumans, Boyle (2002) says that it was a "loss of a form of life...disrupting traditional social relationships, views of the self, and even the relationship of human beings to the environment" (p. 14).

Ultimately, a view of human nature as innately relational and altruistic radically alters the foundation upon which the sustainability literature has largely built its prescriptions. Instead of seeing sustainability as an evolutionary step requiring "only" a quantitative adjustment to our innately selfish human behavior, it becomes a reclamation project. The thing reclaimed is a relational definition of human nature and with it, the more-than-material conditions of nonhumans with which relational humans might once more naturally and reciprocally interact. Or, if one believes such a wholesale replacement of self-interest with altruism to be too extreme, at the very least the project becomes a clearing away of the misconception that humanity is *solely* self-interested. In the process, the innate human qualities and capacities that are foundationally relational can once more be accentuated as we work to improve human-nature relationships.

Loss of Nonhuman Identity

In undertaking the exploration of sustainability in the context of this dissertation topic, I was most struck by how little individuation of nonhumans I found. In the literature, nonhumans seemed not to be conceived of as living others or collections of others, but instead collectively and often abstractly, as processes or systems. Terms such as “life-support systems” and “ecosystem services” predominate in the literature—their very coherence bound up in human-derived benefits and in a lack of the mutuality or harmony that sustainability purports to be developing.

Costanza and Daly (1992), being ecological economists, characterize nonhumans and the results of their lives’ activities as, for example, “a *stock* or population of trees or fish provides a *flow* [emphasis added] or annual yield of new trees or fish, a flow that can be sustainable year after year” (p. 38). Here one encounters the instrumentalizing effects of ecological economic lenses. The identity of trees and fish are in their role as stocks and flows that contribute to human stores of natural income and capital. Any mutuality that accrues to trees or fish resides in promoting this contribution of theirs to human endeavors. This is borne out in the authors’ suggestion that “[e]cosystems are renewable natural capital. They can be harvested to yield ecosystem goods (such as wood)...[or to] yield a flow of ecosystem services when left in place” (p. 38). Others provide similar, instrumentalized characterizations, such as Ayres, van den Bergh and Gowdy’s (1998) description of “market-priced extractive resources such as forest products, fish or minerals” (p. 6), Cairns’ (2003) characterization of “nature’s resource reserves” (p. 46), and Kane’s (1999) suggestion that it’s even possible to explore how “new technologies can resolve problems of ecological sustainability by replacing certain ecosystem functions while permitting continuing growth of the gross national product” (p. 17). Especially in Kane’s

perspective, ecosystem functions are abstract ends of a supply chain with little or no connection to the plants, animals, insects, microbes, and other nonhumans that provide the “services.”

The same problem can be seen with the widespread use of the term “life-support systems.” Goodland (1995) talks of “emphasizing environmental life-support systems” such as “atmosphere, water, and soil” (p. 69). Of these systems, he says they all “need to be healthy, meaning that their environmental service capacity must be maintained” (p. 69). Here Goodland equates the health of nonhumans with their ability to provide humans the “goods” and “services” humans want, and seems ignorant of the possibility that the health of a nonhuman being may require that humans no longer ask it to provide goods or services of any kind. Thus, here the nonhuman individuals that contribute services have had the very definitions of their well-being instrumentally and anthropocentrically co-opted.

Beyond these terms, Goodland refers to the “raw material inputs” (p. 71) or “assets (such as soil, atmosphere, forests, water, wetlands), which provide a flow of useful goods or services” (p. 73). Barrett and Grizzle (1999) refers to the nonhuman contribution as “forests, soils, water, [and] wildlife” (p. 30), with only the last referring to actual nonhuman animals, the rest being abstracted, collectivized entities or “abiotic” elements where the individual nonhuman contribution to them goes unexplored. Goodland and Daly (1996) refer to natural capital as the “stock of environmentally provided assets (such as soil and its microbes and fauna...atmosphere, forests, water, [and] wet- lands) that provides a flow of useful goods or services” (p. 1005). So, while microbes and fauna are mentioned, they only garner mention by way of their “useful” contributions. Hinterberger, Luks and Schmidt-Bleek (1997) speak of “material flows” (p. 4) of “ores, coal, water, soil, timber etc.” (p. 8), where again the nonhuman contribution is obscured, and the effects of the use of such material flows on the mutuality or harmony of human-nature

relationships is absent. Gladwin, Kennelly and Krause (1995), while discussing human dependence on ecosystem service “transactions” (p. 875), speaks of the human disassociation from the “ultimate sources of life—the sun, photosynthesis, biodiversity, food chains, and biogeochemical and nutrient cycles” (p. 875). In this context, Gladwin, Kennelly and Krause take the ultimate sources of human life to not be the individual members of the food chain such as cows, deer or birds, or the detritivores that make the nutrient cycles possible, but instead the abstracted processes in which they are involved. In this sense, individual nonhuman contributions are obviated, or seen as secondary to the processes which we consider central, which equates with the processes from which we would like to continue to benefit. In a systems thinking-based approach, this focus on process might be expected. But, even in those approaches, the contributors to those system processes are usually positioned as being of equal importance to the flows between them. In general, in the sustainability literature, nonhumans are represented not as individuals, but as invisible contributors to processes abstracted from the workings of their lives and reduced to equivalence with the role they play in human well-being or survival.

To help demarcate the difference to which I am referring, I offer an anecdote from an experience reading about a wharf fire in Boston years ago, when a lobster company’s entire warehouse full of live lobsters was lost in the blaze. When discussing the damage, the newspaper article talked of “the loss of about 60,000 pounds of lobster” (Associated Press, 2008). It struck me that in the account, by referring to the weight of the animals and using the word “lobster” singularly, that their individual lives had been doubly lost: once to fire, and a second time in their utility to human ends. If, in contrast, the article had stated that what was lost was “60,000 pounds of lobsters” their individual lives would’ve begun to emerge, and could’ve

been pushed even further if the loss was stated as “60,000 lobsters.” But, by referring to lobsters only in their utility to human ends, the lobsters had been denied their individuality, and in the process had been dualistically negated as relational Selves. They were no longer individuals with lives and purpose, but instead were ecosystem goods to be delivered on unilaterally human demand as long as the demands didn’t go beyond the lobsters’ ability to provide it the next time. As elsewhere, these nonhumans have conceptually become passive, material-only, and instrumental in value.

Contrast this example with the statement from Oakhurst Dairy president, Stan Bennett (Oakhurst Dairy News, 2008), in response to the company’s rejection of the use of Bovine Growth Hormone in their milk cows. He says that

[q]uestions and concerns from consumers over the use of artificial growth hormone, decisions in Europe and Canada to ban the substance *and our concerns for the health of cows that willingly give us their milk every day* [emphasis added] all contributed to our decision to keep artificial growth hormone out of the production of our milk. (para. 2)

Here, the ecosystem good of “milk” or service of “milk production” isn’t abstracted from the animals that give that milk. The cows, here, are not only acknowledged, but their well-being mutualistically considered in relation to their contribution to human welfare. Further, because their giving of milk is seen as a reason for subsequently treating them in a certain way, in this sense the relationship has become a guiding constraint for human interaction.

One can see what difference an acknowledged and well-defined nonhuman relational partner makes when trying to define and promote a mutual or harmonious human-nature relationship for sustainability purposes. When those partners are obscured through abstraction and instrumentalization, relationships lose meaning as relationships. Either that, or the only constraining factor in relating with the sources of those functions and services is their ability to contribute to anthropocentrically defined processes. Because of that, then, the human-nature

relationships in such a sustainability portrait are wholly anthropocentric, and thus by definition, can be neither harmonious nor mutualistic except as unintended side-effect.

I attribute much of this highly anthropocentric orientation toward nonhumans to the sources of much of that literature, the environmental economics and environmental management disciplines. Environmental and ecological economics are right in attempting to attribute value to what nonhumans provide, but by forcing those contributions into anthropocentric channels, they limit the human's ability to qualitatively change the relationship to the point where humans can reciprocate with nonhumans and meet sustainability's larger goals. For example, in the context of wild wolf management in Canada, Jickling (2002) characterizes the tension between environmental management and sustainability as the fact that "managers need to manage" (p. 148). What he means is that it is the perspective of environmental managers to see every human-nature relationship as a management problem. Therefore, not only the relationship, but in Jickling's example, the wolves themselves, are seen through the lens of needing to be manipulated for human ends. As such, once again anthropocentric orientations render human-nature relationships into something less than mutual or harmonious exchanges. If nonhumans are seen as having only this reduced value and role, then it's possible to understand how a mutuality or harmony could, at times, emerge in the reduced state it has from these perspectives. Unfortunately, the ability of such reduced concepts to help sustainability meet its relational goals is quite limited.

What Ought to Be Sustained?

Another area where the dualisms inherent in the sustainability literature have influence is in the myriad attempts to answer the question: "What ought to be sustained?" For many authors, this is the foundational question for the development of sustainability theory and practice, with

Jenkins (2009) suggesting that it is sustainability's "new kind of moral question" (p. 380) while Wilkerson (1990) says that answering it should be "the first objective in approaching sustainability" (p. 18).

In the context of the role scientists play in advancing sustainability, Lélé and Norgaard (1996) attempt an answer by saying that what ought to be sustained depends largely on "what kind of future is desired" (p. 355). Because to the authors this desire is human, it is rooted in a "quicksand of [human] worldviews and values" (p. 355). To ensure that this desire does not devolve into mere whim, they suggest formulating desires based on "social values" (p. 355) with consideration of "social process[es] and...tradeoffs against other social goals" (p. 355). Noss (1993) also focuses on human desire and the values that underpin it when stating that answering the question is "essentially an issue of [human] goal setting...[with] more attention [paid] to where we wish to head...and...what values are behind those objectives" (p. 19). Wilkerson (1990), too, echoes this emphasis on human values and desires by warning that if humans are too narrow-minded, some things that we might want to sustain won't be sustained. He gives an example of how a single focus on timber extraction, which itself can be a sustainable practice, could come at the expense of other things such as the "health of certain fish and wildlife populations. Soils on steep slopes. The recreation economy. Old-growth ecosystems. Views. Beauty. Majesty. Wonder" (p. 19). Finally, Gale and Condray (1994) center the answer to this question on values when they note that whatever a "particular group has decided should be sustained...typically reflects some value (economic, biological, aesthetic, cultural, historical)" (p. 313).

While the authors in the previous paragraph focus on the values that underpin desire, others bypass the values entirely, or take them to be self-evident in the desires upon which they

focus. For example, in Solow's (1993) watershed ecological economics essay, he says that sustainability is an "injunction not to satisfy ourselves by impoverishing our [human] successors" (p. 181). There is no mention of what values ought to underpin our self-satisfaction, therefore one might assume that a somewhat hedonistic or selfish orientation underlies this prescription. In it, what is satisfying is then *equivalent* to what is valuable. Kane's (1999) sustainability definition echoes this orientation when he suggests that sustainability "hinges on underlying assumptions of what is important for the continued...happiness of the human species" (p. 17). Whether Kane's "happiness" is a "lower" one rooted in utilitarian John Stuart Mill's (2002) notion of "a beast's pleasures [that] do not satisfy a human being's conceptions of happiness" (p. 240) or if he means the kind of "higher" happiness that produces Mill's "greatest good" (p. 158) is unclear. But, that Kane feels no need to qualify it leaves open the possibility of equating happiness with the baser pleasure. Solow (1993) reinforces the notion of a simple human satisfaction over a more enlightened desire when characterizing the trouble we face in defining sustainability as mainly not knowing "the tastes...[and] preferences...of future generations [of humans]" (p. 181).

In both a superficial or value-driven notion of human desires as the arbiter of what ought to be sustained, several problematic elements surface. First, there is an assumption that the only source for this answer is human desire, and either the individual or social values that guide it. Second, this assumption is rooted in the belief that individuals or groups of humans *can* source their values outside of their human-nature relationships. Such a belief itself is sponsored by two dualistically wielded elements. There is the substantivist ontology that positions the human as antecedent to any relationships with nonhumans that she develops. Then there is the portrayal of

the nonhuman as making no substantive contribution to human desire or values largely because her contribution has been dualistically reduced to the material, if it is considered at all.

In addition to these problematic elements, one must also note that letting human desire and values operate in a vacuum to determine what ought to be sustained is the precise ontological framework within which *unsustainable* modern human-nature relationships have arisen in the past. Thus, what one finds in such approaches is precisely the “quicksand” from which Lélé and Norgaard (1996) hope to extricate us. But, if I want to clearcut the Tongass National Forest in Southeast Alaska, one hundred acres per sale, and you want the material biodiversity of that forest to be preserved, whose values decide? Lélé and Norgaard suggest the “force” of some socially arrived-at values. But if the society also values material wealth and, in deeper and perhaps less discussed ways, power over nature, then these social values will lead to unsustainability. In other words, at the end of this path the quicksand awaits. But this is only the case if one allows oneself to remain *within their ontological frame of reference*. In other words, if our last recourse to determining what ought to be sustained *can* only be human values because nonhumans and the human-nature relationship have been conceptually reduced to the point of not influencing determinations of what ought to be sustained, then what avenue does one have in determining what ought to be sustained other than what humans want to sustain.

But, if one’s ontology is reoriented, and nonhumans are relational Selves making material and more-than-material contributions to the human-nature relationship, then not only is another avenue possible, it is unavoidable. No longer can the mutualism and harmony of human-nature relationship be reduced to human desire and values. Granted, some might suggest that mutualism or reciprocity are not themselves included in all areas of sustainability theory and so should not by necessity be included in the process of determining what ought to be sustained. The group of

sustainability theories fitted under the rubric of “sustainable development” (Lélé, 1991; Hopwood, Mellor & O’Brien, 2005) is one such area. Theirs has as a guiding goal of development in the modern human sense of economics, poverty extinguishment, and other humanistic orientations (Hopwood, Mellor & O’Brien, 2005). But if what is meant by sustainability *in general* is sustainable development’s attempt to keep humans doing whatever they want in perpetuity, then I’d suggest that sustainability as a concept differs in no substantive way from the more environmentally rapacious societal paradigms such as capitalism or communism it is meant, in part, to supplant. It’s just a supposedly more benign form of them. If sustainability is just human desire exercised in perpetuity, then sustainability loses most of its meaning as a distinguishable concept, and as the distinctly *environmental* concept it has ineradicably become. If it is environmental, on the other hand, then the mutualism and reciprocity of human-nature relationship inevitably take center stage, where what ought to be sustained is not determined by human values and desire, but by the values and desires of both humans and nonhumans themselves constrained and determined by a primary and precedent, mutual and harmonious human-nature relationship. When expunged of dualistic reductions, this means that the well-being of human and nonhuman making contributions at material and more-than-material levels must be the end goal.

This is all a long way of saying that if by sustainability we seek to constrain human activity so that it is *environmentally* sustainable, first and foremost we must submit the activity of choosing what ought to be sustained to such a constraint. Freeing human desire and values from such limitations, and only afterward attempting to “retrofit” them so that they are sustainable, is a paradigmatic case of putting the cart before the horse. Lélé and Norgaard (1996) remain stuck in this place, however, when they say that social values “*determine* [emphasis

added] whether the objective to be kept undiminished [i.e., what is to be sustained] should be human material wealth, human spiritual well-being, or the well-being of all living beings” (p. 355). Here, social values beget potentially more harmonious and mutual human-nature relations instead of the inverse: relationships determining social values.

Granted, Lélé and Norgaard’s suggested reliance on social values may do some good if those values are in keeping with the relational focus of sustainability, but without explicitly imposing an external-to-human relational constraint on those values, it affords us no guarantee. To see just how directionless sustainability can become if human considerations are employed without a relational context, I offer the words of ecological economists Hinterberger, Luks and Schmidt-Bleek (1997). When answering the question of what ought to be sustained, they say that it is “human society that should be sustained” (p. 11). While ensuring the survival of humanity certainly ought to be one of the hoped-for outcomes, I note here that such a statement is almost completely empty. First, “human societies” are far from uniform, especially in their relationships with nonhumans, thus the degree to which their practices are, and can be, sustainable, varies quite widely. Second, certain human societies—namely modern ones—are centrally implicated in unsustainable societal mechanisms, structures, and practices. Therefore, the authors cannot mean that *all* human societies (and thus, all their practices) ought to be sustained without qualification. In such a statement, one quickly arrives back at having no guiding context by which to select which societal values, desires or activities ought to be sustained.

Wilkerson (1990) and Noss (1993) both articulate a set of guiding social values that are somewhat closer to what would result if the human-nature relational context I suggest above were employed. Noss, when considering forestry practices, rightly suggests that sustainability

thus far has been “utterly anthropocentric...[and] in need of significant revision” (p. 17). But, he goes on to say that even “Ecological arguments can suggest many different things, depending on the goal” (p. 20). For example, of our ability to “design...a perfectly functioning tree farm [that is]...quite diverse in native species and genotypes” he says that this is “not good enough [because]...it is too much like a machine” (p. 20). He also says that such a design may ignore other forest qualities that “are seldom considered in forestry or ecology but yet are important to us in immeasurable ways” (p. 20). These values can “include wildness and naturalness” (p. 20). Here, Noss is recognizing what Lélé and Norgaard (1996) have, that human values alone can result in vastly different sustainability prescriptions. And while wildness and naturalness are values that I believe are essential components of harmonious and mutual human-nature relationships, he still offers them from an anthropocentric base. That a tree farm is “too much like a machine” is a reflection of his values and nothing more. Wildness and naturalness are, without a sourcing *in* the human-nature relationship, also something valued by humans. He argues for these sorts of things because they are “important *to us* in immeasurable ways.” This is still anthropocentric and instrumentalist. Thus, while I see his values as likely *products* of harmonious and mutual human-nature relationships were those relationships to be defined first and offered as a constraining context, by pinpointing their source in human values alone, Noss’ (1993) prescriptions never escape categorization as part of Lélé and Norgaard’s (1996) “quicksand” of worldviews and values.

Wilkerson’s (1990) discussion falls into a similar anthropocentric “trap.” As I mentioned above, he believes that some of the values to consider in sustainable forestry are “health of certain fish and wildlife populations. Soils on steep slopes. The recreation economy. Old-growth ecosystems. Views. Beauty. Majesty. Wonder” (p. 19). Like Noss (1993), the scope of what

ought to be sustained is broad indeed, with values that seem likely to emerge from the context of harmonious and mutual human-nature relationships. Yet he, too, still positions these elements as human-only values, or at the least doesn't further qualify them as anything else. This leaves them vulnerable to interpretation as means for human ends. For example, Jenkins (2009) says that it is "human dignity [that] requires access to natural beauty" (p. 382), implying that Wilkerson's (1990) beauty is a means to human dignity. Thus, the interpretation of Wilkerson's values can still be anthropocentric and instrumental.

Ultimately, Wilkerson comes closer than most to a relational approach when he speaks of the need for humanist input into sustainability. Of writers in his home state of Montana and their contributions, he says they "have written of the places they know" (p. 20) and have produced a literature "rooted in place and in the *eternal truths that rise up from discrete places* [emphasis added]" (p. 20). Whether he knows that he is speaking of the fact that truth can rise up *from places* or human relationship with them is unclear, but his descriptions do carry the seeds of them doing just that in our conceptions of them. Unfortunately, he never explicitly reorients the broader set of human values so that they are definitively *produced by* the human-nature relationships for which such places are the context.

The importance of submitting human values and desires to constraint by something external to humans alone is perhaps best articulated by Houck (1983), though he does so in a different context. In discussing ecosystems-based land management policy and the possibility that humans should be considered part of the ecosystem in formulating initial management plans, he recommends against this. He says that "once humans and their impacts are put into the definition of an ecosystem, the term loses all objective meaning. We simply manage for whatever we want" (p. 2). His rationale is that if "Chicago...[or] Hiroshima, circa 1946" (p. 2)

is considered a “natural” part of the ecosystem, then there is no way to discern a healthy ecosystem from an unhealthy one, and thus to manage toward one ecosystem state over another. To resolve this problem, he suggests splitting the notion of ecosystem management into “ecosystems” on one hand, and “management” on the other. The former, at the beginning, does not contain humans so that one can see just what a healthy ecosystem looks like (based on the assumption that without human interference, ecosystems are largely healthy). Once that’s established, and there is a standard or goal, then human activities can be introduced into its constraining context. I think a similar technique can and should be applied to the process of defining what ought to be sustained. Here, we must split the definition of mutual or harmonious human-nature relationships from isolated human values and desires that could very well corrupt those definitions into “whatever we want” as human desire for skyscrapers as part of their well-being butts up against a bird’s desire for good nesting locations.

What is a mutual or harmonious human-nature relationship without unilateral human desire then? At its root, it must be a relationship where the well-being of both human and nonhuman in relationship are held as the central focus and irreducible goal. In other words, what differentiates this portrait of mutual relations from those that sustainability currently offers is that here, human action is constrained not by an imperative of human survival and what humans individualistically desire, but instead by the good functioning of human-nature relationships where both human and nonhuman well-being are promoted and maintained. Given my contention that well-being is not only material, and that more-than-material elements can be contributed by human and nonhuman alike, suddenly mutual and harmonious human-nature relationships take on characteristics of the close human-nature relationship for which this dissertation makes the case. A good example of this appears in the Materialism of

Biocentric/Ecocentric Approaches section below, where the Menominee tribe maintains both a material and more-than-material relationship with the nonhuman forest they “manage” and in doing so, promote the well-being of both their people and the nonhuman inhabitants of the forest. Thus, what ought to be sustained is the well-being of those within the confines of the well-being of the relationship.

Once these kinds of mutual and harmonious relationships are defined, as Houck suggests, only then should we bring human desire back for consideration of its contribution or detraction from determining what ought to be sustained. Of course engineering the process this way should appear quite constraining to human societies accustomed to thinking that their activities ought to be governed by their own values and desires outside of any human-nature relational context, or with only minimal recognition of the constraint of “natural resources.” That’s because, in such a constraining context even if I *want* to build a shed in my backyard, I must consider many things. I must consider where and from whom the materials come, and whether this disrupts the material and more-than-material well-being of birds and other nonhumans in that location—or worse, destroys the mutual care that has developed between humans and nonhumans in that place. I must also consider whether my installation of the shed disrupts the well-being of those in my own yard. And so on. As one might suspect, such deliberations would substantially slow unsustainable human activity in modern societies, as is only proper. Steel mills, for example, become eminently problematic in such a context. But, I suggest it is just such a context that is necessary if human-nature relationships are to be mutual and reciprocal, and if sustainability is to be meaningfully achieved.

At this juncture, some might suggest that the task of defining a mutual and thus sustainable human-nature relationship is itself subject to the vagaries of human values. In

response I suggest that this can only be the case if one believes such definitions to themselves not be the products of actual relations with nonhumans as relational Selves. At the very least, approaching the problem of sustainability as something that must be solved *in conjunction with* nonhumans forces the definition that emerges to actively consider and include nonhumans in ways that sustainability most often doesn't do right now. It also forces the definition of sustainability to emerge from something outside human imagination alone. Lastly, it moves context-less human desire out of its position as determiner, and into a position of being determined by the relationships that are the hoped-for products of those theorizing about sustainability.

When looked at in this way, the question of what ought to be sustained is ultimately moot, since in its very asking is carried an all-too-easy assumption that it is for humans alone to answer. In the end, I believe that the only basis for discovering what ought to be sustained that does not devolve into a “quicksand of worldviews and values” or “whatever we want” is the acknowledgement of the ontologically material and more-than-material relations with nonhumans that we have, and the work becoming the definition and establishment of what is required from humans in the harmonious and mutual relationships for which sustainability rightly calls. Only after we do this, and as a result see what *is* sustained, can we know that this is what ought to be sustained. In the end, our good relations will, as a natural byproduct, determine sustainability entirely for us.

“Human Activity” or Individualism?

Another area where the sustainability discussion suffers relationally from its rooting in a self-interested concept of human nature and a dualistic reduction of nonhumans is in its frequent focus on what ought to constitute “human activity” in a sustainability context. To illustrate, I

turn to environmental educator David Orr (1992), who in his book *Ecological Literacy: Education and the Transition to a Postmodern World* says that “all education is environmental education” (p. 90). What he means by this is that all that is learned in schools is actually learned *in* the environment, and that subsequently, it will be put into practice in the environment. Because of this, all education is unavoidably environmental—and what’s more, this is ontologically so. I mention Orr’s words in the context of this discussion because I believe the same sort of perspective must be applied to what I believe is currently an individualist notion of “human activity” in the sustainability literature. Adapted to my purposes, then, Orr’s words become: “all human activity is environmental activity.”

I recommend this as an ontological base from which to understand human activity because at present, human activity is often viewed as conceptually separable from its environmental context. For example, the three pillars of sustainability are economic, social and environmental (Blackburn, 2007), as depicted in Figure 7. Ontologically speaking, this means

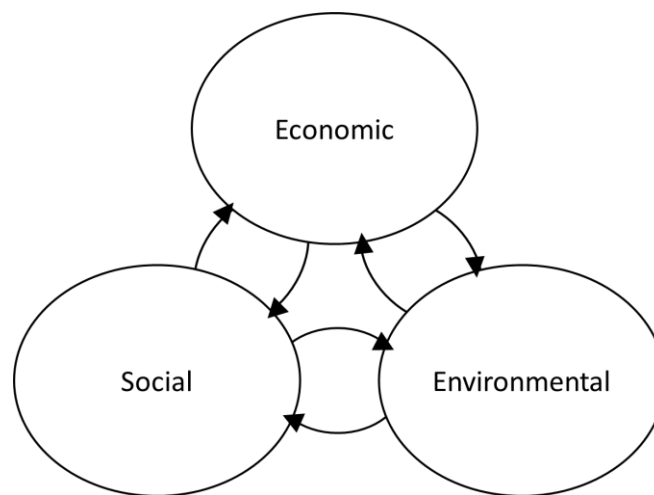


Figure 7. Three “Pillars” View of Sustainability.

that economic and social activities are sometimes taken to be intelligible in isolation from environmental considerations. At other times in the sustainability literature, however, economic

and social activities are portrayed as being contained within an environmental context (see Figure 8)—for example, in discussions of how to conduct economic activities without eroding natural resources and the ecosystem services those resources provide (Goodland, 1995, p. 70).

But, these two portrayals represent two distinct ontological concepts, and thus are not compatible. Since human activity is ontologically environmental (at the very least in material terms) then the conceptual position represented in Figure 1 is the less accurate of the two. Furthermore, it is precisely the human ability to conceive of the interplay of these three pillars as individualizable elements that contributes to unsustainable practices in the first place. After all, if it's ontologically possible to separate the social and economic from the environmental, then it's possible to undertake activity that can be considered "human activity" whilst ignoring its impact on the environment—without seeing it necessarily as environmental activity. Again, I believe dualisms operating in the sustainability literature are largely responsible for sponsoring the possibility of such obfuscation.

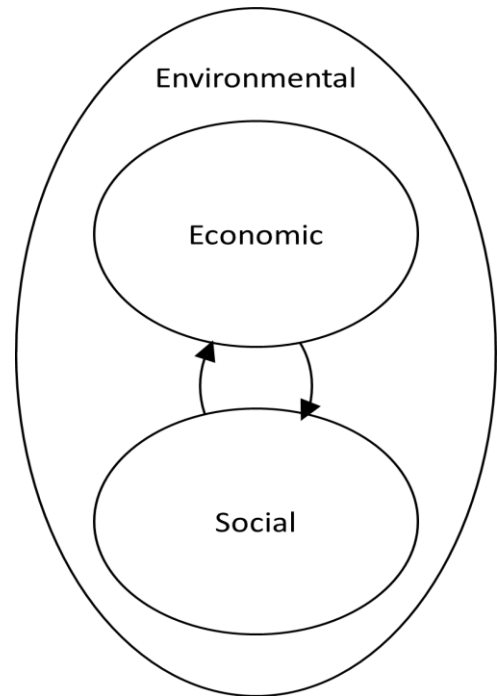


Figure 8. Environment as Ontological Context for Economic and Social Pillars.

Pressing on, through my human-nature relational lens, I'd suggest that even Figure 8 is inaccurate. This is because by positioning the environment—that is, nonhumans—as *context* only instead of as relational Selves with whom real material and more-than-material interchange is taking place, this still dualistically reduces them and is thus inaccurate. It is anthropocentric, with human economic and social activity cast as foreground against the backdrop of nonhuman beings. Regardless of the focus of scholarship *on* the social or the economic, with its inherent human focus, I suggest that it is just such anthropocentric casting of ontologically relational elements into foreground and background that sponsors and serves as ongoing reinforcement of the very dualisms that work against sustainability. In a close human-nature relational ontological context, I offer Figure 9 as an alternative to most accurately reflect the ontology needed to

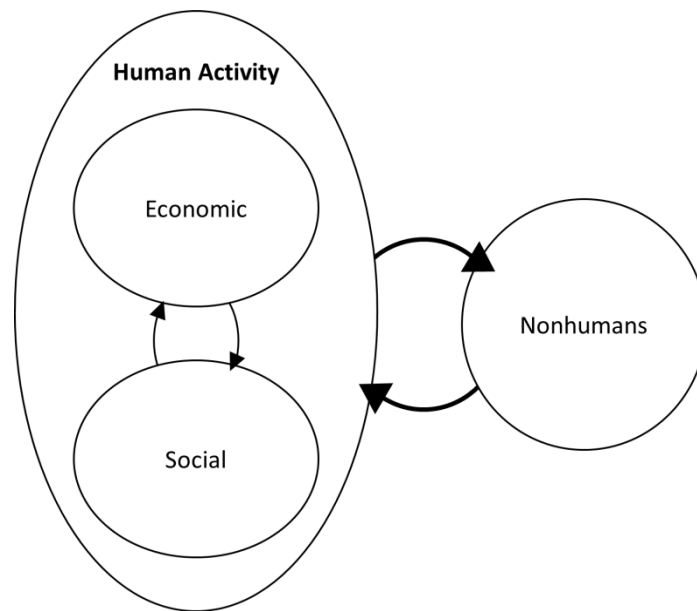


Figure 9. Human-Nature Relational View of the Three Pillars of Sustainability.

achieve sustainability.

Examples of how human activity is currently conceived of in isolation from nonhuman beings abound in the sustainability literature. For instance, Johnson (1993) says, “To be

sustainable is the goal of a growing list of human activities that place demands on the environment” (p. 11). Of course the recognition that human activities do place demands on the environment is laudable, but in making such a suggestion, Johnson is also implying its complement, that there is an albeit diminishing list of human activities that *do not* place demands on the environment. To suggest such a thing is to engage, at a material level at least, in self-deception. From breathing to clearcutting forests, human activities place demands on the environment. A relational ontology insists that the actions of one must, by necessity, be recognized as an action toward the other. In human-nature relationships, then, all human activity is also inescapably environmental activity.

In another example, Goodland (1995) says, “The environment has now become a major constraint on human progress” (p. 69). Here again, the recognition that the environment ought to factor into the measure of the wisdom of human activity is well placed, but the fact that the environment only becomes relevant or visible when its limits are reached, and otherwise doesn’t garner consideration, is dualist. The presence and contribution of nonhumans to “human progress” is and has always been ontologically unavoidable. Further, it is the very capacity of humans to have conceptually eliminated nonhumans from their conceptions of “human progress” that seems central to the problem of unsustainability.

When nonhumans are considered as inseparable from human activity in the literature, they are often positioned as secondary or marginal. For example, Jepson (2004) says that “the level and character of human activity must be tempered by an appreciation of the effects of that activity on natural resources and characteristics” (p. 4). But by suggesting that the activity itself must only be “tempered” by “appreciation” means that the activity is not seen as a *centrally* environmental activity. It is only to be adjusted to be more aware of one of its “side” effects.

But, at the very least materially, environmental effects can only *be* conceived of as side effects because humans have the benefit of knowing their intentions and of arranging the “clutter” of the actual interactions such that the environment is conceptually to the “side.” To nonhumans, however, these effects are direct and central.

To demonstrate that environmental effects are direct effects, I’ll reinterpret a human activity in this ontologically human-nature relational way. If I am sitting at my desk and listening to music on my iPhone, that is actually not centrally what I am doing—this is not my main human activity. The main activity is me first largely ignoring that the plastic that contributes to my iPhone’s physical reality is from crude oil drilled in some place and refined in another. It is also me ignoring the South American lakebeds from which the lithium is taken to make up part of my iPhone’s battery. Further, it ignores the copper and other metals employed for the circuitry of the iPhone and their origins and the impacts of their extraction and transformation. This doesn’t even broach how the music was made by musicians, their instruments—or where my desk comes from, or my room, and so on. The point is that this “simple human activity” is human only in small part, and is actually a relational (human and nonhuman) activity on a quite large and diverse set of scales. Its actual, direct effects are ontologically environmental. In this view, my listening to the music is the side effect. The only reason it isn’t considered that way in a modern societal frame of reference is because of anthropocentric tendencies coupled with a technological ingenuity that allows us to hide from ourselves the environmental activities that constitute the bulk of the activity. Of course sustainability has arisen in response to the Earth telling us that our ability to hide our environmental activities from ourselves is becoming increasingly difficult and costly on many levels.

In another example of the literature treating nonhuman effects as side effects, Jenkins (2009) asks, “can human activity successfully maintain itself and its goals without exhausting the resources on which it depends” (p. 380)? This example raises another feature of anthropocentric interpretations of human activity. Here, the effect of the activity on nonhumans is seen as being of *post hoc* consideration to the formulation of the activity itself. As I suggested above in the What Ought to Be Sustained? section, if the human-nature relationship is not held to be the constraining context and determiner of the formulation of human activity, then trying to retroactively fit that human activity with some relational consideration is far more difficult. As my reference to Houck (1998) in that section suggests, independent conceptions of human activity are not the best guides for sustainable environmental considerations. Instead, those considerations must be formulated within the bounds of what we consider to be good and mutual human-nature relationships. In this view, Jenkins’ question might be better phrased as follows: *Can human actions be recast relationally so that both their origins and goals are understood to be emerging from, in relationship with, and directed toward the lives and activities of nonhumans?*

Finally, while in this section I’ve largely explored the material interconnection that ought to constrain “human activity” in the sustainability literature, in the next section and through my close human-nature relational lens, I’ll discuss the weaknesses of such an approach in the segments of the literature that do try to acknowledge nonhumans as substantive relational partners.

Materialism of Biocentric/Ecocentric Relational Approaches

Much has been made of a split between anthropocentric and ecocentric approaches to cultivating sustainability (Barrett and Grizzle 1999; Bonnett 2002; Gladwin, Kennelly and

Krause 1995). When authors critique anthropocentrism's role in promoting a mutual human-nature relationship, most of the time the alternative offered is bio- or ecocentrism, since both of those orientations hold that intrinsic value accrues to both humans and nonhumans. In particular, those supporting ecocentric approaches hold that "moral decisions [must] take into account the good of ecological integrity for its own sake" (Jenkins 2009, p. 382) and that the solution to "environmental problems [lies] in [developing] a working relationship with nature to resolve conflicts between society and nature" (Barr 2003, p. 229).

Since ecocentrism is still at its core ecological, and as such an ontologically materialist approach, then dualisms still operate in those offering it as a solution to anthropocentrism. In this section, I'll explore the ways in which ecocentrism in particular is relied upon as a relational guide for sustainability, but how because it is materialist, it still fails to alter the ontological view of nonhumans who've been dualistically reduced to the role of passive, material objects as elsewhere in the human-nature relationship literature.

Shrivastava (1995) speaks of ecocentrism when discussing the development of an ecocentric management strategy. He recommends such a strategy "because nature is fundamental to all life, and certainly human welfare depends on it" (p. 127). While he is correct in his suggestion, his account begins by immediately instrumentalizing nonhuman nature. He is also correct in noting that a "natural ecosystem...is a network of connected interdependent organisms and their environments that give and take resources from each other to survive" (p. 127). But, when he undertakes to construct a model of human sustainable activity to mimic it, he fails to see that the interface of human and nonhuman must also contain this reciprocity. As an example he discusses industrial ecosystems. He says that they are a "network of organizations that jointly seek to minimize environmental degradation by using each other's waste and by-

products and by sharing and minimizing the use of natural resources” (p. 128). So, while *within* the human industrial system he suggests there is ecosystem-like reciprocity, in fact he’s bifurcated the human-nature ecosystem by isolating the human as an ecosystem unto itself and set the nonhuman world somewhere outside of it. There is a give and take amongst humans in the industrial ecology, but the relationship between humans and nonhumans is still only a unidirectional “use” of nonhumans. At a wider scale, what Shrivastava is representing is ultimately anthropocentric, and thus fails to be reciprocal in the context of the sustainability discussion. Therefore, while in his model ecocentrism may “give” some standing to nonhumans and reduce the destructiveness of human activity, it does little to move the role that nonhumans are accorded in such definitions from the reduced, dualist positions they currently occupy.

As another example, Noss (1993) recommends a “biocentric or holistic concept of sustainability [that] focuses on sustaining natural ecosystems and all their components for their own sake, with human uses included only when they are entirely compatible with conservation of the native biota and natural processes” (p. 26). From a material perspective, this is a wonderfully strong portrayal of sustainability, leaving no room for humans to materially interact with nonhumans unsustainably. However, from a close relational perspective, it still has weaknesses that threaten true sustainability. First, it constricts human relationships with nonhumans to ones of “use,” a uni-directional relational condition. Second, it implies that the interactions humans have with nonhumans are interactions with “biota and natural processes” and as such are not only predominantly material. And while such a material view of nonhumans would explain why “use” is considered the only relationship possible with nonhumans, as I’ll argue in later chapters, I believe that more is both possible and necessary for true sustainability.

Callicott and Mumford (1997) also offer a biocentric/ecocentric prescription. They add to Noss' argument by saying that since most conservation and preservation efforts are anthropocentric, a notion of "ecological sustainability" should be employed instead. For example, they suggest that "a proposed economic venture...should be deemed unworthy of undertaking...if it will compromise the health of the...ecosystems on which it is imposed" (p. 36). For them, the solution is the measurement and maintenance of ecosystem integrity and health understood biologically/materially. Finally, as examples of the sort of ecological sustainability they espouse, they offer the forestry practiced on the Menominee Indian reservation in Wisconsin and *jhum* agricultural practices in northeastern India.

As with Noss (1993), theirs is a rigorous view of material sustainability, but from a close relational perspective, it is also lacking in ways that prove troublesome to sustainability's relational goals. Perhaps the best way to underscore these weaknesses is to note that in both the examples they cite, the material sustainable practices are *deeply* rooted in more-than-material human-nature relationships. For example, the Menominee's ecocentric forestry practices are sourced in their "belief that each life form is a '*person*' to be respected for its *knowledge* and *power* [and that this] pervades the pursuit of the *material conditions* [emphasis added] of life" (Nesper and Pecore, 1993, under "Values and Practice"). Callicott and Mumford (1997) don't acknowledge or mention this. They are far from alone in this practice, and indeed it might seem unfair to ask them, as ecologists, to consider relational elements that fall outside their disciplinary focus. But, I believe that ecology and other material-based disciplines must begin to do exactly this in order to see that more-than-material elements are essential to material processes—that one can neither succeed nor even be sensible without the other. Ultimately, the very ability of modern humans to conceptually isolate the material from more-than-material

elements both obscures their deep interdependence and tends to reduce or negate the contributions of the latter. Callicott and Mumford seem to inadvertently undertake this kind of reduction by not mentioning the more-than-material sources of the ecocentric practices they hold up as good examples. In so doing, they are either making the assumption that the source of these practices is “really” also only material/physical—that the more-than-material elements don’t exist—or that whatever more-than-material elements do exist are secondary in importance to ecological considerations, and therefore not worthy of mention as long as the ecological practices can be put into effect.

These two possibilities are reinforced by the fact that the only place that more-than-material influences are mentioned by the authors is when they’re dismissed as anthropocentric relics of a bygone preservationism. In describing their own approach to sustainability as moving beyond this, Callicott and Mumford take a contemporary preservationist tack where “biota is valued for its own sake...and [biological] reserves are selected, delimited, connected, and managed in accordance with the best available science, irrespective of their conventional recreational, esthetic, or spiritual appeal” (p. 35). Their dismissal of all but materialist perspectives here is thorough. While their intention appears on the surface to be reasonable—the elimination of shallow pursuits such as recreation in the face of ecological imperatives—the breadth of their dismissal is overreaching. For example, spirituality is being equated in superficiality with recreation, and characterized as a human *use* of nonhumans. But, such a notion is rooted in the idea that spirituality is a wholly human creation in the face of an externally material reality, instead of as a human response to more-than-material/spiritual elements in external reality. While I won’t pursue the argument further here for why I take spiritual elements to be externally real (and thus any assumption that they are human creations as

erroneous), I suggest that the remainder of this dissertation will lend credence to the existence of both material and more-than-material elements at work in all things in existence.

Because of this, I take the authors construction of spirituality as not a real relational element to be erroneous. Their dualist ontology does, however, explain why they turn to ecocentrism's intrinsic valuation of "biota" to gain standing for nonhumans in sustainability. Ultimately, however, characterizing all nonhumans *as* "biota," and as such to be known best through the material lens of science, neglects the central role of more-than-material elements in the Menominee's and others' relational approaches. Thus, the authors fail to see more-than-material elements as essential to the examples of sustainability they hold up as an ideal.

This is not to say that everyone who wants to practice sustainable forestry need adopt the *particular beliefs* of the Menominee or come to hold *their particular kind of more-than-material knowledge*, but it is to say that more-than-material sources of material actions cannot be ignored or downplayed through a dualist elevation of material needs or outcomes. By ignoring those sources, it reduces or negates them *as* sources. I feel safe in suggesting that without those specific kinds of more-than-material elements, the Menominee's material practices would never have been developed, and without their continued influence, those practices would not be sustained. Therefore, what ultimately seems missing from Callicott and Mumford's account is the understanding from Menominee knowledge that nonhumans have more-than-material qualities and capacities of equal or greater importance to those of humans, and that this knowledge is absolutely essential to a human-nature relationship that is sustainable on a material level as well. Again, this does not mean that the more-than-material elements are a human concept that evolved as means to help the Menominee materially survive—as materialist evolutionary perspectives might suggest. Instead, both material and more-than-material elements

must be acknowledged in their own rights as ontological bases, they must complement each other, and they must ultimately constrain the actions of humans in their relationships with nonhumans.

Jickling (2002), for his part, recognizes this, though he doesn't necessarily put it in these terms. When talking of working with students regarding the value of wolves and the issue of Canadian wolf-kill programs, he says,

Students are encouraged to remain open to possibilities beyond sustainability—to accept sustainability for what it is, but to also explore what it is not. For example, the language of sustainability may be used when trying to optimize “harvest,” but it cannot describe the magic of wolves howling on a winter’s night... (p. 146)

I believe Jickling sees the same limitation of sustainability that I do—its failure to see the more-than-material elements of human-nature relationships that make the *desire* and willingness to sustain both nonhumans and humans possible. Though again it cannot be overstated that the more-than-material elements should *not* be promoted instrumentally *so that* we materially survive, but instead as ends in themselves. Where I differ from Jickling, however, is his locating these elements outside the sustainability context. He says above that we ought to “accept sustainability for what it is, but to...explore what it is not.” I suggest instead, and in no uncertain terms, that sustainability is an empty, anthropocentric exercise with dim possibility for success if it excludes the magic of wolves howling from its formulations of “what ought to be sustained.” That doesn't mean that some like wolf howls and others like roosters crowing...and how do we decide which to sustain? That would be dualistically conceiving of these fundamental more-than-material elements as passive, material utterances whose meaning and power resides only in unilateral human response to, or valuing of, them. I suggest instead that the magic of wolf howls is a more-than-material quality *of wolves*, and as such is something to which many humans have

and could have close relational responses. Therefore, they must form an indispensable part of mutual and harmonious human-nature relationships.

This dissertation is dedicated to making the argument that without the close relational understandings of the human-nature relationship that emerge from admitting expanded material and more-than-material elements to the consideration of human-nature relationships, that sustainability, along with many other prescriptions for improvement of the human-nature relationship, will fail. Therefore, the magic of howling wolves belongs in the very heart of sustainability—at its ontological roots. Without it, dualisms threaten to marginalize or negate the qualities and capacities of nonhumans (the magic that wolves and their howls possess and that humans perceive, instead of the magic that humans conceive of in response to the material wolf and its material howl) that make human-nature relationships the interpenetrating more-than-material and material structures and processes that many people experience them to be. Without it, sustainability simply cannot succeed.

CHAPTER 4 ENVIRONMENTAL EDUCATION

The goal of environmental education is to improve human-nature relationships through the promotion of more environmentally benign or sustainable human behaviors (Hungerford & Volk, 1990). As in the place and sustainability theories I examined above, the ontology that underpins prescriptions to achieve those goals depends to a great extent on what humans and nonhumans are taken to be like, which in turn determines the possibilities for their relationships. While the various ontological commitments held in the environmental education literature display dualisms, I also note that there has arisen a fairly strong vein of criticism pointing this out. I'll examine these viewpoints next

Environmental Education's Founding Documents

I begin my critical examination of environmental education by exploring what are considered its two founding documents, the Belgrade Charter (UNESCO, 1975) and Tbilisi Declaration (UNESCO, 1977). As a shorthand, I'll refer to each as Belgrade and Tbilisi through the remainder of my discussion of them. Both documents take the goal of environmental education as the fostering of more pro-environmental behavior in students, and lay out various goals and objectives toward that end. Most in the environmental education field take the two documents to be synonymous, at times even transposing the articulated goals of one for the other (e.g., see Palmer & Neal, 2003). And while the two sets of goals are meant to promote the same thing, comparing the subtle changes in language and emphasis from one to the other reveals a not insignificant ontological shift in terms of conceptualization of nonhuman beings, and thus the relationships humans can and ought to have with them.

Both documents articulate a hierarchy for environmental action, with more specific objectives feeding into more general goals. For example, both documents articulate “environmental education objectives” such as changing “knowledge...attitudes...awareness... [and] participation” (UNESCO 1975, 15; UNESCO 1977, pp. 26-27). Below, I’ll analyze the differences in those objectives and goals in order to elucidate the differences between the documents that I see.

Difference in Objectives

Knowledge

Below is the language from the two documents for the environmental knowledge objective:

Belgrade: “to help individuals and social groups acquire basic understanding of the total environment, its associated problems and humanity’s critically responsible presence and role in it” (p. 15).

Tbilisi: “to help social groups and individuals gain a variety of experience in, and acquire a basic understanding of, the environment and its associated problems” (p. 27).

The Tbilisi objective closely matches the Belgrade objective, however, Tbilisi removes the human’s “responsible presence and role” in the environment. In an ontological sense, humans in Tbilisi could stand somewhere outside the environment and gather experience and understanding in it from there. This indicates an ontological shift in which the inextricability of humans from the environment and their responsibility for problems created there are obscured.

Attitudes

Below is the language from the two documents for the environmental attitude objective:

Belgrade: “to help individuals and social groups acquire social values, strong feelings of concern for the environment and the motivation for actively participating in its protection and improvement” (p. 15).

Tbilisi: “to help social groups and individuals acquire a set of values and feelings of concern for the environment, and the motivation for actively participating in environmental improvement and protection” (p. 27).

First one can see that in Tbilisi, Belgrade's attitude of "strong concern" becomes simply "concern." What's also of interest is the shift from active participation "in *its* [the environment's] *protection and improvement*" to active participation "in *environmental improvement and protection*." One possible reading of this difference is that the former speaks of the environment as a distinct entity that ought to be accorded protection and improvement as such, whereas the latter turns the environment into a modifier of human improvement and protection. Ontologically, that signals a reduction of nonhumans as relational Selves, and through that, a reduction in the relationality of the ontology that underpins environmental education objectives.

Participation

Below is the language from the two documents for the environmental participation objective:

Belgrade: "to help individuals and social groups develop a sense of responsibility and urgency regarding environmental problems to ensure appropriate action to solve those problems" (p. 15).

Tbilisi: "to provide social groups and individuals with an opportunity to be actively involved at all levels in working toward resolution of environmental problems" (p. 27).

One might read the Tbilisi shift here as an attempt to be more "upbeat." In fact, in all three objectives there is a move away from a certain dire tone of language that is present in Belgrade. Regardless of motivation, there is a reduction of the relational elements of the language in this objective as well. Belgrade exhorts humans to adopt a sense of responsibility and urgency to act, and suggests that their role in the interchange between human and nonhuman is to take responsibility for the well-being of the environment. In contrast, Tbilisi calls for action in the more generic "all levels" way. What's more, that action appears to be both unilateral on the part of humans and moving from them toward a more poorly defined "environment." The objective carries no imperative of relationship nor responsibility for it.

Goals

As stated above, both the Belgrade and Tbilisi document articulate a hierarchy of environmental action where their more specific objectives feed into more general goals. In Belgrade, the overall environmental education goal is to provide “commitment to work individually and collectively toward solutions of current problems and the prevention of new ones” (p. 15). But the target of this “commitment to work” is not left open-ended. It is directed toward yet another goal at the pinnacle of the hierarchy. It is called the “Environmental Goal” (p. 14) and states, in part, that “[t]he goal of environmental action is: To improve...the relationship of humanity with nature” (p. 14). Here, one finds an explicit statement regarding the most general understanding of the human-nature interchange. That is, it is ultimately understood as a *relationship* in need of improvement. In contrast, the Tbilisi Declaration has removed the “Environmental Goal” entirely. In fact, the only reference that can be found in the Tbilisi Declaration’s goals speaking at least indirectly to the relationship of humanity with nature is in the last of its three goals. This goal calls for environmental education “to create new patterns of behaviour of individuals, groups and society as a whole *towards* [emphasis added] the environment” (p. 26).

The contrast between these two characterizations of the relationship between humans and nonhumans is sharp. As in my discussion in previous sections, the use of the unidirectional preposition “towards” instead of the more reciprocal “with” in describing the dynamic between human and nonhuman is telling. Behavior *towards* indicates a one-way movement sourced in humans. Even the choice of “behavior” in Tbilisi vs. “relationship” in Belgrade tends to situate the active elements of the interchange in Tbilisi in the human alone. This is similar to my

critique of the notion of “human activity” in the Sustainability chapter above, where activity or behavior are isolated, human-sourced relational elements.

In contrast, if I am “in relationship with” something or someone, it means that the foundational reference point and unit of analysis is *the relationship*, not any individual person or thing in that relationship. Thus, the irreducible unit of relational analysis is the relationship and its concomitant participants, not any one participant within it. This idea echoes ethicist Nel Noddings’ (1984) suggestion that relations are ontologically basic (p. 3), and that the care which is built up from those relations must be a reciprocal one for it to really be considered care. In her account, care isn’t defined by the “behavior” of the one-caring “towards” the one ostensibly being cared for. Instead it is defined by a behavior that arises out of a consciousness or receptivity on the part of the one-caring to the cared-for, *and* the receipt of this *as care* by the cared-for. In her account, then, care is located in neither individual, but instead is a reciprocal product of the irreducible relationship.

Absent this relational element, there appears to be an individualistic and anthropocentric vein running through Tbilisi’s objectives and goal articulation that is not as apparent in Belgrade. As I have stated above on multiple occasions, I believe that part of what contributes to the more individualistic approach in Tbilisi is an underlying dualistic reduction of the nonhuman to the point that, when theorists recognizing that humans are having relational experiences with nonhumans, the only explanation they can muster is an origination point for the salient features of the relationship in the human alone. Unfortunately for environmental education, the predominant approaches in its pedagogical development have cleaved to this Tbilisi ontological frame of reference and settled into promotion of more positive unilateral human behaviors toward a poorly defined environment. That is how human behavior such as “recycling” gets to

be referred to as a “pro-environmental behavior” (Karp, 1996) when, relationally and especially if nonhumans are relational Selves, this seems to be a gesture incommensurate with the type and strength of the relationship.

Ultimately, while superficially similar, the human-nature relationship characterized in these two documents are ontologically inconsistent. The only way they can be taken as similar is if nonhumans are *a priori* taken to be insignificant. Then, in Belgrade the activity of involvement *with* the environment *is* a human-centered activity, and reduces neatly to Tbilisi’s human behavior *toward* the environment. Within an ontological context, this conflation cannot be uncritically accepted.

Focus on Human Behavior

Gough notes that approaches to environmental education, especially in the United States, are “dominated by behaviorist psychology” (Noel Gough, personal communication, May 11, 2009). This can be seen in such influential essays as Hungerford and Volk’s (1990) “Changing Learner Behavior Through Environmental Education.” In it, they respond directly to the Tbilisi Declaration by suggesting that “the challenge for [environmental] educators is to translate the Tbilisi objectives into...responsible behavior” (p. 9). Others echo a behavioral focus. De Groot and Steg (2008) say, “Human behavior is...an important contributor to [environmental] problems [global warming, deforestation, etc.] and their solutions” (p. 331). Iwata (2001) suggests that “Global environmental changes are caused largely by human activities. So it is essential to restructure socio-economic systems in order to promote environmentally responsible behavior” (p. 183). Kals and Russell (2001) say that, “Changes of behavioral patterns and renunciations are necessary to reduce...ecological risks” (p. 367). And finally, Hines, Hungerford and Tomera (1987), in their landmark meta-analysis of studies examining motivating factors in

environmentally responsible behavior, state that “it can now be said that the development of environmentally responsible and active citizens has become the ultimate goal of environmental education” (p. 1). The promotion of pro-environmental behavior has become so entrenched as *the* goal in environmental education that authors like Kollmuss and Agyeman (2002) offer it as simple, unquestioned fact in their pivotal environmental education essay, stating that its purpose is to review the “broader research findings which have informed current environmental education theory and practice” so as to “open up a dialogue regarding the most effective ways environmental educators might help develop pro-environmental behavior at all levels in society” (p. 240). It is not a question as to whether that is the goal of environmental education theory and practice, it is simply assumed that the role of environmental education is to determine the best way to bring about such behaviors.

Given this focus, it’s sensible to examine for a moment what these pro-environmental behaviors are taken to be. There is the most common one, recycling (Allen & Ferrand, 1999; Corral-Verdugo & Figueredo, 1999; De Young, 2000; Thogersen & Olander, 2006; Iwata, 2004; Vaske & Kobrin, 2001). There is the exercise of purchasing power, such as choosing not to purchase a product from an environmentally “unfriendly” company (Allen & Ferrand, 1999; Iwata, 2004; Theodori & Luloff, 2002). Still others are a) educating oneself about environmental problems (Allen & Ferrand, 1999; Vaske & Kobrin, 2001), b) talking with other humans about environmental issues (Allen & Ferrand, 1999; Kals & Russell, 2001; Vaske & Kobrin, 2001), c) use of alternative transportation (Corbett, 2005; Thogersen & Olander, 2006), d) donating money to environmental organizations (Berenguer, 2007; Theodori & Luloff, 2002), e) reducing consumption of materials or power (Iwata, 2004; Kals & Russell, 2001; Vaske & Kobrin, 2001), and f) buying organic food (Thogersen & Olander, 2006; Iwata, 2004).

There are several aspects of defining pro-environmental behavior in this way that are ontologically problematic. First, as Jickling (2003) notes, the determinations of behavior are rarely followed by discussions of whether the behaviors sought are worthwhile or really are what the program designers intend them to be (p. 22). Second, the behaviors that are encouraged, and used as measures of whether environmental education programs have succeeded, tend to be rather superficial activities that do little to question the societal practices that create the conditions that necessitate them—that is, the ones that cause environmental problems in the first place. Thus, rather than solving environmental problems, these behaviors simply attempt to *post hoc* soften the impacts of some of these relationally destructive practices' more pernicious effects. None of the behaviors listed does much to move the discussion outside of what is generally acceptable to a society that is in a profoundly unhealthy and unsustainable relationship with nonhuman beings. As I note in my discussion of sustainability above, Spehr (1999) says that “destruction of nature and non-sustainability are part of the social program of industrial capitalism” (under “Introduction”). These pro-environmental behaviors are really just a consumer's approach to getting along in a consumer society, without the requirement of changing the underlying relationship of human consumer to consumed nonhuman.

In this dualistic ontological context, recycling is “pro” environment because it reduces material impacts to a collection of passive, material objects. But, stepping outside this dualistically constrained ontological context, it's clear that such a human-nature relationship is foundationally problematic. Environmental education's promotion of these kinds of pro-environmental behaviors does nothing to change the problematic dynamics and structure of that relationship. Thus, it is not surprising that this kind of focus has not met with the kind of success expected of it (Kollmuss & Agyeman, 2002). Until the ontology that undergirds such superficial

attempts to alter human-nature relationships is altered, the existing destructive paradigm will continue to operate with little abatement.

Predominance of Psycho-Social Approaches

The endemic behaviorism I note in the section above is firmly embedded in a larger, overarching psycho-social approach to environmental education prescriptions. This approach can be found in the work of many theorists such as Hungerford and Volk (1990), Hines, Hungerford and Tomera (1987), Stern, Dietz and Kalof (1993), and Bamberg and Möser (2007), amongst many others.

As Hungerford and Volk (1990) point out, the psychological elements manifest themselves in foci on the motivations to pro-environmental behavior such as a person's feeling of "locus of control," environmental knowledge including knowledge of environmental issues and general (not necessarily environmentally related) action strategies, a sense of personal responsibility and personal investment, and feelings of connection. By definition, these kinds of psychological approaches hold the individual to be the primary unit of analysis. Thus, there is at least the potential for conceptually isolating these human psychological features from the relationships (including human-nature relationships) that play at least a partly determinative role in their formation. When one's ontology dualistically reduces nonhumans, as I note above, this potential is greatly enhanced. Such potential is also enhanced by the ontology of societies that put humans in a superior position to nonhumans which, as Gough (1999) suggests, lends "support [to a] positivist 'scientific detachment' from nature rather than 'intractable involvement' in it" (p. 33). This sort of isolationist or individualist human approach also results from an Aristotelian substantivism that treats the individual as ontologically primary and precedent, and any relations that develops between individuals as subsequent and secondary. I'll

discuss substantivism vs. relationalism in more detail in the next chapter, but note here that I hold both viewpoints to have validity—even a complementarity that is not often held to be possible in the long-running debate between the two viewpoints.

Allow me to pause to say that there is nothing inherently wrong with taking the individual as a unit of analysis. For example, the psychological element “locus of control,” defined by Hines, Hungerford and Tomera (1987) as “an individual's perception of whether or not he or she has the ability to bring about change through his or her own behavior” (p. 4), is unproblematic when looking at the individual. But then, when attempts are made in the environmental education literature to define the important features of locus of control, individualism that holds the human individual ontologically apart from the human-nature relationship intrudes. For example, Hungerford and Volk (1990) say that “locus of control can be improved as a consequence of teaching citizenship action skills...[which] may well result when students have had an opportunity to apply these skills successfully in the community” (p. 13). Here, what influences a student’s locus of control has nothing whatever to do with the human-nature relationship in which the student will supposedly act. The skills to be acquired are citizenship skills, meaning that they are skills for a human being behaving in a civil (i.e., human) context. Further, application of these skills is in “the community.” Since the possibility is remote that the authors mean a more-than-human one, we can assume that they take individual skills acquired and applied in a human context to be easily transferred to a nonhuman one. Such a facile assumption betrays the potential presence of a dualist ontology that reduces nonhumans to the point that a context that by definition excludes them is indistinguishable from one that is, by definition, their own.

What this reveals is that in environmental education research there can be a failure to understand the human role in human-nature relationships, and through that, a failure to understand the nonhuman role as well. The nonhuman is almost completely absent from view in discussion of these elements, thus the human and her psychological qualities take on an almost completely removed-from-nonhuman-nature origin and quality. There is a deep anthropocentrism to such conceptualizations, one that betrays the generally low regard with which nonhumans are held in mainstream environmental education research. If there is a hope for change in human behavior toward the environment, I believe it must begin with holding the nonhumans that we hope to behave more responsibly toward as relevant to both the development of our behaviors and their intended outcomes.

Even when environmental education research moves its discussion out of an individualist psychological orientation, the external factors considered tend to be located anthropocentrically in the social. Variables such as barriers and incentives to behavior, social pressure, and others (Hungerford and Volk, 1990) are studied. For example, in Kollmuss and Agyeman's (2002) discussion of Fietkau and Kessel's (1981) work on external reinforcement of pro-environmental behavior, several explanations are offered. For pro-environmental behaviors such as "not littering or recycling" (Kollmuss and Agyeman, 2002, p. 246) the external reinforcement could be an indication from other humans that the behavior is "socially desirable" (p. 246). Or, the feedback could be economic, where the person receives "money for collected bottles" (p. 246). In both of these possibilities, we see a conceptual disjunction between the behaviors and their intended targets in the nonhuman world since the measure of their likelihood of occurrence rests in the hands of other humans. It's interesting that Fietkau and Kessel characterize the behaviors as "ecological" yet nowhere is the *feedback* ecological. Thus the behaviors are removed from

the actual relationship within which they arise, and toward which their consequences are aimed. Were the human-nature relationship central instead of peripheral to the central social considerations, one might think that external reinforcement of “ecological” behaviors would be the return of frogs to a less polluted pond, for example. Another facet of the issue is that, given the action of dualisms to reduce nonhumans to a material conceptual role—hence “ecological” behaviors as opposed to “relational” ones—one can expect more-than-material feedback from nonhumans to be completely absent. But what if, after completion of a river restoration project, the happy murmuring of ducks returning to nest along the river’s banks were taken as a reinforcing experience. In Kollmuss and Agyeman’s discussion of Fietkau and Kessel’s external influences, none have a nonhuman component in the sense that the nonhuman is directly influencing the human, either prior to the behavior or in response to it (and thus, as an influence over its repetition in the future).

One response to be expected to a critique such as this is to say that sociology researchers seek sociological influences, thus nothing else ought to be expected from them as theorists. The weakness of this defense, however, is that these external, social influences aren’t offered as a subset of all external influences, but as those influences in their entirety. Further, there is no acknowledgement that, just as in my suggestion above about psychological approaches, nonhuman beings influence the social factors that in turn influence an individual’s behaviors through the external pressure applied. As I quote Murphy (1995) saying in the Connections with Nature chapter above, “sociology...has been suspicious of...any claims that the natural has influence over human relations” (p. 690). The omission of nonhuman influence is in plain evidence here as well.

Equating Environment and Ecology

Thus far in my discussion of environmental education, I've made occasional reference to ontologically material portrayals of nonhumans, and this is a consistent element in the environmental education literature. One form this takes is in the equation of the environment with ecology. By definition, scientific ecology is the study of the material structure and processes of the more-than-human world. If we equate the environment here with the nonhuman world, by eschewing dualisms that reduce that world to its material only qualities and capacities, then environment and ecology are not the same thing. Yet they are regularly taken as such. For example, Ballantyne and Packer (1996) say that environmental knowledge is equated with ecological knowledge, giving examples of such knowledge as “ecological balance, food chains, feedback loops, [and] energy flows” (“Constructivism and the Development of Conceptions” section, para. 5). Kollmuss and Agyeman (2002) equate environmental behavior with ecological behavior—thus reducing the potentially relational, more-than-material interactions (such as emotional ones) to material ones. For example, they refer to Borden and Francis's (1978) suggestion that “People who have satisfied their personal needs are more likely to act ecologically because they have more resources (time, money, energy) to care about bigger, less personal social and pro-environmental issues.” (as noted in Kollmuss and Agyeman, 2002, p. 244). Finally, in measuring personal investment as a variable influencing pro-environmental behavior, Hungerford and Volk (1990) say,

Personal investment is much like ‘ownership’ itself. Here the individual identifies strongly with the issue because he/she has what might be called a proprietary interest in it...the motivation might be environmental in nature if the person has good ecological concepts about waste disposal, biodegradability and nutrient cycles... (p. 12)

In my example of Borden and Francis (1978) above, personal investment in an environmental context is not reciprocal—it is not due to any qualities or capacities of nonhuman beings—but

instead is rooted in human concepts of the environment's material workings. In addition, the investment is likened to ownership. It's worth noting that this is a very different construction of personal investment than one based in a human's sense of personal investment with another human. The latter being far more reciprocal. Since no argument is offered by the authors for this construction, it once again appears that the negation of nonhuman beings as relational Selves is the mechanism by which personal investment comes to be equated with ownership. By dualistically reducing the entirety of the nonhuman world—from Humpback whales to dandelions—to material elements, the thoughts, feelings and actions of the nonhumans that comprise the environment come to be equated with a material, almost mechanical, description of their relationships. Since no argument is made for this reduction, once again it must be rejected until its basis is explored and clarified.

Environmental Sensitivity

Hungerford and Volk (1990) define “environmental sensitivity as “an empathetic perspective toward the environment” (p. 11). They call it the only major “entry-level” or “prerequisite variable” (p. 11) for forming pro-environmental behavior. Because many other environmental education researchers also take it to be a strong indicator of the likelihood of a person to engage in pro-environmental behavior (Sia, Hungerford & Tomera, 1986; Chawla, 1998, Sward, 1999), it is often an objective in environmental education programs. Given its potential to align well with the close human-nature experiences that form the foundation of this dissertation, I'll explore the ways in which it's defined within the literature to see if the ontological underpinnings work for or against that alignment.

I begin by noting that Hungerford and Volk speak of environmental sensitivity as an “empathetic perspective *toward* the environment” and so within the very definition they hold the

dualistic seeds of unilateral human-nature relationships is planted. Again, in the case of another human, one more likely feels empathy *with*, not empathy *toward*. One is more likely to feel “empathy toward” if the one toward whom one feels this is not emotionally reciprocating, or capable of that reciprocation.

Since Hungerford, Peyton and Wilke (1980) first coined the term “environmental sensitivity,” many authors in the environmental education field have attempted to define it and analyze its influence over behavior. Chawla’s (1998) work on this area in particular has been deeply influential in the field. I’ll explore her work in depth here as illustrative of the general tenor of the definitions held.

Seeking to correlate environmental sensitivity with formative, significant life experiences humans have had with nonhumans, Chawla begins by attempting to come to grips with what empathy toward the environment means. She says that it generally can have two definitions: “identification with or vicarious experiencing of the feelings, thoughts, or attitudes of another,” and then “paradoxically it can also mean the ‘imaginative ascribing to an object of feelings or attitudes present in oneself’” (“Environmental Sensitivity: What Is It?” section, para. 8). She goes on to state that the latter definition “is consistent with a Cartesian philosophy of nature, in which ecosystems are seen as mechanisms without intrinsic feeling” (“Environmental Sensitivity: What Is It?” section, para. 8). As it pertains to the nonhuman world, Chawla says that these two definitions mean that “a person either projects consciousness into the environment or shares the natural world’s intrinsic consciousness and feeling” (“Environmental Sensitivity: A Reformulation” section, para. 1).

She then points out that from a worldview (or ontological) perspective, it is a “controversy” as to “[w]hether or not the environment can be said to have intrinsic intelligence

and feeling” (“Environmental Sensitivity: What Is It?” section, para. 10). It’s one that she says divides “environmental philosophers—and probably environmental educators as well” (“Environmental Sensitivity: What Is It?” section, para. 10). That such an influential environmental education theorist is willing to grapple with ontological issues such as this is refreshing, especially given the substantial controversy one might provoke were one to adopt the former. However, at least consciously, Chawla takes the position of adopting neither stance. Nor does she attempt to resolve the deep conceptual division between the two. It’s understandable, and even laudable, that she would attempt to walk the theoretical line between the two perspectives. But I note that at some point, both personally and in one’s theorizing, one either believes that the nonhuman world has intelligence, feelings and consciousness or one does not. Whether or not she wants to claim allegiance to one worldview or the other, whichever one she ultimately holds will unavoidably influence her portrayal of the origin of significant life experiences and the environmental sensitivity she claims is their product. Since she does not state directly which worldview she holds herself, I must see if the remainder of the line of her argumentation yields any information.

To begin, Chawla defends the legitimacy of the possibility of intelligence, feelings and consciousness in nonhuman beings by suggesting that “the concept of environmental sensitivity as a participation in the environment’s own feelings should not be quickly discarded” (“Environmental Sensitivity: A Reformulation” section, para. 2). She offers this admonition because, she says, children see the whole world as “alive and conscious” (“Environmental Sensitivity: A Reformulation” section, para. 2), therefore such a worldview may figure in significant life experiences that lead to environmental sensitivity. In addition, Chawla portrays an ontologically relational world, where there is a fundamental “exchange between the qualities

of the physical world, social mediators [influential adults], and the responding child” (“Environmental Sensitivity: A Reformulation” section, para. 8).

While above she seems to make room for close human-nature relational possibilities, there are still undercurrents to her discussion that betray a level of disbelief in them. First, when characterizing the nonhuman world in her relational view in the previous paragraph, she refers to nonhuman beings as “the physical world.” This is a clue that materialist dualism is at work in her thinking, here the dualistic elimination of any more-than-material qualities or capacities puts nonhumans on a footing that is generally taken to be incompatible with the capacity for the intelligence, feelings or consciousness which she suggests are to be legitimately considered. Thus, one sees here a tension between her own, unexamined ontological commitments and the alternatives she suggests are worthy of consideration.

Second, to support her suggestion that we cannot “quickly [discard]” a definition of environmental sensitivity as “participation in the environment's own feelings” she says,

There is accumulated evidence that young children do tend to animate the world and perceive places and things to be alive and conscious (Bullock, 1985)...[which could form] the basis for a sense of the world as a living being to which they are attached. (“Environmental Sensitivity: A Reformulation” section, para. 2)

Again, while it is subtle, the choice of words hints at Chawla’s ontology. If children “animate the world” this suggests that the world before the child does the animating is not animated.

While some might suggest that she doesn’t necessarily mean an active *post hoc* animation, an inversion of her statement will make clear that this must be precisely what she does mean. If one were to say that children “tend to *deanimate* the world” then one can see more clearly that within such a statement is an assumption that the world “out there” is animated existentially, and only *post hoc* reduced to an unanimated world. Thus, her statement must mean that the world is not animated, and that children do, indeed, *post hoc* animate it. If Chawla had said that children

“perceive the animation that is in the world” she would’ve been committing to the notion of a living world with intelligence, feelings and consciousness. Had she said that children “perceive the world as animated” she would’ve been walking the line she suggests she’s trying to walk by allowing her audience to offer conjecture as to whether that perception is an accurate reflection of the external world or influenced by internal conceptualization processes as it occurs.

Third, when speaking to why life experiences are significant, one finds Chawla again locating the significance in the child and not with nonhumans or in the relationship between them. In statements like “more attention needs to be given to articulating the characteristics of the person who ultimately *gives external events their significance*” (“Environmental Sensitivity: A Reformulation” section, para. 7), the suggestion implicit in the statement is that there is no significance in the events or the nonhuman Selves with whom one is sharing such events. In other words, the intelligence, feelings and consciousness that Chawla suggests are possible don’t carry their own significance. Instead the child has to give it. Since significance is certainly considered an inherent quality to humans with intelligence, feelings and consciousness, I’d suggest that the only alternative in Chawla’s construction is that since nonhumans don’t have significance, they don’t really have the intelligence, feelings and consciousness that would secure it.

Taking the basis for my conclusion a step further, I suggest that there are two ways for significance to accrue or exist. The first is through response by some participant in an event or phenomenon. For example, let’s say that a woman witnesses a car accident and it reminds her to be careful because she is precious to her family. Here, she constructs the significance in herself and assigns it mentally to an event that is otherwise purely physical and random. The second way is to *perceive* significance in the event or phenomenon, and in the others participating in it.

This significance is not in the observer, but in the external world itself that is perceived by the observer-participant. For an example of this kind, let's say there is a man who, having been slighted many times in love, eventually gets past his feelings of hurt and begins dating again. His friend, seeing this, is heartened by the dater's resolve to try again. In this scenario, there is significance in the man starting to date again (it internally means that he is "on the mend"). Thus, the significance is outside the friend seeing this occur, but perceivable by that friend. Here, the friend does not "give" the significance.

To return to Chawla's discussion, I suggest that she (and most environmental education theorists) see nonhuman beings as the random, material "car accident" and not as the friend starting to date. If the dater was not a friend, but a praying mantis, for instance, one can see the clash of ontology more clearly. A praying mantis having her own significance, and me as a human able to perceive it?! To suggest such a thing in established environmental education circles would certainly occasion more than one raised eyebrow.

But, this kind of ontological clash is an unavoidable result of Chawla's wanting to leave room for the possibility of nonhumans having intelligence, feelings and consciousness. If a nonhuman being has these qualities, then it certainly *can* act in significant-onto-itself ways. In this scenario, then, a human's perception of the significance of interacting with nonhumans can be an observation of significance that is intrinsic to the nonhuman—or perhaps even to the relationship with the nonhuman itself. Thus, while Chawla goes further than most in acknowledging and trying to leave open the possibility of intelligence, feelings and consciousness in nonhuman beings, her own ontology still bleeds through, limiting her ability to offer a non-dualistic interpretation of the relational qualities of the significant life experiences she so adroitly links to environmental sensitivity.

Aside from Chawla, mainstream environmental education researchers are often “scratch their heads” over how environmental sensitivity develops, limiting themselves to general descriptions of the circumstances under which it does. For example, Hungerford and Volk (1990) say that environmental sensitivity seems to be a “function of an individual’s contact with the outdoors in relatively pristine environments...Of great importance is the fact that they reported that these activities took place over long periods of time” (p. 14). Rickinson (2001) says that a certain kind of classroom instruction had positive effects on all behavior influencing environmental variables (e.g., knowledge and locus of control) except for environmental sensitivity. Then, in a fashion strikingly similar to Hungerford and Volk, Rickinson suggests that the development of environmental sensitivity is “longitudinal, cumulative and directly related to outdoor experiences...” (p. 273). Looking at both descriptions through a close human-nature relational lens, the direct contact of outdoor experience becomes *relational*, containing material and more-than-material interchange between human and nonhuman beings. Thus, the “great importance” these authors assign to cumulative contact over long periods of time is nothing less than the establishment and maintenance of closeness to which I refer in my model in the Critical Lens chapter.

Poststructuralism

As I’ve discussed so far, the mainstream of environmental education research carries dualist ontological underpinnings that at times work against environmental education’s stated goals. A vein of thinking within the environmental education discourse that identifies itself as “poststructuralist” attributes this to a lack of awareness that prescriptions for change in the human-nature relationship may unwittingly reinforce the very problematic paradigms they are attempting to analyze and alter. Gough (2014) describes the poststructuralist view as a concern

with “the extent to which analyses of narrative constructions are caught up in the processes and mechanisms they are analysing” (p. 20). Overall, the lens for analysis that poststructuralism provides closely mirrors my close relational one, but has two major weaknesses. The first is that it still holds that meaning and value attributed to primary experience is rooted in *post hoc* social processes (i.e., they are “constructed”). This view is individualist to some extent and also anthropocentric. The second is that, in critiquing mainstream environmental education as anthropocentric, it often offers ecocentrism as an alternative value orientation. But, and as I’ve discussed above, ecocentrism carries with it a materialist scientific orientation that is often dualistically reductive of the nonhuman in relationship with the human.

These weaknesses aside, the poststructuralist critique of mainstream environmental education discourse mirrors my own. Though they don’t use the ecofeminist terminology of “dualism,” they often identify the same ones. For example, Disinger (1990) points to the anthropocentrism in the literature when noting that “Many environmental educators have difficulty identifying their own positions on the ecocentric-anthropocentric continuum” (p. 5). Russell (1997) says of both anthropocentrism and instrumentalism in environmental education,

While there is a firm recognition that nature is complex and environmental issues important, nature is still seen primarily as a resource for humankind that can be rationally managed with the appropriate tools. The role of humankind is that of steward, hence, this position remains anthropocentric; humankind is still considered separate from and superior to nature and must remain in absolute control. A central goal of environmental educators who work from [an anthropocentric] position is the development of problem-solving skills. Students are encouraged to become actively involved in environmental issues that are personally meaningful, and to develop the skills necessary for rationally managing ‘their’ resources... This approach to environmental education remains anthropocentric as nature is still an object, either a tool for students to use to build skills or a resource to be managed. (p. 36)

Much of the dualist thinking around the human-nature relationship stems from modern human perspectives born of the Enlightenment, the Scientific Revolution and earlier dualistic views of nonhuman beings that authors like Plumwood (1993) trace back to the ancient Greeks.

Some environmental education researchers address this modern view by critiquing the school itself as a social institution reinforcing the views toward the environment of the modern societies that create them. Weston (1996) points this out by asking, “So what sort of environmentalism would the schools naturally incline towards?”, and answers by suggesting that “schools remain profoundly conservative social institutions, and so remain profoundly human-centered as well. [Thus, w]e might expect a significant degree of anthropocentrism” (p. 39). Gruenewald (2004) traces the effect of modern views in schools to the dominant power structures of the society and their expression in those schools when he says that

core expressions of culture in Western, industrialized countries are based on the root metaphors of anthropocentrism...[and] individualism...[T]hese metaphors work to create a natural attitude toward cultural practices that disqualify the significance of nonhuman nature...[and] take for granted the individual as the basic social unit. (p. 86)

Finally, Russell (1997) quotes Gough as saying that by “reinforcing the dominant assumptions of modernism...in environmental education curricula, we are exacerbating many of the very problems that we are attempting to resolve” (p. 36).

On the topic of environmental education holding nonhuman beings to have only instrumental value, Gough (2014) says,

Many stories of environmental education embody a conception of the earth as an object of instrumental value. The metaphorical language of texts dealing with such subject matters as environmental management and resources conservation constructs an image of the earth as a silo of resources, an archive of our heritage, a laboratory in which to make discoveries, a gymnasium in which to exercise, a recreational amenity, and so on... The global environmental crisis is in large part a direct consequence of the cultivation in Western industrialised societies of stories in which the earth (or ‘nature’) is conceived, and thus exploited, as an object of instrumental value. (p. 21)

Given that instrumentalism is a matter of values, there appears to be an element of environmental ethics at play in environmental education as well. For example, Whiteside (2002), says that “any ethic grounded in ‘human desires, interest, or experiences’ will fail to

specify ‘the source of moral obligations to protect the environment,’ because those human phenomena ‘are only contingently related to the continued existence of wild nature as such’” (p. 64). This instrumental valuation is echoed by Redclift and Benton’s (1994) discussion of the possible contributions of social scientists to environmental issues. They say that what is simply assumed is that human interest is the goal and that a “change [in] our attitudes or lifestyles...[is intended] to advance a general ‘human interest’” (pp. 7-8).

Ultimately and despite some overlooked dualisms, poststructuralism as a line of thinking in environmental education does an excellent job of questioning the uncritically accepted dualistic ontological elements that work against some of environmental education’s goals. Therefore, it represents a potentially effective way to rehabilitate mainstream environmental educational theories so that they do not perpetuate the kind of thinking that helps create the environmental problems it has worked so hard for 40 years to solve.

CHAPTER 5 RELATIONAL ONTOLOGY AND HUMAN-NATURE CLOSENESS

Thus far this dissertation has focused on the development of a close human-nature relational lens and the application of that lens in a critical examination of some of the current literature depicting human-nature relationships. In the chapters remaining, I engage in the conceptual exploration of close human-nature relationships using the interdependence model I articulated in the Critical Lens chapter. I begin with a core relational ontology in this chapter. Then, based on that relational ontology, I'll explore the two key elements of my close relational model: thoughts and feelings, with particular attention paid to which nonhuman beings might be thought to have them and through that, have the ability to engage in close relationship with human beings.

More specifically, this chapter explores some of the key ontological elements of the relational reality that I believe underpins the close human-nature relationships for which I advocate in this dissertation. Because of my overall pragmatist approach, I will not be conceptually synthesizing these elements as part of an *a priori* theoretical approach, but instead distilling from various experiences what I believe to be several foundational features. Toward that end, I begin by offering a story of an encounter I had with a horse that will serve as a touchstone of experience from which I cull these features throughout the remainder of the chapter.

A Horse in Colorado

Once, when visiting and walking around my friends' farm in Paonia, Colorado, I chanced upon a neighbor's horse pasture. It was separated from my friends' fields by a low, non-electrified fence, and as I climbed the berm that made me visible to the pasture's occupant, an

iron-black stallion, I saw him at once set off at a gallop from the far end of the field. As I watched, he moved quickly, first along the fenceline at the other end and then, arcing toward me, down the length of the field's northern border until, after approximately thirty seconds, he pulled up and was standing, sparkling like the night sky, just twenty feet in front of me. At that moment, as he snorted and pawed the earth on his side of the fence with more than a little ferocity, his message was crystal clear: This was not only his pasture and his trifling fence, but it was his whole goddamn universe. A universe in which, at that moment, I was most clearly unwelcome. I could simply *feel it* coming off of him. His intent was clear, and so was mine (I hoped) as I calmly apologized and, turning my back with the hope he wouldn't jump the low fence and pursue me, slowly descended and disappeared into the thicket of corn through which I'd come.

Relations as Ontologically Basic

I take as the most basic feature of my experience with the horse that relations between the horse and me exist. The horse influences me, I influence the horse, and it is impossible for this not to be so. The nature of those influences, and the impact the qualities and capacities of each of us has upon them, is a matter of no small debate, as it forms the main thrust of this dissertation. But, I begin by suggesting that, ontologically speaking, whatever the nature of our relations, at root they irreducibly exist. In this sense, I take relations to be ontologically basic.

The notion that reality is foundationally relational is reflected in the root of words like "existence," the etymology of which shows that it is formed from *ex-*, "forth" and *sistere*, "to stand out, be perceptible" ("Exist", 2009). Inherent in the meaning of the word is the notion of standing forth, or being differentiable *from something else* and thus inherently in some type of relation with that other thing. I pause to note that my use of the term *relation* or *relational* in this

context is intended to convey the reality of *interchange*, or *connection*, with no specific further qualities to these relations as of yet; they can currently, equally represent the relational sparseness of purely physical proximity or the complex interconnection of the closest of relational partners.

Many schools of philosophy support a view of reality as ontologically relational. William James (1912), an influential early pragmatist, cleaves to a relational ontology in his notion of “radical empiricism.” In that theory, he says that “pure experience” is the “primal...material in the world” and that “relation itself is a part of [that] pure experience” (p. 4). As to what types of relations are possible, James sees them as having “different degrees of intimacy” (p. 44) progressing from most distant or co-incidental to most intimately entwined. To “designate types of conjunctive relation arranged in a roughly ascending order of intimacy and inclusiveness” (p. 45) he suggests this list of terms: “With, near, next, like, from, towards, against, because, for, through, my” (p. 45).

Some have compared the relational orientation of pragmatism with that of existential philosopher Martin Buber (Pfuetze 1967, Lothstein 1996). Buber (1923/1970) believes that humans carry an innate “longing for relationship” (p. 77) that comports with a relational ontology. Buber says that this longing shows itself in human babies where, “Before any particulars can be perceived, dull glances push into the unclear space toward the indefinite...and...soft projections of the hands reach, aimlessly to all appearances, into the empty air toward the indefinite” (p. 77). To bolster his contention that reality is relational, he asserts that “It is not as if a child first saw an object and then entered into some relationship with that. Rather, the longing for relation is primary” (p. 78).

Speaking specifically to ontology, Buber further suggests that “[i]n the beginning is the relation—as the category of being, as readiness, as a form that reaches out to be filled, as a model of the soul; the *a priori* of relation” (p. 78). To get to this ontological notion of relation, he first suggests that whenever a human being says the word “I” that she is actually also instantiating the “other” that stands across from her either as a separate object (an “It”) or as a connected Self. That Self is a “You” or a “Thou”, depending on the translation of Buber. Therefore, when a person says “I,” she is really saying one of two basic word pairs “I-It” or “I-Thou.” While some may suggest that the youngest of children do not have a sense of relation *qua* relation—they have no way of distinguishing self from other and thus have any capacity to long for relations as such—Buber suggests otherwise. He says that even at the “earliest and most confined stage” of development, a child has the “primal nature of the effort to establish relation” (Smith translation, 1938, p. 25). He explains by saying,

Before anything isolated can be perceived, timid glances move out into indistinct space, toward something indefinite... You may... call this animal action, but it is not thereby comprehended... these acts [are not experiences] of an object, but [are] the correspondence of the child—to be sure ‘fanciful’—with what is alive and effective over against him. (This ‘fancy’ does not in the least involve, however, a ‘giving of life to the universe’: it is the instinct to make everything into *Thou*, to give relation to the universe, the instinct which completes out of its own richness the living effective action when a mere copy or symbol of it is given in what is over against him. (Smith translation, 1938, p. 25)

To push beyond Buber’s suggestion that the infant, while not beginning life in relation, begins life with the predisposition for it, care ethicist Noddings (1984) says that “the [human] infant, even the near-natal fetus, is capable of relation—of the sweetest and most unselfconscious reciprocity” (p. 89). She follows this with something essential as it pertains to my claim that closeness, and its companion caring, are possible in human-nature relationships. In the case of care with the human child, not only is the “child’s capability to respond” essential, but so is the

adult human's encounter with the child that produces an obligation on the part of the adult to the child. As it pertains to my point here, if the child were instead a nonhuman being in whom also resides the ability to reciprocate, then our encounter with him would also invoke in us an obligation to care—to not “ignore the child's [or nonhuman's] cry to live” (p. 89). If this ability is true, then we would at least have a foundation for care, which I see as intimately connected with closeness. While the inverse case, that of a nonhuman caring for a human seems a bit more unusual to consider, examples of actions on the part of nonhuman beings to help humans in distress are not all that unusual (see Examples of Animal Feelings section in the Feelings chapter below). Were such particular interactions to be sustained over a long period, there is nothing, at least ontologically, precluding care and closeness from developing. In a yet more extreme case—that of a plant's ability to reciprocate or care—before dismissing such a notion as silly, I'll point out that there has been no investigation whatever into whether such a thing has occurred, nor into the plant's ability to achieve her part in it. I'll also point out that thinking such an investigation silly is almost wholly sponsored by the dualisms that pervade modern discourse on the nature and capacities of plants, not in any evidence. I'll discuss this at length throughout the rest of the dissertation.

To return to Noddings (1984), she states that “relation [should be] taken as ontologically basic” (p. 3), and roots this position in seeing “human encounter and affective response as a basic fact of human existence” (p. 4). While human-nonhuman encounter is also an unavoidable fact, whether that encounter can form the basis of closeness as Noddings' frames the dynamic, is subject to two constraints. First, whether humans can have an affective response to nonhumans. Noddings thinks that some affective response occurs on the part of humans in response to nonhumans. She suggests that this response depends mostly on what kind of nonhuman being it

is, and on the human's socialization around nonhuman beings. But, to her this is not enough to consider it universal, which is what she believes is needed to make such an arrangement ontological...ontological at least in the sense that it provides a universal mechanism for the development of care (p. 149). But, even if human socialization works against human affective response with nonhumans, this is no reason to dismiss nonhumans as potential close relational partners. In addition, I suggest that a human not having a strong affective response to a particular nonhuman or set of nonhumans does not imply that the nonhuman *cannot* have an affective response to *any* nonhuman. To wit: a human can have no affective response to a certain other human being. This certainly does not preclude her from developing close relationships, or from caring about, humans other than that particular one. The second constraint is whether there is an affective response on the part of nonhumans to humans. I suggest that this is necessary to forming closeness in my close human-nature relationship model in the Critical Lens chapter above, and explore the possibility that nonhumans do have feelings that can be shared reciprocally with humans in the Feelings chapter below.

To return to Buber, one weakness in using the relational elements of his ontology to support my contention that relations are ontologically basic is that he does not position the relations themselves as ontologically basic, only the readiness for them. To respond to this, however, I'd suggest that his thinking is influenced in no small part by a *substantivism* that incorrectly positions the individual as existing prior to the relations. As I've already noted, Noddings thinks that even the youngest of human beings are reciprocally relational beings. Yet substantivism positions relations as subordinate to, and wholly contained within, fundamentally independent entities or "substances." From my example of the horse encounter, it may seem as if the existence of the horse and I precede any relations between us. Articulated robustly by

Aristotle, substantivism positions the horse and I first as “unique in being independent things” (Cohen, 2012, “The Categories” section, para. 2) who only subsequently enter into our relations. Cohen says that Aristotle actually divided beings into a total of ten categories that include, along with the primary “substance,” “quality, quantity, and relation, among others” (“The Categories” section, para. 1). Of Aristotle’s view on primary substances, Cohen explains this by saying,

[T]he items in the other categories all depend somehow on substances. That is, qualities are the qualities of substances; quantities are the amounts and sizes that substances come in; relations are the way substances stand to one another. These various non-substances all owe their existence to substances—each of them, as Aristotle puts it, exists only ‘in’ a subject. That is, each non-substance “is in something, not as a part, and cannot exist separately from what it is in” (*Cat.* 1a25). Indeed, it becomes clear that substances are the subjects that these ontologically dependent non-substances are ‘in.’ (“The Categories” section, para. 2)

Figure 10 depicts Aristotle’s arrangement, specifically between substance and relations.

In my estimation, however, there are two flaws in this substantivist view. First, just because a thing cannot exist separately from another thing, it does not follow that one is contained within the other or that the dependence of one upon the other is not reciprocated—that is, that the other is not dependent in equal measure upon the one originally dependent.

The idea of complementarity presupposes *mutual* dependence for instance in the organism lichen, which is the product of two beings—fungus and algae—that complementarily exist. Neither would exist without the other yet neither is a product of, or

contained within, the other without the reverse also being true. The second flaw is that the substance Aristotle positions as containing relations did not come to exist, (and does not have the opportunity to continue to exist) without a series of past and currently occurring relations. In a

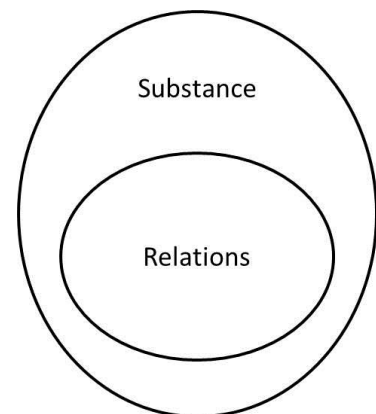
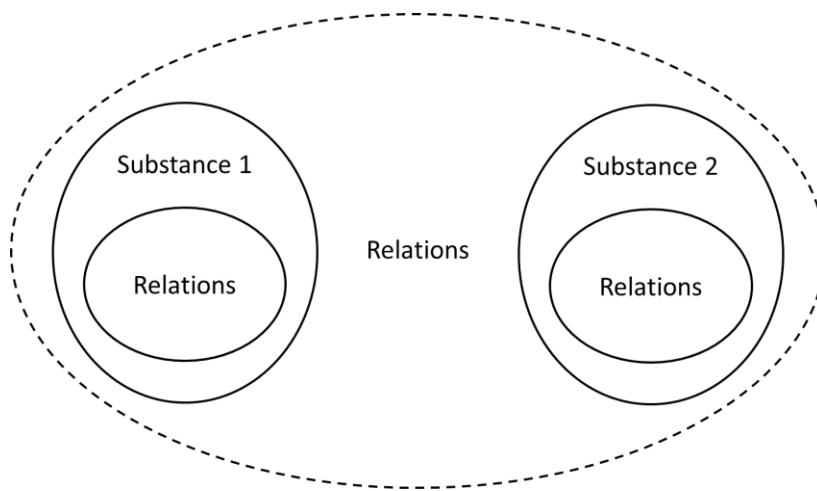


Figure 10. Aristotle's Substance as ontologically independent, with relations that depend upon it for existence.

view that accounts for these relations as existential and ontologically basic, the horse and I, while being differentiable, are never truly “real” outside the context of our past and present relations.

In this view, the spatial and/or temporal scale of Figure 10 ought to be expanded.

Figure 11 shows this expansion, with substances 1 and 2 as part of a larger relationship, such as a human-nature relationship. Granted, one could always expand the scale again to create



yet another substance inside of which the relationship that subsumes substances 1 and 2 is located (such as an ecosystem). But, at some point such expansions of substantive and relational scales becomes a paradigmatic example of the

Figure 11. Relations with superseding ontology, and substances that depend upon them for their existence.

chicken and the egg. The only way the origin is material—perhaps back at the Big Bang—is if, again, a materialist ontology is *a priori* assumed. What if the Big Bang wasn’t a purely material event? What if love as an existential thing drew two things, originally existing, together, and sparks flew? Ultimately, the debate over whether reality is substantivist or relational has been going on for millennia, and my exploration here is not intended to resolve it. My purpose is only to show that, when materialist dualisms are removed from the ontological frame of consideration, it is equally plausible that relations create substances. Substantivism is only more plausible or acceptable if a dualistic ontology is already in place to sponsor it. It is not support for such an ontological stance.

Characteristics of Ontologically Basic Relations

In taking relations to be ontologically basic, the characteristics of those relations must be discussed. If James (1912) is correct, those characteristics cover a wide range. A cursory reading of James would indicate that he takes the most distant relations, that of his “with” to be the most ontologically basic. This is evidenced by his referral to the “with” end of the spectrum as a “bare relation of *withness*” (p. 47), or when he suggests that “*A priori*, we can imagine a universe of withness but no nextness; or one of nextness but no likeness...” (p. 45) and so on. The latter quotation shows how intimacy appears to be constructed from the more basic “building blocks” of relations, also implied when he says that “there appear to be actual forces at work which tend, as time goes on, to make the unity greater” (p. 47). I note that this ontological view has figured centrally in setting one of the cornerstones of modern theorists’ denial of the possibility of close human-nature relationships. Specifically, those relationships are assumed to begin in this pure physical proximity that, as James notes, “seems to involve nothing whatever as to farther [relational] consequences” (p. 44). If this pure proximity is the departure point of all relations, and if no clear evidence presents itself to move human-nature relationships beyond the bounds of this “withness,” then a parsimonious approach demands that it is at this level that they remain. This parsimony is a form of Occam’s Razor, which dictates that “entities should not be multiplied unnecessarily” (Smith, 2010, p. 12). Thus, if no closeness in human-nature relationships clearly exists, then no theories ought to postulate that it does exist, and the more basic relations of pure proximity must stand.

But, there are unexamined ontological elements within such a stance that call for refutation, some of which a more nuanced reading of James supports. First, in response to calling out his range of relations, James notes that “[t]he universe of human experience is, by one or another of its parts, of each and all these grades” (p. 45). So here at least he recognizes that experience, our source for

knowledge and truth, can itself show all manner of connection from least to most intimate. Also, in contrast to his “bare relation of withness” being overemphasized by “ordinary empiricism” and “unduly ignored” by rationalism, he says that his “radical empiricism...is fair to both the unity and the disconnection. It finds no reason for treating either as illusory” (p. 47). This point speaks directly to what I take as the misapplication of Occam’s razor. That is, if, *in experience*, intimacy or unity is perceived, then it is not a multiplication of entities to identify it as such.

But, we still have James’ suggestion that “withness” is a building block of “nextness,” etc., that at least implies that there is no intimacy without the origin of pure proximity. In other words, that within intimacy there is supposed, always, the foundation of pure physical encounter such that whatever develops relationally between the horse and me, our existences begin apart. But, such a view has two dualistic hallmarks of note.

First, such a view strongly resembles substantivism given that the overarching theme is that two things begin apart and come together, growing in their togetherness as time passes. Thus, I suggest that within James’ and others’ notion that relations being in pure proximity is an unseen “relational” element even less connected than “with”—that of “without.” Even if James suggests that connection is ontologically basic, by starting at pure physical proximity, the assumption is that “without” either precedes it, or stands as the *conceptual* baseline against which all more complex or intimate connections are measured. In a substantivist or individualistic ontology, if the encounter itself begins at pure proximity, then this must have been preceded by a lack of it. The horse and I encounter each other, but before that, we were not together. I suppose one could play at “six degrees of separation” or the “butterfly effect” and at relationally see that *some* connection always exists between us through our material intermediaries, but “withoutness” (or as asymptotically close as one can get in a materially interconnected world) is still the starting place. In a modern, substantivist worldview that accepts a foundationally individualistic, this is unproblematic. In a relational world

where both unity and disconnection are equally able to be experienced and experienced immediately, the ground becomes less firm.

This also puts some of James' statements at odds with each other. While he might interpret close relationships in primary experience as composed of withness, then nextness, and so on, there is nothing in the experiences themselves preventing a reversal of that progression such that one can imagine a universe of closeness without precedent nextness, and then nextness without precedent withness, and so on. There can be unity first, with less connected forms of relations being *post hoc* projected onto them from a dualistically individualized ontology.

Certainly, one might counter this by saying that the very notion of an *inception* point for relations means a precedent separateness, or lack of relations. But, this still does not imply that the togetherness, at its inception, is inherently relationally distant. The phenomenon of closeness sometimes occurs instantaneously. For example, Ortigue, Bianchi-Demicheli, Patel, Frum, and Lewis (2010) discovered that falling in love can take approximately one-fifth of a second. Noddings' (1984) description of "feeling with" (p. 30) another human being also has a quality of immediacy in its formation. For example, she speaks of having lunch with a group of people where, at some point one person for whom she did not have feelings of care suddenly opens up emotionally and through that she is "touched—not only by sentiment—but by something else. It is as though his eyes and mine have combined to look at the scene he describes...I feel what he says he felt. I have been invaded by this other" (p. 31). Here, closeness occurs spontaneously, and in a relationship that, if anything, worked *against* closeness prior to the events described. Therefore, I suggest that in James' relational spectrum, ontologically basic relations are as likely to start with his closeness as they are with distance. I acknowledge that in a world of modern thought ruled by dualisms, such a thing is hard to conceive. In such a worldview, I can imagine the one-fifth of a second to fall in love being portrayed as a very rapid progression through

James' spectrum at least at a material and perhaps unconscious level. But, if one dispenses with such dualistically sponsored assumptions, it's possible to see that closeness may not be an agglutinative process but one immediately instantiated through such a thing as shared feeling in a Peircian sense that I'll discuss later in this chapter (see Peircian Feeling section below). In the context of the horse and me, this feeling of territoriality is coming from the horse to me and I *perceive* it directly via the matrix of the existential encounter. I am invaded by the horse's feelings—we share them and have an instant closeness, or at least the grounds for one. Of course one does not have to read my encounter with the horse this way, my point here is that there is nothing *ontological* preventing such a reading from being valid.

Therefore, I conclude that while James is right that there is a wide range of possible ontological relations, I suggest that they can take on any of the forms that James notices occurring in experience itself. Thus, *a priori* denial of the possibility of closeness between humans and nonhumans becomes a *post hoc* imposition at odds with the immediate and direct closeness of some human-nature relational experiences. This, in turn, violates the tenets of Occam's Razor by multiplying and unnecessarily adding the concept of relational *distance*.

That relational distance may be a *post hoc* conceptual element rooted in dualisms is supported by the explanation Rollin (1990) gives for the abatement of serious scientific inquiry into animal consciousness that occurred around the turn of the 20th century. He notes that most scientists attribute significant shifts in scientific thinking to either the discovery of new data refuting past claims or the discovery of logical flaws in those claims. But, he notes, in the case of animal consciousness neither of these occurred. Thus, he suggests, there is a third way that scientific thinking can shift, and that is through the "*rise of new values which usher in new philosophical commitments or new basic assumptions*" (p. 380). The loss of scientific

acceptance of animal consciousness, he says, is the result of this third element. He goes on to explain that at the time this rejection of animal consciousness occurred, there was a shift across modern societies to a set of “reductive” social values, and with it a desire for “simplification and paring away of frills” (p. 382). Because animal consciousness was falsely positioned by those criticizing it as unverifiable, it became a frill to be pared away. I suggest that something very like this occurred concomitantly in ontological theories of human-nature relations, where the more basic theories were the ones that comported best with an assumed substantivist ontology and any more complex, intimate, or “frilly” relations were disposed of. But, when *reality* reveals relational closeness, simplicity *qua* relational distance is revealed as the frill *it is*—as the *post hoc* conceptualized entity that has been unnecessarily multiplied. Thus, regardless of the hegemonically produced veneer of reality that has been laid over top of this distance-containing interpretation of primary experience, it ought to be treated with an equal amount of suspicion.

Perceiving Closeness in Human-Nature Relationships

I argue in the previous section that close relational elements may be perceived in primary experience. If that’s the case, a major impediment to this perception is being able to detect which close relational elements are real and which are only conceived of by the human participant. In response to this problem, Dewey (1929) recommends treating all perceptual data as “undefinable and indescribable” (p. 56), and only allowing for *post hoc* conceptualization to determine its knowability. His justification for this position begins with a critique of Cartesian dualism, where he says, “some of the most cherished metaphysical distinctions... [are really just] learned counterparts” (p. 56). What he means by this is that while distinctions can be made in primary experience, treating them as metaphysically (or ontologically) real is incorrect. I agree with him that these counterparts are complementary and interdependent, forming a dyadic whole

that cannot, in reality, be separated. And by suggesting that these dyads are “learned,” it’s possible that Dewey means that they are *post hoc* conceptual overlays of a reality in which these elements carry no such ability to impress upon the experiencer that which distinguishes them from other elements of reality—and have what is impressed come through as what it is as an existential thing. But, I contend that one can equally perceive a thing such as love as love, as well as come to understand it as such through the process of *post hoc* reflection. Dewey might argue that one cannot know love *as love* without this *post hoc* processing. But, I suggest that such an objection is based on the belief that all knowledge is only possible as the result of some conceptual processing instead of knowledge itself being either an element of the experience, or an instantaneous response to that experience that is spontaneous, not cumulative. I explore *Peircian feelings* later in this chapter as one mechanism by which things can come to be both communicated and known immediately through experience. Another avenue I explore is *poetic knowledge* (see Relational Knowledge section below), of which Nobel Prize winning geneticist Barbara McClintock offers an excellent example. When asked how she came to have knowledge of certain things about the genetics of corn, she responded by saying,

Why do you know? Why were you so sure of something when you couldn’t tell anyone else? You weren’t sure in a boastful way; you were sure in what I call a completely internal way...you work with so-called scientific methods to put [that knowing] into their frame [but only] after you know. (Keller, 1982, p. 203)

Here we have McClintock suggesting that the genesis of some knowledge is not in the *post hoc* processing of it into more scientifically acceptable, intellectual frames of reference. The knowledge comes *before* that and is immediate—it comes through from the experience of relations with the corn plants themselves. If this is possible, then the distinguishable attributes of things in our experience may either be inherent in the things themselves or in the matrix of one’s relations with them. Thus, they would be perceivable and knowable as a part of experience.

Peirce reinforces such a perspective when he says that, since “feelings are communicated to the nerves by continuity...there must be something like them in the excitants themselves” (Peirce, 1960, 6.158, p. 111).

One such potentially perceivable thing in experience is relations themselves and their features. For example, relations between the horse and me were *in the experience* beyond any question in my mind. Of course, understanding this encounter as “territorial” instead of friendly could be seen as conceptual interpretation. But then, it could just as easily be a Peircian *feeling*—that’s certainly how I experienced it—and an external one communicated to its participants via the matrix of the experience itself (again, see Peircian Feeling section below for a more fulsome explanation). If to counter such a claim one were to suggest that I wouldn’t know that feeling *as territorial* without some past conceptions that I applied to interpretation of the present feeling, I’d suggest that there could be something innate in horses and humans that recognizes and understands this relational element directly and immediately—that is predisposed to *recognize* it happening externally instead of only *conceptualizing* about it internally. That’s why my immediate inclination was to move backward as the horse stood before me even before I had a chance to think.

It’s also possible that Dewey’s aim is less to suggest that things are inherently indistinguishable, but that they are unknowable in the sense that knowledge is a thing we must support and separate from belief, the latter having no inbuilt mechanism to legitimize itself as real and able to be experienced by others. The case of religious fanatics comes to mind as an example of experiences labeled as true by those having them that most others would dismiss as fiction. To support this interpretation of Dewey (1929), I note him saying, “Things in their immediacy are unknown and unknowable...because knowledge...is a memorandum of conditions

of their appearance, concerned...with sequences, coexistences, relations. Immediate things may be pointed to by words, but not described or defined” (p. 86). In such a frame of reference, then, Dewey may be asking that experiences of feelings of territoriality between the horse and me, for example, be subjected to the *post hoc* process of verifying them as *true* in order to distinguish them from only a belief on my part that this is what the horse was feeling. But, there are two problems with this requirement.

First, the mechanics of the verification process have a great influence over what is ultimately taken to be true. In particular, subjecting a phenomenon to modern truth verification in no way inoculates the subsequently produced “knowledge” against the heavy sway of belief, it only displaces that belief from the main lens under which we place our experiences for verification. For example, we take what modern methods of analysis (i.e., objective, detached, and rational) as more accurate than one’s immediate sense of feelings or intuition not because it they are more accurate, but because we *believe* them to be. As Rollin (1990) points out, assumptions rooted in belief (which he calls “foundational presuppositions”) underpin all “human cognitive enterprises” (p. 378), be they based in feeling or the intellect. As I discussed in relation to Rollin above, it is beliefs rooted in foundational assumptions about the world-as-simple that led to a largely inaccurate dismissal of animal consciousness. Reliance on *post hoc* conceptualizations, then, does not provide us with a better avenue to truth and knowledge, only one more acceptable to the very modern thinking that I’ve suggested throughout this dissertation is rife with the dualisms that marginalize and negate avenues that don’t comport with its own, pre-existing ontological commitments. The shared, Peircian feelings, poetic knowledge and personal acquaintance knowledge that I explore below (and then spiritual experience, intuition

and other avenues) are just a few ways by which knowledge may be legitimately gained outside the modern view.

One last point on perceiving relations directly in experience is that, in perceiving particular kinds of relations in experience, “truth” may be less relevant than the recognition of the simple act of relational *participation*. For example, it may matter less that the horse and I agree to any “fact” that he was being territorial and more that we shared feelings across the liminal, relational space between us. This alone can lead to *genuine* closeness. Of course I don’t support closeness of relations based on a sham, but the commitment to the encounter has a power of its own, divorced from any “facts” of the relations. Noddings (1984) says of the encounter between two humans that may end up caring for each other, “Feeling is not *all* that is involved...but it is essentially involved” (p. 32). When falling in love, one does not refer to facts, one just lets oneself go into the relational maelstrom. The act of doing so *is* its own relational truth to be perceived in the experience of it and nowhere else. The sheer willingness of two relational Selves to participate in relations is itself an element in the establishment and quality of the relational ties.

To elaborate on this, I refer at length to Noddings, to whom I attribute the genesis of this point about perceiving relations in experience. In response to the question of how she can *know* that she is actually “receiving the other” in a caring encounter, she says,

How can I know?...If I respond that I cannot be mistaken in a basic act of receptivity, I fall into the trap that has already snared the phenomenologist when he speaks of the infallibility of basic intuitions. He asserts his position and presents it as right by definition. Surely, I do not want to respond in this way...I am not claiming that I know either in my receptivity itself or in my description of it. It is not at bottom a matter of knowledge but one of feeling and sensitivity...When I receive the other, I am totally with the other. The relation is for the moment exactly as Buber has described it in *I and Thou*. The other “fills the firmament.” I do not think the other, and I do not ask myself whether what I am feeling is correct in some way. When I have a sudden, severe pain in my

mouth, for example, I may complain of a toothache. I cannot be wrong in responding to what I feel as a pain. It is not a matter of knowledge at all. Later, when the pain has gone and I think back on it, however, I may say, “Well, I guess it was not a toothache after all. It’s gone. Perhaps it was bit of neuralgia caused by the cold or altitude.” I do not say, “Well, I guess I did not have a pain.” Of course I had a pain. My error, if one occurred, lay in assessing the pain as a toothache. Similarly, I may, in looking back, become aware that there was a failure somewhere in my movement from feeling to assessment. But in the receptive mode itself, I am not thinking the other as object. I am not making claims to knowledge. There can be failures to receive...but these are not matters of faulty claims to knowledge...What is offered is not a set of knowledge claims to be tested but an invitation to see things from an alternative perspective... (p. 32)

What Noddings describes is a wholly imperfect, yet relationally incontrovertible interpretation of encounter that leads to care and, I suggest, its ally closeness. In the context of the point I’m making here, whether accurate or not that the horse was feeling exactly territorial, I am not wrong about the fact that a charged exchange occurred, reverberating back and forth between us over that low fence like an arc of electricity—one by which I felt wholly subsumed. We co-responded, the horse and I, and I believe that this is what is necessary to establish the conditions for real closeness had the encounter continued along a certain relational path, or had we had many encounters of a similar nature over a period of time. With the elements of reciprocal thoughts and feelings in place, upon which I elaborate in later chapters, there is nothing ontological that impedes my ability to directly perceive the ontologically *relational* nature of this experience.

Thus, I conclude that things can very well be distinguishable, true and knowable in experience itself. This means that things are differentiable in immediate experience, and the concept of the indistinguishability of the flux of immediate experience must be rejected. Though we may not be able to think about or systematize all the information coming in at any moment via feelings, sight, or other senses—and though we can be wrong—if our subsequent undertaking of such cognition is in correspondence with the attributes of the experience itself and the other

Selves in that experience, then we have as good a chance as through any other means to know what our relations are like and to participate in them as fully as their structure and dynamics allow.

Some Means of Relational Knowledge

I've argued that human-nature relations are ontologically basic, and that there is no ontological reason that they cannot be perceived in primary experience. Given that the predominant portrayal of human-nature relationships in the literature is that of them being *post hoc* "constructions" of psycho-social origin, in this section I offer support for my suggestions that they are perceivable elements by exploring some alternative means of perceiving and having knowledge of Selves and the relations between them.

Peircian Feelings

One of the ways in which the horse and I related was through feelings. As I suggested, I perceived through my own feelings a territoriality that the horse was feeling. While I'll argue for the horse and all other beings having the capacity for feelings in the Feelings chapter below, here I'll explore just how those feelings might be communicated in ways that circumvent the dualist materialist view.

To pragmatist Charles Peirce, one can have both an internal response of feelings to an external phenomenon or one can experience external feelings directly—the latter literally being shared between relational participants. His view of the latter kind of feelings is that they are external to any particular individual feeling or responding to them. They are first something *perceived*, not an internal response to a perception of a material nature. Peirce (1960) explains his view on external feelings in the context of experiencing the color red. He says, "[I]t is the psychic feeling of red without us which arouses a sympathetic feeling of red in our senses" (1.311, p. 155). Of the fact that these feelings are something that can be shared, or are

communicable, Peirce finds support in the fact that a response to the color red by various humans is similar. He offers the example of how even a blind man knows what red is by hearing the descriptions of others talking about it and, in so doing, correctly analogizes it to the blare of a trumpet (1.314, p. 157). Such a sharing of feeling even crosses species lines, in his estimation, where he notes that “I am confident that a bull and I feel much alike at the sight of a red rag” (1.314, p. 157). While not trying to be exhaustive in my treatment of Peirce’s proof of how shared feelings are external to any particular experiencer, I will undertake a brief exploration here as it relates to my purposes.

For Peirce, feelings are things which totally occupy immediate consciousness. As such, they cannot be decomposed, nor are they resemblances or memories since they are experienced in the present, are self-contained, and thus are all that they are without being any other thing (1.310, pp. 153-154). All memories, mental resemblances, or responses of internal feelings to these feelings are a diminished version and not the actual feeling itself. Thus, if two humans have a feeling, then both are experiencing the external psychic stimulus of the feeling itself, and nothing else. This, according to Peirce, is how feeling can be shared—through the capacity of more than one entity to be immersed in this external feeling and to experience it simultaneously. Of this sharing between humans and nonhumans, he says,

You would never persuade me...that the canary bird that takes such delight in joking with me does not feel with me and I with him; and this instinctive confidence of mine that it is so, is to my mind evidence that it really is so. (1.314, p. 158)

In addition, he says of a friend who doubts “whether we can ever enter into one another’s feelings” that this doubt is akin to asking “whether I am sure that red looked to me yesterday as it does today” (1.314, p. 158). For him, feelings are as communicable as the experience of seeing red. They are the same, not just in description, but in actual instantiation and shared experience

for all with the faculties to perceive them. Of this, Peirce says, “I know experimentally that sensations do vary slightly even from hour to hour; but in the main the evidence is ample that they are common to all beings whose senses are sufficiently developed” (1.314, p. 158).

This Peircian notion of the communication of external feeling is what is meant, in my mind, by the common expression of “getting a feeling.” As in, “I don’t know, I just get the feeling that he doesn’t like me.” The attribution of origin most commonly made about such a feeling is that it is internal to the individual, and arises in response to some external visual or verbal, non-emotional, expression (such as body language). Partly, this is rooted in a substantivist ontology. But, relations *a priori* exist in a relational ontology and subsume their participants. Thus, and according to Peirce, the feelings of the relationship can be external to any individual within it, and thus can be felt by more than one being at a time. In this context, “getting a feeling” is a literal description of the experience and to be taken as factually correct.

According to Peirce, it is unproblematic that these external feelings can be shared across species boundaries. For example, Anderson (2004) says that for Peirce, “horses, dogs, and canaries reveal a continuity of feeling (as does protoplasm)” (p. 89). Another example of the possibility of sharing feelings across species lines lies in the research into whether plants respond to emotional states in certain human beings (Backster, 1968; Puthoff and Fontes, 1975).

Granted, the latter research has come under a good deal of justifiable criticism, but even some skeptics have found things about plant responses that were not easily dismissed. I’ll address this in detail in the Kook Fringe section of the Feelings chapter below, but conclude here by stating that if feelings operate in a Peircian way, and there is a continuity of them across the boundaries of beings as different as humans and plants, then it’s possible that this is a pathway along which the feeling element necessary for close relationships can develop between human and nonhuman.

It is also a means by which a thing can be known by humans about nonhumans that bypasses the dualistic *post hoc* conceptualization processes that so often distort the interpretation of closely relational primary experiences humans have with nonhumans.

At this juncture, one might ask how it would be possible to differentiate Peirce's external feelings from the subsequent, internal feeling responses he mentions. As a possibility here, I'll give an example from my own life experience. When I was in my twenties I took part in a 10-day Vipassana Buddhist meditation retreat. Unlike other meditation practices that focus the mind on breath or mantra, Vipassana focuses it on sensation—on physical feelings in one's body. It trains the mind to doggedly follow sensation without thought, judgment or other mental response or interruption. The work was quite intense, and at some point during my stay, like a flood, the world of sensation opened to me. I could feel it passing through me in a kind of vibrational shimmering that was constant, though not uniform. Like wind over water these sensations ebbed and flowed, grew more and less intense, and spread and moved in irregular, constantly shifting shapes all over me. Some parts were filled with sensation, like my fingers, while others were more subtle or hard to feel, such as my lower back. At some point about halfway through my time there, I had a realization that all these sensations were bedrock familiar to me, and what's more, that I had *always been feeling them*. The only difference was, while there I was being trained to give them my clear, conscious attention. Having that attention honed in such a way was like "coming home" to myself in a way that I've never felt as strongly in any other circumstance.

After that experience, I began to attend closely to these feelings and found that they routinely corresponded to my external experiences with others. For example, when someone isn't telling the truth, it *feels* different from when they are. And so, over the years since that

retreat, I've gotten good at being able to differentiate when someone is being dishonest from when they're being truthful. I can't always tell the reasons behind the dishonesty I seem to detect, but I can feel its presence as certainly as I can feel the sun on my skin when my eyes are closed. Because of these experiences, I now treat this kind of feeling as a sense as real as hearing or touch, and take it to be the communication and experience of something from outside of myself. In reading Peirce's treatment of shared feelings, while it stands in contrast to materialist and individualistic interpretations of the phenomena he describes, when considering experiences such as mine within a relational ontological context, his descriptions taken literally are unproblematic. Peircian feelings offer an avenue along which things in the world beyond the self and beyond the human may be experienced and known directly without the interposing of dualistic ontological commitments that obliterate their legitimacy as elements of primary experience. In the coming sections of this and the chapters that follow, I will periodically allude to their capacity to afford this pathway.

Relational Knowledge

In the previous section I discussed Peircian feeling as a means of relational perception and communication that crosses species lines to contribute to potential human-nature relational closeness. In this section I'll discuss what it means to have relational knowledge rooted in this and by other means. Though an in-depth exploration of the epistemological implications of this relational ontology is beyond the scope of this dissertation, in this section I discuss three kinds of knowing that comport with the possibility of human-nature relationships being close ones between relational Selves.

Poetic Knowledge. The first type of knowledge is what Taylor (1998) calls “poetic knowledge” (p. 5). He explains that this kind of knowledge is not a knowledge of poetry, but “rather a poetic (a sensory-emotional) experience of reality” such that learning and the resultant knowledge become a “poetic impulse to reflect what is already there” (p. 5). According to Taylor, this is not a new form of knowledge, but instead find its roots in “ancient, classical and medieval times” (p. 5), with it only finally giving way to “less intuitive, less integrated” forms of knowledge during the time of “the Renaissance and Cartesian revolution in philosophy” (p. 5). According to Taylor, poetic knowledge is not rooted in the rational, intellectual capacities that humans have, and that underpin current academic and scientific ways of knowing, but instead in “the intuitive nature of human beings who are able to know reality in a profound and intimate way that is prior to and, in a certain sense, superior to scientific knowledge” (p. 4). Since this kind of knowledge is not formed through *post hoc* construction inside of a human Self, but instead forms spontaneously as a direct reflection of, and response to, what one experiences, this sort of knowledge fits well within the pragmatist and ecofeminist views that also position experience as the source and arbiter of knowledge. This circumstance is reflected in Taylor’s quote of Aristotle saying, “intuition will be the originative source of scientific knowledge” (p. 60) and his comment that “first knowledge of being (that things are as they are) is not only intuitive, but is never surpassed in its initial importance” (p. 61). Such views of knowledge and human capacities for it are exemplified today in statements such as the one from Barbara McClintock to which I refer earlier in this chapter. It’s worth repeating as it pertains to my point here. She says,

Why do you know? Why were you so sure of something when you couldn’t tell anyone else? You weren’t sure in a boastful way; you were sure in what I call a completely internal way...you work with so-called scientific methods to put [that knowing] into their frame after you know. (Keller 1982, p. 203)

This is poetic knowledge.

If I'm right that the view of nonhumans as passive, material objects is the result of *post hoc* dualistic reductions of an experienced, relational nonhuman Self, then knowing a nonhuman being in the poetic sense ought to allow one to bypass this reductive filtering. And if the poetic knowledge that results yields knowledge of a closeness in human-nature relationship—between me and the horse—then this must be taken not only as true, but as *more* accurate than anything resulting from *post hoc* intellectual processing. Of course one must ensure that this poetic knowledge is arrived at through a diligence of mind, but the same stipulation applies to *post hoc*, intellectual knowledge formation as well. Of course even with poetic ways of knowing, there will always be *post hoc* conceptualization, where things experienced and known in the moment are contemplated or “thought through” in order to reach other and deeper understandings. But, these understandings must be consistent with the poetic knowledge of the experience that forms first. Thus when one has poetic knowledge of and through a close, human-nature relational experience, any dualistic interpretations that result in radically different conclusions ought to be treated with great suspicion.

If, as I contend, nonhumans have the qualities and capacities to enter into close relationships, then poetic knowledge gained by being in relationship with them means that the relationship itself is of a fairly personal, or close, nature. What's more, since Aristotle suggests that poetic knowledge is “the originative source of scientific knowledge” then by necessity, these personal elements both come before the development of scientific knowledge, and if awareness of them is in place, becomes their constraining context. In light of the potentially personal nature of poetic knowledge, the Menominee's more-than-material relationship with the forest discussed in the Critical Examination part of the dissertation above cannot be separated from a “more relevant” material/ecological one. The personal knowledge, with its material and more-than-

material elements, must be understood to be the origin, and thus the indispensable context of any ecological knowledge that follows.

Ultimately in poetic knowledge, our intuition, senses and emotion become not only acceptable media through which we can gain knowledge of nonhuman beings, but because poetic knowledge is the basis for scientific knowledge, these faculties become the basis for knowing nonhumans at all. If our poetic knowledge of nonhumans, and of the relationship we're having with them, is the means by which we know both that nonhumans are capable of entering into close relationships with us, and that our present experience of our relationship with them is close, then knowledge that we can and/or have entered into close relationship with a nonhuman being becomes the foundation of any other sort of knowledge we have of them.

In such a context, it no longer seems...*intelligent* to discard our close feelings for nonhuman beings—from sympathy for the mouse in the maze to a refusal to channelize, for human-only purposes, the undulating Mississippi River delta. On the contrary, our intelligence will insist on treating these nonhumans as Selves with whom we are close, and thus must not treat as we would not want to be treated. We would no longer desire to hurt or offend them in these ways.

Personal Acquaintance Knowledge. One of the key elements of traditional scientific approaches to knowledge acquisition is that of repeatability. If the nonhuman world is to be taken as a passive, material backdrop, then repeatability of result is not problematic on its face. If we push the button of the soda machine each time after inserting our dollar, we expect that each time, a soda will emerge. This is a reliable result from a machine designed to dispense soda, and that we know to have this purpose. A researcher might believe that a bird, a Loggerhead Shrike for example, is similarly mechanistic—operating on instinct, lacking any teleology, intelligence, feelings or other qualities and capacities that would potentially enable him to enter into close relationships with human beings. This researcher would then also believe that her observations or manipulations of the bird would engage the full range of the bird’s behavior and purpose in relation to the manipulation every time, and that any of the researcher’s unaccounted for influences—her presence or thoughts and feelings about the bird—would not affect the Shrike in any appreciable way. Let’s say further that this researcher hypothesizes that the bird’s various food caching strategies, like hanging frogs on barbed wire or snapped-off branches, is a means for food consumption such that the bird would use the branch to hold the frog and, with the resistance of the branch, pull the frog apart to eat it. In the field observing from a blind, if on enough occasions the researcher fails to see this behavior, she’d conclude that it likely doesn’t exist.

But, if nonhumans like Shrikes are relational Selves, then not only are they not machine-like in the way that humans are not, the relationship between Shrikes and humans is not mechanical or controllable in this way either. In such a scenario, the kind of knowledge it’s possible to gather from the Shrike, and the means by which it’s gathered, are foundationally relational, and thus radically different from what the researcher believes. In this example, if the

Shrike is aware of the observer, let's say through Peircian feeling, and detects some derision, say, as the observer snorts to herself about how stupid the bird is not to use the branch as a lever, then this will have an effect on the bird. Instead of it being a case of Shrikes never using such a technique to eat, perhaps the bird simply *chooses* not to show the behavior in question to *this observer*. Obviously, I've not yet made the case that the bird is capable of such perceptions and exercise of free will, as I will undertake that in the Thoughts and Feelings chapters below, but if it's possible, here one sees that the means by which the attempt to gather knowledge is undertaken affect the knowledge obtained. In this case, the researcher's information will be false and her knowledge faulty. Backster (Hunter, 1973), who gained infamy in scientific circles for arguing that plants *can* detect harm intended for them and other life forms, holds a view of them as relational Selves akin to my suggestion about the Shrike. He says of this possibility that, “[t]he...problem in [traditional scientific] research is that Mother Nature does not want to jump through the hoop ten times in a row, simply because someone wants her to” (p. 9). I'll further discuss Backster's work, and the valuable elements I believe it does afford, in the Feelings chapter below.

To take a step back and talk about types of knowledge, Western epistemological theories generally offer three basic kinds (Fantl, 2014). The first, propositional knowledge is explained as “knowledge *that*.” The statement, “I know *that* Loggerhead Shrikes use caching techniques to help them consume food” is an example. The second, “knowledge *how*,” can be seen in a statement like, “I know *how* Loggerhead Shrikes consume their food.” Lastly there is “acquaintance knowledge” with the most common example being that of knowing another person. In my example, acquaintance knowledge would be exemplified by the statement, “I know a Loggerhead Shrike.” In regard to my suggestion about the possible influence of the

researcher on the Shrike, this comports best with acquaintance knowledge since the response is of the particular Shrike to the relational approach of the particular human researcher.

But, while acquaintance knowledge might be seen as a good explanation for this knowledge relationship, when one delves a bit more deeply into the literature of acquaintance knowledge, one finds that theorists tend to hold the Known (the Shrike, in my example) as a fixed object and not as a relational Self with influence over what is known. In other words, though the example of knowing another person is given most often for acquaintance knowledge, that is not really what is meant by the term in the epistemology literature. Instead, Russell (1912) defines the acquaintance portion of acquaintance knowledge by saying, “We shall say that we have acquaintance with anything of which we are directly aware, without the intermediary of any process of inference or any knowledge of truths” (p. 78). The key to acquaintance here, then, is the direct experience of the Knower before *post hoc* conceptualization, judgment, or possible truth derivation, without any consideration of what, or whom, is being experienced. It may be noted that this definition has close similarity to the pragmatists’ “primary experience,” or ecofeminists’ “particular experience.” But, just as I’ve suggested in response to those theories, the qualities and capacities of *both* relational partners is foundationally influential over the experience of the relationship. In the knowledge relationships under consideration here it is no different.

To wit: when one says, “I know my wife” I suggest that one does not really mean the same thing as when one says, “I know my pencil.” It’s not just the amount of knowledge, but the quality of it as well. In acquaintance knowledge theory in general, however, acquaintance knowledge of humans, Shrikes or pencils are taken to be qualitatively similar. Such a definition accounts to some degree for the orientation of the Knower to the Known—but misses the

qualitative differences in the qualities and capacities of the Known almost entirely. In addition, it fails to account for the fact that the qualities and the capacities of the Known do not just dictate the Known's behavior toward the Knower, but make demands upon the qualities and capacities of the Knower in response—ones that might not otherwise be engaged when forming knowledge. I mention this because, while in traditional scientific methods the intellect is the Knower's faculty believed to be predominantly engaged, in the kinds of knowledge relationships I'm suggesting—such as poetic knowledge—many other faculties can be, and are, employed. The qualities and capacities of the Known will, then (and to a substantial degree) exert determinative influence over what those faculties turn out to be.

If the Shrike is a machine, the intellect will be engaged with perhaps a small emotional response. If the Shrike is a relational Self like a human is a relational Self, then the sensory, emotional and intuitive capacities that are involved in poetic knowledge will be called upon in the Knower. As Taylor (1998) quotes Renard, knowing another in this way means that “one must somehow *become* another, for to know is to be another. It is a sort of participation in the ‘to be’ of another” (p. 61). There appears to be then, a direct communication between Knower and Known that is akin to the conflation of Selves that Noddings' describes between as “feeling with” when it occurs between humans. I explore this phenomenon in detail in the Feelings chapter below. Taylor uses the term “sympathy” (p. 9) to describe this, and quotes Renard as calling it an “immaterial...union” (p. 63). Things like love, care and other relationally reinforcing elements can and most likely will develop with such a close knowing. I call this kind of acquaintance knowledge *personal* acquaintance knowledge to distinguish it from the more general form I described initially—it placing its focus only on the orientation of the Knower to an undefined (and thus abstracted and relationally irrelevant) Known.

It's commonly understood in interhuman relationships that people rarely reveal to strangers the deepest, most meaningful things about themselves. The willingness to do that builds relationally over time as personal acquaintance knowledge, trust, care and even love develop. If a nonhuman being like the Loggerhead Shrike has the thoughts, feelings and ability to act on them that contribute to close relationships, then he has the capacity to enter into relationship with a human observer in the same way. Knowledge gained of the Shrike, then, is not something taken from an object, but learned almost as a byproduct of the more central, and necessarily genuine, relationship the human has with him. In other words, the researcher must step out from behind the blind and join the relationship she's having with the Shrike whether she thinks she's having one or not. Only then will she come to truly *know* the Shrike—to have him show her that, after pulling on the frog and having it fall off the branch upon which he'd impaled it, he re-secures it on the branch and tugs on it again until a piece small enough to eat has come free.

In this context, while Goodall's methods of living with and interacting with her chimpanzee "subjects" has received its share of criticism as unscientific, it is still knowledge she has gathered. It's just rooted in personal acquaintance. Given the possibility of personal acquaintance knowledge with nonhuman beings, and the depth of influence Goodall's knowledge has had since its collection, I must ask which knowledge, hers or the mainstream scientist's, is more plentiful, real, or better? I suppose the answer hinges upon the ontological context within which such things are determined, and to what real world contexts each is applied. Loosed from any relational, contextual constraint, the atom bomb traveled its path from imagination to reality. Knowledge of the nonhuman world gathered from detached, objectifying, material, and otherwise dualistically reduced and anthropocentrically co-opted human-nature relationships

may yet prove to be as destructive. How much longer can we have knowledge *that* material natural gas can be extracted from the ground via the “fracking” process without realizing that detachment from, and ignorance of, the nonhuman beings affected makes such a knowledge relationship nothing short of abusive? Ultimately, personal acquaintance knowledge of nonhuman beings is not only possible and needed, when one’s ontology is stripped of the dualisms that obfuscate our view of any other relational possibilities, it becomes both primary and unavoidable.

Propositional Knowledge. Of the three types of knowledge I articulate above, propositional knowledge is the one which receives the most use and attention in modern approaches to generating knowledge of nonhuman beings. I believe this to be due, in part, to its orientation around discreet, not relational, facts. As presently used, then, propositional knowledge appears not to lend itself to the kinds of knowledge that can be gained between two relational Selves. But, if one knows one's wife in a personal acquaintance sense, it is also possible to know *that* she has the ability to run a full marathon. Therefore, there is nothing inherently problematic with propositional knowledge. The problem that I see in the use of propositional knowledge is that when applied to nonhuman beings, there is a pre-existing assumption that one cannot know a nonhuman being in this close way, so all that is seen through that knowledge-gathering lens are the discreet facts. As I suggested above, when scientific knowledge flows from the primary, relational knowledge to which personal acquaintance and poetic knowledge contribute, there is no impediment to propositional knowledge being rooted in, and constrained by, the relational. In this section, I will examine two of the hallmarks of the scientific method—objectivity and reliability—to show that it is the underpinnings of a dualistic ontology, rather than any innate quality of propositional knowledge, that are largely responsible for the lack of relational grounding for this type of knowledge.

Objectivity. The OED (2009) states that a thing is objective when it is “external to or independent of the mind” (“Objective”, 2009). In this scientific use of the word, objectivity then is an attempt to “produce knowledge independent of the particular people who make it” (Porter 1995, p. ix) or that has “immunity to worldview differences” (Gauch 2003, p. 36). Since the object of scientific inquiry is held to be independent of those making such inquiries, it is generally thought that the scientist ought to be “detached” (Porter 1995, p. 86) from the object,

have an “impersonal” (p. 229) attitude toward it and to his or others’ worldviews concerning it, and be “disinterested” (p. 4) in the result. This, in order not to betray her own stance or worldview as it relates to the object, or whatever knowledge is obtained from or about it.

In a relational ontology, however, all things are relationally conjoined such that the researcher cannot extricate herself, nor eliminate her unavoidable influence on not only the object of the knowledge, but what is knowable about that “object.” Neither can the researcher pretend that her perspective doesn’t influence everything from the research questions being asked to the methods by which their answers are sought. The Navajo people, when introducing themselves, will list out the tribal origins of their parents and other relations so one can see the connections they have in the world, and understand the influence of those connections on the person introducing themselves and their perspective on a multiplicity of truths (personal communication). By attempting to eradicate such connections, those taking an objective stance introduce a *post hoc* concept of isolation that constitutes an inaccurate understanding of the experience.

Through *attempts* at objectivity, scientists are looking for a way for the knowledge gathered to be “portable” or independent of any human gathering it. In regard to human-nature relationships, even if the knowledge gleaned through objective means is applicable across cultural and worldview differences, it does not mean that it was not produced relationally—that is, that it was not produced via a relationship that is both situational and particular. It is between *this* human and *that* milkweed plant. Thus, while objectivity is meant to produce universality, by removing humans from the knowledge equation entirely, one ignores the universality of the relations that underpin knowledge production in the first place.

I'll consider Brown, Davidson, Munger and Inouye's (1986) work on ecological interactions between rodents, ants, birds and plants in the Sonoran and Chihuahuan deserts to illustrate some of the differences between objective knowledge and the kind of relational knowledge I discuss in the previous two sections. Over more than a decade, Brown et al. applied various manipulations to desert granivore communities in order to observe how various species altered food consumption and reproductive patterns in response to these manipulations. Their main method of manipulation was to, within a study plot, eradicate a certain species and observe changes in behavior of the remaining ones. For example, after exterminating the Banner-tailed kangaroo rat from the community, they found that while other species of kangaroo rats responded by shifting their microhabitat use into the vacated areas, the populations of those other rats didn't increase to fill the density void the experimenters created. The experimenters attributed this to the short duration of their experiment, elaborating later by saying that the cause for the delay was either the "failure of the rodents to perceive a significant change in the availability of resources or their inability to respond quickly to detected change" (p. 48).

The authors clearly attempt to be objective in this work since explanations like the one above do not consider their own, human impact on the desert community other than as an invisible arm manipulating material rodent variables. What their objective stance leaves unaccounted for, however, are several variables that may significantly alter the community's response to these manipulations, and thus any knowledge produced by them. First, the authors are attempting to observe and explain normal responses of granivore ecosystem members to disturbances, yet their manipulations artificially create highly *abnormal* circumstances. There is only one instance I can think of where there would be a sudden and total loss of a community member species that doesn't originate in the idiosyncratic characteristics of anthropogenic

perturbation. It would have to be some sort of disease only deadly to a particular species. This is highly unlikely in itself. Further, because there are several species of kangaroo rats in the study plots, one would also think that if a disease were to afflict one species of kangaroo rat, that other, similar species would also be affected. Thus, the likelihood of such an event is exceedingly rare. The result is that the response of the other species to these events sheds far less light on their “normal” behavior in granivore communities than the authors seem to suppose.

I suggest that most of the failure of the researchers to see how abnormal their manipulations are in this community can be attributed to their failure to see themselves as having joined said community. By objectifying the community, they’ve failed to notice their integration into it as *whole individuals* instead of disembodied arms waving magic wands and “poof,” the rats disappear. No disturbance stands alone, nor does it travel unidirectionally from human to nonhuman community members. In a human-nature relational reality, any connection is reciprocal and cyclical, and like a live wire held by the two individuals, touches and affects human and nonhuman alike. Further, that connection is a conduit through which human and nonhuman communicate (both intentionally and unintentionally—and through verbal and nonverbal means), and becomes the foundation of a connection between them, whatever that connection may be.

What is the nature of the connection between human and nonhuman in Brown et al.? To put it plainly, it is a murderous one by the humans in the name of their carrying off knowledge. Through a relational lens, their research becomes an exploration of what happens to more-than-human community (including humans) when the humans within it eradicate certain species. Describing it in such terms means I’ve both moved the boundary of the granivore ecosystem outward to include the humans involved, and I’ve called out as relevant the more-than-material

elements of human intent to kill, and through that, extract knowledge. Seen in this light, it becomes clearer that the study is a microcosm of the modern human-nature relationship on the whole. This should not be surprising given that the human-nature relationship in such a set of studies is very much sponsored by the dualistic ontologies that underpin the more general modern relationship humans have with nonhumans. Every time a housing development is built into a tract of woods this dynamic occurs. It occurs every time beavers are trapped out of an area for the profit their fur brings their human eradicators. Every time I see ants on my kitchen counter and set out poison, it occurs. It is *this* kind of study that the authors are unwittingly undertaking.

In addition, and as I mention above when speaking of intent to kill and desire for knowledge, in a relational ontology the effects of the more-than-material must be taken into account. For instance, if Peircian feelings are a means of relational interchange, then the feelings of the researchers both before and after they eradicate a community member will affect the other nonhuman members in perceivable and potentially substantial ways. Perhaps the other kangaroo rats that didn't immediately reproduce to fill the void left by the Banner-tailed Kangaroo Rat didn't do so because they sensed some danger in the space that the Banner-tailed Kangaroo Rats had occupied. Perhaps they felt grief at the loss of a community member that they knew well. Perhaps they felt anger toward the humans in their midst. I'll discuss animal emotions extensively below, but state here that all manner of animals have feelings. As I mentioned above and will discuss in detail below, this is inclusive even of insects like the honeybee.

It's interesting to note that in other portions of Brown et al.'s study the authors also found a "failure" to immediately fill the void left behind by whatever species had been killed off by them. For example, the authors found that birds foraged less on plots where rats had been

exterminated. They suggest that this result “may well represent the outcome of a long-term indirect mutualistic interaction mediated through the direct effects of rodents and birds as selective predators on different but competing species of annual plants” (p. 50). In other words, they suggest that the extermination of Kangaroo Rats, and with them the controls on population densities of plants whose seeds they eat, might mean that those plants would have a competitive advantage over plants whose seeds the birds eat. Thus, the food source for the birds would be reduced, thereby reducing their populations. But, what if instead the birds took the sudden disappearance of their fellow community members as an indication of danger? What if they sensed malice and/or danger from the humans there? What if they were sad?! A posture of objectivity obscures these very real possibilities.

And if these possibilities are real, then objectivity can be called out as a fiction. At a more basic level I ask: how else *can* we describe a so-called “object’s” existence without describing that from which it “stands forth” as viewed from our vantage point in relation with it? To try to be wholly objective with respect to the granivore community is to remove oneself from a relationship in which one is inextricably, willfully, and profoundly involving oneself. When one’s ontology is no longer individualistic and material-only, the human in all aspects of her participation must be accounted for within the community. In terms of the knowledge relationship, the Known is not how he is without the Knower being how she is. One cannot know without, in some sense, *being* known. Just as the human researcher hopes to know the rats, the rats know the human researcher. That is the reciprocity of ontologically basic relations and, through it, the structure and reciprocal dynamic that underpins relational knowledge. Attempting to separate oneself from those who one is attempting to know is an attempt to remove oneself from the relationships upon which, unavoidably, that which can be known rests.

Of course we don't want the prejudice and petty political views that spurred the original drive to objectivity (Porter, 1995) to color what we think we know. But, relational interconnectedness can only be put in the same category as those prejudices if relations of any sort, and the idiosyncratic vantage point they unavoidably provide each individual, are taken to be prejudicial. If they are, this must mean that they are taken to be *post hoc* human creations, and not part of reality *a priori* "out there." That's how the act of *accounting for* relational elements gets to be equated with their *removal* in present day efforts at objectivity. As I've said many times in this dissertation, however, such views of relations are only possible if one's *a priori* ontology denies relations a foundational role. To invert the widespread inclination toward doing so, in a relational ontology objectivity is a *relational* stance, just one that tries to both attenuate and "unbend" the structure and dynamics of an ontologically basic relationalism, the latter of which tends to move individuals toward conjunction directly in primary experience. Through this relational lens, objectivity does nothing less than *distort* the truth "out there" and any knowledge of it. Thus, it ought to be replaced by a more accurate and relationally developed knowledge that accounts for its particular perspective, but does not do so by trying to treat that perspective as separable from knowledge.

Reliability. The OED (2009) defines scientific reliability as the "degree to which repeated measurements of the same subject under identical conditions yield consistent results" ("Reliability", 2009). Kirk and Miller (1986) define reliability as the "the extent to which a measurement procedure yields the same answer however and whenever it is carried out" (p. 19). As can be seen, repetition is the cornerstone of reliability. In dualistic human-nature relational ontologies, however, repetition is equated with repeatability, and though the difference between these two terms may appear subtle, in a relational ontology, they are two quite distinct ideas.

In repeatability, if one's ontology dualistically positions nonhumans as passive material objects, then the human is at the controls, and according to her individual human will and capacities she tries to see the nonhuman world behave in a certain way as many times as is her preference. The desire is for repetition of result, and the only way to get passive objects to yield this is to initiate it unilaterally. Thus, the "ability" in repeat-ability is largely the researcher's, and depends entirely on her will and capacities. In the more general term "repetition," however, *how* the repetition is initiated goes unspecified. In an ontology where human and nonhuman are relational Selves, repetition is partly the result of the nonhuman being's will and capacity, partly that of the human's, but more importantly and centrally, it is a result of the human-nature relationship. Just like I don't tell my wife to "Dance, Rummy," in a relational ontology where nonhumans are relational Selves, I don't tell the Red maple in a study plot in the Hubbard Brook Experimental Forest to do so either.

Given the distinction I'm making between repeatability and repetition, repetition cannot be "carried out," as Miller suggests, but instead it is what *happens* when two relational Selves interact. What repeats is a byproduct of the relationship, which is primary and originitive. Thus, even when a researcher believes nonhumans to be passive and material, the relevance of phenomena begins with the material and more-than-material interaction, not with what occurs after the unexamined relationship is established and the human carries out whatever manipulations she chooses. Whether or not researchers *post hoc* conceptually shield themselves from this relations-as-source reality does not lessen in any way its formative influence.

Further, in an ontology where the relationship is the origin of any phenomena that repeat, the general tack that researchers take of selecting a few key variables, some to be controlled and others allowed to vary, becomes problematic as well. That's because in a relational context there

are variables that, regardless of anyone's desire to account for them, cannot be controlled yet figure prominently in what is repeated. In my example of Brown et al.'s (1986) work in the Objectivity section above, the desire for knowledge and the intent to kill are variables that have an effect on the results whether the researchers care to consider them, or believe them to be controlled. When repetition is the result of human-nature encounter, it is the whole human—her conscious and unconscious thoughts, her like or dislike for her work, etc.—that influences what is repeated. The same can be said for the nonhuman if my argument that nonhumans have thoughts and feelings to enable their participation in close human-nature relationships is true. Even whether one considers nonhumans to be relational Selves or passive material objects *is itself a variable*. When the relationship becomes the vehicle of repetition, instead of the human in command of a biotic machine—or at least in command of her attention to certain features of its functioning that come to be called an experiment—there are a great many relevant, often difficult to measure and control, variables. Thus the human is not in charge of repeatability, but at best chooses to immerse herself in a roil of relationally relevant variables.

In my earlier example about the Shrike, an unaccounted for variable could be my return to the place where I saw the Shrike using a branch to help him tear off pieces of food *with* the desire to see the behavior repeated. This introduces the relevant, more-than-material variable of my desire for repetition into the second meeting that did not exist in the first. In a relational ontology where more-than-material elements are accounted for, this desire is influential over my own approach to the Shrike, a change which may be detected by the Shrike, or the desire may be felt by him directly through Peircian feeling. In response, the Shrike's behavior might be different. Even the *cause* of my desire can become a more-than-material variable. If I want to see the behavior again so I can make myself important by publishing my findings in some

journal, then the results would be different than if I simply sat quietly for hours, so enamored of the Shrike that I'm glad to see whatever the Shrike chooses to show me, hoping that I get to see that amazing thing he did before with his food and the broken branch.

But what if the Shrike does do it again with my desire for personal notoriety intact? Some with materialist ontological commitments might take that as evidence that my more-than-material variables didn't affect the Shrike's behavior, meaning that a) those variables don't really exist or b) if they did, that the Shrike as a passive material object wouldn't be influenced by them. But again, such disregard of more-than-material variables is offered from *a priori* ontological commitments, and is not founded in any evidence showing my suggestions to be untrue. Even were someone with a modern approach to human-nature relationships to devise an experiment to study the difference in the Shrike's response, I think it reasonable to assume the experiment has a high likelihood of being confounded by human attitudes and experimental construction that would betray the human's disregard for the nonhuman's standing as a relational Self. In a relational ontology, any desire to manipulate the Shrike will affect the Shrike differently than if one seeks a genuine, reciprocal relationship as an end in itself. Until dualistic ontologies are out in the open, discussed, and remediated for *as variables* in any research meant to build knowledge, they will continue to work their self-reinforcing, largely invisible (to those carrying them), effects on what is known.

As an informal, anecdotal example of what I mean, a few years ago when I was visiting Masada in Israel with my wife and her cousin, my wife kept trying to take a photograph of some beautiful birds. But, whenever she'd lift the camera to take the picture, the birds would fly further away. At some point she and her cousin were yelling at the birds, "Hey, stay still!" and when I suggested that they ask the birds to sit still instead of commanding them to do so, they

tried it and it worked! For me, it was confirmation that the birds understood the difference between the two approaches. To a materialist, it could have been a soothing tone in their vocalizations. It could've been pure, dumb luck. But in a relational world, the thing about repetition is that if one employs and experiences these subtle gradations of approach and response between humans and nonhumans, one begins to build a body of experiential evidence for their reality that is not derived from any scenario with a set of "controlled" variables. Again, in a relational world one cannot build a cage and then ask the birds at Masada to "Dance, Rummy." Instead, one just *has* human-nature relationships, and when certain things start to consistently happen in them, to occur over and over in some discernible pattern against the backdrop of in-the-present, fluid, relationally genuine and relevant variables that are numerous, sometimes impossible to discern, and material and more-than-material in origin, then one has a relational repetition. It is from this repetition that relationally grounded reliability and knowledge can be formed.

Even were we to build a cage and get consistent behavior from the Shrike, this is not confirmation for the dualistic ontological view of human-nature relationships. Even humans enslaved will, at times, capitulate to the unilateral desires of another (and at other times rather die than do so). But what knowledge is really gained by forcing repeated performances from the slave? It is not that this slave can work 14 hours without rest if that's the experimental question. That is *information* divorced almost entirely from its relational source. In a relational ontology, that does not constitute knowable truth. That the slave can do this is a *capacity*. And I suggest that truth, as some approximation of the indispensable elements of the reality of any phenomenon, must have both capacity/information and its relational matrix in order to be truth. Putting it differently, one cannot "know" that the slave can work 14 hours a day. One can know

that under certain circumstances, that is what he chooses to do. Thus the slave's capacity for work is only one informational element in a larger, irreducible truth. Just like the Navajo is not an ontologically isolatable individual but a self-in-relation, so, too, is the slave's capacity to work an element of truth, but not a truth unto itself. Further, if this element is taken as truth, it immediately becomes part of a less accurate, abstracted knowledge which, when applied in reality as it must be, will often have unexpected and uncontrollable results. In response, I can imagine a materialist asking, "What about steel production?" They have the formula down to a science. It's the same every time and the quality of the steel is the same. But, what I'm suggesting is that the real, relevant human-nature relationships which produce that particular batch of steel are lost. On one end of the relationally relevant variables is the destruction of the latest mountain to retrieve iron ore. What is the material and more-than-material response of that particular place to such an extraction? At the other end, after the steel is produced, one relationally relevant variable is climate change.

Moving back to my hypothetical of slavery, I suggest that the *least* we can *know* as *true* is that when one human compels another to work 14 hours per day under the "right" circumstances the slave will comply. The source of this knowledge is the understanding of how the phenomenon occurs relationally first. And so what is true is that a slave can do this when another is willing to force him to do it. There is no slave to be known without a slaver. Just as there is no repeated phenomena without those that participate in its repetition, be it through force as modern humans too often employ with nonhumans, or through the close relational approach for which I advocate. As in my discussion of Brown et al. above, by forcing repetition upon nonhuman Selves, we learn as much about the one compelling as those compelled.

My portrait of fluidity and reciprocity of relations means that we don't need to rid ourselves of reliability's cornerstone of repetition, but instead its dualistically underwritten and artificial narrowness. To offer a revised definition of reliability, then, I say that it is *the extent to which a human-nature relationship as an end unto itself produces some phenomenon in the present similar to one that it or similar ones produced in the past under similar, relevant material and more-than-material conditions*. In this definition, both human and nonhuman contribute, as do the circumstances surrounding and suffusing their relationship. Here it is the relationship, and the contributions of each to it, that will or will not produce the same phenomenon repeatedly.

In this relational light, propositional knowledge is a byproduct of good relations. This means that researchers that get personally involved with their subjects, like Goodall that I reference above, and Timothy Treadwell, the latter of whom lived in close, personal contact with the Grizzly bears of Alaska's Katmai National Park for 13 years before being attacked and killed by a young male (Associated Press, 2003), are producing results and propositional knowledge that are *more* reliable than objective forms of it could ever be. I am aware that more than one critic quietly chortled over Treadwell's demise at the hands of the bears with whom he was "supposedly" close (Medred, 2003; Marquez, 2004). But that sort of derision, too, only shows an ignorance of what it might mean to be a member of a bear community—to be in position to know a bear best and most accurately. In the latter context, the attack and death can be construed as a strong form of acceptance, as bears are innately aggressive, territorial, and immensely powerful animals who routinely challenge each other, kill cubs, and otherwise behave with a level of physical intensity that is far more easily fatal to a human being. Perhaps the young male,

so fully accepting of Treadwell *as a bear*, challenged him like he would any other rival and, Treadwell, being much less powerful, succumbed easily.

When researchers like Treadwell and Goodall experience things over and over, the repetition grows from a mutually contributed-to desire for the knowing and is a product of the intimacy established, instead of that intimacy being a means to the end of human-desired knowledge. Not stopping at animals, I'd suggest that geneticist Barbara McClintock did the same thing with corn, as I refer to in several areas of this dissertation. If there is manipulation for selfish ends, it only takes away from what may be true about chimpanzees, bears or corn and adds to what is true about the selfishness of modern humans in their relationships with nonhumans. While many criticized Treadwell for hopelessly tainting bear behavior and any knowledge of it with his personal closeness with them, it's only because the human/nature dualist ontology dominating scientific thought allows those who secret themselves in a blind to conceive of themselves as being foundationally apart from those they are observing. In a relational ontology, such researchers are simply ignoring their effects on nonhumans, and in treating the nonhumans as largely passive and material, ignoring the capacity of those nonhumans to know about it—to understand perfectly well their presence, their behavior and their intentions.

Ultimately, reliability is not an issue of repeatability, but repetition-in-relationship. The means by which a thing comes to repeat itself tells the story of the ontology that underpins it, and gives form to whatever knowledge flows from it. If the means of knowledge cultivation are unilaterally determined by the human and counted only when materially expressed and observable, in a relational ontology the knowledge produced will be abstracted, reduced and of generally poor quality. If, on the other hand, good human-nature relations are entered into for

their own sake, and from that, knowledge flows back and forth between both relational participants, the knowledge can be said to be true for this particular experience in this particular time, which ecofeminists argue is the only kind of experience there is. This is not to make reliability relativistic, since under similar conditions with similarly oriented participants, human-nature relationships will produce similar knowledge. Thus, when I finally say I know that a Shrike uses food caching locations such as broken-off branches as tools, and base that on repeated observations of the behavior, those observations can be said to be reliable if they are repeated by anyone who approaches the Shrike with patience and a relational openness, and whom the Shrike accepts as a relational partner in his turn.

Human-Nature Relations as Ontologically Basic

So far I have argued for ontologically basic relations in general terms. Here, I'll extend the argument to include human-nature relations as ontologically basic. To begin, pragmatist philosophy offers a path to a relational ontology for human-nature relationships. For example, in discussing pragmatist John Dewey's perspective on human relations to the world, McDonald (2004) suggests that, to Dewey, "Humans are in and of nature...[and that b]eing in nature...involves a system of relations...to other natural events or processes" (pp. 68-69). Fesmire (2004), in speaking of pragmatism's founder, Charles Peirce, says, "as with Peirce's doctrine of synechism [i.e., continuity], there are no ontological barriers to continuity between human and other forms of life" (p. 58).

In addition to pragmatism, ecofeminism has much to offer the possibility of a relational ontology. For example, Warren (1990) suggests that

[h]umans are who we are in large part by virtue of the historical and social contexts and the relationships we are in, including our relationships with nonhuman nature...Relationships of humans to the nonhuman environment are, in part, constitutive of what it is to be a human. (p. 143)

Whatmore (1997) says of “a relational understanding of political and moral agency...[that it] centres on a recognition of...environmental embeddedness” (p. 37-38). Plumwood (1991) also comments on this, for example, when articulating a self-in-relationship with nonhuman nature by saying that such a self “clearly recognizes the distinctness of nature but also our relationship and continuity with it...[a] self...embedded in a network of essential relationships with distinct others” (p. 20).

I note that in most of these discussions, however, there is little description of the *particular* qualities of that relationship or the various *capacities of its participants* to engage in them. Thus, how humans and nonhumans respond to each other (i.e., what qualities and capacities they employ in those responses) is either unknown or a matter of vigorous debate. At a material level, I believe it is uncontroversial to hold that human-nature relations are ontologically basic. But, since I contend that human-nature relationships can be close just like interhuman ones, the rest of this dissertation will explore the possibility of humans and nonhumans having ontologically irreducible material and more-than-material qualities that contribute to closeness between them.

The purpose of my suggestion that more-than-material ontological elements must be part of any relational ontology is partly due to my contention that these elements exist, and partly to counteract the dualistic use of material structures and processes to justify the denial, to nonhuman beings, of the kinds of thoughts and feelings that contribute to close relationships (see Thoughts and Feelings chapters below).

Further Material and More-than-material Considerations

Thus far, the elements of reality that I’ve suggested are more-than-material in origin (e.g., the feeling of territoriality shared between the horse and me) can still be argued by some to be

material. For example, most modern scientists suggest that emotions have a material origin (Panksepp, 1998; Ramachandran, Blakeslee & Sacks, 1998). While I'll explore this topic in greater depth in the Feelings and Thoughts chapters below, here I will contend that a relational ontology that admits closeness in human-nature relationships requires that these and other seemingly more-than-material elements be more-than-material in origin. I say this for two reasons. First, as I will argue in the later chapters, some of the things noted about the behavior of plants, humans, nonhumans, and even inanimate beings cannot be explained by current, material understandings. Second, because materialism has been so dualistically wielded to conceptually extirpate the possibility of closeness with nonhuman beings, an alternative view that undercuts such a practice seems at least prudent, if not necessary. Should someone desire to fashion my claims into a greatly expanded or more "forgiving" notion of materialism, that work may yet be of value. My suspicion, however, is that because materialism will have no truck with spirituality or intuition as ontological elements, a true reconciliation is not possible.

I begin by noting that both Peircian feeling and relational knowledge comport fairly "naturally" with an ontology that allows for more-than-material elements. While I made no explicit appeal to more-than-material ontological elements in discussing poetic knowledge above, Taylor (1998), who I take as an authority on this kind of knowledge, describes it explicitly, for example when he says that

since the mind as the immaterial power of knowledge must, in order to know, be able to receive something likewise immaterial from the objects of reality, it follows that there be a *form* of the thing, its immaterial substance, obviously not its physical presence, that is impressed into the mind... (p. 62)

The rest of this section contains a further consideration of some important points about the material/more-than-material distinction.

Materialism's Support for Nonhuman Relational Qualities and Capacities

So far in this dissertation I have critiqued materialism's dualistic marginalization and negation of nonhuman relational Selves. But, it would be inaccurate to suggest that all materialist stances work against the suggestion that nonhumans have the necessary qualities and capacities for close relationships. For example, Rollin (1990) notes that consciousness in animals was an accepted fact for Darwin and other nineteenth century biologists—most of whom were thoroughgoing materialists in their ontological commitments. To them, animal mentation and consciousness was “an inevitable consequence of phylogenic continuity...[where i]f morphological and physiological traits were evolutionarily continuous, so too were psychological ones” (p. 376). The result of such views is that instead of theories of animal consciousness being anthropomorphic—which positions humans as the standard of consciousness against which all nonhumans are measured—consciousness itself becomes the measure, with human and nonhuman alike sharing (or not) in such qualities. Another materialist whose work lends support to elements of my own is Sheets-Johnstone (2011), who accuses the kinds of materialists that deny the existential nature of consciousness of reductively ignoring the evidence for a “knowing subject” with “corporeal consciousness” (p. 69).

Ultimately, however, the weakness of even these broader-based forms of materialism is twofold. First, they are still reductive and ultimately dualist, since they've really only moved the boundary for inclusion in capacity for feeling and consciousness outward from what remains a human center. As I'll address in the Feelings chapter below, human physiology is still then the standard by which nonhuman feelings and consciousness are measured. This is anthropocentric, and tends to either overlook or discount entirely evidence showing that beings with physiology vastly different from humans have feelings, thoughts and consciousness. As I'll discuss in the

Thoughts chapter, if a plant can be shown to have a mind, materialism either has to radically alter its understanding of what physiology is required for a mind, or it has to discard entirely its commitment to a purely materialist ontology. The latter point dovetails with the second weakness of even a broader construal of materialism. That is, there appears to be *no* evidence that is sufficient to sway the materialist from his material ontological commitments. If a position such as theirs isn't falsifiable, then it's not really a theory, only a belief closed off to alternatives. I'll address this in more detail in the next two sections, so conclude here by preliminarily rejecting any wholly materialist bases for the qualities and capacities necessary for close human-nature relationships.

Evidence for the More-than-material?

More-than-material ontological elements may, at first, seem harder to find than material ones. This is mainly because, by definition, suggesting something is more-than-material implies it is intangible. In materialist-dominated modern societies where the ability to touch something has been equated with its reality, it makes sense that the intangibility of more-than-material ontological elements would come to be thought of as less real, or not real at all.

I acknowledge that here is a certain comfort from the solidity of repeatedly seeing a mosquito lay viable eggs after a blood meal, and failing to do so when the mosquito lacks one, that on the face of it supports a material view of the world. But is even this an originally material event? Where does the mosquito get her blood, the human or the deer? How does she decide? Certainly, there may be material factors (Hess, Hayes & Tempelis, 1968), but that only primes the mosquito to choose, it doesn't *determine* the choice unless one assumes that mosquitos operate purely on instinct. This is often exactly what is assumed, but recent findings suggesting that honeybees, a fellow insect to the mosquito, can have a pessimistic bias (Bateson,

Desire, Gartside & Wright, 2011), call into question such materially facile conclusions. For honeybees, past negative events such as an attack on the hive can color the choices they make in the future. Such experimental results led Bateson et al. to wonder whether honeybees have minds. Thus, either the notion of what makes up a material mind has to expand radically, or there must be an admission that minds are not wholly material. A commitment to the former may be based in evidence, but as I've pointed out thus far, it is just as likely based in an *a priori* assumption of a materialist reality.

If I'm correct in my claim that more-than-material ontological elements do exist, this brings us to the question of how evidence for them might be found. This may appear at first daunting given that the most accepted modern means of finding evidence are material in nature. Thus, one might assume, evidence of this sort is supportive only of a materialist ontology. But this itself is a faulty assumption for a number of reasons. First, material evidence is only "better" and more supportive of a materialist ontology if one ignores the influence of the more-than-material on that material evidence. In the case of the mosquito, depending on one's ontology the mosquito's more-than-materially original choice of blood sources may be the determinative influence over whether and how she reproduces. And again, *the choice itself* is only originally material in an assumed materialist ontology. I'll discuss how this operates at material and more-than-material levels in more depth in the Thoughts chapter below.

Second, material evidence can only be taken as proof against the reality of the more-than-material in an approach that *a priori* holds reality to be material only. In the relational ontology for which I've sketched portions in this chapter, materially observable phenomena could, and I suggest should, be taken as evidence *to support* the existence of the more-than-material. For example, with respect to emotions, renowned neuroscientist Candace Pert (2006), says that

the movement of energy in the body was possibly due to the flow of emotions going back and forth between the physical and the spiritual, existing on the physical level as peptides and receptors, but also in the spiritual realm as information. Chi, prana, and meridians—these phenomena could possibly be explained by the flow of information and emotions. (p. 253)

In this view, emotions are both material and more-than-material, and the existence of each is reflected in, and evidence for, the other. To underscore my point that the seeking of academic or scientific evidence for the more-than-material is “rigged” to support pre-existing materialist ontological views, I’d ask of those holding a materialist ontology what *would* constitute evidence for the existence of ontologically more-than-material elements. I think it can be fairly uncontroversially asserted that the answer would be, “not much.” Thus, the question has been closed off dualistically by a materialist ontology before it can even be seriously considered.

In the scenario where the material and more-than-material influence each other, material evidence becomes the “signature” or evidence for the more-than-material. For example, everyone knows that stress has many physiological effects (US Department of Health and Human Services, 2012). In a relational ontological orientation admitting material and more-than-material elements, suggesting that chemicals change and *then* one “feels” stress is a case of putting the cart before the horse. You feel stress from an outside or inside more-than-material “force,” and this changes things like the chemistry in your brain. You can give a prisoner-of-war all the anti-depressants in the world and the more-than-material stress and pressure will keep him depressed. It is a more-than-material problem with a more-than-material solution—in his case, freedom. And again, one cannot suggest that the stress originated in some antecedent material events unless one holds a sponsoring materialist ontology—clinging tenaciously to one’s egg over the other’s chicken. I suggest instead that there is a back and forth flow between the material and more-than-material. Thus, some uplifting of emotions from antidepressants given to such a person can result in an influence of the material, but the influence is *post hoc*, and does

not go to what I see, in this example, as the more-than-material root of the emotionally problematic reality. In my portrait of a relational ontology, the more-than-material can easily be seen as the source of the emotions in this situation. I will discuss this dynamic in greater detail in the Feelings chapter below, so conclude here by saying that the material results of hypertension, heart disease, and altered serotonin or dopamine levels from stress is evidence that supports stress's position as a more-than-material source.

So far, my discussion has centered on material evidence for more-than-material ontological elements. But what of more-than-material evidence? I argue above that Peircian feelings, for example, can be shared directly amongst individuals. If one takes the medium of this sharing to be more-than-material, this means that one can experience more-than-material feelings directly, and no material markers for such foundationally more-than-material phenomenon are necessary. While some argue that ultimately, even feelings and their sharing are materially based such as in brain-injured humans whose emotional lives change radically after the injury (Ramachandran, Blakeslee & Sacks, 1998), I suggest that such conclusions are a case of mistaking the material apparatus upon which feelings operate for their source. I suggest that it is areas of the human brain that aid in the *perception* of feelings that are injured, and that it is akin to the destruction of the antenna of a radio. The radio will no longer receive the signal clearly if at all, but it doesn't mean that the antenna created the signals, nor does it mean that the signals aren't still being broadcast. For example, Freedman (2007) quotes Pert as saying, "We're not just little hunks of meat. We're vibrating like a tuning fork—we send out a vibration to other people. We broadcast and receive" (para. 5). Thus, while such material phenomena may shed some light on the contributions the material makes to the ability to perceive more-than-material feelings, these material elements are not necessary to support the reality of the irreducibly more-

than-material nature of these feelings. Poetic knowledge, gathered as a result of repeated direct experiences and “transmitted” through the medium of the more-than-material, if taken to function in this way, offer support for the reality of the more-than-material. Thus, if I’m having the experience of being in love in the Buberian sense of actually being *inside* the phenomenon of love with another Self, that constitutes evidence for the more-than-material nature of that love. I am not arguing here that it is conclusive proof, since some of the principles of good evidence gathering (e.g., repeated observations) should still be followed, but I am saying that the category into which one fits each instance of such phenomena can no longer be uncritically assumed to be material.

To the suggestion that such a perception about the experience of love is the stuff of fantasy, I suggest that without an unsupported, materialist ontology as backing, the exact same charge can be made against the argument that love is ultimately materially based. The only reason the latter is less controversial is because of the hegemonic force with which materialist ontologies have operated in modern societies to reinforce their own positions while undercutting the more-than-material. To the suggestion that one cannot rely on self-reports of being in more-than-material love as proof of a more-than-material experience I’d respond by noting that self-report is often deemed as quite reliable in scientific circles. Again, if the report is based on well-formed relational knowledge, whether the knowledge is of the material or more-than-material is, to put tongue firmly in cheek, immaterial. More importantly, however, I’d respond to the questioning of more-than-material self-reports by wondering what *would* constitute better proof of the existence of the more-than-material than this kind of information. I assume that a materialist might resort to some “independent” means of verification such as, in the case of reports of feelings of love, elevated heartrate, loss of sleep, etc. But, by doing so, we have come

full circle back to seeking material verification of more-than-material reality, and for the materialist, this will never do. If the equivalent of valid proof is *material* proof, then as long as the ontology is materialist, *no* amount of the latter will do anything other than bolster the materialist position. In the end, by already holding a materialist ontology, and through that, preordaining only material proof as valid—and as proof only of a materialist ontology—one has dualistically eliminated the possibility of any evidence to the contrary, regardless of what’s actually experienced and how.

Distinguishing the Material from the More-than-Material

In this section thus far, I’ve attempted to “make room” for the more-than-material by undercutting features of the materialist position that work dualistically to exclude it. In this section I’ll explore some nuanced features of human-nature relationships in order and discuss their fit within material or more-than-material ontological categories.

The predominant, modern perspective on human-nature relationships tends to portray nonhumans as possessing material-only attributes that interact with the attributes of humans. Though in purely materialist perspectives, all human attributes are ultimately also taken to be material, whenever elements that could be characterized as having more-than-material components (e.g., thoughts, feelings, and consciousness), they are largely seen as occurring only in humans. For example, most environmental education programs seek to develop in humans an awareness of various material aspects of nonhumans so that within the human is inspired care, stewardship or any number of other more-than-material elements to underpin less destructive human actions toward nonhumans. For children, I suppose one could characterize such programs as attempting to inspire wonder, curiosity, and a subsequent sense of responsibility.

Here I question whether wonder must at least be in part inspired by the more-than-material. I admit to being of two minds on this topic, and so will briefly explore both.

My first inclination is that the material can have this direct effect. James (1907) says it best when he suggests, somewhat gruesomely, that it's possible that

one's opposition to materialism springs from one's disdain of matter as something 'crass'...[but instead is] infinitely and incredibly refined. To anyone who has ever looked on the face of a dead child or parent the mere fact that matter *could* have taken for a time that precious form, ought to make matter sacred ever after. (p. 95)

I refer to this passage in the present discussion because I believe it's a way of saying that matter itself can inspire "more-than-material" response—it does not need any more-than-material qualities of its own. As such, a material-only conception of nonhumans can suffice to explain the strong more-than-material response of humans to them, and subsequently underwrite the kind of environmentally responsible behavior that environmental education programs seek to promote. At one level, I'm inclined to leave it at that. After all, anyone who has seen glaciers calving in Alaskan fjords, or the flick of a hummingbird's tongue as it hangs three feet in front of your face, can understand that matter itself is at times achingly wondrous and beautiful. Yet I hesitate. And do so because I cannot leave these material things alone without what I see as their inextricable, more-than-material complements.

Would these dead faces be so precious if not for the more-than-material counterpart of the love we feel to ones so close? If one argues that love is material in origin, again I suggest that love is only material if one uncritically assumes a materialist ontology that originates it. Besides, who exactly quickens the tongue of the hummingbird except the hummingbird as a relational Self akin to me as a relational Self, and it is the spark of that encounter between Selves, just like between the horse and me, that is in part responsible for my amazement. All of these things—love, Selves, sparks—seem to defy facile material compartmentalization.

The glacier I mention, being “inanimate,” is harder to argue. Because I’m disinclined to broaden my references to spirituality at this juncture, I instead use the glacier as a departure point for contemplating just exactly what the nature of beauty, wonder, or “amazingness,” are. For example, if I see a glacier, or a river stone, and am amazed at the river stone’s bands of white then is the beauty and amazement in me as the beholder alone or in the stone or the glacier? Or, is it something that is inherent in our relationship? At some level, my response *is* mine, but I wonder what exactly it is I am responding to in the other. Is it the material banding, or is it beauty in the thing itself along with the capacity of the stone to invoke wonder over that beauty in a creature such as me? As such, it is not the material of the other that brings this about, but beauty and its capacity to invoke amazement. Thus, not only can we be *in* a relationship in the Buberian sense, we can be *in* an amazement-producing one as well.

In a relational world there cannot be a one-way interaction, nor can that which occurs as a result of the encounter (e.g., wonder) be something that is only in me. Otherwise, we are all hopelessly disconnected, and no quality at all of the stone could evoke such a thing on its own. In that scenario, it is utterly random and according to some isolated nature of mine (apart from the nature of the nonhuman) that the stone invokes this. It could just as easily be a landfill. There is no external, qualitative difference between the two. And yet wouldn’t common sense dictate that there is some beauty in the stone that the landfill does not possess—and that this is foundationally, or ontologically, intrinsic to the stone? If in response one were to suggest that it is just our nature to appreciate river stones as beautiful and adjudge landfills as ugly—a random byproduct of an evolutionarily material necessity perhaps—then I believe we’ve again arrived at the unfounded assumption of the primacy of the material. This over the possibility of there being an equally plausible, existential thing that is more-than-material *beauty*. That this beauty inheres

in the material and is experienced in a pairing with it does not mean it *is* material or that it originates there, however. Again, in an ontology that holds the material and more-than-material to be co-existing and complementary, the two can be, no *are*, different yet interdependent. Therefore, I suggest that there is something *in the river stone* that is capable of being seen as beautiful. At which point the difference between the capacity to be seen as beautiful and actually having the existential quality of beauty borders on the semantic.

But, though I suggest the difference borders on the semantic, there is still an important difference that must be resolved. Is this beauty a more-than-material quality of the thing thought beautiful, or is the beauty just a way for humans to conceptually, and internally-to-themselves, encapsulate something material that we deem ‘beautiful’ instead of ‘ugly?’ I’ll press this further. If I suggest that a thing in nature is astonishing (i.e., has the internal, more-than-material quality of being astonishing), the argument against this is that some are not astonished by it. But, there are *two* explanations for that lack of an astonishment response. One is what the materialist counterargument assumes, that astonishment is wholly inside the one astonished, and so a lack of astonishment can be accounted for by some difference in personality, brain chemistry or the like. But, a second explanation is that the person who is not astonished is unusual in some way—one might even say flawed—and *ontologically ought to be* astonished because the thing to which one reacts with astonishment is inherently astonishing. To support such a notion, I again quote Peirce (1960) as saying of external feelings that, since “feelings are communicated to the nerves by continuity...there must be something like them in the excitants themselves” (6.158, p. 111). Thus, as Noddings (1984) says of the occurrence of this phenomenon between humans, here one ought to “feel with” the astonishing thing by feeling the irreducible astonishment it projects.

Let's forget about the banding of river stone for a moment to consider a more obvious example of something externally, and largely universally, thought to be astonishing such as the Grand Canyon in Arizona. Of a person unmoved by such a sight, we would think there was something a little "off" with them, so powerful is the capacity of the Grand Canyon to move humans in general to astonishment. We would say of the one un-astonished that he is not perceiving correctly—that he doesn't have the capacity to *recognize* the obvious magnificence of the place. It would stretch the limits of common sense to say that there is *nothing* astonishing and the person is merely unlike most others who respond to it by constructing a conception of that astonishing place inside themselves. Of course I recognize that a staunch materialism not uncommonly found in modern discourse on such things would hold to just such a position. In response I can only suggest again that such a position is sponsored by an *a priori*, not evidentiary, conceptualization of such an experience, and is driven by the theory, not the experience. Eschewing such dualist assumptions, it is as likely that there is an astonishing quality that is at least in part external to the one astonished. In this scenario, the problem is not lacking an internal sense of astonishment, but failing to recognize that which *is* astonishing.

And if the argument against such a claim is that different things are astonishing to different people (therefore a universally agreed upon astonishing quality cannot be truly external to humans), I'd counter that by arguing that in reality *everything is astonishing in its own way*. According to the particular natures, socialization and human-nature relational experiences of particular humans, each is receptive to discerning a particular kind of astonishment-inducing thing. For one it is the trail of an ant across the sand, for another it is the eddies in a river. For yet another, the wood grain of oak or the banding of a stone. To each according to her own predisposition to wonder at the great diversity of wonders in the world. For every Green Peace

warrior in love with the Right Whales off the Atlantic Coast of North America there is the entomologist. How different would the entomologist's relationship be with bugs if the astonishment that drove him to the career was loosed from its materialist/scientific constraints to be something innate in him that loves what's innately wondrous in bugs? In a modern, materialist world, his love can only be his unilaterally for a dualistically reduced, material and passive other. Thus, he has a career in which, at least in professionally published work, he maintains an emotional distance that won't betray his love, and that portrays bugs as "really" just material others. But that is only his experience of the bugs if his ontology suggests that his astonishment is his, and not the bug's, or not communicated and/or shared in some way between them.

Yet another way to see astonishment is by taking a pragmatist approach of letting the primary experience of astonishment dictate the truth of the relationship. In such a context, the experience of astonishment does not align well with a view of it as a *post hoc* product of internal-to-human processing. Like the shock of delight of a hummingbird circling my head beneath a spruce tree in South San Francisco, astonishment seems, more than anything, to *bypass* any internal "processing" and come straight to "I" from Buber's "Thou" in the experience. The explanation of astonishment as an internal construction has always seemed to me a weak one given the power and immediacy of such relational phenomena. Thus, astonishment, wonder, or beauty seem much more in keeping with Peirce's external feelings than any subsequent, internal responses. Besides, the root meaning of amazement is that which stupefies ("Amaze", 2009). If so, to be amazed means to be *stopped* from thinking. It means to have one's thinking outflanked by one's experience such that one only feels that which there is to feel from the other as a

relational Self, and to respond to that feeling before having had a chance to think or construct anything.

Conclusion

In this chapter, I have spoken to key features of an ontology that can support close human-nature relationships. In it, I have explored how human-nature relationships can be seen as ontologically basic, what some features of those relationships are, what kinds of feelings and knowledge might grow from a relational ontology that admits material and more-than-material elements. There are topics related to these in need of exploration, but that go beyond the scope of this chapter. For example, it would be vital to define relational attributes such as attraction, reciprocity, discernment of relational interchange, and others that are necessary for the ontologically basic relations that I explore. In addition, it would be useful to explore more-than-material elements in more depth such as reliable spiritual experience. Having laid this ontological groundwork, the remainder of the dissertation will address the two elements necessary for close relationships in my model from the Critical Lens chapter—thoughts and feelings—and how both humans and nonhumans have the capacity for the kinds that contribute to the development of closeness.

CHAPTER 6 FEELINGS

Emotions figure centrally in any discussion of close relationships. Human interdependence theorists Kelley et. al (1983) suggest that emotions are so strongly tied to the notion of close relationships that “[m]any do not consider a relationship between two people to be close unless there exist strong positive affective [i.e., emotional] ties between the participants” (p. 110). Similarly, attachment theorists Hazan and Shaver (1994) note that the attachment that later leads to close relationships is primarily an emotional bond (p. 3).

Given the essentiality of these feelings, it might be supposed that, since nonhumans are generally not taken to have emotions (or at least of the kind that could contribute to close relationships) the likelihood of their ability to enter into close relationships is minimal. I contend, however, that this view is rooted in three erroneous assumptions. First, that emotions can only be experienced through, sourced in, and/or equivalent to, material emotional structures and processes. Second, that emotions are something wholly contained within an individual—they have no externality and thus no way of directly interacting between individuals in relationship. And third, that only humans or human-like animals can experience emotions—and we can only know that human or human-like animals do so through analogy with our human selves. This last assumption is partly predicated on the first, and also on the concomitant belief that only human or human-like material structures and processes can originate emotions. If these three assumptions are true, then the denial of the feelings necessary to forming close relationships to all but humans and human-like animals is justified. It is my intention in this chapter to challenge these assumptions, however, on the grounds that they are rooted in dualisms instead of in

empirical data. My hope is to make conceptual “room” for feelings in all beings—from a stone to a Killer Whale—and thus room for their capacity to participate in close relationships.

Challenging the Assumptions

Feelings As Purely Material

Researchers have linked material changes in humans and animals to various emotional states. Most often, such material evidence of emotion is taken as sufficient to conclude that emotions are materially based. The only way that this evidence can be considered sufficient to draw such a conclusion, however, is if one already holds a materialist ontology. If instead one believes that feelings have more-than-material elements as well, then the very same material evidence can be interpreted as being supportive of the existence of those more-than-material elements. This is especially the case if the material evidence is seen to occur subsequent to the more-than-material emotional stimuli.

One example that can be interpreted as being more-than-material in origin is the phenomenon of antidepressant “tachyphylaxis,” which is the loss of efficacy of anti-depressant drugs. From within a materialist ontology, authors such as Byrne and Rothschild (1998) nominate material explanations such as what the drug does to the body, changes in the material source of the disease, the accumulation of metabolites that block the drug’s efficacy, etc. From within an ontological frame of reference that includes irreducible more-than-material elements, however, just as plausible is the suggestion that depression has a more-than-material origin that material therapies can never wholly address. From within this frame of reference, an explanation for tachyphylaxis is that while initially the anti-depressant has an effect, it leaves intact the more-than-material causes that eventually reassert their influence. In such a view, the cure for depression is happiness. And I don’t mean that glibly, as I’m well aware that diseases such as

major depressive disorder are best treated by psychotherapy and pharmacotherapy (Pampallona, Bollini, Tibaldi, Kupelnick, & Munizza, 2004). What I do mean is that even in a person suffering from major depressive disorder, it's still possible that the problem is at root more-than-material. To support this conjecture, Midgley (2011) says that there is a "reductive and atomistic picture [of reality that] now leads many enquirers to propose biochemical solutions to today's social and psychological problems, offering each citizen more and better Prozac rather than asking what made them unhappy in the first place" (p. 2). Servan-Schreiber (2004), a physician, neuroscientist and clinical Professor of Psychiatry at the University of Pittsburgh School of Medicine, also echoes this point of view when relating a personal experience:

During a visit to France a very close childhood friend told me about her recovery from a serious depression. She had refused the medications that her doctor had offered and she had sought the care of a sort of healer. She was treated with 'sophrology,' a technique that involves deep relaxation and reexperiencing of old, buried emotions. She had come out of this treatment 'better than normal.' Not only was she no longer depressed, she was also freed from the weight of 30 years of unexpressed grief over the loss of her father, who had died when she was 6 years old." (p. 6)

Even a mental illness such as schizophrenia, held by the vast majority to be material in origin and best controlled by drug therapies, may not necessarily be caused (and thus radically affected) by material interventions. Phenomenological psychotherapist R.D. Laing (1971/2001), in his book *The Divided Self*, suggests that at root a schizoid personality is not experiencing problems due to any physiological cause. Instead, Laing says of such a person that his "experience is split in two main ways...in his relation with his world and...his relation with himself" (p. 15). Laing's cure for this person is to follow her psychologically through the mental labyrinths she constructs as a result of those splits in order to help her find a way back "out" to a feeling of coherence (in the sense of internal, mental unity). In this case, while schizophrenia has a material "signature" in altered serotonin levels, etc., it is a more-than-material problem at

its source, requiring understanding of it in these terms and the grounding of its most complete cure in approaches aimed at addressing them.

Those adhering to materialist ontological commitments can always counter my categorization of these phenomena as more-than-material by saying they are preceded by the material. Their rationale would likely take the tack that psychotherapy is still conducted by originally material beings, and that unhappiness-producing circumstances are created by beings or a world that is ultimately material in its origins as well. The soup of cells that made a father that the girl lost at 6 years old is still, and originally, a soup of cells. The problem with such an argument, however, lies in the fact that it is exactly examples like those above, of clinical depression and schizophrenia affected by material interventions, that are offered as *support* for such materialist interpretations. In other words, the examples offered as support for a materialist interpretation of reality are wholly dependent on a pre-existing supposition of that interpretation for their validity. This is circular, and thus largely empty.

By no means am I denying that there are material components to feelings, I just don't see where their discovery and elucidation stands as proof that they are feelings' originators. As Pert suggests above, material elements are affected by emotional experience and, as I suggest, with an adjusted ontology, they can just as easily be interpreted as having more-than-material elements to their origin. To underscore the difference in material and more-than-material origins of emotion, I refer to an example from Panksepp (1998), who argues that feelings are material in origin. One of his supporting experiments is the insertion of an electrical probe into a certain area in the brain of a cat. When electricity is delivered to that area of the brain, the cat becomes enraged. Thus, he concludes, rage is material in origin. I suggest that this conclusion is erroneous for two reasons. First, the rage he induces in the cat shows marked differences from rage when naturally

produced. Second, Panksepp and others like him hold an *a priori* materialist ontology and allow it to artificially constrain their definition of the feeling phenomenon. Thus, they miss or ignore what a feeling experience actually is.

My first suggestion is that the rage the cat feels in Panksepp's experiment is not the same as rage the cat might feel if driven to it by more natural means, such as the introduction of a territorial rival. One element of the experiment that hints at there not being the same is when Panksepp describes the aftermath of the rage. He says, "Within a fraction of a minute after terminating the stimulation, the cat was again relaxed and peaceful, and could be petted without further retribution" (p. 194). While Panksepp sees this as proof that rage is material in origin because once the material trigger was terminated, the anger was terminated, I suggest that in a real anger experience, the cat would not so quickly, easily (and, I suggest, unnaturally), be able to move back to a peaceful state. In a real anger experience, humans, cats and other creatures have to take some time to "come down" from the feeling. What's more, in a real rage experience, an association is often created in the mind of the one experiencing it that the target of the rage is to remain a target if encountered again. But, as Panksepp notes in his description of the experiment, while experiencing the "rage" the cat leapt at Panksepp's head, but in the aftermath he allowed Panksepp to pet him as if nothing adverse had occurred. I suggest that this is because, in the context of real emotional experiences, nothing adverse *did* occur.

The difference I'm pointing out is akin to the difference between a smile being produced by providing an individual a happiness-inducing experience or by pulling up the corners of that individual's mouth. In Panksepp's experiment, has he engaged in the former or the latter? I admit that my parallel is oversimplified, but it is an oversimplification of degree, not kind, and illustrates my point that if Panksepp has discovered the origin of rage (e.g., material electrical

activity), then one would expect it to behave like rage in all its facets, not just in a narrow moment of its materially observable expression. In a smiling event, an individual would likely not feel happy when the corners of her mouth were lifted, and while a probe delivering electricity into the brain may more closely stimulate the expression of happiness or rage, given the differences in Panksepp's version of induced rage, I think it's legitimate to raise questions as to whether it is truly emotion or feeling experiences whose origins have been discovered.

In response, a materialist might note that for the *particular* emotion of rage stimulated by the probe, the material is clearly being shown to precede it, thus it has to be its originator, even if the electrical probe does not stimulate the entirety of the complexity of such a material emotional event. But this logic is erroneous as well. If the rage is not the same rage, then what Panksepp has shown is that one element of rage—its observable, end-product expression—can be induced through material means. Panksepp is confusing the observable, material action *in response* to the rage with the rage itself.

In my second suggestion above, I note that Panksepp and others are dualistically allowing a materialist ontological commitment to artificially constrain what is considered part of a feeling experience or phenomenon. Under normal, healthy and intact physiological circumstances how does one become enraged? Each instance is preceded by something more-than-material. A thought. Another feeling. Some physical injury *the experience of which* leads to thoughts that lead to rage or leads directly to rage. What materialist experimenters like Panksepp are forgetting is that by inserting a probe into the brain, they're not going far enough "upstream" in an intact feeling phenomenon. They're bisecting the process and then suggesting that by achieving some approximation of the same end result that they've happened upon the same cause.

This discussion obviously raises the issue of just what “a feeling” is—where it begins and ends. If, as I’ve suggested, it can be communicated directly between those experiencing it, or can suffuse a relationship from outside both participants in Peircian fashion, then where the feeling starts and ends certainly escapes the boundaries of the individual. I will address this in more detail in the next section, but here, I think, there are really only two possibilities for where feelings start and end, and both pose problems for a purely materialist position. First, it could be supposed by the materialist that the electrical stimulation of the cat’s brain is part of the feeling itself. But one can always critique such a position as having dualistically drawn a too confining boundary around the material elements of the feeling. To its furthest extent in this example, one could charge that such a boundary has failed to include the origin of the feeling in a human researcher whose more-than-material *desire* to understand the nature and origin of rage has caused the cat’s rage. Interestingly, this could certainly be the cause of the cat leaping at the researcher’s head instead of at some random object.

To counter this, the materialist might adopt a second, inverse stance: that of conceptually isolating the electrical stimulation from the feeling and saying that the experience of rage and its simultaneous expression equate to a “feeling.” But this releases the feeling from any dependence on a material origin which, ontologically, has any number of precedent, more-than-material origins such as those that I’ve pointed out above. In this latter possibility, feelings have no exclusive ontological continuity with material influences on them. I don’t believe the loss of this material association is what those seeking a purely material ontological explanation for feelings of emotions have in mind, so this tactic fails as well.

But, there is yet a third way out for the materialist. One can adopt a strict materialism such as eliminative materialism, where all experiences as distinguishable from material

structures and processes are a form of fiction. And while there are some who adhere to such ontological positions, they are generally seen as being more ontologically extreme, and run counter to the more widely accepted notion that consciousness, and the complex feelings and thoughts that go with them, are more than the sum of their material parts (see the Thoughts chapter for more on this in the discussion of Emergence theory).

To conclude, there is no real way to argue that feelings are definitively material or more-than-material. One's ontology, in this case, is determinative. And if the only real, bedrock support for a purely materialist explanation for the origin of feelings is the pre-existing assumption of its exclusive legitimacy, this cannot stand.

Feelings As Purely Internal

The second assumption about feelings under consideration here is that they are wholly internal to the individual experiencing them. I've discussed alternatives in the Relational Ontology and Human-Nature Closeness chapter, and here will explore the implications they and other examples have for this position. If feelings are purely internal, it seems sensible to ask how it's possible to share them, or to have the feelings of one relational partner mirror or influence the feelings of the other. Put another way, what is the basis of the continuity of feeling between those sharing them, or is that even possible? In a commonsense take on feelings, most would agree that feelings are shared somehow. Any group of people who lose a loved one would certainly attest to the fact that the grief each individual experiences is one that is also shared amongst the group. But, those theorizing about feelings hold that such a sharing is not direct. A typical example of this type of explanation comes from the psychologist, Bucci (2001), who suggests that the

affective communication of one individual—in sensory and motoric as well as verbal form—is received and known through the [five] sensory systems of the

other, as well as through feedback from the motoric systems that are activated in response. (p. 56)

This means that the observer's emotional response is actually not to the other directly, but to his own response to his perception through the five senses. Figure 12 depicts this mechanism, where there is continuity of materially perceivable phenomena, but no continuity of the feeling itself.

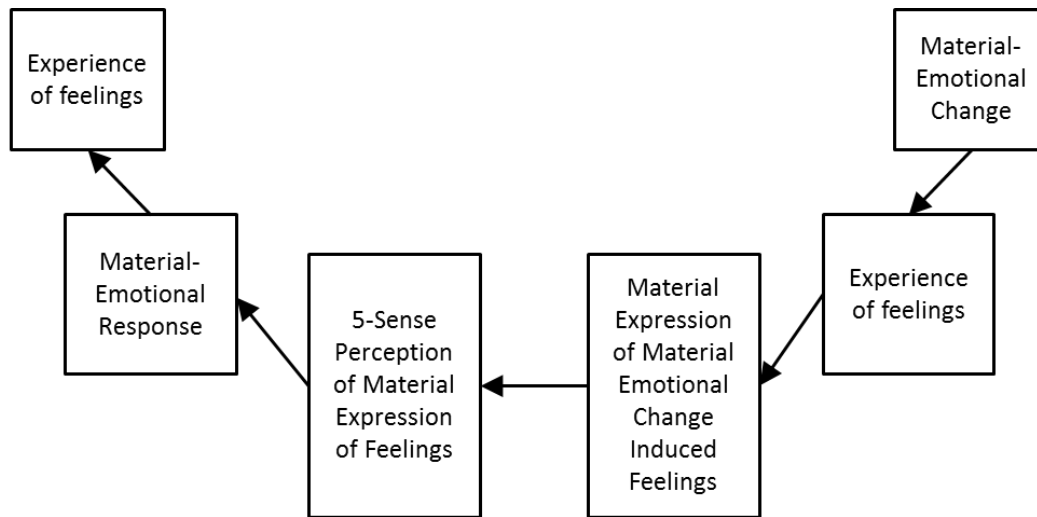


Figure 12. Ontologically material representation of shared feelings.

In sharing a feeling such as love in such a construct, one can only trade representations of internal emotional states and hope the other receives the transmission. Cast in satirical terms, most theories equate emotional communication to the functioning of the transporter beam in the television series, *Star Trek*. Emotion is broken down into the medium of sensory and motor expression and perception, transported via this medium, and then reconstituted as emotion at the other end. In those television shows, there are always some who are mistrustful of whether what comes out the other end of the transporter is what went into it, and I am similarly mistrustful of emotional communication theorized to work in this manner. In such a system, how could two people ever really *know* that they're in love? Yet those that do know this probably do so more certainly than anything they've ever known.

I suggest first that the *experience* of intense, shared emotion such as grief, love or worry is that they are immediate and direct, that no such intervening mechanism is present. In the previous chapter, I spoke of Noddings' (1984) sense of "feeling with" a co-worker who reveals something personal and in the moment of doing so, dissolves the barrier between him and Noddings that prevented her caring for him in some way. Another example Noddings gives along these lines is that of a crying infant, of which she says "we react with the infant and feel that something is wrong. *Something is wrong*. This is the infant's feeling, and it is ours. We receive it and share it" (p. 31). While at first it's not clear if Noddings feels that this is an example of the kind of direct communication of feeling to which I refer in the previous chapter, her argument eventually positions the crying infant as Buber's (1923/1970) "Thou," and when he cries, he "fills the firmament." In Buber there is no equivocation regarding the ontological sharing of these feelings. They are direct in the Peircian sense. They are not a facsimile of the feelings the other feels, but *the same feeling*. Thus, when Noddings' infant cries, his feelings are not internal to him, displayed to another via sound, sight and touch, processed by that other via the five senses, triggering in the other her own sensory-motor response, and only then felt as a mirror of what the infant feels. Intuitively, such materialist characterizations appear to be labored, *post hoc* conceptualizations, failing to mirror the immediacy, power, directness, and continuity of such experiences as they subsume their participants.

Having suggested that this kind of materialist explanation for "shared" feelings is not the only possible explanation, I also suggest that shared feeling ought not to be restricted to interhuman communication either. Pierce (2008), in discussing the possibility of animal empathy, relates an anecdote of two mice trapped in a sink, with one helping the other survive by bringing him food and water until both were helped to escape by the author. Pierce offers this

anecdote as an example of empathy on the part of one mouse to the other, suggesting that it is an indication that mice have an essential element to forming morality (p. 76). In order for this to happen, though, I suggest that things such as empathy must be *intended*, and what's more *received*, as empathy. On one level, that a mouse or other species of animal can receive the empathically-based aid of another of his own species, and understand it as such, seems inescapable. If not, an individual mouse, and the species as a whole, would certainly not last long. Competitive acts would not reliably engender responses of self-protection, and gestures of an altruistic nature like the mouse bringing food to her compatriot, would be as likely to be rebuffed as accepted. Though empathy is not a feeling, exactly, it is a vehicle for the expression of benevolent feelings such as care. I contend that these feelings come through directly from the provider of care to the recipient, and that without that, the empathy wouldn't be as effective, and wouldn't be as readily accepted.

Pierce pushes further into the implication of an empathy-guided mouse morality by saying that since humans also use empathy to guide their morality, that "this may set in motion a serious reappraisal of...how empathy in animals might shape our behavior toward them" (p. 76). Her suggestion is that, if mice feel empathy as we do, maybe they ought to be thought of as more like us, and thus admitted, somehow, into our moral sphere. But, I believe what she is observing is a continuity of empathy between mouse and human, and that this carries with it a far more radical implication. That is, if mice feel empathy as we do, then mice and humans have a *common ground* by which they might *communicate their feelings directly with each other*. If so, this certainly stands as a means by which closeness between humans and nonhumans might develop.

What's also interesting in the relation of this anecdote is that Pierce's discussion centers around the empathy expressed by one mouse to the other, and though she abstractly ponders how, in seeing such a thing, a human might be motivated to treat mice differently, what she fails to see is that in the event itself she already had. Didn't she place a piece of wood in the sink to allow them to climb out and escape? Wasn't this participation in her relationship with the mice a form of empathy and altruism? Pierce doesn't say, so we're left to wonder. If she placed the piece of wood there out of care for the well-being of the mice, then one might say it is motivated by empathy and care. If, instead, the human adopted more of a detached experimenter role and was only intellectually curious as to what the mice would do if an avenue of escape were provided, then the feeling of care would be absent. To be able to tell if emotional communication can happen in human-nature relationships, the real question is, would the mice have been able to tell the difference? In a dualistic interpretation, the mice using the piece of wood to escape would most likely be read as responding in largely bio-mechanical ways to the sudden, mysterious and unattached presence of a path of escape. But, can we write the mice off so easily, especially if we already see them as able to behave toward each other empathetically and with some kind of morality?

Nollman (1987) would likely answer in the negative. In an experience interacting with Howler monkeys in Panama, he wonders about the role played by a human's intentions/feelings toward a nonhuman in the type and level of closeness of their interactions. Nollman is well known for engaging in dialogues with various animals through music. In Panama, he had gone out and done just this with a group of Howler monkeys. During one particular session, the monkeys joined him with their own vocalizations. As he tells it, he was relating this experience to a zoologist also there to study the monkeys, and though the zoologist attributed this rare

occurrence of Howler musical participation to Nollman having a “very special rapport with animals” Nollman suggests otherwise. He says that “anyone with basic musical skills, *and a benign intent toward the monkeys* [emphasis added], would achieve the same result” (p. 96). He believes that the monkeys had “’read’ [him] as being benign” (p. 97). In the language of emotional communication, this means that Nollman expressed positive feelings toward the monkeys and the monkeys received it as such, responding reciprocally with a move toward physical proximity and, at least potentially, emotional closeness as well.

For all the weight that Noddings (1984) has given to direct communication of feelings, she isn’t as sure as Nollman (1987) that this can occur between humans and nonhumans. Specifically, she doesn’t think that her “feeling with” can extend to human-nature relationships because she believes there is something innate in humans in terms of caring for one another that is too variable in humans when it comes to caring for nonhuman beings (much less nonhumans caring for humans). Though I believe the variability she notes has more to do with what modern societies encourage and discourage in human-nature relationships, Noddings does admit the potential for the existence of a mechanism of “feeling with” in human-nature relationships. She says that “there may be some feeling with respect to animals that is universally accessible or nearly so” (Noddings, 1984, p. 149). So, while she believes other elements are necessary to support an ethic of care, and thus only interhuman caring can occur, the element of being able to feel with another in reciprocal and direct ways is unproblematic in her ontology.

The implication here is that if I were to get to know a dog or bird well enough, just as with a human I could reciprocate feelings with him or her, and be confident that communication and reciprocation was occurring. While it’s certainly possible to be mistaken about what feelings are coming through to you, that they *are* coming through can no longer be taken as

prima facie absurd. We could even potentially feel what a particular *stone*, there in the moonlight, feels if we rid our ontologies of the dualisms that obliterate our ability to both accept the possibility of co-occupying, with any relational partner, an existentially subsuming feeling and the belief that feelings are only material and thus able to be experienced and shared only by those *we think* possess them as we do. Perhaps, after having hiked up a hill and finding yourself standing in your favorite forest tract, when you are overwhelmed with a feeling of kinship with a deer or meadow vole you spy, it's because *they* are feeling this way, too, and you are perceiving it and responding to it without even knowing you are doing so. How this would influence a land manager's decision about what to "do" with that hillside is inestimable.

To the possibility of shared feeling and its potential outcome, closeness, Bekoff (2007) relates a story of friendship between a rat snake and dwarf hamster in a zoo. In witnessing it he asks, "If a snake and hamster can become friends, then why not humans and other animals" (p. xix)? With the dualistically sponsored strictures of a materialist and internal-only basis for feelings removed, the answer is *Why not, indeed?*

Feelings As (Almost) Exclusively Human

The last of the three assumptions I'll examine is that only humans, or those physiologically similar to them, can experience close relational feelings. In what follows, I will argue against such a view. I begin by considering animals partly because their having feelings is the least controversial within a mainstream context, and partly because exposing the conceptual weaknesses in such a stance of near-exclusivity will serve as the basis for my eventual assertion that all beings, from plants to "inanimate" beings, can have feelings.

Animal Feelings. Next I'll discuss animal feelings.

The Denial of Feelings to Animals Is Historically Recent. Rollin (1990) suggests that most shifts in scientific thinking are precipitated by either an accumulation of evidence that stands in refutation of former claims or beliefs or the discovery of internal logical flaws within claims or beliefs (p. 377). But, according to Rollin, the denial of emotions and cognition to nonhuman beings follows neither of these paths. Since his suggestion is that scientific claims or beliefs are rooted in foundational assumptions to which all scientists must eventually commit, he believes that a third way that claims or beliefs change is when their foundational assumptions change (p. 378).

To begin to trace the denial of thought, feeling and consciousness to nonhuman animals, Rollin notes that before the turn of the 20th century, there was a strong belief in both animal cognition and emotion by scientists and lay people alike. As an example, he says that Darwin believed in an evolutionary continuity with animals and humans for both emotions and cognition (differences were differences in degree, not kind). Rollin believes that the ontological shift away from this knowledge or belief was due to a reductionist trend in society in general, with a new “emphasis on sweeping away frills, excesses, superfluties” (p. 387). This resulted in the emergence of a positivism in science that denied the knowability of animal consciousness, which in turn led to its outright dismissal. He notes the self-serving nature of such a dismissal when he says that this positivist ontology “exonerat[ed]...scientists from having to think about the morality of the animal use which came increasingly to be seen as presupposition to scientific progress” (p. 389). It also reinforced the lack of “moral shock” in “ordinary [non-scientific] common sense” at the treatment of animals whether or not they could think or feel. To the latter point, Rollin says that the lack of shock that preceded positivism probably emerged in the 19th

century as a result of “so much of ordinary life depend[ing] on exploiting animals and causing them pain and suffering” (p. 390).

While I agree with Rollin correlating the shifts in ordinary 19th century life that increased exploitation of animals with a shift in ontology, I believe that they did not precede the moral disregard of scientists, but instead were an earlier form of the same ontological shift, just played out in ordinary, instead of scientific, lives. But the ontological shift preceded both of these trends. Merchant (1980) traces this shift to the middle ages. Plumwood (1993) to the Greeks. I agree with Plumwood’s assessment that the Greeks are a very early influence on the ontology of what has become modern science, but I also think that Merchant’s focus on the middle ages, and the Enlightenment, Scientific Revolution and Industrial Revolution that followed them is more useful in that this is where modern, dualistic ontological stances took the form in which we largely see them today.

I believe that philosophers such as Bacon, Descartes and other prominent Enlightenment and Scientific Revolution thinkers were attempting to wrest power from two dominant societal forces of the time. First, from the religious leaders who authoritatively wielded the power afforded them by their anthropocentric brand of Divine nature. Foster (2000) details this form of religious totalitarianism extensively when discussing materialism as an ontological response to it. Second, from nonhuman beings themselves and the power they were seen to have by human societies of that era. Merchant’s (1980) exploration of the details of this process is magnificent. I take from her exploration that these philosophers wanted to control nature for their own ends, so they set about both vilifying nature and dualistically reducing nonhumans as relational Selves as a means to doing so. For example, she mentions how Bacon “sets forth the need for prying into nature’s nooks and crannies in searching out her secrets for human improvement” (p. 33).

These philosophers embarked on a course of denying nonhuman beings everything from feelings to existence-as-Selves so that they could advance their desire to take from nonhuman nature whatever they wanted without obligation to those who'd given it, or acknowledgement of what had been given. To free themselves of the burden of any but a mechanical, material human-nature relationship they went about denying the possibility of its existence by conceptually elevating humans to uniqueness on various fronts, and set them apart as fundamentally individuals. To humans thus was granted exclusive domain over things humans find of most value: an emotional life, teleology, happiness, etc. Thus today it is largely unproblematic for a conservationist to think of herself as having a right to "manage" without the input, *at a relational level*, of the nonhumans affected. That's because in the earlier era, nonhumans were conceptually recast as devoid of all qualities of a Self, thus were reduced dualistically to passive material objects that, if the implications are followed to their logical conclusions, are incapable of entering into relationships with humans of any substantial kind, least of all close ones.

Not only did this work destroy whatever was left of the popular, common concepts of close human-nature relationships, but it put in place ontological foundations that would prevent them from reforming. In other words, these philosophers and scientists "salted the ontological earth" in which human-nature relationships normally grow in human societies. If a material reality for nonhumans is made the starting point, then at the outset, any observations of more-than-material qualities and capacities has to pass through its reductive filter. Once through, they are no longer the elements as experienced, but have been reduced to just more evidence for the *a priori* materialist claim. The denial of feelings to nonhumans is self-fulfilling, and at some point in more recent centuries, became hegemonic to the point that to suggest that animals, and beyond them, plants and stones, might have feelings is to commit an easily dismissible heresy. If an

ornithologist has the experience of falling in love with a particular species of bird he is studying, he best leave that out of any paper he writes about their life cycle—because that love has been *post hoc* recast as a fantasy projected outward onto a passive, material object. That, or the category into which his topic would be moved would be poetry, fiction or something else safely outside serious scholarship—outside of truth as modern societies have come to define it. It is only recently that a toehold has once more been regained for some human-nature relational experiences, with research showing that at least some non-human-like animals do have emotions (see next section), and that animals have consciousness just as humans do (Low, Panksepp, Reiss, Edelman, & Van Swinderen, 2012; Radner & Radner, 1989; Griffin & Speck, 2004; Allen & Bekoff, 1999).

Ultimately, what Rollin's history lesson shows us is what I've suggested throughout this dissertation, that human beliefs about what nonhuman beings are, and what they are capable of, is as often the product of unexamined ontology as it is any facts. Sheets-Johnstone (2011) speaks directly to this point when, in her critique of materialist reduction of notions of consciousness in nonhuman animals, she says, "[M]aterialists offer a metaphysics in advance of an epistemology and a natural history that support it. Their metaphysics is in advance of a supportive epistemology in that both experience and meticulous study belie [their] theory" (p. 44). Essentially, what she means is that materialists discount nonhuman feeling and consciousness by simply assuming there isn't any, and do so in the face of more than ample evidence to the contrary. Sheets-Johnstone is still a materialist, however, advancing an evolutionary/corporeal explanation of consciousness rather than aligning with my assertion that feelings can have more-than-material origins, but my conflict with her model doesn't affect the

agreement between our suppositions that more dualistically reductive materialists have not supported their denial of animal feelings or cognition with any substantive evidence.

Examples of Animal Feelings. The first emotion I'll explore is that of *grief*. Bekoff (2000) notes that "many animals display grief at the loss or absence of a close friend or loved one" (p. 865). Bekoff notes this feeling in descriptions of chimpanzees from Goodall, in geese from Lorenz, and in his own work observing sea lions, dolphins, and elephants. He quotes Goodall describing the grief of a chimpanzee named Flint whose mother, Flo, had died, saying,

[I]n the presence of his big brother [Figan], [Flint] had seemed to shake off a little of his depression. But then he suddenly left the group and raced back to the place where Flo had died and there sank into ever deeper depression...Flint became increasingly lethargic, refused food and, with his immune system thus weakened, fell sick. The last time I saw him alive, he was hollow-eyed, gaunt and utterly depressed, huddled in the vegetation close to where Flo had died...the last short journey he made, pausing to rest every few feet, was to the very place where Flo's body had lain...He struggled on a little further, then curled up—and never moved again. (p. 865)

For evidence from non-primates, Bekoff says of elephants that "Orphan elephants who have seen their mothers being killed often wake up screaming" (p. 866). Pierce (2008) notes that elephants grieve openly for their dead, such as when a baby elephant was "killed by a lioness; [and] over the course of the day, elephants from the herd gathered in a rough circle around the remains of the baby. Many of them touched the body with their trunks" (p. 85).

In my own experience, I'll never forget the time, when I was a boy, that I ended up watching a nature show on the television about Harp Seal slaughter. You'll have to take issue with my mother for letting me watch such a thing, but watch I did. And even at that age, the reaction of the mother seal as they clubbed her baby and dragged him away was unmistakable. The memory of her slipping over the ice in pursuit, nuzzling her dead baby to see if he'd wake up as the man dragged his small body away, her eyes radiating desperation and anguish in equal measures, makes me well up to this day. To suggest that this is anything other than grief on her

part at the loss of her child, and to suggest that my emotional response to it is anything short of some form of me “feeling with” her in the sense Noddings uses it—of it being the sharpest perception of an existential thing—flies in the face of common sense.

Skutch (1996) notes that feelings of grief and the impetus to act upon it in birds is also purely emotional, having no material survival component to it. He relates a story of a female Scarlet-rumped Tanager who he found

hanging by one wing from the jaws of a snake she had vainly tried to drive from her eggs. Such superogatory zeal for progeny could hardly be promoted by natural selection, for the loss of the parent would in most cases be followed by the loss of the brood. Likewise, the futile cries that many birds utter while fluttering around a nest that is being pillaged by a predator or inspected by a naturalist are expressions of parental distress without survival value. (p. 41)

Bekoff (2007) gives another example of bird grief in relating a personal experience of his:

A few years ago my friend Rod and I were riding our bicycles around Boulder, Colorado, when we witnessed a very interesting encounter among five magpies...One magpie had obviously been hit by a car and was lying dead on the side of the road. The four other magpies were standing around him. One approached the corpse, gently pecked at it...and stepped back. Another magpie did the same thing. Next, one of the magpies flew off, brought back some grass, and laid it by the corpse. Another magpie did the same. Then, all four magpies stood vigil for a few seconds and one by one flew off...We can't know that what they were actually thinking or feeling, but reading their actions there's no reason not to believe these birds were saying a magpie farewell to their friend. (pp. 1-2)

As a last example, I note Ken Kesey's (1987) description of the death of a bull amongst his herd:

...that night we called Sam's [the butcher], and the next morning John came turning in the drive before I'd even had coffee. Riding the running board, I directed him out to where the herd was bedded in the green clover around the main irrigation pipe. Ebenezer commenced bellowing a warning...but she was too late. John was already out, walking around toward the target I had pointed out...Abdul was just blinking awake when the shot exploded in his brow. He fell over the pipe without a sound.

As the herd bucked and bawled John hooked his winch cable to Abdul's hind feet and dragged the carcass away about fifty yards. I used to insist that he drag them clear from the field out of sight, so the herd wouldn't have to watch the gory peeling and gutting of their fallen relative, but John'd shown me it wasn't

necessary. They don't follow the carcass; they stay to circle the spot where the actual death occurred, keening around the taking-off place though the hoisted husk is in full view mere yards away. As time passes, this circle spreads larger. If one were to hang overhead in a balloon and take hourly photos of this outline of mourning, I believe it would describe the diffusing energy field of the dead animal.

Abdul was the biggest animal we'd ever killed, and this mourning lasted the longest. Off and on between grazing, the herd returned to the dented pipe and stood in a lowing circle that was a tight ten feet in diameter the first day, and the next day fifteen feet, and the next day twenty. For a full week they grieved. It was fitting: he'd been their old man and a great one, and it was only right that the funeral last until a great circle had been observed, only natural—with the proper period of respect fading naturally toward forgetting... (pp. 51-52)

These are all examples from more and less scientific, modern sources, giving diverse voice to the particular experience of humans having witnessed grief in nonhumans and knowing it as grief.

Since one strong element of close relationships is altruism, then the *empathy* defined by Bekoff and Pierce (2008) as the “the capacity to read and understand the emotions of others and respond in a sensitive and helpful manner.” (p. 138), is another emotion-related element worth considering. While empathy may not be an emotion, precisely, it is an important framework within which emotions of care, concern and love—amongst other generally benevolent feelings—find expression.

Pierce (2008) relates several examples of empathy, one of which (about two mice trapped in a sink) I explored above. Another lies in her reference to the research of Langford, who found that mice who witness the pain of fellow mice become more sensitive to pain in general themselves (p. 76). She discusses Rhesus monkeys refusing food or refusing to engage in a trained behavior to acquire food if it subjected another monkey to a painful experience (p. 81). Finally, she speaks of a pod of False Killer Whales who stayed with an injured pod member, at risk to themselves, for days until the companion died (p. 84). She notes that elephants show

empathy in a variety of ways, from helping and comforting distressed calves to helping wounded companions (pp. 84-85). Bates et al. (2008), in their elephant research, describe

an adult...pulling a tranquilizing dart out of another male...that had been darted by a vet prior to treatment for a spear wound...The actor...dropped the dart as soon as he had pulled it out, suggesting he was not interested in the dart itself, but rather in removing it from the other elephant. (p. 218)

In Preston and de Waal's (2002) account of animal empathy, they suggest what I have about the sharing of emotions between individuals when they say that "empathy is by definition a shared state phenomenon. As such, one cannot experience it without to some extent feeling the distress of another" (p. 287). Though they don't source that sharing in more-than-material elements, they do suggest that there is a lack of hard boundary between the two individuals sharing, in this case, the distress that promotes an empathetic response. They cite research showing empathetic responses in rats, pigeons, monkeys and apes and convincingly refute quite a bit of the research that tries to characterize this evidence for animal empathy as something else.

In addition to these examples of intraspecific empathy, there are lay accounts of assistive actions by animals toward humans in need. There's the story of surfer Todd Endris who was being attacked by a great white shark and a "pod of bottlenose dolphins intervened, forming a protective ring around Endris, allowing him to get to shore" (Celizic, 2007, para. 2). According to the article, "stories of the marine mammals rescuing humans go back to ancient Greece" ("Our Finned Friends", para. 1). There are domestic dogs who, when a "stranger pretended to cry, rather than approaching their usual source of comfort, their owner, dogs sniffed, nuzzled and licked the stranger instead" (Custance & Mayer, 2012, p. 851). And there are domestic cats, one of whom, freshly adopted, sensed her new owner was in trouble when the owner collapsed in diabetic shock. The cat hopped onto her chest and nipped her face until she regained enough consciousness to yell for her sleeping son, but when the son didn't awaken, the cat then ran into

the son's room and jumped on his bed until he woke up and helped the woman (Hernandez, 2012).

The last feeling I'll examine is *romantic love*. In making a case for romantic love in animals, Fisher (2004) says that

Darwin is among very few scientists who have maintained that animals feel love for one another...[others] rarely say that animals love, even though descriptions of animal courtship are filled with references to behaviors that are akin to human romantic passion. (p. 28)

In fact, she says, "I have read about the amorous lives of some hundred different species, and in every animal society, courting males and females display traits that are central components of human romantic love" (p. 32). She notes that animals of various sorts feel "mad with delight" (p. 32), nervous, lose their appetite, are choosy about and possessive of mates, and display "love at first sight." Of beavers, she quotes Wilson observing a pair of courting beavers who

sleep curled up close together during the daytime and at night they seek each other out at regular intervals to groom one another or just simply to sit close side by side and 'talk' for a little while in special contact sounds, the tones and nuances of which seem to a human expressive of nothing but intimacy and affection. (pp. 37-38)

Others, like Skutch (1996), also note such occurrences. In his studies of birds, he notes many instances of romantic love or affection. He says that the

prolonged nuptial fidelity of many birds suggests they are affectionately attached to their partners...[and that t]he many tanagers and other birds that travel in inseparable pairs through the months when their sexual urges are dormant appear to be held together by mutual affection. (p. 35)

Perhaps his strongest example is of another's experiment on duck mating pairs. In the experiment, male-female pairs of ducks were sequestered with mates they hadn't chosen (having not chosen any or having chosen another and being separated from them). And, "...although there was apparently no physiological impediment to breeding...psychic factors inhibited mating and reproduction in all except...spontaneously formed pairs [the ones that had chosen their own

mates]” (p. 35). In addition, for those who had chosen a mate but who were separated from that mate, the female of the pair “became extremely aggressive toward their new [forced] companions...Five of [the forced companions] succumbed to [i.e., died from] this harsh treatment [from the females]” (p. 35). Would these ducks have needed to die so that humans could learn this? Did the researchers feel the pain of the ducks? If they had simply trusted their own emotional response to witnessing the natural mating selection of ducks, could they have perceived the feeling of love directly as it was broadcast outward from the duck pairs? I believe the answers here are “Yes,” and further, that experiments which account for the human observer, and in which the feelings of all involved are of primary importance, will go a long way toward helping establish close(r) human-nature relationships.

To return to Fisher’s (2004) work, I suggest that while her examples and discussion are absolutely right, I believe her to be mistaken in attributing love to purely material causes as she does, saying, “there is chemistry to animal [including human] attraction. And this chemistry must be the precursor of human romantic love” (p. 47). Concluding this from her work is unwarranted and, I suggest, supported more by a dualist ontology rather than her results. For example, Fisher says of laboratory rats that

female laboratory rats express their amorous intentions by hopping and darting, behaviors associated with increased levels of dopamine. And in prairie voles...elevated levels of dopamine in the brain are directly associated with the *preference* for a particular mating partner. (p. 47)

From these two “associations,” or correlations, she incorrectly assumes causation. Of course to counter my point, one might suggest that causation is shown when Fisher refers to another element of the vole study, where “when scientists injected a specific region of the female prairie vole’s brain with a substance that reduced levels of dopamine, she no longer preferred this partner over other males” (p. 48). But, as a converse, more-than-material interpretation I suggest

that if one took away any male prairie voles that the female might actually prefer—eliminating her more-than-material attraction to any particular one—dopamine levels would drop as well. Thus, the more-than-material preference or its lack would precede and thus *determine* any chemical changes. What might be a much more effective tactic would be to *inject* dopamine or a chemical that would stimulate its production (though I don't advocate this since, relationally speaking, it is cruel to the rat), to see if the vole falls in love *with the same mate*, preferring him over others. If she did, maybe the material is more of a source than I think it is. If she didn't, then love is *a priori* more-than-material. Hence my suggestion that the material and more-than-material elements in any emotions ought to be taken as complementary, and that the more-than-material elements can precede and determine the material.

Insect Feelings. Further evidence to support my contention that feelings are not strictly human nor best exemplified in human physiology, can be found in a recent study by Bateson et al. (2011). In it, the authors suggest that not only do certain “higher” animals have emotions, but so does one very well-known insect: the honeybee. Their study falls into the category of research into “cognitive bias” in nonhuman animals, defined as the tendency of individuals who have been exposed to a negative or anxiety-producing stimulus to process future information more negatively than those that have not. These negative experiences “are associated with increased expectation of punishment, greater attention to potential threats, and a tendency to interpret ambiguous stimuli as if they were threats (i.e., a “glass-half-empty” or pessimistic bias)” (p. 1070).

According to Bateson et al., the success of correlating positive and negative cognitive bias with emotional states in human beings led researchers to attempt this with animals. The result is that emotions of both optimism and pessimism have been identified in rats, sheep, dogs,

birds...and now honeybees. In this study, Bateson et al. took two groups of honeybees, habituated them to both positive and negative food stimuli (sweet and bitter scents, respectively) and exposed one group to a simulated attack on the hive by shaking it for 60 seconds. After ruling out any physiological damage from the simulated attack, they found that when exposed to a negative food stimulus again, the shaken bees “were more likely to withhold their mouthparts” from it (an indication of negative response) and from the most similar (next most bitter) novel odor. Thus, the shaken bees exhibited an “increased expectation of punishment” (p. 1071). The authors suggest that these results indicate that “agitated bees display a negative emotional state” (p. 1072).

Of cognitive bias research in general, the authors say that “pessimistic judgment biases are likely to be a good measure of negative emotional states across species” (p. 1071). To address the significance of finding such a cognitive bias in an insect, they more broadly suggest:

Although our results do not allow us to make any claims about the presence of negative subjective feelings in honeybees, they call into question how we identify emotions in any nonhuman animal. It is logically inconsistent to claim that the presence of pessimistic cognitive biases should be taken as confirmation that dogs or rats are anxious but to deny the same conclusion in the case of honeybees. (p. 1072)

Bateson et al.’s explanation for the presence of this emotion in honeybees is material. For example, in response to their own findings they say, “The physiological mechanisms that produce this change are poorly understood” (p. 1072)). In the ontological context under discussion here, however, such an explanation seems a little revisionist. Confidence levels have generally been very *high* when material explanations for emotions have been offered for beings with physiologies similar to humans. To suggest otherwise only when faced with a materially very different kind of being having feelings strikes this author as a case of altering the explanation to fit the ontological assumption of a material basis for feelings. From a materialist perspective, their findings suggest that either much material evidence for the origins of feelings

lies somewhere as yet undiscovered, or the confidence with which previous material claims have been lodged is misplaced. In the end, this kind of conceptual sleight-of-hand underscores my point that the foundation upon which the confidence of these kinds of materialist conclusions stands is *a priori* ontological assumption, not any kind of definitive empirical proof.

As another example of this kind of unjustified confidence, I refer to Bekoff (2007), who is very supportive of the claim that “higher” nonhuman animals have emotions. Four years prior to the publication of Bateson et al.’s research, Bekoff asks: “Do even mosquitoes have emotional lives? Of course, mosquitoes have tiny brains and lack the neural apparatus *necessary for the evolution of emotions* [emphasis added], so it’s doubtful they do. But in truth, we just don’t know” (p. 2). While I take his qualification of the ultimate unknowability of mosquito emotions as a tip of the hat to the possibility that they do exist, it’s fairly clear that he finds the possibility remote given his “knowledge” that brains of a certain size and a certain neural apparatus are necessary for the presence of emotions. I suggest that such “knowledge” is due to his deep commitment to the ontological *gravitas* that evolution’s material directives possess more than anything else. In light of Bates et al.’s (2011) work four years later, those suggestions can now more easily be seen as founded at least partially in ontological assumption.

If Bekoff and most other materialists were this confident in human-like neurophysiology in 2007, what must change to accommodate the honeybee’s pessimism in 2011? If one’s ontology is material, then the material foundation thought to sponsor such feelings must be broadened radically to accommodate the physiology of bees. But, if one is inclined to consider more-than-material origins, the honeybee certainly brightens one’s prospects. At this juncture, I’m inclined to ask: When is there *enough* experience falling outside accepted material explanations to shake the confidence materialists have in their ontology? At times it seems that

the answer is that there will never be enough. Regardless, as I've stated throughout this dissertation, from the outside one can at least see that the confidence materialists have in their own ontology is often the product of a circular logic that first requires the assumption of a material reality as evidence to interpret observed phenomena such as feelings as material in origin. This is a far weaker position than the proponents of a materialist ontology attempt to occupy in determining who does and does not have the capacity for feelings. This, in turn, opens the door for a far greater number of beings to potentially have them.

Plant Feelings? As I state above, the finding of pessimistic feelings in an insect forces the modern conceptual understanding of what is necessary for feelings to occur to change radically. This means a redefinition both of the material structures and processes thought to co-occur with feelings and the admission that, by expunging one's ontological positions of dualisms, there is no *a priori* impediment to more-than-material elements playing a part. Given the now greater uncertainty as to the origins of and nature of feelings, it's useful to explore whom else besides humans and honeybees might have them.

Feeling and Electricity. Chemical processes are not the only or material elements they are thought to be when it comes to correlation with feelings. For example, Schmidt and Trainor (2001), provide evidence that electrical activity in the human brain, measured by the electroencephalogram (EEG), is associated with positive feelings as they relate to music. In addition, these authors found that the pattern of electrical activation has been seen to correlate with the intensity of emotion felt. Other studies have used the EEG to measure the presence of happiness, relaxation and sadness (Chai, Wahab & Abut, 2009), to measure differences in location of electrical activity in the brain for positive and negative emotions (Ahern & Schwartz, 1985), and to measure location and changes in electrical activity when humans are in relaxed,

meditative states (Aftanas and Golocheikine 2001). Other ways of gauging electrical activity, such as brain electromagnetism, have been used to find evidence for romantic love in humans (Bartels & Zeki, 2000; Zeki & Romaya, 2010), emotions such as happiness, sadness, anger, fear, and disgust (Esslen, Pascual-Marqui, Hell, Kochi and Lehmann 2004), the anticipation of reward in dogs (Berns, Brook & Spivak, 2012), etc. Electrical activity as measured by electrical resistance in the skin (galvanic skin response, or GSR), has also been correlated well with emotions such as fear and anger in human beings (Sinha and Parsons 1996, Kreibig, Wilhelm, Roth, and Gross 2007), sadness (Kreibig, Wilhelm, Roth, & Gross 2007), detachment as part of coping (Pecchinenda and Smith 1996), and romantic love (Bartels & Zeki, 2000; Zeki & Romaya, 2010).

As can be seen, there is a strong correlation of various forms of electrical activity with emotions. Freedman (2007) says in response to Pert's work that, "Emotions...are not simply a chemical in the brain. They are electrochemical signals that affect the chemistry and electricity of every cell in the body" (para. 1). He quotes Pert as saying, "As our feelings change, this mixture of peptides travels throughout your body and your brain" (para. 6). In such a statement, I note that Pert *could* be read as indicating that changes in feeling *precede* and precipitate chemical changes, they do not follow them. In addressing how emotions like love can be shared amongst humans, Freedman quotes Pert as saying, "We're not just little hunks of meat. We're vibrating like a tuning fork—we send out a vibration to other people. We broadcast and receive" (para. 5). He says that "Feelings literally alter the electrical frequencies generated by our bodies, producing a nonverbal communication" (caption 1). Freedman's then asks Pert about "how one person's emotions can affect another person" and describes her response as follows:

"You're still thinking about this as chemistry," Pert chides. "Of course it is chemistry, but it's also physics and vibrations." Neurotransmitters are chemicals,

but they carry an electrical charge. The electrical signals in our brains and bodies affect the way cells interact and function. “You have receptors on every cell in your body. They actually are little mini electrical pumps.” When the receptor is activated by a matching “molecule of emotion” the receptor passes a charge into the cell changing the cell’s electrical frequency as well as its chemistry. Pert says that just as our individual cells carry an electrical charge, so does the body as a whole. Like an electromagnet generating a field, Pert says that people have a positive charge above their heads and a negative charge below. “So we’re actually sending out various electrical signals – vibrations.” “We’re all familiar with one kind of vibration: When we talk, we send a vibration through the air that someone else perceives as sound...we’re also sending out other kinds of vibrations...It is a whole new paradigm shift that basically leads you to realize you’re not alone. You are connected to everybody else. Your emotions are key. And you are leaving a wake...” (para. 7)

Thus far, Pert’s work appears to parallel, and be a cogent *material* explanation for, the continuity of external, Peircian feelings, and the internal and external emotions I have described. To Pert, the shared electrical fields come before chemistry—they have to as they exist externally first—and are followed by individual chemical responses to being within such a field of emotions. As to my contention that both of these material elements can be preceded by more-than-material elements and stimuli, Pert (2006) says that

the movement of energy in the body was possibly due to the flow of emotions going back and forth between the physical and the spiritual, existing on the physical level as peptides and receptors, but also in the spiritual realm as information. Chi, prana, and meridians—these phenomena could possibly be explained by the flow of information and emotions...” (p. 253)

If one finds Pert’s move to the more-than-material here a bit jarring, I’d suggest it’s because of engrained material ontological expectations, not because the move is unwarranted. After all, Pert appears more than well qualified to render an opinion on the subject. Since she had been speaking about physical phenomena, and because of her high position in mainstream science, one might expect her to remain within its preferred materialist ontological boundaries. Given this expectation (a thing whose weight she herself must certainly have felt) think of how strong her belief or knowledge must be that more-than-material elements—a belief *based on*, not

in contradiction with, her close study of the phenomena—are real and relevant. As I have, Pert suggests that feelings have both material and more-than-material underpinnings, that there is an interplay between the two, and that neither is the clearcut originator of the other. If what Pert and I suggest is correct, then we certainly have one form of what the honeybee research forces upon us: a radically revised notion of the material elements involved, and the entrance of the possibility of more-than-material elements. For Pert, electricity gains precedence, and thus importance, in explaining the origin and nature of emotions. More-than-material origins of feelings that may precede this electricity are also essential.

Given such expanded ontological possibilities for the origin of feelings, I cannot help but begin to wonder about plants. Do they have the necessary material and more-than-material capabilities for feelings? If electricity is a significant indicator of the presence of feelings, since it's commonly held that plants don't have the chemical structure and processes to experience feelings, I wonder if they have the electrical components to do so. I'll explore the possibility of this next.

Electrical Plants. Experiments by Kaznacheev, Mikhailova, and Kartashov (1980) into the effects of intercellular communication via electromagnetic fields (EMF) show that plant cells damaged either by viruses, mercuric chloride or UV radiation communicated their experience to the same kinds of cells in optical contact with the manipulated cells. In other words, the damage that the manipulated cells sustained appeared in the unmanipulated cells even though the external damaging agent was only inflicted on the manipulated cells. Occurrence of spontaneous deterioration and cross-contamination were strictly monitored for and prevented. What's more, there were four different damaging agents that induced four *different* morphological changes to the manipulated cells. In all four cases, the morphological changes in the manipulated cells

manifested in the correspondingly optically connected unmanipulated cells, thus the conclusion was that the communication was happening electrically.

Cifra, Fields and Farhadi (2011) cite other examples of intercellular EMF communication (as well as ultraviolet and infrared light). These include growth rates in yeast cells (Musumeci, Scordino, Triglia, Blandino & Milazzo, 1999), germination rates in pollen grains (Budagovskii Turovtseva, & Budagovskii, 2001), bacterial spore germination (Nikolaev 2000) and plant seed damage from low dose gamma radiation (Kuzin, Surkenova, Budagovskii, & Gudi, 1996).

Regarding other forms of electrical activity, in Keller's (1982) book about Nobel Prize winning geneticist Barbara McClintock, Keller quotes McClintock as saying, "Plants are extraordinary. For instance...if you pinch a leaf of a plant you set off electric pulses. You can't touch a plant without setting off an electric pulse" (p. 387). Brenner et al. (2006) speak to electrical signaling in plants when they tell us that "Electrical signals have been linked with changes in rates of respiration and photosynthesis, observed in response to pollination, phloem transport, and the rapid, systemic deployment of plant defenses" (p. 415). Simons (1992) notes that for flowering plants, electricity in the form of action potentials has been linked with "feeling touch, wound and temperature stresses" (p. 232). Shepherd (2006) says that "it is now fully accepted that plants employ electrical signals in the integration of their responses to the world" (p. 7) and quotes Bose as holding that "[p]lants possessed a[n electrical] means for rapidly transmitting information about an urgent or injurious event as well as for navigating the physical aspects of the world through subtle and exploratory growth movements" (p. 24). Shepherd also notes,

Bose compared a plant to a bar magnet, its two poles located at root and shoot...[and] as the two parts of a divided bar magnet both then show a north and a south pole, so it was with the plant, all the way down to the individual pulsating cell. (p. 24)

I note here the similarity between Bose's description of plant electrical fields and Pert's description of the human being's electrical field, the latter in relation to emotion. In referring to plant electrical activity research overall, Shepherd (2012) notes the discovery of a

'plant brain'...[in] the transition zone of roots, where actin-enriched fields of cell-to-cell communication channels (plasmodesmata) at the end-poles of cells act as synaptic connections. Synapses in this region confer on the root apex the properties of a 'brain', or command centre, where incoming sensory signals are processed (Baluska et al. 2004; Barlow 2006, 2008). 'Higher plants show neuronal-like features in that the end-poles of elongating plant cells resemble chemical synapses' (Baluska et al. 2003a, b). It is here that synchronised electrical 'spikes' are measured, which are proposed to reflect integration of internal and external signals (Masi et al. 2009). (p. 32)

Beyond communication within the plant, some have speculated that the interplant communication phenomenon of self/non-self plant recognition, with discernment and relaxed competition with a plant's own roots and those of its conspecific neighbors, could be explained electrically. For example, Falik, Reides, Gersani, & Novoplansky (2003) suggest the possibility that the plant's roots have

electrical oscillations...[that] might be perceived by neighbouring roots without direct contact. The perception of 'self' signals might be based on resonant amplification of oscillatory signals in the vicinity of other roots of the same individual plant. Such resonant amplification could not occur in roots that are not oscillating at the same rhythm. (p. 529)

Here again, I note the similarity of their description of the function of electrical activity within the organism with that of Dr. Pert's notion of the electrical communication via overlap of emotions between humans.

Finally, not only do root electrical fields potentially form the basis of interplant-communication, but plant-animal communication as well. For example, West et al. (2002) found evidence that electrical fields generated by the plant's roots could electrically communicate with and attract certain zoomorphic life forms, literally causing them to swim in the direction of the roots. And, the authors theorize, the electrical fields that caused this could override any chemical

cues emitted for the same purpose. This again positions electrical activity as more determinative than chemical activity.

Plant-Animal Electrical Parallels. Of this work on electricity in plants, Shepherd (2012) says that “Bose interpreted his results as constituting evidence that plants possess the equivalent of a well-defined nervous system” (p. 19). Bose found that “sensitiveness of Mimosa to electrical stimulation is high and may exceed that of a human subject. (Bose 1913, p. 51)” (p. 18). Shepherd notes that in Bose’s research, Bose found that electrical “action potentials travelled at similar rates to...the nerve impulse [in animals] with Bose concluding that ‘[t]ransmission of excitation in the plant is a process fundamentally similar to that which takes place in the animal’” (p. 20) and that the “...physiological mechanism of the plant is identical with that of the animal ...” (p.19). Many other researchers believe that there is a parallel in animal and plant electrical signaling as well, so much so that a recent field of study has been born called “plant neurobiology.”

I must note that not all plant biologists are sanguine with the parallels being drawn between plant and animal electrical activity, however. For example, Brenner et al. (2006) note that “the concept of a plant nervous-analog system lost popularity in the scientific community in favor of a chemical diffusion mechanism of signaling coinciding with the discovery and effects of plant hormones” (p. 414). They trace the cause for this shift to, amongst other factors, “[negative] publicity... generated by the controversial book ‘The Secret Life of Plants’ [that] stigmatized any possible similarities between plant signaling and animal neurobiology” (p. 414). This stigmatization, according to Brenner et al., induced “a form of self-censorship [in plant biologists] in thought, discussion and research that [has] inhibited asking relevant questions of possible homologies [i.e., parallels] between neurobiology and phytobiology” (p. 415). They

note that the result has been a *de facto* “prohibition against anthropomorphosizing plant function” (p. 415).

Shepherd (2006) traces this shift away from study of plant electricity to an earlier time, when in “the mid-nineteenth century...German mechanistic materialist philosophies had begun to influence the science of physiology...[where, a]s a tenet of Descartes’ philosophy, cells, tissues and organisms [were seen to] respond passively to the physical and chemical features of their environments” (p. 9). As to the effect this had on parallels being drawn between plant and animal electrical activity at that time, Shepherd says,

This concept of nerve-like electrical signaling in [Bose’s research into the plant] *Mimosa* was unpopular at a time when many scientists sought to construct a purely physico-chemical theory of life (Agutter et al. 2000), exorcising...interpretations of plant response that were reminiscent of animal behaviour. (p. 10)

But, Yoon (2008) suggests that defenders of these plant-animal parallels are,

well aware that plants do not have exact copies of animal nervous systems. For example, ‘No one proposes that we literally look for a walnut-shaped little brain in the root or shoot tip,’ five authors wrote in defense of the new group. Instead, the researchers say, they are asking that scientists be open to the possibility that plants may have their own system, perhaps analogous to an animal’s nervous system, to transfer information around the body. (para. 30)

The evidence for drawing such a parallel between plant and animal electrical signaling is robust. The experiments by Kaznacheev, Mikhailova, and Kartashov (1980) to which I refer above show that not only are plant cells damaged and communicating the nature of that damage to optically connected, unmanipulated cells, so are animal cells. Cifra, Fields and Farhadi (2011) also cite this electromagnetic communication in growth rates in yeast cells, bacterial spore germination and induced respiratory bursts in human inducer neutrophil cells. They also refer to the work of Albrecht-Buehler on interactions of baby hamster kidney cells separated by glass.

That work showed that “Cells on one side tended to orient (traverse) themselves based on the orientation of the cells on the other side of a separator made of glass” (p. 234).

In referring to dinoflagellates, Simons (1992) says they “come in two types—the plant-like (photosynthetic) and animal-like—but they both behave electrically... This sort of sophisticated electrical behaviour in such ‘simple’ creatures is another measure of the common inheritance of plants and animals” (pp. 231-232). Cifra, Fields and Farhadi (2011) also note that communication occurs similarly across species lines when discussing Budagovsky, et al.’s work finding “that human whole blood has a stimulatory effect on germination of radish seeds when those are optically coupled” (p. 234). They also note that there is continuity at the organismal level between plants and animals when considering Popp and Chang’s research finding “synchronization of flashes of fireflies and dinoflagellates when cultures were connected optically. From these experiments, the authors suggested that electromagnetic bio-communication plays an important role in the interactions of whole organisms” (p. 234). If these authors are right that whole organism communication can occur electrically, and between plants and animals—and then Pert is also right that emotional communication occurs electrically between humans—then it is not far-fetched to suggest that if plants did feel, that humans and plants could communicate emotionally as well.

In answer to “how plants could have nerve-like signals when they don’t have nerves” (p. 233), Simons (1992) paraphrases the response of late 19th century researcher Sir John Burdon-Sanderson as saying, “quite simply...they don’t need nerves” (p. 233). To invert the zoocentric orientation of the discourse overall, let’s consider Simons when he says, “what’s interesting from an evolutionary point of view is that animals also appear to have something akin to [those plant structures for channeling electricity]” (p. 234). This shows that not only are plants similar to

animals in their electrical signaling, but animals are now being discovered to be similar to plants, *with plants as the standard* against which animals are measured. That's hardly a "step down," and if it were taken as such, it would betray an anthropocentric and/or zoocentric orientation in judging electrical activity. Simons' statement merely means that plants are far more complex than generally supposed over the last 150 years of modern human study of them.

Possibility of Plant Emotions. It is instructive to note that Simons does not ultimately believe that the continuity he notes means that plants are animal-like. For example, he says, "Not even the sophistication of a...Venus's flytrap comes anywhere near the complexity of an earthworm, with its well-coordinated movements, feeding and sexual behaviour" (p. 233). Is he right? I suggest that his point is only valid if one is considering physical locomotion, and over a short temporal and relatively large spatial scale. We must note, though, that such parameters center the measurement around the human or human-like attributes of locomotion and short temporal spans. Using a much finer frame of spatial reference, Bose (Shepherd, 2006) noticed that plants moved quite a lot. A long-time native plant nursery owner, who's spent thirty years living in one place, told me all about how apple trees (personal communication) can walk over distances, the same as Trewavas (2003) points out about stilt palm plants (p. 15).

Simons' (1992) comparison of plant to earthworm illuminates a more general modern ontological trend as well: that most researchers and theorists employ the dualism of fixing the reference point for "complexity" on human physiology. By doing so, any deviation from this fixed point will necessarily be categorized as out of center (and by extension, not as important, valuable or complex). Terms like "lower" or "simpler" make their appearances in these discussions to suggest some lack—that what nonhumans have is not what's best for "the job." That plants are more competent plants than humans are is not a point raised by many. I believe

Simons is guilty of employing this technique in discussing electrical activity when he cautions us not to get too “carried away on the idea that plants are evolving into some sort of green animal” (p. 233). One notes first that he is not saying we humans shouldn’t get carried away in *equating* plants and animals, which would be a bit less of a zoocentric statement. But in his statement, the bar has been set by animals and the plants are trying to get “high” enough to rub elbows with them. For Simons, as well as most others, animals are the pacesetter, with plants lagging behind in their travels down the evolutionary path. Of the higher value Simons places on animals, it is clearly visible when he says that the “most *flattering* [emphasis added] comparison we could make [for plants] is with jellyfish or sea anemones” (p. 233). Such a comparison can only be called “flattery” if it is thought to *be* flattering to be thought of as animal-like. What Simons fails to note is the irony such a statement evokes when, elsewhere, he notes that plants were mobile in an *earlier* phase of their evolution (p. 233). Some might reasonably infer from such a statement that animals are *less* evolved than plants, plants having evolutionarily “arrived” at the benefits of sessility that animals are lagging far behind in adopting.

My discussion of defining complexity anthropocentrically raises a more general issue in the logic of argument around which beings are acknowledged as having emotions and which are not. The general path of that logic is that because humans experience emotions, they must be the beings that experience them most thoroughly and best. In concluding such a thing, modern humans have taken a material representation of their species’ emotional capacity and used it to create the standard by which to judge emotional capacity in all beings. Granted, if another being is materially similar to humans, one could reasonably infer that he or she would experience emotions, but to infer the converse from the same logic is fallacious. Specifically, if another being is dissimilar from humans it is *not* reasonable to infer that they don’t have

emotions...unless we're *sure* the source of emotions is the material structures and processes that humans have (and have in the ideal proportions), then moving out concentrically to less and less similar beings until emotional capacity is lost. This is the current modern worldview in research into nonhuman emotions, but it is based almost entirely in what I've referred to in Sheets-Johnstone (2011), a "metaphysics in advance of an epistemology" (p. 44). This is especially the case given the foundationally contentious nature of the discourse on the source of emotions. Are they chemical? Certainly many working in the biochemistry field would have us think so. Are they electrical? Other researchers think this is plausible. Are both these material explanations of a *source*, or are they just descriptions of the material portion of reality—one among many possible descriptions—in which the feelings that I take to be more-than-materially sourced are complementarily manifested? There is no clear answer. Even if one were to hold that emotions are materially sourced, the logic that those who experience emotions ought to be the ones by which the standard is set for emotional capacity would just as easily support the honeybee physiology as the standard by which human capacity for feelings ought to be judged.

Ultimately, the nature of plant electrical activity is not a matter of complexity or its lack because, in truth, there is no absolute "right" apparatus against which to judge it. Are plants less complex in their electrical activity than humans or more complex? It depends entirely on what is thought important and differentiable in the measurement. That dualistic ontology factors into such determinations is undeniable, therefore humans as assumed to be "complex" is immediately suspect. Pragmatically speaking, what is and is not complex in the realm of organismal electrical activity depends entirely upon the purpose of the electrical activity. Certainly the type of electrical activity in a human would utterly fail the plant in her endeavors to excel as a plant, just as a plant's would fail a human in his endeavors to excel as a member of his own species.

This is not about complexity; it is about *fit*. As I mention above, at one juncture Simons notes the strangeness of plant evolution because plants used to be mobile but evolved to become sessile. Perhaps the electrical activity associated with locomotion is not a more complex or “higher” form of activity, but instead an earlier way of being that plants evolved away from to their now more “elegant” and “complex” electrical systems. They don’t move over extended distances, at least not quickly, because they’ve evolved a means to get all that they need from one place—a far more “complex” thing to carry off, if one looked at it from a phytocentric standpoint. To move humans even further from the center of importance, Simons (1992) notes that some of the electrical elements previously held to be exclusive to the plant have now been found in animals, including humans, so here again the human is trying to “catch up” to the plant from an evolutionary perspective.

In regard to the term I used above, “fit,” plant electrical systems are the perfect complexity and elegance for plant lives. They lack nothing in this, the only relevant context by which to judge their nature and capacities. Thus, any research into electrical activity in plants that can be correlated to experience of feelings is no longer a matter of some abstracted, absolute complexity or its lack, or of finding similarity to human material structures and processes. Instead, it’s a matter of finding correlative evidence, through scientific, relational and poetic means, of the occurrence of emotions only within the plant’s own electrical structure and processes. In fact, if feelings are ontologically more-than-material, then any material evidence found for their occurrence ought to *vary* according to the varying physiology of the entities experiencing them. Thus, the question becomes: What material changes does any entity undergo before, during and subsequent to an emotional experience given its physiology? Of course

where physiologies are similar, there will be similarities. For example, there is similar electromagnetic activity in chimpanzees and humans experiencing emotion (Hirata et al., 2013).

There can also be chemical similarities, such as dopamine and serotonin in humans, animals and...plants? Brenner et al. (2006) talks about the most common

metabolic neurotransmitters, acetylcholine, catecholamines, histamines, serotonin, dopamine, melatonin, GABA (g-aminobutyric acid) and glutamates...in the animal nervous system, playing roles in sensing, locomotion, vision, information processing and development. It has long been noted by scientists that each of these compounds are present in plants, often at relatively high concentrations [13]. However, it is unclear whether these compounds play a metabolic or a signaling role in plants despite numerous studies [1,58,59] (p. 415).

Could these elements be evidence of emotional experience in plants? I make no claims that they *are* evidence of such a thing, but I do suggest that, given the strength of my exploration above, it is perfectly sensible to wonder. This is especially so given the complexity of plant electrical activity, its parallels with electrical activity in animals in several other areas, and the fact that the material aspects of animal emotions are, in part, reflected not just in chemical activity but in electrical activity. Therefore, it is simply inaccurate for those like Galston (quoted in Backster (2003)) to critique the possibility of plant sensations by saying, “There’s no nervous system in a plant. There are no means by which sensation can be transferred” (p. 59).

Given all of this, however, the question of plant emotions is still taboo in traditional, modern plant research. Brenner et al. (2006) worries about his career prospects just talking about plant electrical activity (p. 415). How much worse, then, to discuss plant emotion? When the subject is raised, it is routinely dismissed as the work of the “kook-fringe” doing “decidedly nonscientific” (Yoon, 2008, para. 21) things. It seems there is particular venom aimed at the 1973 book *The Secret Life of Plants* (noted in Brenner et al. (2006), Davies (2004), Yoon (2008), etc.). And while much of the research regarding plant emotion presented in the book *is* questionable (and so, necessarily, are any conclusions based on it), it doesn’t logically follow

that because the methodology is suspect, the question it was designed to answer is as well. At the least, the question most certainly ought not to be denigrated with *ad hominem* statements from a Dr. Dudley, quoted in Yoon (2008) as saying, “Plants are not ‘sensitive new age guys who cringe when something around them gets hurt and who love classical music and hate rock’” (para. 22).

At this juncture, it seems fair to ask if the invective coming from established researchers is due to the absurdity of the question or the threat such a question poses to the foundational worldview of the researchers. I note that the latter is at least possible. For example, similar treatment was given to Bose 100 years ago when he first suggested that the electrical activity he found in plants was also present in “inanimate” matter. In response to the experience of his rough treatment by the establishment at that time, Shepherd (2006) quotes Bose as saying,

I had...unwittingly strayed into the domain of a new and unfamiliar caste system [physics] and so offended its etiquette. An unconscious theological bias was also present...To the theological bias was added the misgivings about the inherent bent of the Indian mind towards mysticism and unchecked imagination... (p. 14)

Before the work on honeybee emotions, I’m sure similar treatment would’ve been meted out to anyone suggesting that insects could feel pessimistic. As to my point that the question of plant emotion ought to not be problematic, I note that Solfvin (2009), in reviewing Backster’s (2003) oft-vilified book on plant communication, says, “Just because Backster’s beliefs are not yet scientifically validated (and they are not) certainly does not rule out their potential veracity” (para. 5). Thus we stand on the threshold of the question: Can plants feel? The wonderfully provocative, answer, based on available material *and* more-than-material evidence, is: We don’t yet know. And if we don’t, then one place I might suggest that research begin would be to ask of the plant the same question that was asked of the honeybee: “Can you be pessimistic?”

Given my commitment to a pragmatic philosophical approach in this dissertation, I conclude this section by relating my own trouble in taking seriously the possibility of plant emotions. Intellectually I wholeheartedly embrace the possibility, but when initially encountering the work of Backster (1968, 2003), Dubrov and Pushkin (1982), and others I'll discuss below as being part of the "kook-fringe", I found myself worrying about offering their work as the backbone of an assertion that plants can feel. I say this because at best, those authors have been categorically dismissed by most established researchers. Because of the exploration I've subsequently done into animal emotions and plant electrical and chemical processes, however, I'm now forced to ask an altogether different question: Given all of the surrounding literature on animal emotions and plant electrical communication, how is it possible that plant emotions have *not* already been studied? The only answer I am able to formulate has two parts. First, it is a result of what Brenner et al. (2006) said: stigmatization and its resultant self-censorship. Second, it is a result of what I've been arguing: that individualistic and anthropocentric ontological commitments obviate the conceptual possibility of plant emotions. As a result, any effort to seek evidence to support them is eradicated as well. Ultimately, I've traced my own hesitation to embrace the possibility of plant emotions as my holding onto the very ontological commitments against which I've been making strenuous objections throughout this dissertation. I will put them to the side of the path for now, and press on to the kook-fringe.

The "Kook-Fringe". The extant research into plant emotions by the "kook-fringe" is relevant to my discussion for two reasons. First, though much of the research is riddled with problematic application of the scientific method, I find the response of plant emotion researchers to such critiques to be valuable in an ontological sense. Specifically, those researchers don't argue so much for the validity of their work within the bounds of the scientific method, but

instead question the validity of applying the scientific method to what they see as an essentially relational situation. Second, despite the problems of method and design, some evidence of note still emerges from within the confines of scientific rigor.

As an example of the first reason for interest, the response of researchers to critiques of their work are Dubrov and Pushkin (1982). Their research is into emotional communication between humans and plants, and have responded to critiques of their methodology by saying that they “learned that not only the state of the subject [a human trying to communicate with the plant], but also the state of the plant, is essential for a successful experiment” (p. 95). In addition, they suggest that “far from all the subjects were capable of establishing communication with plants. Apparently, these differences were due to individual differences in the psycho-energetic systems in our subjects” (p. 95). In both of these quotations, the authors reveal that the plant is not a dualistically reduced, passive material object but an active subject in relationship with the human attempting to relate with them.

Backster’s (1968, 2003) work on plant-human communication is perhaps best known from amongst those in this kook-fringe group. Because of this, it has probably received the worst treatment by the scientific establishment. He explores the electrical response of plants to the killing of brine shrimp (amongst other things), and finds a correlation between plant electrical responses and the death of the shrimp (1968). Horowitz, Lewis, and Gasteiger (1975), amongst others, attempted to replicate this work with what they saw as a more rigorous application of the scientific method and did not find the correlation that Backster had. When countering their and others’ refutation of his work, Backster, points out what he sees as flaws in *their* methodology. Like Dubrov and Pushkin (1982), what he points out about those flaws takes on a relational tone. For example, Backster (2003) says,

Any kind of experimenter contact with the plants prior to the actual experimental usage can compromise the experiment by allowing prior attunement between the plant and the researcher rather than the more subtle stimulus provided by the death of the brine shrimp. (p. 70)

In general, Backster suggests that there is a “possible contamination of the experiment results by the conscious intent of the researcher being communicated to the biological material being tested” (p. 76). He notes that this may have occurred in Horowitz, Lewis and Gasteiger (1975), and also Kmetz’s (1977) research, where plants were kept in a holding room for seven days and their leaves bathed in distilled water by the researchers prior to the experiment. One can see that in Backster’s ontology, plants are included as relational partners able to influence, and be influenced by, thoughts and feelings.

This more relational approach is on display less controversially in recommendations by Poole (1997) for the treatment of animal experimental subjects. He says,

One of the most important aspects of the life of laboratory animals are their relations with human handlers and care givers...Good, kindly treatment and simple humane training are beneficial both in reducing stress and in producing animals which...will...be the best subjects for scientific investigation. (p. 122)

He argues that because stress changes various physiological characteristics, that “these uncontrolled variables make [the animals subjected to the stress] unsuitable subjects for scientific studies” (p. 122). Though his argument is based in the material effects of what I take to be more-than-materially originated elements like stress, it is relevant in that when one has a subject that is aware of the experimenter and affected by her, that the experimenter must be accounted for as a variable. As Galston and Slayman (1979) quote Vogel saying about this relational approach, it “runs counter to the philosophy of many scientists who do not realize that...the experimenters must become part of their experiments” (p. 344). The kook-fringe researchers are suggesting the very same thing with regard to plant experiments, what puts them on the fringe is that they are doing so with respect to plants.

Solfvin (2009), as sympathetic as he is to the concept of biocommunication in Backster's work, appears unable to grasp the undergirding relational ontology. For example, Backster suggests that spontaneity in experimenter-plant interaction is necessary for biocommunication, where measuring that communication is a function of allowing the interaction to occur, diligently recording the events contained therein, and then going back afterward to see if the plant responded electrically to them. Solfvin critiques this methodology by saying it is "logically equivalent to shooting your arrow at a blank wall and drawing the target afterward! The independent and dependent variables are confused!" (para. 7). But what Solfvin fails to see is that, for Backster, it's not possible to control or predefine what is relationally stimulating, as it's a result of *this particular relationship at this point in time*.

That is why Backster is so critical of the scientific method's insistence on repeatability. Of this, he says, "The...problem in this kind of [traditional scientific] research is that Mother Nature does not want to jump through the hoop ten times in a row, simply because someone wants her to" (in Galston & Slayman, 1979, p. 344). Thus, to understand if a plant is responding *in relationship*, one has to account for the relationship, not just the things that one participant believes she is controlling within it (and from outside of it, as if that's possible). The researcher must be a recognized relational partner whose influence on a living other can be neither reliably predicted nor systematized into anything wholly replicable.

Galston and Slayman object to this sort of approach in Backster's work by calling it generally a "corpus of fallacious or unprovable claims" (p. 344). In making this accusation, they do make the valid point that relational approaches can be dangerous if used as a means of dismissing any work that refutes it—where "Negative results [are] discounted because the experimenter is not 'in tune,' and [thus] only positive results are accepted" (p. 344). But, just as

one cannot dismiss traditional scientific methods out of hand when they disagree with one's relationally generated results, neither can one wholly dismiss relationally generated results (and the methods by which they are generated) when they are at odds with the results gleaned through traditional scientific methods. Therefore, for Galston and Slayman and others to judge Backster's work from wholly within the ontological boundaries of traditional science is to ignore that he has intentionally stepped outside of it and, in doing so, raised legitimate questions about its methods. I suggest that if Galston and Slayman had instead taken seriously Backster's objections, modified their own methodologies to control for the possibility of plant awareness as Backster suggested, conducted experiments where the relationship was allowed to vary both for the plant and the researcher, and *still* found no evidence of plant response to the interaction, *then* their critique would be a strong one. There is, however, a deeper issue if Galston and Slayman were to consider such an alteration in their approach. That is, within the confines of traditional scientific approaches, where detached objectivity is seen as the only legitimate conduit to knowledge, it may simply be impossible to alter one's methods sufficiently to establish the kind of relationship Backster and others on the kook-fringe suggest is necessary.

As mentioned at the beginning of this section, the second feature of interest in kook-fringe research is that even within the confines of scientific investigation, results emerge. For example, researchers Dubrov and Pushkin (1982) suggested that Kaznacheev, Mikhailova, and Kartashov's (1980) work on electromagnetic communication between plant cells painted a portrait of a plant "empathy" (Dubrov & Pushkin, 1982, p. 93) In trying to find evidence of plant response to emotional experience in humans, Puthoff and Fontes (1975) found that "electrical activity of plants in close proximity to a human subject viewing slides of putative emotional content...did show in some cases (20%) statistically significant evidence of correlation

with [human] subject GSR” (p. 32). From this, they concluded that “there is evidence for a degree of correlation [between human GSR in response to exposure to emotional content and the electrical fluctuation in electrically shielded plants that sat nearby] beyond that expected by chance” (p. 33). This would seem to correspond most with Pert’s view of the electrical communicability of emotions. But, because the plants were electrically shielded, the communication had to have occurred by some non-electrical means. This would support my suggestion that there is the possibility of direct, more-than-material communication of feelings.

At one point, the television show *Mythbusters* (2006) got involved in testing the electrical response of plants to human thoughts of harming them. In their initial experiment, they found that 35% of the time, the plant responded electrically to one of the hosts’ thoughts of harming it. Of this result they say,

The most surprising result was that the needle responded to [co-host] Tory's thoughts about harming the plant, but as the later experiments noted, these first tests didn't do a good job of isolating the variables. With [co-host] Grant and Tory standing right next to the sensitive polygraph, there were many ways in which their excitement and jumping around could have caused the instrument to respond.

By stating things this way, they seem to suggest that the next test they ran to control for the effect of standing too close to the polygraph showed no such effects, but this is not the case. In the first test both the hosts and the plant were inside a shipping container to control for external electrical interference. But, because of the concern just mentioned over host influence on the equipment, they moved the hosts outside of the shipping container, leaving the plant and polygraph equipment inside to shield them from the hosts. This time, when the host had thoughts of harming the plant, the “plant responded 28% of the time to Tory's stimuli.”

The fact that there was a drop of 7% may indicate that the hosts were interfering with the equipment to some degree, but the fact that still, nearly 1/3 of the time, the plants responded to

the hosts' thoughts of harming them is quite remarkable, and goes totally unacknowledged and unexplored in their writeup. Whether the 28%, 35%, both or neither are statistically significant is not discussed by the show's hosts, but for them to see lay significance in the first set of results and to dismiss it in the second is curious, and could lead one to conclude that they simply didn't want to find significance, statistical or otherwise, in the second set of numbers. Then they too, would be part of the kook-fringe. Ultimately, much of this research remains gimmicky and/or on the fringe, and yet strangely persistent. Critics have suggested that this is so because humans want to believe it (Galston & Slayman, 1979). But, in light of more recent research about plant neurobiology (Brenner et al., 2006), for example, the question of plant emotional capacity seems to be less and less far-fetched.

Feelings in “Inanimate Objects”. In this section I will explore how, ontologically, feelings in “inanimate objects” could be possible. By “inanimate objects” I refer to those beings classified as “Not animated or alive; destitute of life, lifeless...that part of nature which is without sensation” (“Inanimate”, 2009). Thus stones are “inanimate” while mold spores are “animate.” To begin this discussion, I deconstruct the notion of “animism” as a basis speak for critiquing the differentiation between animate and inanimate as dualistic.

Animism. The OED (2009) defines animism as, “The attribution of life and personality (and sometimes a soul) to inanimate objects and natural phenomena” (“Animism”, 2009). Since, to this point, I have contended that there is nothing ontologically problematic in nonhuman animals and plants being capable of experiencing and originating feelings, at first blush animistic theory may appear to align well with my position. Because, in this section, I am embarking upon the task of describing the ontological possibility of “inanimate objects” also being able to experience feelings, this would seem to strengthen such an alignment.

Yet, I must reject such a close coupling. After exploring several of the most accepted theories of animism, I've found that they suffer mostly from the same dualisms I've critiqued in other theories of human-nature relationships. In one respect, the actual experiences of human-nature relationships that these theorists are attempting to describe could, potentially, be the kinds of close human-nature relationships for which I argue in this dissertation. But, because dualisms rear their heads in the theoretical interpretation of such experiences, animism ultimately falls short as a conceptual framework to explain such experiences. It's unfortunate that this is the case, since my description of close human-nature relationship elements in large part owes its origins to the same experiences that these theorists are attempting to describe. I take their failure to recognize and reject the influence that their own dualistic ontologies have on their conceptual interpretation of those experiences as still more support for my contention that most modern ontologies of human-nature relationships require radical rehabilitation in order to allow for the possibility that what some humans are experiencing *are* close human-nature relationships.

To begin to articulate the reasons for my rejection, I suggest that my point about inherent dualisms is illustrated by turning the tables on the very notion of animism by calling mainstream modern thinking about animate and inanimate nonhuman beings “de-animism.” If we were to then define de-animism as “The *post hoc* reduction and denial of life, individuality, *telos*, agency, and personality to all manner of nonhuman beings—animate, inanimate, thought of as phenomena, etc.” then the point is made clearer.

The notion of “animism” finds its origins in the coining of the term in the second half of the 19th century (Tylor, 1889). Tylor's position evolved into the general notion of animism I quote in the OED definition above. A more recent proponent of animism, Bird-David (1999), seeks to rehabilitate the notion by also recognizing dualisms (in her case, she identifies them as

positivisms) in the traditional definitions of animism. To Bird-David, there are two main positivisms. First, traditional theories generally take the approach of positioning animistic ideas as purely spiritual elements inside of a spiritual/material dichotomy (i.e., Cartesian dualism) where the material is seen as the only source of “‘true’ knowledge” (p. S68). Second, and as a consequence, in traditional definitions, “‘animists’ [were portrayed as humans who] understood the world childishly and erroneously” (p. S68).

Bird-David does not believe in the Cartesian dualistic interpretation of those said to have animist worldviews, nor does she believe that their understandings of the world are childish and erroneous. As an alternative, she suggests that animists such as the indigenous Nayaka in India (whom Bird-David studied) do not really see humans or nonhumans as individuals in the modern sense of the term. For example, to make room for why the Nayaka believe in the existence of “devaru,” who to them are living, nonhuman, more-than-material “superpersons” (p. S69), Bird-David suggests that the Nayaka see “personhood” (p. S73) (attributed by the Nayaka to devaru as well as humans and other species), as a “composite of relationships” (p. S72). To the Nayaka, she explains, “kinship was primarily made and remade by recurring social actions of sharing and relating with, not by blood or by descent, not by biology or by myth or genealogy” (p. S73). For them, a “person is sensed as ‘one whom we share with.’ It is sensed as a relative and is normally objectified as kin, using a kinship term” (p. S73). Bird-David employs the verb “to dividuate” (p. S72) as reflective of the Nayaka way to distinguish this “person.” Of that verb’s difference from the verb “to individuate,” Bird-David says, “When I individuate a human being I am conscious of her ‘in herself’ (as a single separate entity); when I dividuate her I am conscious of how she relates with me” (p. S72).

She applies the notion of dividuality and “the dividual” to the Nayaka’s view of both human and devaru existence. And while this may at first seem like a move by Bird-David to acknowledge the existentiality of devaru as more-than-material, nonhuman relational partners for the human Nayaka, understood first as always being within a matrix of relations, it quickly becomes clear that she sees the devaru more as a concept than as a differentiable, living thing like a human being is a differentiable, if not wholly isolated, living thing.

To begin, she defines devaru in three ways: as composite “dividuals,” as concepts of relational “events in-the-world” (p. S68), and as concepts representing human “social experiences” (p. S69). The latter two being purely conceptual, they clearly do not describe the devaru as relational Selves and thus do not warrant further consideration in the context of my ontological attempt to suggest that all nonhumans are Selves. Of the first definition that is still worth exploring, Bird-David objects to thinking of devaru as individuals in a modernist sense by suggesting that “We cannot say...that Nayaka ‘think with’ this idea of personhood about their environment, to arrive by projection at the idea of devaru. The idea of ‘person’ as a ‘mental representation’...is modernist” (p. S73). I believe she’s right about this, and that this aspect of her critique mirrors my own in the Critical Lens chapter when I talk about the collapsing effect that dualist views of nonhumans as passive, material objects have on theories of human-nature relationships. But, in terms of escaping such dualisms, Bird-David’s alternative definition of devaru fares no better than that which she rejects. For example, she explains devaru in this way:

the devaru objectify sharing relationships between Nayaka and other beings. A hill devaru, say, objectifies Nayaka relationships with the hill; it makes known the relationships between Nayaka and that hill. Nayaka maintain social relationships with other beings not because, as Tylor holds, they *a priori* consider them persons. As and when and because they engage in and maintain relationships with other beings, they constitute them as kinds of person: they make them “relatives” by sharing with them and thus make them persons. (p. S73)

If such an explanation of *devaru* seems convoluted, I suggest that this is directly attributable to the fact that Bird-David is being forced, conceptually, to dance around the elephant in the room that is her own dualist ontology. That ontology requires that *devaru* not actually exist as living, differentiable Selves. Reading the part of the quotation above which says that “*devaru* objectify” or that a “hill *devaru*...objectifies Nayaka relationships with the hill” one realizes that the dualism of her ontology pushes her to employ a bit of grammatical sleight-of-hand in order to enable the coexistence of Nayaka meaning of *devaru* as actually existing and her own, which is that they are human-created concepts projected onto an external reality that is not actually delineated in this way. These statements about *devaru* objectifying things are not about *devaru* as actual, living Selves objectifying relationships between humans and nonhumans. Instead, the *devaru* are intermediary, conceptual objects created by actual, living *human* Selves as those humans objectify their relationships with nonhumans, at least according to what Bird-David is really saying.

It’s interesting to note that according to Bird-David and other animists, the human as an individual in the modern sense that can conceive of a hill as a relation is unproblematic, and yet the hill *devaru* as an individual conceiving of a human as a relation doesn’t pass muster. This double-standard betrays the underlying ontology that allows for human Selves but not nonhuman Selves, and certainly not inanimate, more-than-material, nonhuman Selves. Stripping away the conceptual buildup around such dualisms shows the underlying belief that nonhumans as Selves is still just a projection by individual humans. In Bird-David’s view, then, *devaru* are still at best a metaphor for the instantiation of human-nature relationships. Thus and perhaps unwittingly, Bird-David is in agreement with those she positions herself to critique (Tylor, 1871; Harris,

1983; Hunter & Whitten, 1976), who felt that human beliefs in spiritual nonhuman individuals *was* a mistake in thinking.

What's equally clear is that Bird-David does not want the Nayaka to be mistaken in this way and thus thought of as childish. The only way to "help" them then, given the ontological strictures within which she is operating, is to recast their notion of existential spiritual individuals as conceptual "persons" or "dividuals" that are relational "embodiments." These embodiments *are* bodies to the Nayaka, or so Bird-David argues. But, I disagree with what I see as a clearly dualistic interpretation on her part of who they are describing when describing devaru. For example, she relates that "[The Nayaka man] Chathen (age 50)...said one morning that during the night he had seen an elephant devaru 'walking harmlessly' between our homes, and this is how he knew...that it was a devaru, not just an elephant" (p. S75). Because of Bird-David's ontology and her desire to help Chathen and his tribe avoid "being mistaken" that this was an actual spiritual being walking between their homes, she must interpret his statement to mean that there is a relation between him and the elephant that becomes the devaru *in Chathen's and other Nayakas' minds* when articulating such experiences. This is evidenced in her reference to another Nayaka man, Kungan, who

once took me along on a gathering expedition, and on hearing an elephant and knowing by its sounds that it was alone and dangerous, he turned away and avoided it. He did not engage with this elephant and referred to it not as "elephant devaru" but simply as "elephant." The lack of mutual engagement prevented the kind of relatedness which would have *constituted* [emphasis added] this elephant (at this moment) as devaru while it might be perceived as devaru on other occasions (p. S75)

Here, the devaru is "constituted" by the human engaging in an encounter-sparked relationship—that is, it is brought into being in the minds of the Nayaka during a material encounter with non-individual containing matter and then projected onto that external encounter as a distinguishable Self. The relationship is *not* between Kungan and a devaru in the form of an elephant, or

between Kungan and the elephant that, in this case, is not also a devaru. That Bird-David believes that any particular elephant is or is not devaru based solely on engagement of the elephant by the Nayaka men betrays the dualistic, anthropocentric ontological filter she's laid over the particular experience of spiritual Selves by the Nayaka. Thus, the devaru are reduced from the more-than-material Selves to human-created concepts. Once more, we arrive at the *post hoc*, conceptually flattened landscape of a dualistic ontology.

If one is incredulous at the suggestion that a devaru can be more-than-material being occupying a non-devaru, material elephant for a time, or taking the form of a material elephant for a time, I suggest it's not because of any facts at one's disposal, but because of an ontology that *a priori* says: "This can't be." But, it can be, given an equally legitimate ontology. In that ontology, this can be and *is*. What's more, it can be *known*, not believed, since the basis of knowledge in such an ontology is different from those requiring material proof of a material-only reality, as discussed in the Relational Ontology and Human-Nature Closeness chapter above. In a relational ontology, devaru are individuals and can do these things and much more. This is far closer to the Nayaka ontology, and is perfectly legitimate when an epistemology that disallows experiences of actual, spiritual individuals and ways to know of them is removed. As long as one's experience of such spiritual individuals is reliable and valid in a relational, but not necessarily scientific, sense, (again a topic I explored in the Relational Ontology and Human-Nature Closeness chapter above) this is not a problem.

Thus, the basis of my rejection of even “progressive” forms of animistic theory like Bird-David’s lies in that family of theories’ failure to see that the rehabilitation of animism’s epistemology lies in the rehabilitation of its ontology, and seeing that the Nayaka epistemology of existential spiritual individuals is wholly unproblematic within its own ontology. Figure 13 shows the types of epistemological/ontological alignments I see as possible when exploring

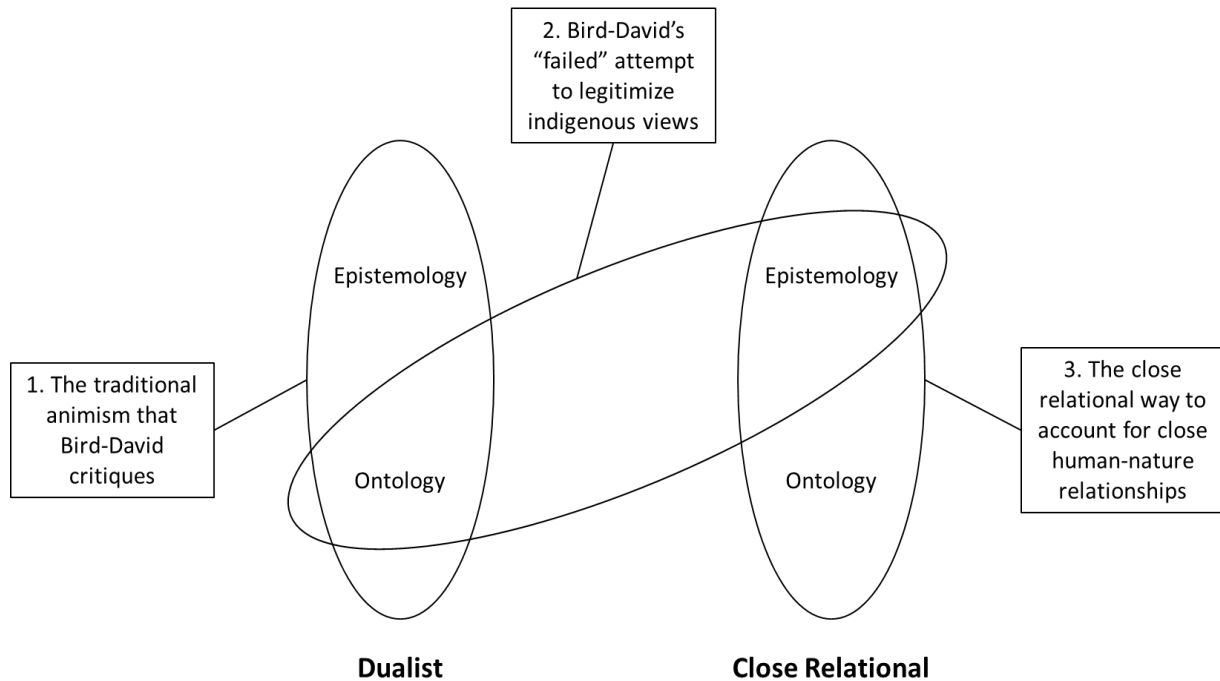


Figure 13. Possible alignments of epistemology and ontology in theories of animism.

animist worldviews. The first is that of Tylor and the other early theorists that Bird-David critiques. The second is Bird-David’s own theory. The third is the close relational approach I espouse.

What the Nayaka view illustrates is that, prior to the dualistic reconceptualization of nature and the human relationship with it, more-than-material or spiritual beings were part of nature just like humans or stones. They were not *supernatural* in the sense that this word means

“outside nature.” In a relational ontology that admits irreducibly more-than-material and material elements alike, experience of *devaru* and other irreducibly spiritual entities is unproblematic. Of course, the experience of such beings by humans and the knowledge which emerges from such experiences ought to be subjected to the same rigorous vetting as any other knowledge based on experience. But, this does not equate with being subjected to the scientific method, with its intractably reductive, materialist constraints. This is not to say that such a view is inherently wrong, but neither is it a complete reflection of reality, nor without *its* particular limitations and biases.

If spiritual Selves do exist, then the material as origin of that which exists is short-circuited and the field of inquiry into who can and cannot have feelings is broken wide open. Human-like neurophysiology is no longer emotion’s privileged bedfellow. Suddenly, human, elephant *and* *devaru* are potentially “in.” So are stones like the one that the Nayaka woman Devi pointed out to Bird-David, where Devi said she’d “been digging deep down for roots in the forest when suddenly ‘this *devaru* [stone] came towards her’” (p. S74). Again, my purpose here is not to establish as fact that the stone had a spirit that moved toward Devi, though I hold it to be no less plausible than the stone being inanimate matter. Instead, my point is that to view such a thing as *not possible* rests wholly on an unsubstantiated ontology itself underwritten by seeing experience and thus reality as primarily material and without nonhuman agency unless superadded by *post hoc* human conceptual processing and invention. Until modern humans begin to look at their experiences with all manner of nonhuman beings through an ontology liberated from such experience-dampening conceptual strictures, it’s impossible to determine just what exactly *is* happening in our relationships with nonhuman beings—animate or otherwise. Without such a shift, our perceptions, our knowledge, and as a result, our human-nature

relational experiences, will be hopelessly stunted and produce the kinds of “environmental” problems we face today.

The problem of understanding more-than-material beings of all kinds—especially “inanimate” ones—as beings capable of feeling, is not restricted to animist theory, either. A good example of the pervasiveness of this view can be found in places like Milton’s (2002) wonderful text exploring the effects of modernist beliefs on emotions and relationships with nature. In it, even though she explicitly acknowledges that some human beings experience close human-nature relationships with inanimate beings, at times she also falls into the dualistic ontological trap that Bird-David does. Describing one avenue by which humans feel engaged in relationships with nonhuman beings, Milton says,

Given that we cannot avoid engaging with natural processes, given that such processes impact on our survival and livelihood, it is not surprising that people in many societies perceive personhood in the earth, the wind, the sun, the rain and nature as a whole. Relational epistemology is thus the foundation of religious ideas. (p. 50)

Here, Milton makes two key (and, I believe mistaken) assumptions. Like Bird-David, she assumes that nonhuman beings cannot be persons in *exactly the same way* as modern humans understand themselves to be persons. Second, she assumes that spiritual or religious experiences are not relational (they are created by, and occur wholly inside of, humans operating in a material world with its evolutionarily driven desire for material survival), and are based on the types of interchanges humans have. The chief features of these interchanges being, according to this way of thinking, material survival and, if I’m reading Milton correctly, occupational well-being (i.e., “livelihood”). That these are chiefly or initially material interchanges for Milton is clear. Thus here, Milton falls into line with most materialists who believe that spiritual experience is not an interchange with the existential, more-than-material qualities of a relational, nonhuman Self, but instead are a *post hoc* human conceptual response to the individualistic meeting of human

material “needs” with a passive, material, and, at times inanimate, other. Milton’s examples of wind, sun and rain in the quote above are examples of such supposed “inanimate” beings.

To Milton, the religious is not based in a primary spiritual experience either. Her view is that “...we perform rituals of propitiation and conciliation in the hope of persuading [nature] to do what we want.” (p. 51). Thus, to Milton we treat nature as a means to our own well-being. That these natural “elements” are not really persons as other humans are persons to Milton is betrayed by the fact that she subtly instantiates the ontological notion that, since the exchange *can only be* material, that all that we can and should seek with “inanimate” nonhumans is the kind of relationship that is evolution’s *telos*—material survival for self and self’s species. If rain, sun and wind as *animate*—feeling, thinking and acting—others existed instead, we might not propitiate or conciliate to get them to “do what we want,” but instead to give them something based solely on their status as our close relational partners—like flowers for one’s wife—where more-than-material relational Selves are ends in themselves. Milton reveals her deeply held belief that these nonhumans are inanimate and not Selves, when suggesting that the only way they get to be “persons” is through the same sort of affirmative action of expanded definitions of personhood that Bird-David employs to incorporate material exchange with a passive material object (and whatever trickle of relational feeling is created inside the human through such exchanges).

That such a view leaves intact the materialist ontology that prevents understanding of this exchange as actual, more-than-material, relational experience with living, nonhuman Selves seems utterly lost in this way of thinking even though this lies at the very heart of the Nayaka and others’ views. Thus, though Bird-David and Milton attempt to include all of nature within the notion of relations and personhood, by leaving intact the dualist ontologies that have

historically negated the actuality of these nonhuman relational Selves, and thus truly close human-nature relational experiences, nonhuman beings are once more relegated to the status of unfeeling, potentially lifeless, passive material backdrops to the solely important and meaningful human endeavor. That the flimsy, material ties of evolution's *telos* of self-perpetuation are all that remains to such theorists in their attempts to *post hoc* conceptually explain why a human being could ever feel close with a nonhuman being is the height of reductionism, and strikes this author as nothing short of sad.

In contrast, through experience rooted in the more-than-material (as well the material) even “inanimate” nonhuman beings can be fully capable of everything that makes a human a person, including feelings. Bose (in Shepherd, 2006) noted high degrees of similarity between the electrical behavior of “inanimate” metals and that of plants and living tissue such as muscle (p. 13). He found that all three responded with fatigue (a progressive reduction in electrical response to electrical stimulus) and, when the stimulation frequency was reduced, recovery of the normal electrical response. Noting that chemical agents can have either a stimulatory or “poisoning” effect on organisms—which can be seen when reflected in the amplifying or reducing cell electrical activity inside organisms—Bose also examined the effects of these chemical agents on metals. Remarkably, in the metals he studied, he found that the chemicals that worked as stimulants for living tissue did so with electrical behavior in metals as well, and those that worked as “poisons” (i.e., having the effect of reducing electrical sensitivity) on organic life also worked the same way on metals. If, as I've suggested above, electrical activity could be a material marker for feelings in all manner of beings, then here again there is a parallel in electrical activity between living beings and “inanimate” ones. Again, without the requisite levels of experience of the sharing of feelings with inanimate nonhuman beings, I cannot claim

to have established the case for their existence. What I can safely conclude is that, cleansed of its dualisms, there is nothing ontological to suggest it's not of equal or greater possibility that inanimate nonhuman beings can feel and that humans can feel with them. Loving a place as the future poet did in Louv's anecdote mentioned in the Critical Examination part of the dissertation above is a perfect example of that possibility. What if that young girl was "feeling with" the rocks and stream in Noddings' sense of it? At this juncture, there is nothing in a relational ontology that stands in the way of such a possibility.

The key difference between my approach and that of Bird-David (1999) and Milton (2002), amongst others, is that in casting as ontological the critical features of close human-nature relationships, the definition of "person"—of close relational partner and what's necessary to be one—*need not change at all*. What must change are the ontological elements that falsely privilege humans as virtually the only ones who fit the definition. Since I've argued above against any appeal to the authority of material, human-like qualities for such privilege, one instead must turn, as I have, to an analysis of the origins of the elements of close relationships—feelings, thoughts and actions—and their more-than-material as well as material bases in all beings. This way, who is deemed as having feelings—who even counts as a "who" (instead of a "what") or a Self—is radically altered. Do stones have a soul or consciousness? I don't know, but I do know that those theorizing about human-nature relationships have rarely looked seriously at such questions. They've instead allowed their dualistic ontologies to obliterate any reliable experience they themselves might have with stones that *would* suggest such a thing. In a close relational ontology, if one can feel what a stone feels through one's own experience or encounter with a stone, then the stone being a Self stands as distinctly possible and not even a little far-fetched. That it might seem absurd to modern minds speaks only to the hegemonic

power of dualistically held materialist thinking, rather than any definitive experience confirming the absurdity.

Hallowell (2002), in considering Ojibwa ontology, addresses such a suggestion this way:

[W]e cannot assume that objects, like the sun, are perceived as natural objects in [a modern] sense. If this were so, the anecdote about...old men [interacting with the sun, who is a person, and telling the sun to rise and set] could not be accepted as an actual event involving a 'social interaction' between human beings and an other-than-human person. Consequently, it would be an error to say that the Ojibwa 'personify' natural objects. This would imply that, at some point, the sun was first perceived as an inanimate, material thing. *There is, of course, no evidence for this* [emphasis added]. (p. 29)

Hallowell reinforces my contention that there is "no evidence" for material construal of experience. Thus, it must flow from a pre-existing ontology or worldview. Where I differ from Hallowell is in his attribution of the source of worldviews both in the Ojibwa and in modern humans. He begins with a perfect explanation of the difference between modern views of animistic ontologies but then, eventually, succumbs to dualistic ontologies that deny the possible realities such ontologies sponsor. He does so when suggesting that all worldviews are "culturally constituted and symbolically mediated through language" (p. 20). I believe this view to be incorrect for the precise reason that he thinks it's incorrect to characterize Ojibwa ontological definitions of the sun-as-person as a "personification." That is, if he thinks it incorrect to assume that humans have control over their perceptions such that they can personify inanimate objects in a materially external world, he ought also to reject the notion that humans have control over culturally constituting the relational Selves they encounter in their experiences. In other words, to suggest that the modern view and Ojibwa view are equally valid and possible is to imply that the actual, external world is somehow an inert backdrop onto which these equally valid and real, culturally constituted views are projected by the human. The rub lies in how we

weigh the accuracy of each view. By holding ontology the way he has, Hallowell then still fails to move the locus of control of reality out of human minds. Thus, what is “real” in Hallowell’s view must still begin in a purely physical world. The other possibility is that there is no external physical world at all, and then he is a subjective idealist. Either way, he fails to establish the legitimacy of Ojibwa worldviews by unwittingly carrying his own dualist perspective into his interpretation of their ontology.

I believe that the specific error he makes is in seeing culture as a product of human contrivance—that it is purely *social*, or cultural—instead of human-nature relational as well. By seeing it as only socially constructed, he leaves in place the ontological stance that humans and nonhumans are foundationally separate from each other, with human culture fully forming prior to being influenced relationally or otherwise by the nonhuman world. That this is materially inaccurate is plain. One would not have a single molecule of ATP, the basic unit of energy in cells, to burn in thinking about how to “constitute” a culture without the material and more-than-material interchange with nonhumans that makes food acquisition possible. I contend, then, that humans don’t see the nonhuman world through an *a priori* lens of socially constructed culture, they see it through a lens of human-nature relationships first, despite all attempts to conceptually eradicate the latter’s influence and existence in modernist views

By situating human culture within human-nature relations, my hope is to make it more clear that human thinking and collective culture is directly “constituted” by human-nature relationships. That’s Preston’s (2003) thesis in his volume *Grounding Knowledge*, though again, like many others, he takes us down a phenomenological road that is ultimately rooted in material interchange. But, as Martin Prechtel (personal communication) has pointed out to me and many

others countless times, culture is the human response to nonhuman beings with which we live, be they “animate” or “inanimate,” with them having material and/or more-than-material elements.

That a modern society living in New Jersey can have a radically different culture than, say, the Lenape Indians of the Northeastern shore that preceded them is not a function of cultures being constituted differently in the mysterious, nonhuman-free vacuum where human cultures are born. This would mean we’d be right back to Lélé and Norgaard’s “quicksand of values,” with only human preference to guide us to the “right” relational point of view. Instead, these radically different cultures form because one group of humans holds an ontology that allows them to conceptually re-interpret their perceptions and experiences of their human-nature relationships to the point where it’s as if they weren’t having them—or they were occurring in partnership with a radically reduced object instead of a nonhuman, relational Self. The result is the view of culture as largely socially constructed. The result is also a constellation of modern cultures that now labor to “socially construct” more benign human-nature relationships out of a daily existence conceived to be largely human-nature relation-*less*. That this effort has failed to prevent impacts on the nonhuman world in materially negative ways is obvious, and though I take this material impact to be a byproduct, it is usually taken to be the totality of the context for discussion of “environmental problems.” That these impacts are an outgrowth of the failure to acknowledge, and allow to develop, deeper, close relations with nonhuman beings is one of the main contentions in this dissertation.

If the development of close human-nature relationships were to happen for modern people living along the northeastern coast of the United States—if they were to discard the dualist ontologies that makes them almost wholly blind to the close relations they are in, and could be in, with nonhuman beings—I suggest that their culture would bear a striking

resemblance to that of the Lenape. That's because it would be the product of a relationship with the *same actual nonhuman Selves* in that place now called New Jersey, which would foundationally influence whatever human cultures alighted upon its living, teeming-with-Selves shores. History and social influences would certainly make that culture different from the Lenape in some ways, too, but the grounding in close human-nature relationships would make those differences ones of degree, not of kind as its currently envisioned by Hallowell and most other animism theorists.

Thus, what is and is not considered animate is the thing that is actually socially constructed, not the nature of the things falling into either bucket in our human-nature relationship theories. Even the existence of this dividing line is the product of modern societies that routinely assess the value, or lack, of what is next to be put to human use. Though not a fan of conspiracy theories, such a way of dualistically reducing the inanimate to “raw material” strikes this author as nothing less than self-serving. It arrives there by having taken the long way around through installation of dualistic ontologies, but such a path seems to have afforded little encounter with what nonhumans—even “inanimate” ones—are actually like.

Modern Human Perception and Feelings in the “Inanimate”. From the previous section's discussion of animist theories, it should be clear that many indigenous cultures do, indeed, have knowledge that inanimate beings are alive and can have feelings. For example, Reinhard (2006) describes the views of South American Andean villagers who know that “traditional place spirits have feelings [and that m]ountains ‘...get hungry, have wives and children [the smaller mountains] and fight among themselves...’” (p. 183). Or, to put it more succinctly, he quotes another villager as saying, “You must understand. For us the mountains are alive” (p. 184). Yet, as I acknowledged at the outset of this dissertation, I eschewed reference to

indigenous ontologies because to employ them risks framing the debate as a difference in *human created* ontologies—a notion I have critiqued throughout this dissertation. If, as is my belief, a close relational ontology is a *more accurate* reflection of the pragmatists’ “primary experience,” then even with dualistic conceptions in place for some humans, one ought to see evidence of the experience of sharing feelings, even with “inanimate” beings, “leak” through into perception. In this section, my purpose is both to explore this possibility through some examples, and in the process of doing so, explore to the very roots of dualist thinking that, when one feels a feeling in the presence of inanimate beings, one is *not* feeling with another Self. Unless otherwise noted in the following examples, the emphases in the quotations are mine.

A first area we might examine in societies with dualistic ontological commitment is poetry. As to whether poetry is relevant in an ontological discussion, Peirce (1960) refers to it in just such a context by saying that “nothing is truer than true poetry. And let me tell the scientific men that the artists are much finer and more accurate observers than they are...” (1.315, p. 358). If one presses the issue, suggesting that poets are engaging in the pathetic fallacy—that of attributing human attributes to all of nature—I suggest again that such a charge is almost wholly sponsored by dualistic assumptions that nonhuman beings cannot have certain attributes that humans have. Thus, I consider a first example from Mary Oliver’s (1992) inquiry into the nature of the soul and who has it. She asks, “Is the soul solid, like iron?...Why should I have it, and not the anteater/who loves her children?...[and then] What about all the little stones, sitting alone in the moonlight?” (p. 1). Here, if one were materially or scientifically inclined, one might take hers to be a lyrical, anthropomorphic projection onto stones of being soul-bearing, or feeling alone or lonely. But, as I’ve discussed extensively, this interpretation is evidentially unfounded and ontologically circular. Thus, what if Mary Oliver was sitting there in the dark with those

little stones while *perceiving* their feelings of aloneness? In a close relational ontology this is unproblematic. Her receiving their feeling and responding to it can be taken as more-than-material evidence for its occurrence because such communication of feelings is a direct and accurate way to assess the existence of such feelings.

Helen Keller (1904), for whom the senses were such an important doorway because of the difference of form they took in her, says, “What a joy it is...to clamber over a stone wall into green fields that tumble and roll and climb *in riotous gladness*” (p. 125). Diplomat and author Dag Hammarskjöld (Lipse, 2013) says,

As a husband embraces his wife’s body in faithful tenderness, so the bare ground and trees are embraced by the still, high light of morning. I feel an ache of longing to share in this embrace...*A longing like carnal desire...returned by the whispers of the trees, the fragrance of the soil, the caresses of the wind, the embrace of water and light* [emphasis added]. (p. 106)

Here, the “inanimate” soil, wind, water and light return his feeling of desire in their voices and actions.

To move on to an example of feelings being discussed, but denied as existential by their authors, I consider the famed naturalist, Henry David Thoreau. Cronon (1996), arguing that human views of nature in the 19th century included fear and awe before falling out of fashion, quotes Thoreau’s description of an encounter with Mt. Katahdin in Maine:

Vast, Titanic, inhuman Nature...does not smile on [the human climber] as in the plains. She seems to say sternly, why came ye here before your time? This ground is not prepared for you. Is it not enough that I smile in the valleys? I have never made this soil for thy feet, this air for thy breathing, these rocks for thy neighbors. I cannot pity nor fondle thee here, but forever relentlessly drive thee hence to where I am kind. Why seek me where I have not called thee, and then complain because you find me but a stepmother? (p. 11)

While Thoreau’s description reveals that he himself believes he is engaging in anthropomorphizing activity by describing “inhuman” Nature as “*seeming to say*” things in a human voice, I suggest that this could be because he is a naturalist of an albeit earlier form of

modern society. Thus, he was already touched by the civilization against which he often railed, but of which he was at the same time a product. In a close relational ontology, Thoreau could easily have been perceiving exactly what was being felt and communicated *by the mountain*: rage at his presence. That many indigenous cultures proscribe entry into certain holy places exactly like Mt. Katahdin can, relative to this example, be their response to the feelings the mountain is communicating. Therefore, while an indigenous view can be dualistically dismissed, through a close relational ontology the mountain *is* angry and Thoreau *knows it directly* through perception of feelings.

I believe that Cronon's quote of Wordsworth in his same discussion shows a similar drift on Wordsworth's part to an ontology that takes nonhuman persons to be *post hoc* human conceptualizations only. For example, Wordsworth opines:

Winds thwarting winds, bewildered and forlorn,
The torrents shooting from the clear blue sky,
The rocks that muttered close upon our ears,
Black drizzling crags that spake by the way-side
As if a voice were in them... [emphasis added] (p. 11)

Again through a close relational lens, Wordsworth hearing the voice of the place as Thoreau did, is unproblematic. And he, like Thoreau, reduces that voice to a metaphor—"as if" a voice were in the winds, rocks and crags instead of the physical sound being their actual voices and the feeling conveyed being what was conveyed by the rocks.

Cronon goes on to suggest that the fear of nature that Wordsworth and Thoreau express in such passages is wholly dependent on social definitions of wild nature, as is the lack of such fear that comes later in the environmentalist movement. What goes unstated, but is an unavoidable complement to such a thesis, however, is that the nonhumans with whom we are in relations must in actuality be a kind of relational *tabula rasa*, forming only the backdrop onto which humans, by drawing from some isolated locale inside themselves, project their concepts of

what nonhumans are like. By extension, the nonhumans themselves have no *a priori* more-than-material nature to be perceived. In this kind of thinking, because nonhumans have no inherent relational qualities or attributes, modern humans are then free to experience fear, joy, indifference or any other unilaterally sourced feeling when in the presence of nonhumans.

I believe it's clear at this juncture that I disagree with such a thesis, and offer instead the possibility that Cronon is observing one step in the dualistic, post hoc *conceptual movement away from close relational interchange with nonhumans*. At the later stages of this movement (in which we modern humans find ourselves presently), feelings of fear (save, perhaps, fear of the material power of storms), joy, and everything else that emanates from both animate and “inanimate” nonhumans and our close relations with them, is lost. From this point of view, the words of Wordsworth and Thoreau become a weigh station along that path to the present, descriptive of a time when modern humans still *felt* more immediately unpleasant things that nonhuman Selves were feeling and conveying to them. At that time, the step that took those kinds of feeling experiences away from the realm of perception and toward the realm of conception was characterizing them as internal to the human—as an act of anthropomorphism. 150 years later, modern humans are loathe even to discuss them, so mothballed have these sorts of relational sense experiences become. Now, when modern humans hear from or feel their nonhuman relational partners, they simply don't—and *can't*—believe that this is what's occurring. They can't even perceive the anger—or any other feeling—choosing to dismiss these voices as anthropomorphic when in reality, by doing so, they are being grossly anthropocentric.

In the present-day, nature writing still affords us a view into the possibility of perceiving feelings in “inanimate,” nonhuman beings. For example, desert naturalist Krutch (2010) says,

Of some spot of earth one may feel that one would like it if one could really see or really know it...It could give something to me and I, perhaps, something to it—if

only some sort of *love and understanding*. The desire to stay, to enter in, is not a whim or a notion but a passion. *Verweile doch, du bist so schön!* [Stay awhile, you are so beautiful]. If I do not somehow possess this, if I never learn what it was that called out, what it was that was being offered, I shall feel all my life that I have missed something intended for me. (p. 5)

Here, Krutch speaks of exchanging love and understanding with a place, and of the place's recognition of his beauty. In one of his more well-known short essays, the "grandfather of the Wilderness movement" in the United States, Aldo Leopold (1989), suggests that through a mountain's experience, he or she is *more* capable than a human being of feeling. Again, the materially minded might categorize his essay as quaint allegory—an affected tangle of anthropomorphic tripe—but in a close relational ontology, his is perception and a response to the mountain herself. In describing the howl of wolves and the response of others to it he says that "every living thing (and perhaps many a dead one as well) pays heed to that call" (p. 129) and relates the meaning of that howl to the view of the deer, pine tree, coyote, cowman and hunter. But, he says, "behind [the perception of] obvious hopes and fears [in the howl] there lies a deeper meaning, known only to the mountain itself" (p. 129). As I argued in the Relational Ontology and Human-Nature Closeness chapter, the meaning of things like a wolf's howl do not inhere in the listener, but instead exist as a more-than-material thing belonging in part to the wolf. Leopold echoes this suggestion when he says that "Those unable to decipher the hidden meaning know nevertheless that it is there...Only the ineducable tyro can fail to sense the presence or absence of wolves, or the fact that mountains have a secret opinion about them" (p. 129). Noting that without wolves, deer will eat away at the plants that make their homes on mountains, Leopold says that "a mountain live[s] in mortal fear of its deer" (p. 132). Thus, mountains not only fear deer, but they also love wolves for keeping deer at bay. To the mountain, then, the sound of their howls is one of well-being. For one, I think Leopold mistaken in his suggestions about the mountain's negative feelings about the deer. It strikes me as being

colored, in my estimation, by the encroachment in his thinking of the materialism of scientific ecology that he practiced. But still, you can't fault the effort at interpretation of what, at some level, he takes to be an inanimate Self.

John Muir (1901), that great naturalist and nature wanderer, directs us to "Climb the mountains and get *their good tidings* [emphasis added]...[where t]he winds will blow *their own freshness* [emphasis added] into you..." (p. 56). He (1911) also says, of one journey with companions, "How deep our sleep last night in the mountain's heart" (p. 42). If a mountain has a heart, one could reasonably infer that he also has feelings.

Other examples include environmental philosopher Jack Turner (1989), who says, "The mountains have many moods" (p. 81). There is Warren (1990), the ecofeminist theorist to which I refer in the Introduction, who describes what has been interpreted by some to be a human-projected feeling of friendship between a climber and a cliff. Rachel Carson (1941) says in *Under the Sea Wind* that "The tundra was gay..." (p. 61) with its fall colors. Mildred Cable (1942), a missionary traveling the Gobi Desert in the 1930s, says, "The clearness and watchfulness of each planet suggests a personal and friendly interest toward the wayfarer" (p. 107). These sorts of literary references are numerous in modern societies, straying even into works of fiction that are apropos of my discussion. For example, that keen-eyed lamenter of the Industrial Revolution, Charles Dickens (1905), portrays a scene where "a melancholy wind sounded through the deserted fields...The sadness of the scene imparted a sombre tinge to the feelings of Mr. Winkle" (p. 28). Through a close relational lens, Dickens' depiction of Mr. Winkle is not that of a man alone, but of a man in a relational experience with the wind—a relationship imbued with existential sadness in the wind and Mr. Winkle alike.

To conclude, I'd like to note that I am not attempting to "hijack" any of these examples as "proof" of my thesis. I readily acknowledge that the authors themselves may not think my exploration of the meaning of their writing to be accurate—that they may very well not literally think the tundra gay or the planets taking a friendly interest in passing humans. But, I reiterate that in a society in which hegemonic, dualistic ontology has such a pervasive influence, it is reasonable to take such literary descriptions as potential echoes of relational feelings coming through to a human writer from nonhuman Selves, regardless of whether the authors recognize it as such. If the reader is still not convinced, and one's response is still to see my taking these examples as relational truth as solipsistic anthropomorphism, I suggest one last thing: With a dualistic ontology positioned to deny the occurrence of feelings in any being that is not materially similar to humans, experiences of feelings coincidental to experience with "inanimate" nonhumans *must* be superadded by the human. There is simply no other avenue to explain their presence. An ascription of anthropomorphism thus *must* flow from that viewpoint. That there is no evidence for the impossibility of those feelings in the "inanimate" other that doesn't carry the imprimatur of this assumption is something that must be lain bare and discussed if human-nature relationships are to truly improve.

Conclusion: A Re-Envisioned Environmental Conservation Example

As sarcastic as Roz Chast's (2010) *New Yorker* cartoon in Figure 14 is, it illustrates an element that I think is largely absent from the human-nature relationship literature today. That



Figure 14. Eco-friendliness Rebuffed

element being that, as the human acts in the world there is a response of feelings from the nonhuman. To date, a response by the modern human world to the feelings of nonhumans has been almost entirely absent. The response has been to literally imagine the possibility out of existence. But if we allow for understanding of our close human-nature relational experiences as rooted in part in feelings, what then does it mean for nonhumans to have feelings about us? If they have the capacity to be angry or annoyed as they are shown to be in this cartoon, what does it mean for them to be angry or annoyed *at us*? What *should* our response to such anger or

annoyance be? I suggest that, in the simplest and most initial stages, it would be to *listen* and act as if those feelings existed and mattered.

To see what effect this would have, let's look at an example of a conservation effort such as bird banding. The USGS's Bird Banding Laboratory (BBL) describes bird banding data as contributing to

an understanding of the life history and population dynamics of various species... [which], in turn, is critical to evaluations of management actions, including the establishment of appropriate exploitation rates for hunting; assessments for actions to improve the status of a species...or assessments of the effects of changes of habitats on all bird species. (para. 1)

The use of such ecological data is fairly “boilerplate” for modern academic and scientific endeavors of this sort. The understandings sought are dualistic, however, being material and largely anthropocentric. That's not to say that bird banding data doesn't also help birds, but it is almost exclusively to help them materially survive one or another pressure applied by modern humans, pressures which modern humans are disinclined to relieve, at least in full. Of course, if we were to relieve them entirely, we'd also obviate the need to determine via banding just which pressure is most disadvantageous to the birds in the first place. Such circular cause-and-effect is what I characterize as the “madness” of the modern conservation proposition: helping nonhumans survive a human-nature relationship imposed by humans that humans know is detrimental, yet generally do little to relieve at the source. To draw a parallel with the inefficiencies and logical sleight-of-hand that large bureaucracies such as governments employ, bird banding is an example of humans “convening committees” to study the outcome of what we already *prima facie* know to be bad for birds. We cannot have our highway system, our smart phones, and even our wind power and let birds live how they will live. Not how we *think* they need to *materially* live—but how they will *choose* to live *for themselves*. To put it more

forcefully, and at the risk of it being more sarcastic, we modern humans cannot with one hand grind up the nonhuman world and with the other study its results with any innocence or surprise.

Further, by unilaterally imposing our will upon birds through traps to band them, we do absolutely nothing to address the fact that such a relationship between human and nonhuman is no different than it is in something such as large scale deforestation that would spur us to band and then study them in the first place. The only difference is in what *we modern humans* find acceptable to do to the birds inside of a largely dualistic and anthropocentric frame of reference. By carrying on in our relationships with *this* mist net and *that* bird caught in it without a thought as to how *that bird feels* to be treated thusly by us, is to simply continue imposing the same old dualistic human-nature relationships. To the birds, I imagine, any good intentions behind these acts are both invisible and irrelevant. I remember a colleague some years back describing with glee her trip to band passerines. “And the black-capped chickadees,” she said with a broad grin about trying to get a band on their ankle, “fought the hardest of all!” Given the level of consternation dualistically influenced scientific thinkers such as her display at objections to such “innocuous” efforts to help birds I said nothing, but was inwardly saddened. I remember thinking, “Good for *them!* They’re fighting because they’re angry at being accosted.” Of course someone could object to my characterization of the chickadee this way, but when dualisms are eliminated, I don’t think the characterization at all anthropomorphic. Hold down a human being and forcibly encircle her ankle with an aluminum ring and she will likely become very angry. If a bird has a capacity for anger, then he, too, will feel angry. If one were to suggest that the feelings of anger don’t arise in response to the act itself but in the metacognitive human-only understanding of what the act means, I suggest first that the feelings are at least in part instantaneous and instinctual both in humans and birds, and second that, as I’ll address in the next chapter, various cognitive abilities in birds, that could include anger, cannot be uncritically dismissed.

Ultimately, I'm not trying to characterize bird banding as a sin, as it does have beneficial effects for birds. When there's a war on and someone is shot and bleeding, you have to staunch the flow of blood first and foremost. But if conservation efforts are only ever this kind of triage, and no ceasefire is either sought or even thought necessary or possible, then the war will continue to produce those shot and bleeding, and everyone will eventually lose. Ultimately, I am suggesting that within a human-nature relational ontology inclusive of nonhuman feelings, the sin lay not in the banding, but in the lack of consideration of the feelings of those banded. If, in whatever way works, banding were suggested to the birds, and they agreed to be monitored, then such an activity ceases to be detrimental to that particular human-nature relationship, and ceases to add to the larger-scale relational ignorance of nonhuman feelings. How could we know how the birds feel about being monitored? We'd have to employ the kinds of knowing and feeling that I discussed in the Relational Ontology and Human-Nature Closeness chapter. We might also take their very presence or absence, or their level of resistance, as a way of them saying whether they agree or not. We might also take our own feelings in response to the encounter with them as reflective of their sharing them with us via Peircian feelings or some other means. In other words, humans would have to work hard to *perceive* the response of the birds have and honor whatever it is. If the birds did not agree, and expressed an unhappiness with the possibility, then the researcher would have to abandon his efforts. Such a suggestion is anathema, I suppose, to the modern researcher, but this is what it means to have feelings and their communication between human and nonhuman become an essential part of human-nature relationships.

CHAPTER 7 THOUGHTS

Missives such as “a penny for your thoughts” have long been the fodder for human intimacy. The surprise of what the other thinks, the beauty of what or *how* the other thinks, the depth, kindness, similarity and also intriguing dissimilarity of what the other thinks—these are the lifeblood of close relationships. Unexchanged or unexpressed thoughts about the other and the relationship can also work for or against closeness. For example, an avoidant attachment style by one person can work against the development of close bonds with another. Indeed, it could be said that thoughts of almost every type are deeply influential in both the development and maintenance of close relationships.

In this chapter I attempt to explore the possibility of nonhuman beings also having thoughts, and if so whether they are the kind that can contribute to close relationships between them and human relational partners. The predominance of the literature on human-nature relationships indicates that most don't believe this to be true. I believe that this position can be traced to two interlocking assumptions. First, that minds (as the originators of thoughts) are exclusively the product of a material neurophysiology and second, that only a human-like neurophysiology is capable of producing the kind of mind (and its concomitant thoughts) that contributes to close relationships.

An example of these assumptions at work can be seen in Thomas' (1974) description of an ant. He says, “[a] solitary ant, afield, cannot be considered to have much of anything on his mind; indeed, with only a few neurons strung together by fibers, he can't be imagined to have a mind at all, much less a thought” (p. 12). Though he was writing on another topic, it doesn't seem a stretch to suggest here that Thomas would take the ant's lack of mind and thoughts as

prohibitive of her capacity to have a close relationship as humans define them either with one of her own kind or with a human being. Would that assumption have to be altered, however, if the ant did not need a human-like neurophysiology to have a mind? Constraining the problem in this way, the answer ought to be a tentative “Yes.” It is my intention in this chapter to demonstrate this very possibility for the ant and many others, and thus the possibility that nonhuman beings of all kinds have thoughts that can contribute to close relationships.

The Supposed Material Origins of Minds

I begin by discussing the first of the two interlocking assumptions I articulate above, that the mind is sourced purely in the material. To explore the validity of this assumption, I examine the latest literature on the relationship between minds and their supposed material originators, the brain and its attendant neurophysiological structures and processes.

The Mind-Brain Problem

The first area I’ll explore in the literature on the relationship between minds and material neurophysiology is what is called “mind-brain problem” (e.g., Sperry, 1952). Beliefs about the relationship between the mind and the brain has its roots in the long-running discourse called Theory of Mind. This discourse centers around the nature of the mind and its relationship to the body and material world in general. The “mind-brain problem” is a more specific casting of this larger Theory of Mind discourse, and has arisen in response to scientific discoveries of the last 50-100 years that have given theorists more confidence in positioning neurophysiological structures and processes as the sole source of the mind. The mind-brain discourse focuses on the human mind and brain largely because a) they are taken to be the most complex and b) knowledge of their existence is considered the most obtainable. While I’ve thus far avoided reliance on heavily anthropocentric theories because of their inbuilt dualisms, here I choose to

focus on them because, if my postulation that nonhumans also have minds (and minds capable of producing the kinds of thoughts needed for close relationships) is true, then exploring the most accepted explanations for how the most accepted minds originate can show one of two things. First, that nonhumans might also meet these conditions, or second, how any corrected flaws in such explanations must admit other potential sources for human and nonhuman minds equally.

Returning to Theory of Mind, one of the more influential ones was offered by Descartes (Kim, 2000). His theory of mind-brain or mind-body relations being so formative that the dualism he espoused came to be named Cartesian dualism after him. For Descartes, mind and body were considered to be metaphysically distinct—they were made of foundationally different “substances.” For Descartes, “physical things...have a single defining feature [of] extension...[meaning that] things *occupy space*” (Rowlands, 2010, p. 11). The mind, on the other hand, because it was not physical did not occupy space. Hasker (2001) summarizes the Cartesian dualist view of the mind-body relationship thusly: “Cartesian dualism...accepts [that there is a] chasm [between the mind and body], postulating [that] the soul[/mind]...must be added to the body *ab extra* by a special divine act of creation” (p. 189).

Today, Descartes’ dualistic view has largely been rejected. One element of that rejection is rooted in appeals to scientific discoveries showing (or so it is argued) that “brains are the *de facto* causal basis of consciousness” (McGinn, 2005, p. 438). Hasker (2001), an emergence theorist (see Emergentism section below), echoes this sentiment when stating that his own mind-brain hypothesis is rooted in “the well-confirmed results of natural science, including research on neurophysiology” (p. 188). What he believes these results show unequivocally is that “*the human mind is produced by the human brain and is not a separate element*” (p. 189). Griffin

(2013), in arguing that some nonhuman animals have consciousness, also accepts the material origin of minds when stating that

questions about animal mentality can best be approached from the viewpoint of a materialist who assumes that mental experiences result from physiological processes occurring in the central nervous system...[Thus in explaining those mental experiences] there is no need to call on immaterial factors, vitalism or divine intervention. (p. 17)

Such rejections of Cartesian dualism seem, however, to rely predominantly on a materialist ontology. Kim (1997), for example, traces the predominance of materialist ontology back to the formulation of the *brain-state theory* or *central state identity theory* back in the late mid-1950s. This theory holds that “specific types of mental states...[are] identical with particular types of brain states” (Cunningham, 2000, p. 24) or in a more liberal formulation, “every mental state is identical with *some* physical state, but instances of the same type of mental state...might occur as different types of physical states” (p. 25). Kim (1997) suggests that, though this theory quickly fell out of favor, it “helped set the basic parameters for the debates that were to follow—the broadly physicalist assumptions and aspirations that still guide and constrain our thinking today” (p. 185). Thus, the mind-brain problem became one of “finding a place for the mind in a world that is fundamentally and essentially physical” (p. 186). This is a powerful, *a priori* ontological imprint upon theories designed to explain the origins and nature of the mind. By extension, discussions such as mine around what beings have minds, and thus thoughts, feels this imprint most fully. In the rest of this section, I’ll explore the central elements of modern mind-brain theories and consider what kind of support they ultimately provide for the physicalist/materialist presumption to being the origin place of the mind.

The Mind-Brain Interface in Materialist Theories

Kim separates materialist mind-brain discourse into three families of theory. I’ll briefly articulate each family, then assess its ontological merits.

Supervenience. The first family of theory that Kim articulates is that of *supervenience*. The main tenet of supervenience is that the mental must “supervene on” the physical. That is, the mental is wholly dependent on the physical. But, elements of supervenience theory make it a problematic explanatory framework for the dependence of the mind on the brain. For example, supervenience theory allows for *multiple realizability*, which is the notion that “a single mental kind (property, state, event) can be realized by many distinct physical kinds” (Bickle, para. 1). As an example, Casacuberta, Ayala, and Vallverdú (2010) describe the occurrence of pain, where “philosophers have asserted that a wide variety of physical properties, states, or events, sharing no features in common at that level of description, can all realize the same pain” (p. 365). Thus, while a dependency may exist between particular physical properties and the mental ones that supposedly supervene upon them, there is no ontological impediment to a diversity of physical properties underlying certain mental properties. Thus, it remains a mystery what utility supervenience theories have in helping mind-brain theorists better understand just which physical properties create the conditions for certain mental ones.

A second weakness of supervenience theory is in explaining just how certain physical properties cause certain mental ones. In other words, it does little to nothing to explain the *causal* link of the physical with the mental. As Kim (1997) aptly explains,

mind-body supervenience itself is not an explanatory theory; it merely states a pattern of property covariation between the mental and the physical, and points to the existence of a dependency relation between the two. Yet it is wholly silent on the nature of the dependence relation that might explain why the mental supervenes on the physical. (p. 190)

I believe that in trying to explain the material origin of the mind in the brain, answering the question of *how* the brain *causes* the mind is the *primary* ontological question. As I’ll show in considering the next two families of theories as well, very little explanation on what this link is

and how it operates is forthcoming. Thus, in supervenience theory as well as what follows, the Cartesian dualist “chasm” has yet to be spanned.

Physical Realizationism. The second family of mind-brain theories is *physical realizationism*. This family holds that mental properties are “‘realized’...by (or in) physical properties, though not identical with, or reducible to, or definable in terms of, them” (Kim, 1997, p. 186). The implication here is that “the mental is exclusively physically realized—that is, there are no nonphysical realizations of mental properties” (p. 189). This rules out, obviously, any sort of ontologically more-than-material elements in the foundation of mind. Instead, it positions “mental properties [as] ‘second-order’ properties defined over first-order physical properties” (p. 190). Physical realization theories thus position mental properties as *functional* properties, which means they are defined only in terms of their roles as causal intermediaries between material, sensory inputs and materially observable behavioral outputs. As such, “physical states and properties are the only occupants, or realizers, of these causal roles definitive of mental properties” (p. 194).

The implication of this notion, according to Kim, is that mental properties can only be “defined in terms of causal...relations among first-order [physical] properties” (p. 195), or as Kim puts it, “To be in a mental state is to be in a state with such-and-such as its typical [material] causes and such-and-such as its typical [material] effects” (p. 195). Kim goes on to explain that in physical realizationism, mental states are best defined by the way in which they connect the input and output conditions which give rise to them. They may have distinctive intrinsic properties, but their only relevance is in “their capacity to get causally or nomologically hooked up with other [physical] properties” (p. 196).

One might note that what follows such a concept is that the mind and mental states are approached in an almost purely utilitarian manner. Their existential relevance becomes their ability to be “seen” in a connective capacity between physical realities. Thus, conceptually, their role as ends is reduced or eliminated.

Kim describes the effect of functionalizing the mental in this way:

It follows then that if mental properties are functional properties, they are not tied to the compositional/structural details of their realizers, since these are intrinsic features; any base properties with the right causal/nomological relations to other properties can serve as their realizers. And any mechanism that gets activated by the right input and that, when activated, triggers the right response serves as a realizer (in an extended sense) of a psychological capacity or function. (p. 196)

Such a stance puts mental phenomena on particularly slippery existential footing. They are not things *per se*, but are to be understood by those physical complexes that create the conditions for their instantiation and those physical realms in which the effects of their instantiation are expressed. This is very much the stuff of subjective idealism and utilitarianism, and strikes me intuitively as missing something essential about consciousness and/or “Selfness” that is the *source* of so much impact on the material and more-than-material. That such a notion is a *reduction* of the mental to the physical is echoed by Kim when he says,

To reduce a property, or phenomenon, we first construe it-or reconstrue it functionally, in terms of its causal/nomic relations to other properties and phenomena. To reduce temperature, for example, we must first construe it, not as an intrinsic property, but as an extrinsic property characterized relationally, in terms of causal/nomic relations. (p. 197)

I suggest that by making the mental subservient to the physical, physical realization theories obscure the nature and origin of the mind (or at least its relevance) while not committing to rejecting its existence outright. Though convenient, since it straddles two potentially contradictory ontological stances, such an approach contradicts the notion of consciousness that rose up in the face of behaviorist reductionism (Sperry, 1987) to be recognized and now widely

accepted as an irreducible reality, at least when considering human minds. By neglecting the mental as a primary element in mind-brain relationships, physical realizationism does not go far enough in defining the mind such that we can have a firm grasp of its own nature in the mind-brain relationship, or even in what essential role it plays in the relation of physical elements with each other.

Physical realizationism also carries the notion of multiple realizability referenced in my discussion of supervenience above, thus the door again is opened for myriad physiological beings to have mental states so long as the precipitating and resultant material conditions are met. It's worth quoting Kim at length on the implications of this:

It has long been a platitude in philosophy of mind/psychology that mental properties can have diverse and variable realizers in different species and systems, and that the formal/abstract character of mental properties, standardly taken to be a consequence of this fact, is just what makes cognitive science possible—a scientific investigation of cognitive properties as such, across the diverse biological species and perhaps *nonbiological cognitive systems* [emphasis added], independently of the particulars of their physical implementations. In fact, some have even speculated about the possibility of *nonphysical realizations of psychologies* [emphasis added]; it is a seductive thought that there may be contingent empirical laws of cognition, or psychology, that are valid for cognizers as such, whether they are protein-based biological organisms like us and other earthly creatures, electromechanical robots, noncarbon-based intelligent extraterrestrials, immaterial Cartesian souls, heavenly angels, and even the omniscient one itself!...Even when we bring in the materialist constraint of physical realizationism, the idea of universal laws of cognition and psychology, contingent and empirical, and applicable to all nomologically possible physical systems with mentality, is heady stuff, indeed. (p. 196)

Though Kim fans out the cards in the ontological deck quite widely here, he ultimately fails to pursue any of the more-than-material implications that he suggests follow at least logically from physical realizationism's ontological position. Instead, he wedges it between laughingstock notions of extraterrestrials and angels, and thus is able to categorically dismiss it as a legitimate subject of scholarly inquiry. I feel confident that his doing so is without conscious

understanding of the ontological flimsiness of the materialist position that affords him the opportunity to do so.

Kim suggests that physical realizationism is a stronger notion than supervenience because it is an explanatory theory while supervenience theory is not. What makes physical realizationism an explanatory theory, according to Kim, is that it specifies a reason that the mental supervenes on the physical: “because every mental property is a second-order functional property with physical realizers” (p. 197). But, just because this is offered as an explanation does not necessitate that it is one. It is an explanation *of sorts*, but one can see from it that the explanation is based purely on a conceptual arrangement of what is already pre-supposed about the mental-physical relationship—that the physical is primary. That is not really an explanation, as we must require of our explanations that they have some fundamental chain of argumentation and empirical support. This “explanation” has neither. It presumes the primacy of the physical and then uses that presumption to craft a statement that essentially supports the presumption. That is circular reasoning. What it doesn’t do is justify *how* or *why particular* mental properties are second order functional properties of *particular* physical realizers, much less why it is, ontologically, that the mental is second order to the physical at all. Thus, my primary question of *how* the physical determines the mental still goes wholly unanswered. By ontologically reducing the mental to “‘nothing over and above’ having one of its physical realizers” (p. 197) one is no closer to understanding whether the mental exists in its own right, or its nature if it does. As with supervenience, the Cartesian chasm between mind and brain remains.

Emergentism. In this section, I'll explore the last of the mind-brain theories, emergentism.

Explanation. Emergentism is a family of theories that arose in response to the discomfort some theorists had with the possibility, in supervenience and physical realizationism, that the mental can be reduced without remainder to the physical. In both supervenience and physical realizationism, by the laws of transitivity (if A produces B and B produces C, then A produces C) the physical alone is deterministic of the mental. Put another way, in these theories there is nothing the mind can do that cannot be explained by the workings of the physical which produced it. Thus, it is the physical, not the mental, that has causal power.

Through intuition and primary experience, emergence theorists see the mental as irreducible to the physical in this way. They see the consciousness that is at the core of the mental as greater than the sum of its physical underpinnings. To explain how the mental can be both irreducible to the physical yet originate there, the notion of “emergence” was developed. In it, consciousness is seen as a novel property emerging from the physical brain and its supporting material structures while differing from them in qualitative (i.e., irreducible) ways.

While there are many brands of emergentism, I'll base my discussion on two of the strongest, one offered by Hasker (2001), the other by O'Connor (1994). In both, two key features distinguish emergence from simple supervenience and physical realizationism, both of which are depicted in Figure 15. The first is that the mind “exerts a causal influence over the behavior of its possessor” (p. 95)—that is, it has a causal influence over the physical from which it emerges. As a result, as Hasker (2001) explains, “if...consciousness is emergent...the behavior of the physical components of the brain (neurons, and substructures within neurons) will be *different*, in virtue of the causal influence of consciousness, than it would be without this

property” (p. 174). The second feature is that this influence of the mind cannot be traced back, deterministically, to the physical from which it emerges. This is because the laws governing the physical and mental are qualitatively different. This qualitative difference is attributed to mind emerging as a “higher order” level of existence, and is “governed” by “laws” that are

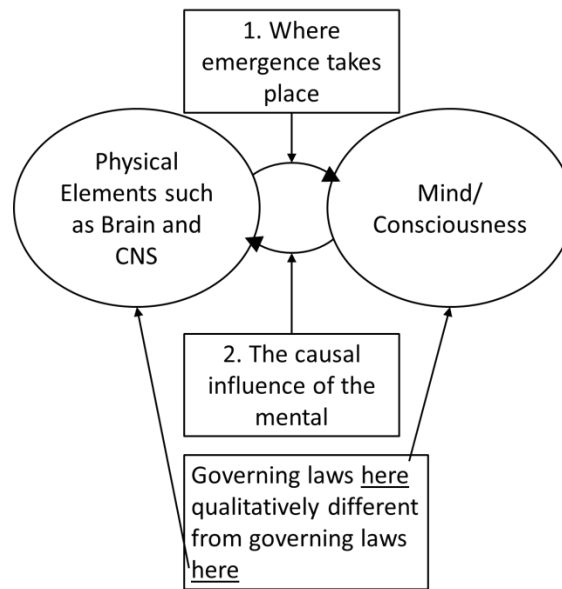


Figure 15. Diagram of Emergentism.

fundamentally “different because of the influence of the new property that emerges in consequence of the higher-level organization” (p. 174). As O’Connor (1994) puts it, an emergent property such as consciousness, “could not be deduced from [even] a complete knowledge of the properties of its components [even if one were one in possession of such]” (p. 96).

Critique. O’Connor says that the main work of emergence theory is to explain

- (i) the nature of the dependency of the emergent property [in this case, consciousness or the mind] upon the lower level properties of the object [in this case, the body or the brain] and
- (ii) the general nature of an emergent’s causal influence. (p. 95)

Figure 15 above depicts both elements as mind and brain interact.

I think O'Connor is right to distill the main work of emergence theory to these two elements, but I differ from him in that I believe the first area of inquiry to be primary, and the second either of secondary importance, or at least dependent upon the first for its coherence. As I've stated throughout this discussion so far, *how* the mind emerges from the physical is essential to understanding the nature of any influence that the mind can have upon the physical or vice versa. The most damning criticism leveled at Descartes' substance dualism centered on the relative weakness of his explanation for how the more-than-material soul or mind, lacking spatial extension, could causatively interact with the physical (Robb & Heil, 2013). With emergentism of the mind, we have a type of inverse of this problem and so an inverse of the criticism. In emergence theory, an explanation of how the physical, being qualitatively different from the mind, can still produce that mind, must be offered. In general, emergence theory fails to do this. Since emergence stands as one of the more widely proffered present-day explanations of the ontological relationship between the physical and mental in human beings, the failure to articulate an answer to this primary question about the mind-brain relationship is extremely problematic. I'll explore the nature of this failure next.

"Explaining" the Mind Through Ignorance. One way that emergence theorists have grappled with explaining how the mind emerges from the brain is to simply admit ignorance. For example, in explaining how "conscious life and experience" can exist "in the nature of matter itself" Hasker (2001) admits that "*we have no insight whatever* [emphasis added] into how this is the case" (p. 194), and adds that

[i]n saying that 'the existence of consciousness can be explained by the causal interactions between elements of the brain at the micro [physical] level' he clearly doesn't mean that we can now give such explanations; it's obvious we can't do this, since we don't yet know even the Humean-type correlations that govern the emergence of consciousness. (p. 173)

Another proponent of emergentism, Sperry (1969), says,

At present even the general principles by which cerebral circuits produce conscious effects remain obscure (p. 535). Kim (1997) says that even if we could trace mental properties back to physical ones, it still would not “automatically promise us an intelligible account of why the supervenience [of emergence] obtains. (p. 194)

That this is insufficient support for the claim that the mind emerges from the physical is obvious. It is sponsored first by confidence in a material reality, which in turn underwrites the assumption that while the explanation of emergence is not known, it is ultimately or eventually discoverable as a materially sourced thing. I’ll explore this—what I call the “fallacy of discoverable materiality”—in more detail below, so suffice to define it here as the unbending faith that if a material explanation for some phenomenon does not present itself, because the world is *a priori* material, eventually a material-only explanation can (and will) present itself.

“Explaining” the Mind by Process of Elimination. The other way theorists attempt to justify the position that the mind emerges from the physical is by eliminating, through assumption, any other explanation. For example, an early emergentist referred to in both Kim (1997) and O’Connor (1994) is Alexander (1920), who suggests that the

existence of emergent qualities...is something to be noted, as some would say, under the compulsion of brute empirical fact, or, as I should prefer to say in less harsh terms, to be accepted with the ‘natural piety’ of the investigator. It admits no explanation. (pp.46-47)

To insert that which is unspoken into his statement, what Alexander is really suggesting is that because mind and consciousness exist, and *because the world is radically material*, then it is an unavoidable fact that the mind emerges from the material. Kim (1997) also injects this assumption when he says that “there appears to be no alternative but to accept the higher-level properties involved as emergent properties—intrinsic properties in their own right whose supervenience on their base microproperties must be taken as brute, unexplainable correlations” (p. 204). O’Connor (1994), too, adopts it when saying that

it is true...that...even the quirky phenomenon [those said to have emerged] could be described in terms of functions from the base-level [physical] properties alone. But this does not motivate the repudiation of the presence of emergent properties. For the laws adequate to describe the quirky phenomenon will themselves have a very odd complexity, involving tacked-on disjuncts to cover the special cases. And this, surely, demands explanation in terms of the properties of the object exhibiting the strange behavior, an explanation that the postulation of an emergent property seems to provide. (p. 98)

Once the assumption of a material reality is exposed for what it is: largely dualist assumption, the kind of reasoning these authors use beings to appear weak. It's one thing to say that emergence is a better *conceptual* or explanatory "black box" within which to consider these phenomena. It's quite another to say that because of this, one ought to conclude without any explanation of the actual mechanism of emergence itself, that it *exists*.

To push beyond the "only available alternative" argument, however, O'Connor acknowledges that there "will always be an alternative explanatory possibility available to the theorist determined to...posit the presence of further (hitherto undetected) [material] micro-properties" (p. 98). But he rejects such a move as "implausible" by asking:

Why does such a micro-property make its presence known only in highly complex systems of a certain sort? How is it that such a fundamental property can be so causally isolated from other microproperties so as to be discernible only in circumstances that are otherwise noteworthy only for the complex macro-properties which are instantiated? The presence of an emergent property is by far the more natural assumption to make... (pp. 98-99)

In essence, having eliminated 1) more-than-material explanations through ontological assumption and, as O'Connor is saying, 2) other material explanations because the unique-to-the-macro-property appears to be qualitatively different from the microproperties that are its supposed origin, then emergence is the only explanation. Further, O'Connor's suggestion that emergence is a "far more *natural* assumption" is only sponsored by defining that which is "natural" as that which is accepted to occur in the way that it does in a materialist ontology. In the relational ontology I espouse, for example, where more-than-material elements are also

present, when intuition tells one that something is qualitatively different from the material with which it has been observed to co-occur, and when no material *explanation* consistent with other, accepted explanations of known material processes can be found, then a *more-than-material* explanation is the more “natural” assumption to make.

At this juncture I also point out that the *process* of emergence is yet to be articulated. “Yes,” we can say for the sake of the emergentist argument, “we have a material world.” “Yes,” we can say again for the sake of this argument, “the macro is qualitatively different from the micro.” Allowing this, we are still not offered a single statement on *how* the mind emerges from the physical under such conditions. In O’Connor’s explanation, emergence becomes a word or concept wall-papered over the existential void left when the two ontological poles of mind-brain theory—more-than-materialism and pure physicalism—are eliminated. It has no substance of its own. Thus, emergence as a thing unto itself *does not exist*.

One way that emergence theorists try to avoid this unavoidable fact is to avoid discussing what emergence is, and instead discuss the “conditions” or circumstances” under which it occurs. O’Connor talks about “uncovering [the] precise causal conditions under which emergence occurs” (p. 97). Kim (1997) speaks of the lack of understanding of why certain experiences, such as pain, “emerge just when...[certain] physiological conditions obtain...[and] why, and how, mentality makes its appearance when certain propitious configurations of biological conditions occur” (p. 200). Though Kim goes on to make a complex logical argument for it having to happen, he offers no explanation as to how it does. Thus, again, we are left with a void filled by the word “emergence” and nothing more.

Hasker’s (2001) theory suffers the same fate, predicating the nature of emergence on the acceptance of “well-confirmed results” of science coupled with materialist ontology. “In

rejecting [Cartesian] dualisms,” he writes, “we implicitly affirm that the human mind is produced by the human brain and is not a separate element ‘added to’ the brain from the outside. This leads to the further conclusion that mental properties are emergent” (p. 189). This is yet another argument for emergentism gleaned from an *a priori* insistence on materialist ontology. It does not offer any support for such an ontology. At least Cartesian dualists and reductive materialists have attempted the explanation. Emergentists, finding neither acceptable, seek a middle ground. In doing so, however, they fail to see the potentially unresolvable ontological tension that they introduce. I’ll explore the effect this conceptual fence-straddling has on the very viability of emergence as a theory next.

“Trying to Have One’s Ontological Cake and Eat It, Too”. Amongst emergence theory’s basic claims, two are of relevance to my critique that emergentism has attempted to straddle an ontological fence and failed. The first is that the mind, or consciousness, is material in origin, emerging wholly from some configuration of its material microstructures. The second is that this same mind cannot be reduced to, or explained by, the laws that govern those microstructures. Putting the latter another way, the mind is governed by laws qualitatively different from those governing its material microstructures and thus itself is qualitatively different from them.

The main problem in emergence theory as I see it is that the support for each of these claims is rooted in different ontological, or at least epistemological, bases—bases that are, I suggest, incompatible with one another. Emergentists have unwittingly created this situation, I believe, in response to their general dissatisfaction with the reductive nature of strict materialist explanations of the mind and consciousness while clinging to the same materialist ontology that underwrites those theories. Hasker says of “eliminative” materialism that it fails to account for

things like “consciousness...mental content and intentionality” and that at times it makes “highly counterintuitive claims” (p. 23). Echoing this, Sperry (1980) says that before emergence theory, “[traditional] materialist-[pure] behaviorist reasoning effectively outweighed all the [valid] intuitive, natural and omnipresent subjectivist pressures and arguments [for consciousness]” (p. 198). As one can see from these two quotations, intuition plays a significant role undergirding emergence theory’s second claim that the mind and consciousness are both existential and irreducible to any of the material microproperties from which they emerge. Given the reliance of emergentists on this intuition, one can also see that the primary experience of mind and consciousness that produces it is being held as a *prima facie* source of truth. To wit: Griffin (1981) says of consciousness that it is really the only thing of which we *do* have direct experience, and therefore, knowledge. Thus, emergence theory’s second claim rests upon truth known *not from material evidence*.

As for emergentism’s first claim that the mind is materially sourced, it does rely wholly on material evidence. For example, Hasker (2001) rests his form of emergence theory on the assumption that “the well-confirmed results of natural science, including research on neurophysiology...[are] in the main true...[and]...informative about the real nature of things” (p. 188). Again, Griffin (2013) also accepts the material as the origin of the mind when unequivocally stating that

questions about animal mentality can best be approached from the viewpoint of a materialist who assumes that mental experiences result from physiological processes occurring in the central nervous system...[Thus in explaining those mental experiences] there is no need to call on immaterial factors, vitalism or divine intervention. (p. 17)

But, as I’ve argued throughout this dissertation, such scientific approaches mistakenly replace correlation with causation. In addition, these scientific investigations take as relevant and valid only those data which are externally observable (thus of a material nature) and repeatable. One

may notice that this is the hallmark of the scientific method, with its roots in “systematic observation...[and quantitative] measurement” (“Scientific Method”, 2009). Granted, the scientific method can be applied to the phenomena of mind by investigating the materially observable *effects* of such mental activity (as Sperry, 1980, has suggested), but I find it striking that the functioning and nature of the activity itself remains virtually impenetrable by current attempts to gather knowledge of the material attributes of the phenomenon itself.

Indeed, this should be troubling for *any* theory that the mind is, and has its origins purely within, the material. Certainly, if so many other material structures and processes have yielded material results to material inquiry, one would think that by now we’d have *some* information about these particular material elements, and yet, as I point out when discussing emergence theory’s appeal to ignorance, it is admitted that there is virtually no knowledge of it whatever. If the materialist responds to this void in knowledge by saying that it is only a matter of time until the material structure and processes are discovered, then she is in danger of appealing to what I here again brand the “fallacy of discoverable materialism.”

I define this fallacy as the belief that all things are (eventually) explained by the material. This, in and of itself, is not a fallacy since a fallacy is the act of reaching a conclusion based on poor logical premises, and this is only a belief without (at least stated) premises. But it becomes a fallacy when one investigates the ways in which this belief is most often reached. The first way is by arguing that since the world *is* material, then it *must be* that all things will eventually reveal themselves as being material. Popper (1977) calls this “promissory materialism” (p. 96). Put another way, the logic is such that since materialism is *a priori* true, it must be *a posteriori* true. This is circular and fallacious.

The second way the fallacy is constructed is as follows: since all investigations of phenomena have yielded some material results (and more and more with time), then eventually all phenomena will yield *only* material results. This statement has two problematic elements. First, there is an unwarranted assumption that because there is material evidence, that this is the only kind possible. Such an assumption is supposed to be lent even greater weight by reasoning that as more material evidence accumulates it becomes harder and harder to cleave to more-than-material alternatives. One *prima facie* weakness of this belief is the fact that no researcher has looked for any other kind of evidence. More importantly, however, this belief is only possible if material evidence is taken as support only for a material ontology. As I state in the Relational Ontology and Human-Nature Closeness chapter above, this cannot be uncritically accepted given that, in a material and more-than-material ontology, material evidence can be taken as support for the presence of more-than-material elements.

The second problematic element is that in a material and more-than-material ontology, the accumulation of material evidence is not an explanation as to *why* a thing is what it is, it is only a description of its effects—it is only the “what” with the more-than-material as the “why.” In such a view, the accumulation of the material “what” through experimentation and other means can be seen not to be a growing body of evidence, but instead an ever finer splitting of the same, original hair of “what.” That is, it’s not cumulative. *Why* is a mind produced by the material structures and processes of the brain instead of, say, a songbird or a quark? A more-than-material answer might be that there is a soul whose nature it is to be a mated with the material in the mind. The material is only the “why” when one subscribes to an ontology where there are no more-than-material causes, which means the material phenomena either has no cause (i.e., it’s the result of the random nature of the universe) or the cause will again, eventually, yield

itself as material. Ultimately, the fallacy of discoverable materialism originates within assumed materialist ontologies, thus is generally self-fulfilling.

To return to the incompatibility between intuitive-experiential ways of knowing (i.e., potentially *poetic* ways) and material-scientific ways, I suggest that if one takes truth to be arrived at through the latter (as emergentists do in the first claim above), then the mind in the second claim above is threatened. After all, a materialist world demands material answers, and at the moment the actual material *process* of emergence has none. Likewise, neither do the workings of the mind, except in neurophysiological research which again either *correlate* the brain's activity with the mind's and offers it as causation, or overlays the mind's workings with an *a priori* materialist ontology that disallows non-material explanations for that which is observed. Ultimately, application of the scientific method to the truth of the mind gleaned from intuition and experience may still yield that the mind is material in origin, but this is not *de facto* true, and is not currently *known as true* in a material sense. To support this point, in the Relational Ontology and Human-Nature Closeness chapter where I discuss poetic knowledge, I quoted Nobel Prize winning geneticist Barbara McClintock as saying that "you work with so-called scientific methods to put it into [the scientific method's way of knowing] *after* you know" (Keller, 1983, p. 389). The source of truth for her in this example is intuitive and experiential, and may be a stronger support for the knowledge of something than a subsequent attempt at accumulating material confirmation of that knowledge. If truth can be arrived at or discerned via intuitive-experiential means, then all manner of things not easily compartmentalized into a materialist ontology or epistemology (not just the emergentist's human mind) can be taken as real or potentially real. If that's the case, then we may be in a better position to make the claim that there are entities quite unlike human beings that possess minds.

As one can now see, by trying to step outside the strictures of traditional materialist views, emergence theorists have embraced an explanation for the nature of the mind that is at odds with a strict materialist ontological adherence. As a result, trying to fit the mind back into a materialist world without any material support for it becomes markedly awkward. For example, to make his claims coherent, Hasker (2001) suggests that consciousness occupies physical space. Specifically, he argues that due to the “close *natural* [emphasis added] connection...between mind and brain...it is *natural* to conclude that the emergent consciousness is itself a spatial entity” (p. 192). Here we have an attempt to dissolve the dualism of Descartes’ nonspatial mind and spatial body, but it runs into trouble right away. First, it’s a bit deceiving for Hasker to piggyback the naturalness of his conclusion on the naturalness of the connection between mind and brain. The latter is generally accepted, the former generally rejected—that is, most people *don’t* believe that the mind, or consciousness, occupies space. Second and again, it only becomes “natural” to conclude that consciousness occupies space when holding an *a priori* materialist ontology. Since assumption is generally weak support for any claim, there is little of it here.

By moving aside these weak materialist ontological claims, two strange things result. First, *the process*—the “how”—by which the mind springs from the material microstructures in which it is supposedly rooted becomes no less mysterious or magical than the more-than-material soul offered in Cartesian dualist ontology. Emergence becomes at most a post-dated, blank check to be filled out and drawn on a materialist bank sometime in a future where more material funds are present. Second, with the elimination of self-fulfilling materialism, emergence as an existential process becomes wholly empty, a ghost left behind in the exact shape of the Cartesian soul. Emptied of substance or explanation, the origins of the mind “wander” emergence theories without definition. What’s more, they become really *undefinable*

since they are positioned as being different from all other known material things, and thus can gather no material evidence or support for themselves—at least not yet.

In my complementary material and more-than-material ontological view, such a vastly untenable result is, ultimately, support for a very plausible alternative: *that the mind is more-than-material in origin*. This is not to say, as Hasker does, that it is “a separate element ‘added to’ the brain from the outside” (p. 189). If the brain and mind are material and more-than-material in origin, respectively, the mind isn’t “in” the brain exactly. Such an orientation of the two to each other already suffers from a materialist dualism that positions the brain as the house of the mind. Perhaps the brain exists in the mind, as much as the spatial notion of “in” can cohere around a thing that does not easily obey spatial laws. Maybe it would be more accurate to say that the mind and brain co-occur—neither existing within the other nor on their own. This would be a true interdependence within an ontologically radical *relational* dualism in the Cartesian sense of irreducibly distinct ontological elements. In emergentism, given the reliance on relational knowledge and the primacy of experience, it is the more-than-material which far more comfortably or “naturally” accommodates the definition of the mind as emergence theory itself has postulated it.

Ultimately, then, I believe it’s reasonable to conclude that emergence theory’s description of the origin and nature of the mind fails to address these ontological and epistemological fissures, devolving into an attempt to have one’s ontological cake and eat it, too. If that’s true, then I suggest we can decouple minds, consciousness and their thoughts from the any narrow material bases—thus the monopoly control over the capacity to possess thoughts that contribute to close relationships, heretofore granted by humans to human and human-like physiologies only, can be rejected.

“If I Only Had a Brain,” the Plant Thinks...

In the section above, I explore what I consider to be the best materialist ontological explanations offered for the origin of minds in certain neurophysiologies. From that discussion, I concluded that explanations such as emergence are rife with ontological and epistemological contradictions such that a potentially more-than-material sourcing of the mind is worth consideration. In this section, I'll take up discussion of a specific type of being previously not thought capable of having a mind as a means to explore this ontological possibility. The broad category of being I'll consider is the plant.

I begin my inquiry in the field of plant neurobiology, specifically, in plant intelligence theories, because in this family of theories is noted a capacity in plants that is usually attributed to mental activity in humans and those possessing human-like neurophysiology. It must be noted before I begin that most plant intelligence theorists don't suggest that plants have minds. In fact, most are strictly materialist in their ontological commitments. But, I believe that such assertions are based on a presupposition that plants *can't* have mental activity, therefore they don't. In other words, they use the same self-fulfilling materialist argument I've critiqued throughout this dissertation. I will first explore the evidence given for plant intelligence, then critique materialist explanations for that intelligence in order to bring forward the possibility that plant intelligence is a product of mental activity.

Plant Intelligence

Description. There is a growing belief that plants display intelligence (Marder, 2012; Carello, Vaz, Blau & Petrusz, 2012; Trewavas, 2003, 2005). Some of this belief is based in experimental evidence while other portions are based in an attempt to modify the definition of intelligence to rid it of self-serving, anthropocentric elements. Garzón (2007) comments on the latter effort when saying, “Intelligence is usually cashed out in animal or anthropocentric terms, in such a way that plants plainly fail to meet the conditions for animal or human-like intelligence...” (p. 209). To move away from such restrictions, Trewavas (2003) defines intelligence more generally as “adaptively variable growth and development during the lifetime of the individual” (p. 1). Carello et al. (2012) do likewise, characterizing intelligence as “end-directed behavior marked by the making of meaningful distinctions made possible by perception-action cycles...[where the end-directed behavior shows] evidence of three aspects of...agency...namely, *prospectivity*, *retrospectivity*, and *flexibility*” (p. 241). As Carello et al. define them, *prospectivity* is the “ability to be forward-looking, changing...behavior in anticipation of what will be” (p. 248), *retrospectivity* is defined as behavior that is “reflective of what has been” while *flexibility* is the possession of “options as to how [one] can behave to accomplish [ones] end” (p. 248).

Experimental evidence shows that plants act in ways that meet these definitions. For example, Carello et al. describe the behavior of the parasitic plant, Dodder, saying,

It will coil around a good host or bend away from a poor host, and it will do so without first taking up any food from either host and without being in the presence of other potential hosts for comparison. (p. 243)

Marder (2012) notes that plants can “detect and react to different sounds, bending root tips toward [a] sound source” (p. 1368). Trewavas (2003) observes that in response to competition,

the stilt palm will relocate itself to full sunlight by putting down new stilt roots and letting the old ones die off in order to slowly walk to the new location (p. 15). These are just some examples of plants' capacities for the memory, variation in response, foresight, choice and intention that Trewavas argues are the basis for intelligence.

Because plants display these behaviors, it might be tempting to conclude that they think. In fact, were the examples I just cited offered as instances of human behavior, that's exactly what one is likely to conclude. A human faces competition, he thinks about going somewhere where that competition is reduced and then acts on that thought. A human likes a particular food she tried at a party, thinks about ways she can find it in a store, and goes to that store to get it. In truth, the coupling of human intelligence with thought is so tight that to ponder one without the other seems nonsensical. Obviously, at this juncture, this same coupling is not commonly ascribed to plants.

Having established that plant activity fits within this modified definition of intelligence, theorists' qualification and explanation for that intelligence renders it qualitatively different, however, from the kind of intelligence that lay people think of when thinking of intelligence in human beings. I'll explore the basis for thinking plants intelligent in the next section, and will follow with a critique of its explanation that opens the door for the possibility of plant thinking and consciousness.

Explanation. After reorienting definitions of intelligence to expunge them of anthropocentric biases, the work now lies in assessing the efficacy of such a reorientation. One might expect that such a reorientation would put humans and plants on equal footing, as that is, to some degree, the intention of the theorists undertaking the work. But there still appears to be a qualitative difference between human-as-intelligent and plant-as-intelligent. This appears to be the case mainly because plant intelligence theorists tend to discount the role of cognition and consciousness in intelligence, and do so primarily, I believe, because they want to include plants in definitions of intelligence yet they *a priori* dismiss the possibility of cognition and consciousness in plants. Thus, the attempt to define intelligence to include animal and plant still results in a bifurcated notion. I'll trace the bifurcation effect by exploring the various ways that plant intelligence is characterized in order to compare it with human-like intelligence.

Intelligence as Microstructural. Trewavas' (2002) explanation of how plant behavior constitutes intelligence is focused at the cellular level. He suggests that certain cell behavior in plants, taken collectively, produces their intelligence. "Internally, plant cells and tissues communicate with each other...[thus a] huge reservoir of individual cell behaviours can be coordinated to produce many varieties of organism behaviour" (p. 841). But, in Trewavas' estimation, such coordinated cellular activity does not produce a mind. The title of the essay: "Mindless Mastery" is but one indication of his belief, another being his question: "How is such intelligent behaviour computed without a brain [and, one must suppose, a mind]? Cellular calcium mediates most plant signals, and calcium waves inside cells offer computational possibilities" (p. 841). As Trewavas (1999) states, "If the calcium signaling system has a formal equivalence to a neural network, it should be able to compute, remember, and learn even though

it is confined to single cells” (p. 4). But if calcium wave effects are intracellular and intelligence is attributed to intercellular activity, this is not a plausible explanation.

Like Marder (2012), Carello et al. (2012) and others, Trewavas (1999) offers such explanations because of an overarching belief that plant intelligence is based in the microstructurally material. That is, it doesn't ever coalesce or “emerge” into a “higher”-order mind. Marder (2012) describes this type of “lower” plant intelligence by equating it with autonomic “intelligence” in humans. He says that “human subjects are attentive to numerous environmental factors, such as the temperature, without taking cognizance of the fact. This somatic attention perhaps comes closest to that of plants” (p. 1368). But, I note that somatic “attention” is a far cry from “intelligence” as we think of it. I'd also argue that, as I'll explore in detail below, it is a far too limiting an equivalence to make given the more advanced memory, learning, intention and other behaviors that plants have been shown to exhibit (see continued exploration below). Further, while we may think of human attention to temperature as a culminating form of the random genius of evolution, we don't think of it as intelligence. By virtue of its chaotic and mindless origins, we tend to think of it as decoupled from the kind of free will and mental activity that produces the intelligence we most highly prize. If, on the other hand, this attentiveness is thought of as a product of some being's unconscious mind, then the inextricable relationship of mind with intelligence reappears, and must include plants.

To explain how plant intelligence comes to be produced at the microstructural level, though, we once more find the “black box” of ontologically material emergence introduced. For example, to explain how intelligence can be the result of cellular activity in plants, Trewavas (2003) says that intelligence “is indeed an emergent property...just as it is in the brains of animals” (p. 17). By taking this course, however, Trewavas inadvertently paints himself into a

conceptual corner. First, either the plant, too, has the possibility of a mind as either a wholly determined sum of microstructural parts or as emergence theorists' qualitatively different and irreducible thing emerging when certain materially microstructural constructions and conditions come to pass. If the cellular networks of both plants and animals are similar enough to produce intelligence, then it becomes difficult to argue that they wouldn't produce what is thought of as such an inextricable part of human-like intelligence—a mind. The second possibility is that, if the plant is a “mindless master,” as Trewavas believes, then the logic that supports that conclusion must also be applied to the conclusion that humans don't have a mind. That, or that their intelligence is not sourced there.

The refuge that plant intelligence theorists holding to a materially microstructural explanation of intelligence might seek from such conceptually troubling waters—and the one forming a third possible explanation of microstructural intelligence—is the possibility that neural networks of a *certain level of sophistication* produce minds and the kinds of intelligence we believe to be products of those minds. But if that's the case, then one is confronted with two different *kinds* of intelligence—the mental and the microstructural. According to plant theorists, though, there is a continuity of intelligence, and so this explanation must also be rejected. I suppose a fourth possibility is that mental intelligence—intelligence based in thought—is the more sophisticated form of intelligence. But, the plausibility of this—that a mind simply comes on the scene to produce a certain type of intelligence or work with intelligence rooted elsewhere (how they would interact being a mystery as well) seems less than wholly credible and more than a little anthropocentric.

Decentralization. The next explanation given for a mindless plant intelligence is that of *decentralization*. As Marder (2012) points out, in plant signaling and behavior theory, there has

been a movement away from the notion that intelligence is a product of individuals—that it does not require an individual as a gathering or coordinating entity. To this point, Marder asks, “Is it necessary to postulate the existence of a complete cognitive map or a coherent global representation of foraging space in plants to account for their spatial orientation?” (p. 1369). In other words, does there need to be a cognitive “entity” to coordinate the information gathered by the plant and the intelligence displayed in response to it? According to Marder and others, there does not. Marder instead suggests that the concept of “decentralized memory” may be applicable to plant intelligence. When applied to plant intelligence, Marder likens decentralization to a computing model, with “the plant’s non-totalized intelligence...explicable, in cognitive terms, as a parallel processing model, with every organ of intentionality playing the role of a parallel processor...[where] modular memory and modular intelligence that...do not correspond to the organismic logic” (p. 1370). This notion seems tenuous given that there still exists no explanation for how such parallel processing comes to be coordinated, and who exerts the coordinating influence. This is the stuff of ontology, and so may be slightly out of place in plant intelligence theory, but the viability of such theories depends on ontological as well as logical coherence and must be addressed.

Garzón (2007) is another theorist who suggests that elements of intelligence can operate in a decentralized way. His description is worth quoting at length:

As animals grow and develop, attention is paid to many different processes at layers of organization that range from the subcellular level to the level of tissues and organs... In this way, no individual as such shows up in the cognitive equation...[Thus, causal efficacy operates at levels below the level of the individual in such a way that no self is subject of scientific research unless broken down into its microconstituents and their interactions...In short, it is the interactions that take place among processing units where the emergence of intelligence or cognition resides. (p. 209)

Here, we again see emergence as an explanatory concept for how uncoordinated constituent elements of intelligence come together to actually be intelligence vs., say, random actions constituting stupidity. Tracing Marder's (2012) notion of decentralized intelligence back to one of his sources for the theory leads us again to emergence, where Cruse and Wehner's (2011) notion of decentralized memory in honey bees relies on it. They suggest that the ability of honey bees to map novel paths through territory is not, as had been previously argued for other organisms, the product of accessing a cognitive map of the territory. Since those authors hold that honey bees are incapable of cognition, they suggest that "map-like behaviour as observed in honey bees arises as an emergent property from a decentralized system" (p. 1).

Ultimately, to justify denying minds to plants through a notion of decentralized intelligence, the validity of such a denial lies in the explanation of just *how* these disparate, material, mechanical elements *do* come to be coordinated in what we recognize as intelligence. In humans, the explanation is easy. It occurs in some level of our consciousness whether we're aware of it or not. But, for those not believing that plants have consciousness, the explanation becomes infinitely more difficult. Because intelligence is a coordination, then this coordination *must occur somewhere and be performed by some 'one.'* Where? And by whom? For those not like humans, it is postulated in decentralization theory to simply "emerge" from thin air. As in my discussion of consciousness as an emergent phenomenon above, on ontological grounds this assertion cannot be uncritically offered nor accepted.

Embodied Cognition. Embodied cognition is the last explanatory framework for plant intelligence that I'll consider. Garzón (2007), the chief proponent of its applicability in plants (it is traditionally applied to human and nonhuman animals), explains the notion by saying that

embodied cognitive science rejects the metaphor of cognition as a centralized process. Cognition is rather an emergent and extended self-organizing

phenomenon whose explanation requires the simultaneous scientific understanding of neural, body and environmental factors as they interact with each other in real time. (p. 209)

For Garzón, both plants and animals are “open systems coupled with their environments” where there is a “continuous interplay of [individuals] in relation to the environmental contingencies that impinge upon them” (p. 209).

In this new definition, “cognition is...a biological phenomenon...that...exhibits itself as a capability to manipulate the environment in ways that systematically benefit a living organism” (Garzón & Keijzer, 2011, pp. 161-162). As one can see in this definition, thought is eliminated as part of cognition. As Garzón and Keijzer point out, it’s possible to include plants in such notions of cognition if three constraints that embodied cognition carries when applied to certain animals are modified. The first is that a cognitive agent must be able to freely move about. Garzón suggests that this constraint has less to do with a requirement for cognition and more to do with observing evidence for its effects in what has traditionally been only animals. The second constraint is offline processing, which “allows an organism to dissociate its behavior from the immediately impinging stimuli and to act in ways that are guided by forms of knowledge” (p. 163). Garzón and Keijzer say that evidence for this ability abounds in plants. The third, and most interesting in relation to my discussion, is that the organism’s cognitive organization must be a “globally organized cohering unit, not a collection of individual stimulus–response relations” (p. 168). Given that Garzón and Keijzer’s materialist ontological commitments carry the suggestion that plants don’t have minds, I predict that this constraint would give him the most trouble, and it does. In response, Garzón and Keijzer are only able to offer the example of it being possible that plants have a sense of the geometric layout of the environment “without us knowing it” (p. 163). This is intriguing because they are essentially saying that there is nothing ontological preventing plant cognition from being a globally

organized cohering unit. All that is missing is the gathering of empirical evidence for it on the part of the human. I'll explore the implications of this next.

Critique. In this section, I'll critique four particularly troublesome elements in the explanation of plant intelligence.

Coordination/Coherence. The requirement for global coherence in embodied cognition theory parallels Trewavas' need for the "coordination" of cellular activity. But, the influence of the materialist ontological commitments of both of these theories poses certain problems for the requirement when applied to plants. I suggest that these problems exist for two reasons. First, if there is to be coordination or coherence, there must be a place (material or otherwise) where it occurs. In materialist ontologies currently, plants don't have such a place. In humans and some other animals, there is the brain and/or the mind and its thoughts—conscious or otherwise—that make sense of these individual stimulus–response relations. Plants are denied this. Second, for coherence to be coherence, it must have a governing pattern, or "holism" to use Trewavas' (2006) term. I think it particularly relevant that, for Trewavas to be able speak of the coordination required by intelligence, he must invoke an ontological term, "holism," completely out of keeping with the generally chaotic metaphysics of his materialist approach. What and/or who is responsible for the coherent pattern of intelligence in plants? This essential ontological question has yet to be answered, or even acknowledged. The commitment to a materialist ontology in these theories currently only allows for human-like neural networks to be the source of the consciousness and particular form of cognition that is argued to serve this coordinating purpose in humans and some nonhuman animals. Therefore, if plants are to have coordination, they will either have to be "granted" some form of mind or they will have to be thought to have

something so similar to it that the notion of a truly decentralized or “mindless” intelligence becomes untenable.

What is the alternative to consciousness as a coordinating influence for materialists? I suppose there would be the resort to emergence as an explanatory phenomenon even though its very existence can only be inferred, and then only when a materialist ontology is *a priori* installed. In my estimation, emergence makes an appearance whenever materialism bumps up against its own limitations in satisfactorily positioning non-individual bases for things so qualitatively different from itself as consciousness and intelligence. Therefore, I have grown to see emergence more as a materialist’s *deus ex machina* than as any kind of plausible explanatory framework.

Thinking and Intelligence. While both embodied cognition and decentralization “open the door” for plant intelligence, one notices that they do so not by suggesting that plants can think, but by severing the connection between thinking and intelligence. Thinking is the lifeblood of notions of human intelligence, thus to eradicate it in order to broaden definitions of intelligence—or to functionalize them so radically so as to enable the inclusion of a being that, ontologically, one can’t justify as having thoughts—is intuitively unsatisfying. By undertaking this modification of the definition of intelligence, one notices also that theorists get to leave intact the main supposition that only those with human or human-like neurophysiology can have mental experiences. This, even though the materialist understanding that allows inclusion of plants as intelligent is still wielded arbitrarily to then deny them thoughts while granting them to humans and human-like animals.

The distilled set of claims undergirding the denial of thought to plants is as follows:

- Both plants and humans have learning, memory, etc. that help comprise intelligence

- The capacity for these things in humans is rooted in their capacity to think.
 - The “source” of the thoughts that undergird these attributes in humans are causally connected with the brain and its attendant neurophysiology.
 - This claim is true even though, as emergentists admit, the mind is profoundly, qualitatively, different from the brain
 - This claim is true even though there is no material evidence whatever to explain how the mind emerges from the brain.
- ∴ Because plants don't have a human-like brain or other neurophysiology, they are not capable of thoughts.

This is a troublesome argument, but constitutes the only undergirding of the denial of thought to plants. I say this because there have been virtually no empirical studies of plant thinking, therefore no *direct* evidence for the denial. In the rare, fringe instances that this topic has been studied, such studies have been excoriated by mainstream scholarship (discussed above). On the other hand, studies of human thinking are countless, and correlations between mind and brain coupled with an ontological assumption that brains are the sources of minds have undergirded the argument that human-like neurophysiology sponsors mental experience. But this is still not support for a) that sort of physiology being the *only* kind to support thought and b) human thought being the only kind of thought. Thus, the difference in attribution of mental experience to human-like animals and not to plants can mostly be ascribed to, it seems, the *a priori* belief that human or human-like physiology is the only kind that produces it. That's why emergence produces conscious intelligence in humans and human-like animals, and produces, for example, decentralized intelligence in plants. If plants are presupposed to not have minds, then nothing mental need “emerge” for them from the microstructures responsible for the remarkably similar types of end-product-of-intelligence behavior that we see in both humans and plants.

What I find particularly astonishing in this context of this discussion is that a process admittedly so completely opaque—emergence—can be so consistently and unquestioningly fallen back upon to sponsor mental experience in one type of being and deny it in another despite both responding similarly to similar stimuli. This is a particularly disconcerting conceptual turn given that virtually the entire bifurcation of that explanation rests upon an assumption, not evidence, that plant neurophysiology cannot produce a mind. That the assumption is also offered *as* evidence can be plainly seen since, when we pull the thread of that assumption-cum-wellspring, we find it dangling out the other end of the discussion in the form of a side conclusion. It gets one's back up, such self-fulfilling conjecture, and makes one inclined to think that what lies in the deepest parts of the modern, human psyche is that *we don't want plants to think*, therefore we construct ever more conceptually circular and obfuscating material arguments to support our desires. I've never seen anyone or anything fight harder than a modern human not wanting to give up the privileged niche in the order of things into which, by hook or crook and at whomever's expense, he has successfully installed himself—at least in his own mind. It's embarrassing, really, and in need of honest, critical examination and reassessment.

Denial of Individuality. According to Marder (2012), a plant's "decentralized structure means that, besides being non-hierarchical, it does not fall under the category of organismic life" (p. 1370). He contrasts this kind of life with a description of organismic life that is

succinctly expressed by French philosopher and physician, Canguilhem: "To live is to radiate; it is to organize the milieu from and around a center of reference, which cannot itself be referred to without losing its original meaning." The plant does not organize its milieu; it is comprised of a series of internal communicative networks (e.g., biochemical and hormonal channels, or synaptic cell-cell communication) and external communication pathways that connect it to its environment. It is, thus, an open system, coupled with its environment...[A plants'] capacity for kin recognition is perhaps best understood not in the categories of "self" and "other"... (p. 1370)

Here, in one conceptual stroke, Marder has denied both thought and individuality to plants. And even though he is willing to apply the same framework to humans, because a human can “organize its milieu,” it is afforded individuality and thought-based intelligence. But, don’t the Red Alder trees and other “pioneer species” fix nitrogen in the soil for the benefit of themselves and other species that follow (Chapin, Walker, Fastie & Sharman, 1994)? Lichen break down stone into minerals (Lisci, Monte & Pacini, 2003)? The “invasive” Tamarisk exudes salt from its leaves to inhibit competition (Adler, 2007, p. 88). Are these not examples of organization of one’s milieu? To suggest otherwise is to take an artificially narrow and anthropocentric view of the act of organizing. Perhaps those acts of organization are seen as “lesser” because we either value what plants value less than what we value, or because we believe it not to be a product of thought or the action of a Self. But again, to deny thought and individuality on the presupposition of their absence is circular.

Maybe our denial of the organization of one’s milieu to plants is rooted in the argument that we are aware of what we’re doing at times when we organize our milieu, and that this self-awareness makes us unique. But there is clear evidence that plants can distinguish both between self and other (Gruntman & Novoplansky, 2004) and between those of their own species and those of other, potentially competing species (Chen, Daring & Anten, 2012). Thus the denial of thought and individuality to plants becomes even more tightly constrained, where the denial is almost purely presupposed, not demonstrated. Ultimately, to face the possibility of plant thought and intelligence—an individual organizing its milieu—means facing the problem of locating just where, *within each individual plant*, the basis of such faculties resides. It works far more easily within a dualist ontology to conceptually reduce plants to “open systems” or “mindless masters.”

Qualitative or Quantitative Difference in Plant Intelligence. As I've been discussing up to this point, it appears that theorists (perhaps unwittingly) hold plant intelligence to be markedly different from human or human-like animal intelligence. This is despite the fact that plant intelligence theorists believe that the difference between the two kinds of intelligence is one of degree, not kind. In arguing for his notion of a continuity of intelligence, Trewavas (2003) contrasts his view with those who see plants as "automatons" (p. 2). But, I believe that the qualifications plant intelligence theorists impose on plant vs. human-like intelligence don't actually free plants of categorization as *automata*. In the sense that Trewavas uses it, the OED (2009) defines an automaton as: "An organism that functions purely involuntarily or mechanically; an animal, insect, etc., not motivated by higher consciousness or intelligence" ("Automaton", 2009). And while it may *appear* that defining plants as intelligent frees them from this category, it only does so by artificially restricting the definition of automata to a certain coarseness of granularity. That's because, if plant intelligence is not a product of consciousness, then regardless of the seeming variety of choices plants make (and the voluntarism with which they appear to make them) they are neither voluntary nor are they selected from any real variety. The variety only appears as such to the outside observer. They are all determined for the plant by biology and physical states, which means they are *wholly* determined.

Whatever mysterious origins one assigns to the variety and novelty of plant response, such as a non-cognitive emergence, they are still materially determined and therefore not chosen by a conscious, autonomous individual. In other words, were one able to know all material determiners of material or "physically intelligent" response, by employing a LaPlacian calculator we *can* know the response of the individual plant according to these theories. Thus, plants *are* automata, regardless of how complex the programming. Of course the same LaPlacian

calculation can be performed for human beings if one's ontology is wholly or reductively material. This brings back the claim that emergence theorists are making—that there is a qualitative difference between consciousness and the microstructural material which is its supposed source. In that theory, the emergence of consciousness saves the day for humans, but no such rescue awaits the “intelligent” but supposedly mindless plant.

I feel comfortable using quotes around the word “intelligence” now because I no longer see plant intelligence theorists' definition of intelligence as entirely useful in the context of assessing a plant's behavior and whether it has the kind of faculties most people think of as intelligence—that is, based at least in part on thought. In these theories, the plant as individual is either only housing the acts of intelligence happening at a more microstructural level or the intelligence “emerges” from the larger matrix of environmental relations in which the individual plant is embedded. In the latter, the intelligence is floating out there in the ether somewhere. A disembodied thing that is only differentiable *as* a thing because we thinking humans identify it and its effects as such. As I quoted Marder (2012) earlier about the plant, he says its

decentralized structure means that, besides being non-hierarchical, it does not fall under the category of organismic life....[and its] capacity for kin recognition [for example] is perhaps best understood not in the categories of “self” and “other” but in terms of the construction of a world in common and a clash between various life-worlds. (p. 1368)

Because of the ontological issues I've pointed out, any beachhead theorists have tried to establish for plants as intelligent beings—by making the differences between intelligence in plants, animals and humans a quantitative one—is illusory. Humans are still alone as intelligent *individuals*. If there's a doubt, Trewavas' (2003) words fairly glisten with the anthropocentrism that results from such dualistic reductions when he says,

...although as a species we are *clearly more intelligent* than other animals, it is unlikely that intelligence as a biological property originated only with *Homo sapiens*. There should therefore be aspects of intelligent behaviour in *lower*

organisms from which our *superlative capabilities* are but the latest evolutionary expression [emphases added]. (p. 1)

Carello et al. (2012) also, eventually, succumb to the force of this dualistic, anthropocentric ontology, allowing it to demarcate a qualitative boundary between human and nonhuman. They ask, “So what are we to do with our gut feelings that physical and bacteria and plant intelligence are all different from animal intelligence, which is itself different from human intelligence?” (p. 260). To answer their own question, he advises us to maintain “an eye [as] to how these different embodiments might be ordered” (p. 260) with humans at the top, of course. Because of the material nervous systems that produce consciousness, despite the authors’ belief that the differences are “orders of magnitude of...perception-action couplings” (p. 260), we humans and those like us physiologically are alone. We are intelligent in a qualitatively different way. The anthropocentrically motivated, qualitative differences in definitions of intelligence that plant intelligent theorists are working to leave behind remain present with all their hegemonic force because those theorists have yet to adjust their ontology. To say that a mindless system will ultimately produce intelligence via emergence or some other material mechanism is, ultimately, to equate self-perpetuating chaos with intelligence—to render intelligence as a mindless artefact of the machinations of evolution. And while, logically, all materialists must eventually be forced to this conclusion, I suggest that, intuitively, this does not equate with our sense of intelligence as something in which the mind figures so heavily. What we value so highly is missing from the equation, therefore it cannot stand as the base of a definition of intelligence for human *or* for plant.

Thus, plant intelligence theorists have failed to appreciably reorient the definition of intelligence or who might have it. They have simply downgraded intelligence in the same materialist ontological landscape that positions humans as “highest.” To adapt an Orwellian turn

of phrase, Carello et al.'s argument states that all living things equally have intelligence, but some have it more equally than others. This will not do.

The Possibility of Mental Experiences in Plants

Putting aside any *a priori* dismissal of the notion that plants can have minds, the difficulty of making the case for plants potentially having them lies primarily in the lack of any proof of a mind at work in an organism so different from humans—humans being the standard of comparison to permit the possibility of minds in nonhuman beings. But, as Adams (1928) notes, feeling confident that even another human is having certain kinds of mental experiences is not achieved by direct observation of those experiences, since “One can observe directly the processes of only one mind, his own” (p. 235). Noting this, Adams also notes that humans routinely assume a similarity of mental experience in other humans anyway, and arrive at this “‘knowledge’... through comparison—more or less conscious and formal—of other behavior with our own, and by inference from analogy” (p. 235). Adams notes that, when concluding that a nonhuman animal has mental experiences similar to humans, this is achieved “by analogy with one's own [mental experiences].” Adams teases apart and formalizes this idea in the following postulate:

Any experience or mental process in another organism can be inferred from structure, situation, history, and behavior only when a similar experience or mental process is or has been invariably associated with similar structure, situation, history and behavior in oneself; and the probability of the inference will be proportional to the degree of the similarity. (p. 252)

Here, Adams has succeeded in bypassing the materialist argument against minds in others, but in so doing, fails to account for his own anthropocentrism. Upon whose authority is it determined that minds are only possible in the ways humans have them? Adams has also failed to see that his argument conflates the degree of epistemological certainty a human individual can have about the mind of another with the probability of the other actually having that mind—the

latter being a thing which has nothing to do with another's ability to perceive or measure it. To say that, if I feel confident that another has a mind is the determiner of whether they should be thought to actually have that mind is a logical misstep and puts humans in the position of an unlimited perceiver of reality, which they certainly are not. Just as when Carruthers (2004) casts doubt on the argument that "the real existence of...thoughts is contingent upon the capacity of someone else to co-think them" here I suggest that the existence of a mind, or even the probability of its existence, cannot be contingent on any other individual's ability to infer it through analogy, observation, or any other means.

But, Adams' (1928) framework is not without its uses. His suggestion is right to the extent that, when we perceive what we take to be the product of mental activity, we *should* assume that it *can be* the product of mental activity. It is not through analogy to our own reaction alone that we do this, nor should it be through similarity alone. Some other criteria, such as those established by Garzón (2007), may be useful.

Garzón, for his part, suggests that for *cognition* to exist in any living system (including plants), it must be seen in the ability of that system to manipulate *representations* instead of simply reacting mechanically to external stimuli. He goes on to say that for a thing to be a representation it must meet two standards. First, the representation must be able to stand for "things or events that are temporarily unavailable" (p. 209). For example, a moose's memory of a wolf attack that occurred at a lakeside the week before is a representation of an external stimuli that is not present. Second, Garzón says that the representation must have a detectable effect, and that effect must be traceable to the representation specifically and the external stimuli that originally created it. In the previous example, if the moose avoids that lakeside at a later time, one must be able to reliably trace that avoidance behavior to the previous incident with the wolf

and its current influence in the form of an internal representation. Garzón says that defining cognition this way can help “to assess the cognitive capacities of any information-processing system whatsoever. Notice that it does not rely upon the existence of any specific brain tissue to perform computations” (p. 210). I note here that his qualification about brain tissue aligns with my suggestion that thinking cannot be *a priori* positioned as dependent upon any human-like neurophysiology.

To apply his criteria, Garzón goes on to note that manipulations on representations are not only achieved by humans and those with similar neurophysiology, but also by bees and plants. He gives the example of how the “Leaf laminas of *Lavatera cretica* can, not only anticipate the direction of the sunrise, but also allow for this anticipatory behavior to be retained for a number of days in the absence of solar tracking” (p. 210). While he suggests that such behavior meets the first of his two standards for cognitive manipulation of representations, he says it remains to be seen whether it meets the second: that the actions are indeed caused by computations in response to the representational states. But, in referencing Carruthers, Garzón goes on to argue that if the non-reactive, non-associative, belief/desire mental architecture that Carruthers articulates as cognitive can be attributed to animals such as bees, then there is no reason not to apply it to plants if the causes of their actions meet the same criteria as those of bees. In fact, he concludes, “[n]othing...prevents other information-processing systems [such as plants] from possessing minds” (p. 210).

Coming as the concluding sentence before his summary remarks, the last is no trivial statement on Garzón’s part, and stands in direct contrast with his suggestions, in the same and other of his essays, that plant cognition could be the product of embodied cognition and decentralization. Thus, we see exposed in this essay—and perhaps even in Garzón’s own

beliefs—an ontological tension. On one hand, he aligns himself with the materialist-based explanation of plant cognition as mindlessly embodied or decentralized while at the same time describing representational states which, if they exist, must exist at least in part inside an individual plant's mind. Thus, the decentralized or embodied theories that—at least when applied to plants—eradicate the possibility of the source of such cognition in the individual *cannot* exclusively apply in this case. If Garzón believes individual plants meet his two criteria for cognition, then he *must* conclude that they have minds. There is no other place for those sources of cognition to exist.

To reinforce this conclusion, I reference an example from Nagel (1997), who states,

When one of the first two leaves—cotyledons—of [the plant species *Bidens pilosus*], which basically grows symmetrical, is punctured and shortly afterwards both cotyledons and top are cut off, the plantlet continues to grow asymmetrically; it somehow ‘stored the information’ that it was punctured, or ‘remembered’ the injury. How such information is stored is still not well understood. (p. 218)

Nagel's use of quotes around storage and remembrance is illustrative since, at least in Garzón's context, no quotations are necessary. It betrays Nagel's dualist ontological commitments. The individual plant *does* remember, and with Garzón as potential guide, we can suggest that the plant may remember it in his or her mind. How far, then, have we traveled from human-like neurophysiology as the exclusive sponsor of mental experience? When a plant encounters a root, she remembers what it was like to encounter a similar one previously. Does my use of a gender-specific appellation for the plant strike an odd chord? That's only because we like to refer to plants as “it” not because they don't have gender (most do, or have both genders simultaneously) but because we have *post hoc* conceptually negated their individuality, capacity for thought, Selfness, etc. But *she* remembers. And *she* thinks about what to do to get around it and sets to work getting around it. To return to Adams' (1928) inference of mind through similarity to

humans, with this rehabilitation of our ontology can we not now, in this moment of plant thought and decision, *see ourselves*?

I'd suggest that such *simpatico* in response to observing the behavior of another human being is a potential embarkation point for close relationship. It appears that there is nothing now, ontologically speaking, standing in the way of it serving a similar function in the context of human-plant relationships. In such a context, Backster's (1968) assertion that plants respond to a humans' intent to harm them seems far less fantastic—and leads to a host of other questions relevant to human-plant relationships. If plants can respond to humans cognitively, are these the roots of relational reciprocity? If plants have thoughts and feelings about what humans are doing, how does that change our response and responsibility to them? Can I clearcut a forest tract under such circumstances, or even do experiments like those carried out routinely in places like Hubbard Brook Experimental Forest in northern New Hampshire? If nothing else, such possibilities radically alter the context and tenor of the attempt to answer to such questions. Natural "resources" become living others, and Hubbard Brook research such as experimental tree cutting and herbicide application (Likens, Bormann, Johnson, Fisher & Pierce, 1979) could be seen by some to be little different from vivisection.

Beyond Basic Mental Experience – Can Plants Be Conscious?

Abilities Attributable to Complex Minds. Pushing beyond the basic mental experience of activities like manipulating representations in the absence of precipitating stimuli, plants have many abilities that, if found in humans, would be attributed to more advanced mental activity. I'll examine a few of these next before discussing the possibility of awareness and consciousness in plants.

Self/Other recognition. Awareness or recognition of self is often a criterion by which a being is judged to have mental activity commensurate with consciousness. In experiments on root growth and competition in plants, there appears to be an “overall coordinating mechanism of root distribution... including self-recognition” (Trewavas, 2005, p. 406). Trewavas goes on to say,

Growing plant roots preferentially occupy vacant soil and deliberately avoid the root systems of competing, alien individuals. If roots of different individuals of the same species are forced to contact each other, decisions are then made to rapidly cease growth of the touching roots. (p. 406)

Thus, not only is there a self-other differentiation being made by plants, differentiation is made between others of the same species and those of different species.

When describing this behavior in the preceding paragraph, Trewavas (2003) uses terms like “prefer,” “recognize,” “avoid,” and “decide.” In the context of his discussion of consciousness in nonhuman animals, Griffin (1981) suggests that the belief in the applicability of terms like these to nonhumans is often dismissed by scientists as “childish sentimentality” (p. 116). But, Griffin notes, for the lay person there is an “intuitive impression” of nonhuman animals as having “sensations, feelings and intentions,” and this is “based on our experience with patterns of animal behavior that appear sufficiently analogous to some of our own behavior” (p. 116). Aside from the pitfalls of judging the presence of mind in another based on similarity to

humans that I note in my discussion of Adams (1928) above, I ask here whether or not plant self-recognition and the behavioral response of not competing with one's own roots cannot be seen as analogous to human decisions not to engage in behavior destructive to self, kin or self's own species. What would be profoundly interesting is an experiment to see if plants avoid competing with roots of plants genetically similar—that is, parent and offspring plants—more than plants of the same species, etc. Physiological differences aside, the self-other awareness behaviors are highly similar in human and plant. While I admit that recognition of such similarities does not necessitate a conclusion that plants are conscious, if one strips away the *a priori* assumption that plants *cannot be* conscious, then admitting to such parallels can be a first step toward legitimate inquiry into the possibility of plant consciousness.

Those adhering to an explanation of plant behavior as mindless might counter the drawing of such parallels by suggesting that for the plant, such decisions are the result of chemical and electrical phenomena (Gruntman & Novoplansky, 2004). Thus, things like preference, recognition and other thought-based elements would not apply. But, such a claim would fail to account for the fact that such chemical and electrical phenomena also accompany human behavior and yet very few but the most ardent materialist or behaviorist thinkers would suggest that humans don't have minds or consciousness. Thus, in certain ontologies, and in certain lines of thinking such as Garzón's (2007), if the criteria for mental activity is met, then plant or no plant, mental activity exists. If that's the case here, then self-other recognition may be evidence of mental activity that moves beyond the basically cognitive toward consciousness.

For those seeking a material foothold in such a suggestion, they might ask *where* this more advanced cognitive activity takes place. I think the plain answer is: Wherever their minds exist. In a material and more-than-material ontology, that does not mean in the material world

only. Even in the material, if we transcend the fallacy that human brains produce minds thus all minds must be the product of human-like brains, I suggest that it's not conclusive what sorts of material structures and processes correlate with minds. Darwin theorized that plants had a type of "brain" at the tip of each root (Baluška, Mancuso, & Volkmann, 2005). Trewavas (1999) draws many parallels between animal neural functioning and plant calcium waves. Could a plant's mind correlate with such material structures and processes instead? Once the impediment of an ontology that *a priori* denies minds to plants is removed, there is nothing ontological preventing these possibilities. As of right now, we have plain evidence of self-other recognition in plants that may very well, with more research, move potential plant mental activity beyond the basically cognitive and into consciousness.

Learning and Memory. Learning and memory are also traits that plants exhibit and that are commonly associated with more-than-basic cognitive functioning when observed in animals. As an example of learning and memory in plants, Callaway, Pennings and Richards (2003) say that "Morphological traits differed and water use efficiencies were higher for seedlings grown with annuals than for those grown with perennials" (p. 1119) due to more rapid water depletion in communities where annuals are present. In recognizing that water was more scarce, the plants in the study learned how to behave differently in different environments. Callaway et al. also speak about research in which clones of the species *T. repens* responded differently to different grass species in the greenhouse when the clone had previously been associated with that species in the field (p. 1119). Here we see not only learning, but memory of what was learned applied in a future setting.

In Trewavas' (2003) theory of plant intelligence, he states that "Plants must...have access to an internal memory" (p. 2) that allows them to optimize ecological fitness. They use this

memory to store learned behaviors. That these behaviors cannot be reduced to automatic, reflexive and/or invariant biological responses is evidenced for Trewavas by things like “trial-and-error” learning where young plants will tend to initially overshoot, undershoot, or grow in the wrong direction before correcting themselves when turned at some angle from having being upright in relation to gravity (p. 4). Trewavas suggests that plant learning is based on the plant having a goal and then having an error-correcting mechanism that feeds back to the plant on the efficacy of the behavior in reaching the intended goal. Another example of learning and memory from Trewavas is when “Resistance to drought or cold can be enhanced by prior treatment to milder conditions of water stress or low temperatures” (p. 4).

While these are powerful examples of learning and memory, I think the scholarly reflex is still to dismiss them as something other than evidence of potential mental activity. But again, this is based largely in the assumption that plants can’t have minds, and not in any evidence that they don’t. Ultimately, whether this learning or memory is evidence of consciousness in plants remains to be seen. I’ll explore the possibility that it does constitute such evidence in the “Might Plants Be Consciously Aware?” section below.

Intent. Another element thought to be bound up with thought and consciousness is the ability to form intent. Intent can be defined in numerous ways, but Carruthers (2004) suggests that intent is the possession of a belief/desire mental architecture where one’s beliefs influence one’s desires, and the setting about of fulfilling those desires is based, in part, on those beliefs. Griffin (1981) says that intentions are mental experience where “the intender pictures himself as an active participant in future events and makes choices as to which sort of image he will try to bring to reality” (p. 13). Garzón (2007) suggests that plants have this capacity, calling what they form “intentional systems” (p. 211). Marder (2012) calls intentionality a “crucial

phenomenological concept, operative in plant life” (p. 1367), and Trewavas (2003) says that the walking behavior of stilt palm plants is one of many examples of “very clear” (p. 15) intentionality.

As to what intent signifies about mental experience and consciousness, Griffin (1981) quotes Longuet-Higgins as saying, “An organism which can have intentions I think is one which could be said to possess a mind [provided it has] ... the ability to form a plan, and make a decision-to adopt the plan.” (p. 18). If plants can do this, then it is still to be seen whether such intentionality meets the more stringent standards of minded or conscious intent laid out by Carruthers (2004). He defines minded intention as the possession of “distinct information states and goal states” that “interact with one another in ways that are sensitive to their contents in determining behavior” (p. 216). Carruthers concludes that honeybee behavior satisfies these conditions, and so it must be concluded that honeybees have minds.

While it is beyond the scope of this dissertation to argue that plants also satisfy Carruthers’ conditions, I note that no such experiments into plant behavior to examine this possibility exist, but there are studies that are in intriguing keeping with the possibility. For example, Carruthers speaks about experiments that show that

animals on a delayed reinforcement schedule in which the rewards only become available once the conditioned stimulus (e.g., an illuminated panel) has been present for a certain amount of time, will only respond on each occasion after a fixed proportion of the interval has elapsed. (p. 210)

In other words, they aren’t “merely building an association between the illuminated panel and the reward. It seems to require, in fact, that they should construct a representation of the reinforcement intervals, and act accordingly” (p. 210). A parallel example for plants can be found in Trewavas (2005), who says, “When young trees were provided with water only once a year, over the next several years they learned to predict when the water would be supplied and

synchronised their growth with its appearance” (p. 408). Here it appears that the trees are constructing “a representation of the reinforcement intervals, and act[ing] accordingly.”

An interesting side-effect of Carruthers’ constraints arises when one examines the ontology that underpins defining information or goal states. For example, Carruthers (2004) notes that Australian Digger Wasp behavior does not qualify as true belief/desire architecture because,

The wasp appears to have no conception of the overall goal of the sequence [of building a tower-and-bell structure over her egg burrow whose purpose, according to Carruthers, is to defend her eggs], nor any beliefs about the respective contributions made by the different elements. (p. 212)

But, the way in which he sets the wasp’s actions outside the belief/desire architecture is based almost wholly in his definition of what the wasp’s purpose is, which itself is heavily influenced by dualist ontology. He assumes that her purpose in building this structure is to defend her eggs, and assesses the presence of beliefs and desires based on her response to the disruption of this purpose. But is this true?

One example Carruthers give is that of an experimenter who, while the wasp is building her tower-and-bell structure, drills “a small hole...in the neck of the tower” (p. 212) to gauge her reaction. The reaction observed was of her building “*another* tower-and-bell structure...on top of the hole” (p. 212). Carruthers takes this as proof that the wasp “seems to lack the resources to cope with a minor repair” (p. 212). Since the purpose of protecting her eggs is not served, Carruthers concludes that she must be ignorant of it. But, if there is a purpose toward which any being works and, in being disrupted, the being responds with some behavior that seems out of keeping with the purpose identified, *two* conclusions are possible. The first is the one that Carruthers reaches: that the being is ignorant of the purpose. The second is that the purpose identified by the observer is not the actual purpose—thus the being is still behaving according to

a belief/desire architecture, just one that's not been identified. In the case of the wasp, what if the wasp's purpose is to build a structure that has no flaws, and when the experimenter pokes a hole in it, she prefers to build an entirely new one so that there exists a tower-and-bell structure without flaws, scars or repairs? Who knows why she wants to do it this way, but perhaps in her *thinking*, the notion of "repair" simply doesn't exist. There is the tower-and-bell structure, and when there is a hole put in it, it ceases to be one—it ceases to meet her *mental representation* of that structure and the desire to bring it into reality, so she begins again. In such a scenario, Carruthers is simply wrong about the purpose he divines for her building of this structure, constraining his thinking only to purely material-evolutionary purposes for the wasp.

But, I note that many humans labor toward purposes that are not obviously, if at all, material-evolutionary ones. Humans can be loyal and chivalrous. They make art. These are purposes that do not easily translate into evolution's materialist *telos*. Some may still position them as end-products of evolution's work on our species over hundreds of thousands of years, but even stipulating this for the sake of argument, the human may not *know* the material-evolutionary purpose and yet still have a belief/desire architecture that drives them onward toward a purpose, and that bespeaks conscious thought. None but the most reductive materialists and perhaps pure behaviorists would argue otherwise about humans. Why, then, is the wasp not afforded this courtesy? I suggest that the cause of this—and this is crucial—is that there is a *pre-existing assumption* that the wasp can have no purpose other than an obviously material one. If she is already believed to have no mind, then certainly she can have no conception of what her tower-and-bell structure ought to be like except for one that, in brute physical terms, "does the job" of protecting her egg burrow. She cannot *be* the artist (and thus respond as one when her construction is interrupted). Therefore, when she *does* respond as the artist, she is stripped of all

purpose instead of afforded the possibility of mind that would support this kind of purpose and its response to the disruption of it.

Here again we see the dualist sleight-of-hand at work. Beneath the surface the conclusion of mindlessness is drawn *a priori*, then the facts fitted so that it can be reached as *a posteriori* conclusion. The Digger Wasp is operating in the arena of an ontologically rigged game. I suggest that what we see in wasp or plant behavior may sit well outside of what dualistically constrained ontologies permit, yet still be purpose that humans know well and exercise routinely themselves. When one strips away the pre-existing assumption that the wasp is incapable of a belief/desire architecture, one finds it staring one in the face. There is nothing in the Digger Wasp's own actions that work against this possibility.

Yes, one may respond, but are the Wasp's eggs protected when she responds as she does to the hole being poked in her tower-and-bell structure? Maybe. But if it doesn't, this doesn't mean a purposelessness, it means that in striving toward the goal she has in her mind for, in my example, a perfect tower-and-bell structure, she fails to see that building a new structure may work against the protection of her egg burrow. When humans fall in love, they may do many seemingly unreasonable things even though, as many argue, love is species-perpetuation in action. Does the human have no purpose, then, in pursuing the one he loves? Of course not. Sometimes, though (and sadly) he may fail.

Might Plants Be Consciously Aware? Having explored the self-other recognition, learning, memory and intent that plants exhibit, the next logical step is to consider whether these are examples of conscious awareness. Griffin (1981) says that awareness can be defined as “the experiencing of interrelated mental images...[and i]f...events [that occur in these images] include participation by oneself, we say the organism is self-aware” (p. 12). For such awareness/self-awareness to be considered a form of consciousness, Griffin says that these images will be used “by that organism to regulate its behavior” (p. 15). I note that the latter qualification for consciousness closely resembles the one given by Garzón (2007) for cognition, where representational states are used by a being to regulate his behavior. The key difference is whether Garzón’s representational states are mental images. If they are, then his definition *is* Griffin’s definition for one type of conscious awareness.

As I state above, Garzón concludes that it’s at least possible that plants have minds if the second of his two criteria can be shown to be met—that the representation inside the plant has a detectable effect on her behavior, and that effect is traceable to the representation specifically and the stimuli that created it. While there is little in the way of evidence showing this at present in plants, neither is there any against it. We simply don’t know.

At this juncture, if we are to entertain the possibility that plants are consciously aware, it’s fair to ask whether that awareness is like human conscious awareness. To try to answer this, I’ll begin by saying that rooting the mind in more-than-material as well as material ontology, nonhuman beings can unproblematically have conscious awareness in the way humans do. Mental images would not exclusively grow from the human-like material elements upon which the present human-nature relationship literature hangs its theoretical hat. Neither is there evidence that different physiologies, if they did produce conscious awareness, couldn’t produce

the same kind. My discussion of Kim's (1997) take on multiple realizability above provides more detail on such a possibility.

But, if we believe that nonhuman beings have a *different* type of conscious awareness, we must delve to the root of plant conscious awareness to see if it is facilitative or prohibitive of the kind of thinking that contributes to close relationships. I will say that by defining the type of conscious awareness I describe above as "basic," Griffin implies that the "better" kind of consciousness is not this kind, but the more "complex" (and not coincidentally, human), kind. But, we must ask what evidence exists to support such a claim. Beyond the irremediably anthropocentric argument "because it's our [human] kind," we must ask what makes human consciousness, if it is unique, more conducive to close relationship? Its level of complexity is regularly pointed out in the literature (e.g., Panksepp, 1998; Griffin, 2013), but even the way in which human consciousness is defined as more complex is itself hopelessly confounded by anthropocentrism. *If* plant awareness is less complex at an individual level, it may be far more complex at a relational level. In Buber's (1923/1970) thought, the immediacy of a less detached self in I-Thou relation is far superior to the self in an I-It relation—that is, interactive awareness is superior to objective awareness. The former is a conflation of self and other (without loss of the individuality of either) along the lines of Peirce's (1960) shared feeling or the sudden intimacy of "feeling with" that Noddings (1984) notes and that I refer to in the Relational Ontology and Human-Nature Closeness and Feelings chapters above. In such a context, plants may have more capacity to be relationally aware, and because of this, have a *far more* complex awareness than a typical human. If plant awareness is not less complex at an individual level, but just differently complex, then again, plant consciousness is unproblematic.

I conclude by relating an experience my sister had with two plants. With the possibility of consciousness in mind, it is a highly provocative one. Once, my sister had two beans she had planted in a window box in her apartment. Both sprouted and began to grow. But, soon one started to look unhealthy and, as the days went on, wither and begin to tilt over. Upon coming home from work one day she found that the healthy bean plant had bent itself over in an unnatural position, away from the sun, and was literally holding the other plant up as a human would an ailing companion. The day after that, when she returned from work again, the unhealthy sprout was laying on the soil dead while the healthy one had returned to its previous, upright position. In the context of my discussion above, no longer must we be forced by the predominant ontology of human-nature relationship theories to search for a mindless, material explanation for such a sequence of events. We may begin to see it for what it, in my opinion, could so easily be: a being caring for another in continuity with how a human would. If true, that this is the basis for common ground—for closeness—cannot be denied.

Thoughts in the “Inanimate”?

In this section, I have mostly explored the ways in which an adjustment to anthropocentric, materialist and individualist ontology may clear the way for realizing that plants may be thinking, conscious beings. I have not undertaken an exploration of “inanimate” beings partly because it’s very difficult, given the dearth of any research into such a possibility, to even approach the subject. I will say, however, that I find the work of Bose to which I refer above intriguing on this front. Specifically, his position that the property of “life,” which he saw reflected in material electrical activity, crosses the boundary usually drawn between animate and inanimate beings is intriguing. Since I’ve argued in the Feelings chapter that electrical activity may be associated with feelings (and here suggest it could be associated with thoughts), then if

electrical activity is similar under similar circumstances for a Western Hemlock and a river stone, then the possibility of finding thoughts in that stone must also exist.

Exchange of Thoughts

In arguing that humans have close relationships with companion animals in ways similar to interhuman closeness, Sanders (2003) says that there is a “rich body of literature [focused on]... how people come to define their animal companions as unique individuals, *comprehend their mental experience* [emphasis added], and organize everyday exchanges based on these understandings” (p. 408). For Sanders, then, thoughts and their interaction between human and nonhuman relational partners leads to closeness.

A particularly interesting feature of Sanders’ argument for the interaction of minds is his suggestion that, instead of minds being distinct and thus ultimately unknowable by others, they are “constructed and shared through interaction” (p. 419). Because they are knowable through relationship, Sanders believes that it is reasonable to draw conclusions about another’s thoughts even if that other is not human. When applied to interhuman relationships, the interpretation and exchange of thoughts constitutes the thought vector in my close human-nature relational model. By “[c]asting off the linguicentric and anthropomorphic restraints of conventional views of mind” (pp. 418-419), this can be achieved between humans and nonhumans.

For example, Sanders speaks of a dog owner who trains her dogs to sit through a meal humans are having and to get some table food only at the end. One of the dogs, Toby, is fine to wait except when butter is on the table. Normally when he spies butter, he squirms around and makes other gestures of impatience, but one night,

Toby thought through the problem of how to get the bread and butter. He...left the room. We heard him rummaging around in the house, up and down the stairs, until he finally appeared with a treasure: a roasted pig ear...He had obviously hidden this

one. He laid it at my feet...Toby reasoned and came up with the idea of trade. (p. 419)

Sanders suggests that it's perfectly reasonable for the dog owner to have drawn the conclusion she did about Toby's thoughts of trading for butter. And if this is the case, then here is an example of the exchange of thoughts, one that is achieved through unscientific means. This more relational knowledge is based on intuition, familiarity and experience instead of repetition and quantifiable observation. Not only does Toby's owner know Toby's thoughts, but Toby knows hers, and knows that, if presented with an alternative means of persuasion, and out of appreciation for it, she may give him the bread with lots of butter that she does as an exception to her mealtime rules. This is just one event contributing to their closeness.

The same closeness of relationship has potential to form between humans and wild animals as well. For example, Houston (personal communication) related a story to me about a friend of hers who'd gone camping with a partner and who, at one point, crouched down,

pointing to a wolf who had come close to their campsite: both stared at each other for some time—i.e. the wolf and the two people. Then the wolf moved off into the bushes. The people crept forward, crouching down to see if they could see the wolf only to see the wolf crouching down to see them!

In this scenario, there appears to be a mutual and instantaneous recognition of the others' thought processes and a sharing of those processes as the campers recognized their own curiosity in the wolf. What kind of closeness might develop between these humans and this wolf were they to permanently reside in the wolf's environs? We don't know, but the mutual understanding of thoughts is clearly possible here, and would form one pillar of that potential closeness.

Another example of the potential for closeness via the exchange of thoughts comes from Nollman (1987), whose work has centered on communication with animals via music. He offers an anecdote from an interaction with a buffalo herd in Yellowstone National Park. Aware that buffalo have a reputation of being aggressive toward humans that come too close to the herd,

Nollman was interested in seeing if, by playing music and taking a slow approach while projecting congeniality, he might garner a non-aggressive reaction from the individuals in the herd. Over a period of more than an hour, by playing music and projecting calm he slowly walks toward them. At some point during this walk, he noted entering into a heightened sense of awareness of everything and, when he was close to them, beginning to interact with the herd leader across a “ring” that he could actually see, and that seemed to be a “signal [from the herd] that defined the group territory” (p. 125). Each time Nollman touched the ring, it drew a reaction from the herd leader of pawing the ground as indication that the ring was there, and that Nollman was now as close as the bull wanted him to be. Nollman says that at some point,

The herd leader looked at me directly...I stepped on the ring and he pawed the ground. I leaned to the left and looked at him, then leaned to the right. Intuitively, I felt that he was slowly becoming aware that we were in this dance together, and that it was based on harmony and not on threat...I felt that the alpha bull had come to the realization that, indeed, this two-legged had actually seen the ring, and recognized its purpose. The two of us had invented a dance, a communication. It told the entire herd that I meant no harm. (pp. 125-126)

Here there is a perception on the part of both human and buffalo of thoughts on the part of the other, and what’s more, a coming to a realization for both human and buffalo of what the other was thinking. Nollman realizes that the buffalo is showing him the boundary of the herd and what is and is not acceptable for Nollman in relation to that boundary. For his part, the herd leader realizes that Nollman understands this and harbors no aggressive thoughts about the herd. Thus, his presence is accepted without a response of aggression. In this example, I’d again suggest that if Nollman lived in Yellowstone, a frequent exchange of these and other kinds of congenial thoughts between him and this herd and its leader would contribute to the development of a profound closeness between them.

If the above examples are instances of closeness or its beginning, then I must ask why this isn’t possible between humans and plants. As I’ve suggested above, it’s quite possible that

plants think. If we see them remembering, learning and recognizing themselves and others, can we not also exchange these thoughts as we would with a nonhuman animal, and, in wonder at such different yet similar and amazing beings, begin to develop closeness? I referred elsewhere in this dissertation to Barbara McClintock, and so reiterate here her description of her interactions with corn plants when she says of the plants that “These were my friends...you look at these things, they become part of you” (Keller, 1983, p. 165). I suggest that her words were carefully chosen, especially given her awareness of the scientific world and its general prohibition against such characterizations.

To say “friend” is to say something beyond the propositional knowledge I discuss in the Relational Ontology and Human-Nature Closeness chapter. It is relational knowledge—knowledge by acquaintance. Friendship is a type of close relationship, and just as Sanders (2003) suggests that humans have actual friendships with companion animals, McClintock may very well mean the very same thing when she describes her relationship with corn plants. This is reinforced in her statement that, “Every time I walk on grass I feel sorry because I know the grass is screaming at me” (Keller, 1983, p. 388). Now, perhaps it’s only because she’s studied the material changes in plants under stress and knows they “scream” when being stepped upon. But what if, even if unbeknownst to her, she was getting a sense of their thoughts, either through shared, Peircian feelings or maybe, like Sanders suggests, by reasonably inferring their thoughts about being stepped upon based on her intimacy with them—based on her *knowing* them as friends. Of course we can’t know if this is why McClintock came to characterize their response as a “scream,” vs. some other appellation, but the possibility that it was due to her friendship with the corn is, in my estimation, plausible.

As one last example, I discuss Buber's relations with nonhuman beings. Here is one relevant passage describing Buber's (1947/2003) encounter with a horse he refers to as "my darling" (p. 26) in a stable on his grandparents' estate:

I must say that what I experienced in touch with the animal was the Other...which, however, did not remain strange...but rather let me draw near and touch it. When I stroked the mighty mane...it was as though the element of vitality itself bordered on my skin, something that was not I, was certainly not akin to me, palpably the other...and yet it let me approach, confided itself to me, placed itself elementally in the relation of Thou and Thou with me. The horse, even when I had not begun by pouring oats for him into the manger, very gently raised his massive head, ears flicking, then snorted quietly, as a conspirator given a signal meant to be recognizable only by his fellow-conspirator; and I was approved. But once—I do not know what came over the child, at any rate it was childlike enough—it struck me about the stroking, what fun it gave me, and suddenly I became conscious of my hand. The game went on as before, but something had changed, it was no longer the same thing. And the next day, after giving him a rich feed, when I stroked my friend's head he did not raise his head. A few years later, when I thought back to the incident, I no longer supposed that the animal had noticed my defection. But at the time I considered myself judged. (pp. 26-27)

I first note here the strangeness of Buber's move, in the second-to-last sentence of this passage, to re-interpret his experience with the horse not as an instance of intimacy (i.e., as an I-Thou experience) but as one of I-It, where only *he* felt the judgment of the horse. In other words, that he felt judged but had not, in fact, *been* judged. Given that it is the yearning for, and real possibility of, the I-Thou relation that is virtually the entirety of Buber's philosophical project, it strikes this author as odd that Buber would *post hoc* transform the experience as he did. It is meant as a description of what he means by I-Thou, and the original encounter, *as experienced*, *was* an I-Thou experience. If it's not, then why offer it to the reader at all? Interpreted as "really" I-It, it threatens the entire fabric of the I-Thou project. I don't think this was his intention, nor a slip-up in presenting his argument.

Given the growing hegemonic force of the materialist conceptualizations of nonhuman beings during Buber's lifetime, I am thus left to wonder whether he sensed the risk he would be

taking by not qualifying this example of I-Thou experience with a nonhuman being, and so moved to obviate any backlash. While saying this, I also acknowledge that Buber himself did not necessarily see the potential for close human-nature relationships that I do, though he hints at it in several places (Berry, 2012). But, whatever the reason for his *post hoc* interpretation of the experience related, I take his original description of it *as experienced* to be the more accurate one. Thus, I suggest that between him and the horse there was an exchange of thoughts that, while not uttered in English and really, in the end, being inextricable from the kinds of feelings that intertwine with such thoughts in any actual closeness-producing encounter between relational partners, leads the boy to call the horse by the relationally intimate term, “darling.” Buber describes the horse as fellow “conspirator” giving Buber, through communication of thoughts, a signal meant only to be “recognizable” by him. Thus Buber sensed the horse’s thoughts of approval. And even while the horse as Thou remains on a knife edge in Buber’s relation of the story, with the revised close human-nature relational ontology I suggest, the failure on the horse’s part to raise his head that second day *is* the horse’s expression of the thought of judgment, one that stands out as the most powerful element in the story, and really its point about the difference between I-It and I-Thou. In a close relational ontology, with dualisms expunged as a filtering mechanism, that thoughts and their exchange can lead to and sometimes away from closeness is entirely unproblematic.

Conclusion: A Re-Envisioned Recreation Management Example

In the world I describe in this chapter, all beings have the potential for thought and thus the potential capacity to enter into relationships with each other. In such a world, modern human-nature relationships will have to change drastically. To conclude this chapter, I return to the

work of Williams and Vaske (2003), which I discussed in the Place Theories section of the Connections with Nature chapter above. I quote Williams and Vaske here at length:

Place dependence...reflects the importance of a place in providing features and conditions that support specific goals or desired activities (Schreyer et al. 1981, Stokols and Shumaker 1981, Williams and Roggenbuck 1989). This functional attachment is embodied in the area's physical characteristics (e.g., accessible rock climbing routes, collectable nontimber forest products, or navigable whitewater rapids)...A relatively small river with class II and III rapids, for example, may not provide the best kayaking. However, if the place is close to an individual's home, an avid kayaker may still float the river frequently to improve specific skills. Place dependence thus suggests an ongoing relationship with a particular setting. Though local natural resource areas (e.g., community open space) may be ideal for establishing this functional attachment, such attachments may form with any place supporting highly valued goals or activities. (p. 831)

As one can see, the “relational” attachment discussed by the authors is a unidirectional one with a physical-only setting. If instead, the river being kayaked had thoughts, then everything about how this attachment is construed would change. The features and conditions of the place would not only support human-centered goals or activities, but the human might be called upon to meet the goals and activities *of the river*. No more Army Corps of Engineers forcing the naturally undulating mouth of the Mississippi River into unwavering, concrete-sided channels (McPhee, 1989)—to the detriment of river and every other human and nonhuman that depends on its well-being in both a material and more-than-material sense. In addition, attachment to the river is no longer instrumental in the way it’s described as “functional” here. It would be relational, with exchanged thoughts forming an attachment that is reciprocal and *personal*. The attachment would no longer be “embodied in the area’s physical characteristics” but also in the river’s consciousness or cognition as well. Locality would no longer be an entree into increased frequency of activity because of the ease afforded to the human engaging in such activities, but because of the ability it provides to see and be with the River again and again.

We're all familiar with the stress of long-distance relationships. In this context, that difficulty can play out in a human-nature relationship as well.

What does this mean, then, for the recreation activity itself and management prescriptions around it? The activity, I imagine, would firstly no longer be one of solace but of rejuvenation through relational intimacy. The joy of seeing the River upon one's return, and the horror of seeing any damage to, or alteration of, that River by those charged with management of the area would be far stronger and based on a personal relationship rooted in shared thoughts and feelings. "Management" of this area, if it could go on being described so anthropocentrically, would no longer be geared toward meeting human needs such as kayaking skills practice, but meeting the needs of humans seeking personal involvement with nonhuman beings, which would at least necessitate a much stronger preservation effort. The well-being of the River would also become a factor, even if that meant sometimes overriding the desires of some humans to do what they want there. If the River is a person with whom human visitors to the area are relating in sometimes intimate fashion, then facilitating such activity becomes the goal as long as both parties—River and humans—are amenable. Just as in my example in the Critical Lens chapter above (Walker, 1989), where the horse who was in love with his mate was grievously separated from her, here recreation management becomes an exercise in making sure human and River are not kept apart, and an environment in which their intimacy can thrive for the well-being of both is maintained. This is a vastly different world of natural resource management than the one now conceived of by most modern humans. Recognizing its validity, however, in an ontologically non-dualist world is absolutely essential to reorienting human relationships so that the basis of knowing what the human and nonhuman need in relationship with each other ceases to be one of experimentation and extraction, but instead one derived as a byproduct of intimacy.

CHAPTER 8 CONCLUSION

In this dissertation, I've argued that some humans have failed to establish a substantive basis for their exclusive claims to the elements necessary for close relationships. While I accept that nonhuman beings have a great diversity of feelings and thoughts, some that can be quite dissimilar from their human counterparts, I believe there is no basis to allow such differences to sponsor the conceptual eradication of any means of communication and mutual understanding in a close relational sense. I have argued that the confidence with which modern humans make their claims of exclusivity is based not in evidence and experience, but in dualisms that underwrite the interpretation of experience—of thoughts and feelings—as this near-exclusive human domain. Wielded thusly, thoughts and feelings become the currency not of relationships wherever and between whomever they occur, but of human separation and supposed superiority. This is ecofeminist dualism through and through.

By working to correct flawed interpretations of experience rooted in such dualistic ontological stances, my hope is that I've opened a door upon vistas where human-nature relationships are full of the potential for closeness in an interhuman sense. If I have been successful, we modern humans have an opportunity to solve what have become our large-scale environmental problems from the ground up—beginning at the individual human-nature relationships each of us has with the nonhumans that surround us every day. If the study of natural resources and the environment is the study of the interaction between human and nonhuman and what can be done to improve it, I believe that it is from each of these particular relationships that our efforts must begin.

My position has also been that closeness in human-nature relationships is occurring for us all the time, regardless of the cultural background of the humans involved. Thus, the love and care that human-nature relationship theorists espouse as ameliorative of environmental problems is not something we must dauntingly manufacture inside ourselves and project onto an inert, passive, material other. It is a love and care we innately feel *with* the other, and that indeed we *fight against* each time our dualistically influenced professions and institutions tell us to do so. Such a statement brings to mind a lunch seminar at which I presented a broad take on human-nature relationships. At some point, a student raised his hand to relate an experience of wanting to hug some great old trees while doing field work. His teachers told him not to because, they said, if everyone did that it would damage the trees' root systems. I have heard many stories like this, where a human being was moved out of innate passion and care to some human-nature relational gesture that is subsequently squelched by either the one feeling moved to act, or that person's peers due to some dualistic ontological prejudice. In the case of this student, the superficial reason given to him for avoiding such behavior was damage to the roots. But, I believe that the hard truth is that in a society steeped in dualisms, we simply feel uncomfortable in the presence of such an impulse. In my estimation, the discomfort arises because we've made no room for hugging, and what that hug means, in our sciences—in the very phalanx of the modern human approach to alleviating its environmental problems.

To conclude, I'll offer one last example of how this need not be the case. It is from a podcast of the show *Radiolab* (WNYC Studios, 2010). The subject of this particular episode is the possibility of thinking and feeling in animals and whether humans can know what these thoughts and feelings are. For the final segment of the podcast, they interview National Geographic photographer, Paul Nicklen, about an experience he had in the Arctic with a female

Leopard Seal. He begins by describing how in his first encounter with her, she began trying to feed him. First, she'd bring him live penguins held in her mouth, then when he didn't appear able to eat those, she brought him ones she'd already killed for him. With Nicklen again failing to eat what she brought, she graduated to showing him *how* to eat the penguins, by splitting the skin and stripping it off, etc. She'd shred them in front of him, plop dead penguins on top of his camera, and so on. He describes all of this happening not over minutes or hours, but over a four-day period with this one female seal.

At one point, one of the hosts asks him, "And when you're in the water, you know, day after day, what's happening for you at this point? Are you still just a guy with a camera or..." Nicklen stops him and says, "I was starting to fall in love with this seal. It's just, uh, this animal that's just so intelligent, so powerful, that could kill you in an instant yet you're, I mean..." The other host interrupts and asks, "When you say you were in love, were you in love with the *idea* of this or did you really like *her*?" Nicklen replies quickly,

I really liked her. She was beautiful. She was big. She had this beautiful face. Beautiful silver color to her. She kinda glowed underwater. I'm just so in love with this seal at this point. I'm not sleeping at night. I have a hard time eating. I just can't wait to see her. I can't...the first thing in the morning, the first sign of light I'm in that Zodiak...

Then, he relates that on the fourth day, thinking perhaps that he was annoying her instead of there being a developing intimacy that is mutually felt, he moved off into the colony to photograph other seals, but that at some point she came and found him again and began to do an underwater dance, making ballet-like moves and issuing a deep guttural sound that shook his whole body. At that moment, Nicklen was *still* wondering whether she had grown tired of him and so was now attacking him to drive him out of her feeding grounds. But, just at the moment he's thinking this, another seal had snuck up on them and had shot out from behind his back and she chased the other seal away. In addition, this other seal had a penguin in his mouth and she

went and took the penguin from the other seal and brought it back to Nicklen, dropping it off in front of him so he could have it. Then Nicklen pauses in the story and says to the two hosts, “I was getting emotional reliving that...It’s very powerful.”

After this, one host asks, “Have you ever been in love with an animal quite this way before?” And right away Nicklen says, “Never.” The host then follows by asking, “Have you ever had an experience with another human that rivals this?” To which Nicklen responds, “Perhaps when I was a kid with my mom. Someone taking care of you and feeling safe and nurtured or protected. But I’ve never had that in my life as an adult.”

As I first pondered the topic of this chapter, I thought I’d write about how nonhumans are trying to share thoughts and feelings with us, but that we modern humans aren’t listening like we should. And then, just to take a break and seek out some examples that I might sprinkle into the rest of the dissertation, I chanced to listen to this last segment of RadioLab. How auspicious to find within it an example of the kind of closeness for which I’ve been arguing throughout. Here was a modern man taking photographs of, and falling in love with, a seal who was clearly enamored of him, too. Imagine if Nicklen lived in the arctic and knew that leopard seal her whole life. What *is* a marriage if not that? In such a context, could it even enter his worldview to think of her as a natural resource? What is closeness if their experience together is not closeness? The only difference between that and interhuman closeness is that when it occurs between humans it’s *human* closeness. And in the end, that’s no difference at all.

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