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A RADICAL RELATIONAL AGENCY:
FOUCAULT, COMPLEXITY THEORY AND ENVIRONMENTAL RESISTANCES

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ABSTRACT

The aim of this thesis is to examine a radical relational agency, applied to contemporary environmental resistances, that incorporates both the thought of Michel Foucault and complexity theory. While Foucault's thought, following from his argument that power is a relation, implies a relational agency, it does not, however, account for the agency of nonhumans and environments. Because power is a relation and not a possession, it can no longer be viewed as an attribute of individual subjects. Similarly, a relational agency is defined as an aspect of power relations. Complexity theory, on the other hand, acknowledges that humans interact with nonhumans and environments, but does not acknowledge that all relations are relations of power. In addition to Foucault's explanation of power relations, complexity theory explicitly describes the processes of self-organization through which individual and diverse agents interact and change can emerge. Thus, a radical relational agency is defined as an aspect of the power relationships between *many* diverse agents. Change, according to both Foucault and complexity theory, happens nonlinearly. As a result, it often occurs unpredictably. However, change within complex systems is also limited by previous historical emergences. In this sense, both possibility and risk are inherent in the relationships between humans, nonhumans and environments. Indeed, I argue that a radical relational agency occurs *because* there are both possibilities and risks generated within ecological relations and relations of power. Therefore, I argue that any environmental action must account for the unpredictability inherent to the complex interactions between humans, nonhumans and environments.

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

INTRODUCTION

There is a photograph of me in a family album; I am wearing a t-shirt emblazoned with a logo

from Earth Day '92. It is a photograph that locates me within a specific geography, the country and the

city of my birth, and it locates me within a particular local culture, politics and community. The

contextual references of the Earth Day '92 t-shirt imply a specific set of relations that are at once social

and ecological because they situate me not only within the particulars of my community, but also infer

a more profound ecological interaction. Indeed, such evidence indicates that I have grown up informed

by the threat of human-induced climate change, a threat that necessarily problematizes the relationships

between humans, nonhumans and environments. Likewise, and both in their own ways, the thought of

Michel Foucault and complexity theory problematize Modern[1] assumptions about how humans,

nonhumans and environments interact. According to Modern systems of thought, there is an inherent

distinction between humans and nonhumans[2], to the extent that Modern systems of thought only

constitute humans as agents. In this sense, Modern definitions of agency are unable to account for the

implications that humans are situated within vast social and ecological relationships. However,

throughout this thesis, I will argue that a radical relational agency is generated explicitly *because*

humans, nonhumans and environments are all agents interacting within interconnected systems.

Isabelle Lanthier and Lawrence Olivier (1999) argue that "environmentalism refers to a broader

field of knowledge that seeks to rethink our relationship to nature and to take action to transform the

system of values on which this relationship has been based for a long time" (64). Contemporary

environmentalism overtly concerns itself with the relationships between humans, nonhumans and

environments and demands that we *rethink* those relationships. Environmentalists' claims that humans

have caused changes in the global climate, precipitated the collapse of various local ecosystems, and

contributed to the extinction of diverse species, suggests that an assumption that humans, nonhumans

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[1] Throughout, I will be using capitals to denote the bracketing of a term. This bracketing is required to highlight
the fact that a term may be questionable. Thus, use of the term 'Man' requires a bracketing to point out the fact
that I am using it to refer to a certain historical occurrence only, as opposed to a transhistorical term that is meant
to refer to all human beings. It is for the same reason that I capitalize the word 'Nature'. 'Modern' is capitalized
to indicate a certain timeframe, which is at once more complicated than the word suggests. I use capitals to
prevent having to complicate these terms each time I use them.

[2] The term 'nonhuman' used throughout this thesis is employed as a general term to indicate all that is *not* human,
this may include animals, plants, machines, minerals, texts, media or anything that is not included in the Modern
definition of 'human'. Indeed, integral to my argument is precisely that this distinction between what is human
and what is not is subject to change and redefinition. Likewise, the term 'environment' is employed as a general
term that denotes a kind of spatiality which is nonhuman (in the sense described above). I use the term in order to
refer to a notion of 'the environment' that is implied by contemporary environmental resistances — a kind of
'space' in which we live. However, I will be evaluating the term 'environment' and its historical emergence
throughout this thesis.

and environments are distinct is becoming untenable. However, contemporary environmental

resistances — though they acknowledge that humans, nonhumans and environments are radically

interconnected — do not always recognize that nonhumans and environments are agents in their own

right. But environmentalism could benefit by explicitly acknowledging nonhumans and environments

as agents. Because contemporary environmental resistances *are specific actions*, the theoretical and

practical implications of defining agency are such that it could require contemporary environmentalism

to reformulate its actions. Indeed, throughout this thesis, I will argue that a radical relational agency

can underpin environmental action because such a definition of agency *multiplies agents*, and offers

both possibilities and risks for the future.

The aim of this thesis is to elucidate a *radical relational agency*, applied through examples of

contemporary environmental resistances, that incorporates both the thought of Michel Foucault and

recent insights from complexity theory. To describe a radical relational agency it is necessary to

combine both Foucauldian thought and complexity theory; each omits key attributes of the other. On

the one hand, Foucault's thought suggests that a relational agency is the outcome of omnipresent power

relations, yet it does not, however, account for nonhuman and environmental agency. Even though a

relational agency implies that nonhumans and environments are also embedded within the limits of

power relations, Foucault does not explicitly acknowledge their participation. On the other hand,

complexity theory explicitly locates humans within ecological limits. What complexity theory omits is

the recognition that all relations — between humans, nonhumans and environments — are relations of

power. The importance of recognizing both ecological relations and relations of power is that it is

precisely those relations that generate a radical relational agency. Throughout this thesis I will argue

that a radical relational agency responds to the destabilization of Modern notions of agency because it

describes how agency is generated within ecological limits and within the constraints imposed by

power relations.

Foucault's early texts[3] critique Modern definitions of agency by exposing those definitions as a

particular historical emergence. Recognizing the historical emergence of Modern notions of agency

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[3] There is a distinction made between Foucault's early archaeological texts and his later genealogical texts; throughout this thesis I will be referring to this distinction in order to make arguments which acknowledge that Foucault's interests shifted throughout his work. Jon Simons describes this shift in Foucault's thought; "Foucault's earlier work analyses the limits of the discourses of those human sciences in which various definitions of human subjectivity developed. His attention shifts to the power axis because Foucault found that the conditions of possibility for true discourses about human subjects include complex relations between knowledge about people and systems of government" (2). At the same time as acknowledging this shift in Foucault's thought, I will also be suggesting that it is possible to take Foucault's genealogical analyses of power and recognize that the relations of power that he described in those texts are likewise evident in the discursive practices that he described in his archaeological texts.

problematizes those definitions because it reveals that they are contingent upon a whole series of knowledges and power relations, rather than the outcome of one historically and culturally homogeneous explanation. According to Modern definitions, agency is an immutable characteristic of individuals that allows humans to act and to speak. This notion of agency is legitimized by philosophers who viewed agency as an ontological *a priori*; with "John Locke's rejection of the binding power of tradition, his location of beliefs in individual experience, [...] a new conception of agency emerged that affirmed the capacity of human beings to shape the circumstances in which they live", a conception that "embedded agency in an individualist and calculative conception of action that still underlies many Western accounts of freedom and progress" (Emirbayer and Mische 1998: 964-65). By acknowledging that the emergence of such notions was not a historical necessity, it allows other definitions of action to be considered. Put simply, it opens up Modern definitions of agency to reinterpretation.

Foucault argued that throughout the history of Western thought, there have been a series of paradigm shifts which have radically altered what *it is possible to think*. Within each episteme (as Foucault called it) each system of thought is profoundly different from either previous or subsequent epistemes. Thus, the notion of an immutable and innate human agency is associated with the Modern episteme. In his early texts, Foucault argued that the Modern episteme emerged with the appearance of Man. This does not suggest that humans did not exist prior to the Modern episteme, but that particular ways of understanding what it means to be human are not historically consistent. The notion of Man emerged because humans became an object of scientific study, and because all knowledge then centred on human thought, action and materiality. Prior to the emergence of these knowledges, it *was not possible* to understand the category of 'Man', but, from them, Man emerged as a scientific concept and as a material reality. The importance of this emergence is that with the constitution of Modern Man, the notion of agency as a quality possessed by individual humans simultaneously emerged. In this sense, I will argue that Modern notions of agency exclude certain individual humans, as well as nonhumans and environments, from being constituted as agential. Any failure to fulfill the requirements of Modern subjectivity would therefore correlate to a lack of agency.

Examination of Modern systems of thought reveal that Man was constituted as radically distinct from Nature. In this sense, Nature could not be constituted as an agent precisely because Nature was viewed as a passive object of scientific study, rather than as a participant within scientific investigation. Thus, Man was also constituted as an agent because, as the subject who studies Nature, Man was presumed to have the ability to *change* the laws of Nature. Such a distinction is important because the

emergence of environmental resistances occurred, in part, *as a result of that distinction*. Early environmental resistances arose in order to 'protect' Nature from the continual encroachment of Man and industrial processes. Throughout the Industrial Revolution, the increasing mechanization and urbanization of Western nations initiated the emergence of environmental resistances which aimed to prevent the mechanization and urbanization of 'natural' rural and wilderness spaces. In order for natural spaces to be preserved, these conservationists argued that Nature must be protected and *kept separate* from human spaces. Early environmentalists and conservationists reinforced the distinction between Man and Nature through their efforts to protect rural and wilderness spaces from urban encroachment. Their attempts to 'save' Nature from humans required that Man and Nature be constituted as radically distinct. Thus, Modern definitions of Nature have intersected, changed and, in part, created environmental resistances.

Because epistemes will necessarily shift, and out of that shift will emerge new systems of thought, Foucault denied the Modern assumption that history progresses linearly. History is manifestly not teleological. Instead, history proceeds apace without plans; a nonlinear notion of history suggests history can deliver the unexpected. What is certain, however, is that the knowledge formations of the Modern episteme are sure to be surpassed by future systems of thought. To be sure, the problematizing of Modern notions of agency and the primacy of Man indicate that such an occurrence has already begun. Foucault himself (1970b) found it "a profound source of relief to think that man is only a recent invention, a figure not yet two centuries old, a new wrinkle in our knowledge, and that he will disappear again as soon as that knowledge has discovered a new form" (xxv). Indeed, Foucault's own critiques of Modern systems of thought have demonstrated that it is possible to constitute humans in other ways and, in doing so, have cleared the way for subsequent redefinitions. Along with the disappearance of Man, Modern definitions of agency that are contingent upon the category of Man will also disappear. As I have suggested, Modern definitions of agency are unable to account for the radical interconnectivity that exists between humans, nonhumans and environments. In this sense, the recognition that humans participate in diverse relationships with nonhumans and environments *leads to redefinitions* of agency. Because Modern notions of agency are problematized by both Foucault's thought and complexity theory, I argue that new definitions will emerge.

Subjectivity, according to Foucault, is constituted *only* within relations of power. In other words, there can be no characteristic of an individual that is given prior to the subject's constitution within power relations. We cannot escape these power relations because there is nowhere that is external to relations of power. As Foucault (1978) emphatically stated, "Power is everywhere" (93).

Foucault's argument that individual subjects are embedded within relations of power, to the extent that no subjectivity is possible *outside* power relations, critiques the Modern assumption that agency is derived from the innate qualities of subjects. Thus, Foucault's thought implies that agency cannot be an *a priori* quality of subjects, but must also be constituted within relations of power. In his genealogical texts Foucault argued that not only are our identities constituted within relations of power, but this power also *marks our bodies*. Accordingly, the very materiality of human bodies is constituted through power relations. Indeed, a biopolitics has emerged that aims to produce humans in particular ways so that they remain healthy, productive and can contribute to capitalist economic production. Relations of power are not immaterial. However, Foucault's description of biopolitical production implies even more than he acknowledged, because biopower now extends its management from human productivity, to the economic productivity of nonhumans and environments. In fact, contemporary environmental prohibitions, rules and regulations contribute to the biopolitical management of nonhumans and environments by developing more efficient uses of natural resources and nonhuman productivity. It is in this sense that the Modern notion of Nature is reframed as 'the environment' because, whereas Man and Nature are distinct, 'the environment' is precisely that which can be managed and made productive.

Many theorists "have criticized Foucault for putting us in a situation in which we can do nothing but express bewilderment at an overwhelming world around us — a world in which the potential for human agency seems to have vanished altogether" (Bleiker 2003: 28). Because power is inescapable, omnipresent and constitutes our subjectivities, the view that agency is absent within Foucault's characterizations of power is perhaps understandable. But, the argument that agency is absent in Foucault's thought is premised on *Modern* notions of agency. Indeed, it is correct that there is no notion of an innate and immutable agency within his thought, because his assertion that subjects are constituted through the relations of power explicitly contradicts such a possibility. Thus, Foucault's genealogical texts successfully undermine such a notion of agency. However, I argue that a notion of *relational agency* is implicit within Foucault's descriptions of power relations. That power is precisely a relationship means that it is always possible to act in other ways and, therefore, an omnipresent power does not entail stasis. Rather, agency is refigured as an aspect of power relations. Foucault pointed out that there are always risks imposed by power relations because the result of any action can never be guaranteed. Yet, it is because there are risks that I argue a relational agency is generated.

Often theorists locate a Foucauldian redefinition of agency in Foucault's notion of self-fashioning. In his final texts, Foucault developed a notion of self-fashioning as a potential means for

individuals to recreate themselves, despite the omnipresence of power relations. Though individuals are constituted within the limits of power relations, self-fashioning is theorized as a way for individuals to re-constitute themselves using those corrupted materials given to them. Thus, the possibility of re-fashioning oneself intuits the relational agency that exists within omnipresent power relations. The limitation of Foucault's notion of self-fashioning is, however, that it is a peculiarly *individual* pursuit. Foucault (1989b) explicitly argued that: "Care for others should not be put before the care of oneself" (287). The individual orientation of self-fashioning is strange given that such an agency is generated as an effect of a *relational* power. I will argue that the *very idea of relationality* indicates that isolation is not possible because a relation implies more than one participant. Furthermore, a notion of self-fashioning ignores the implication that agency includes nonhumans and environments. In this sense, Foucault's thought again suggests more than even he acknowledged. Because self-fashioning always entails the re-fashioning of identities and relationships within the limits of a relational power, it cannot be an explicitly isolated practice. Moreover, I will argue that such practices need not *require* a specifically human agent.

A radical notion of relationality extends Foucault's notions of power relations to acknowledge the environments, geographies, animals and other nonhuman participants that he did not. Foucault "insisted that he loathed nature" and perhaps such an opinion underscores his omission of nonhuman and environmental agents (Macey 1993: 74). But Foucault's omission of nonhuman and environmental agents could equally be viewed as indicative of the anthropocentrism consistent with the Modern episteme. By denying the agency of nonhumans and environments, Foucault demonstrates a latent anthropocentrism and a failure to interrogate the particular binary construction of Man and Nature. Relationality aims to replace dichotomies and binaries as a way of describing the world. A relational agency opposes binary thinking because, instead of arranging participants according to dichotomous definitions, a radical relational agency sees participants engaged in multiple relationships — sometimes across vast geographic distances. Because a relational power is necessarily dispersed throughout every relationship, and because it constitutes nonhumans and environments as well as humans, such a relationality implies a radicalness that even Foucault did not acknowledge. In this sense, a more *radical* relational agency recognizes that humans, nonhumans and environments are all participants within relations of power. Foucault's thought both *implies* a radical relational agency, and yet, does *not quite acknowledge* it.

My argument flips around a hinge that at once moves beyond Foucault and keeps his lessons immanent; the notion of a radical relational agency links humans, nonhumans and environments in

interconnected relationships that extend Foucault's understanding of power relations. Foucault's

theoretical challenges destabilize notions of subjectivity, power and agency; his challenges reverberate

and the upheaval is extended to conventional notions of space, environments, animality and all that is

nonhuman. The destabilization of Modern Western notions of 'natural' space and the nonhuman are

not fully interrogated by Foucault, but the reverberation of Foucault's challenges are a necessary

outcome to his work. Unlike Foucault's thought, complexity theory underscores that humans are

always embedded within complex ecological systems. Because complexity theory recognizes that

complex systems include humans, nonhumans and environments, it provides a theoretical legitimation

for a radical relational agency. Because a Foucauldian agency on its own is not a *radical* relational

agency, the use of complexity theory is needed in order to radicalize the relationality which Foucault's

thought implied. Complexity theory makes it clear that human isolation from environments and from

nonhumans is impossible; there are *no purely social* relations of power because complex systems are

always both social *and* ecological.

Chris Jenks and John Smith (2006) argue that there are many "theories in post-modernism and

post-structuralism that stress the primacy of language; the construction of worlds in language" and

deny the effects of material and ecological limits (130). Foucault's thought is implicitly included in

this category and, as I have argued, his omission of nonhumans and environments leaves an enormous

gap in his descriptions of a relational power. Yet, Foucault's insistence that power is implicated in the

production of *any* knowledge or system of thought does not explicitly deny the existence of materiality

or ecology. Rather, Foucault (2000d) argued that "knowledge is absolutely not inscribed in human

nature" and is instead a function of *power* (7-8). And, as I have suggested, this argument implies that

power and knowledge *constitute* nonhumans and environments, but do not deny them. The subtle

differences that do not make the constitution of nonhumans and environments synonymous with the

erasure of nonhumans and environments is, precisely, Foucault's insistence on an omnipresent

relational power. That power is implicated within every relationship between humans, nonhumans and

environments, means that there are always *limits* placed on those relationships — it does not mean that

materiality ceases to exist altogether. The importance of recognizing that power is inherent within

every interaction — both social *and* ecological — is that it shapes those relationships in particular

ways. Thus, all relationships within complex systems are necessarily relations of power and, as such,

they are never *purely ecological*.

Complex systems, however, "are not 'things' in the noun like sense but processes; nor are they

'things' in the categorical sense because nothing underwrites the linguistic academic habit of collecting

them together" (Jenks and Smith 2005: 23). Complexity theory does not take complex systems to be an object of study. Rather, complexity theory describes the *processes* that occur within complexly arranged systems. That complex systems are defined by processes is consistent with a radical relational agency because it underscores the *interactions* that occur within these systems. A complex system is not defined by any innate characteristics, but by the processes enacted by the social and ecological participants that make it up. In other words, complex systems cannot be 'things' because they are *by definition* the set of complex interactions that take place between humans, nonhumans and environments. Complexity theory "examines how components of a system through their interaction 'simultaneously' develop collective properties or patterns" (Urry 2005b: 5). These collective properties or patterns are what make up complex systems. The relationality of complex systems is thus radical, not only because it includes nonhumans and environments, but because the individual actions of each participant accumulates into collective properties.

In his popular science work entitled *Emergence*, Steven Johnson (2001) describes how complex systems can shift and develop emergent characteristics. Emergent systems are:

> bottom-up systems, not top-down. They get their smarts from below. […]. In these systems agents residing on one scale start producing behaviour that lies one scale above them: ants create colonies; urbanites create neighbourhoods; simple pattern-recognition software learns how to recommend new books. The movement from low-level rules to higher-level sophistication is what we call emergence (18).

Emergent systems are not teleological and do not follow the guidance of one particular leader, emergent phenomena occur when individual behaviour aggregates into collective patterns. Although each individual participant might not be working towards a collective goal, within complex systems collective results occur when enough participants acting independently can shift a system into a new pattern — a complex system is more than the sum of its parts.

Because complexity theory describes how the interactions between humans, nonhumans and environments develop collective properties, it shares such a recognition with environmental activism. The emergence of the contemporary environmental movement is often pinpointed as the 1962 publication of Rachel Carson's *Silent Spring* which documented the effects of DDT on the environment, fish, birds and other species. Paul Hawken (2007) suggests that, after Carson's book, the notion of "*environment* now include[s] people's bodies, mother's milk, African Americans, farmworkers and the poor" because she traced the pollution from industrial wastes through to the environment and into human bodies (51). By showing how industrial chemicals could change physical bodies and environments, Carson illustrated that there are processes at work that suggest a profound

interconnection between humans, nonhumans and environments. Thus, the goal of many environmental resistances is for human behaviour to reflect the recognition that human actions can generate consequences within radically interconnected complex systems. Moreover, because agents — spaces, animals, plants, inanimate objects and humans — are in multiple relationships with other agents, it is certain that they will be affected by the behaviour of the diverse agents with whom they interact. In this sense, complexity theory describes complex systems as "*open* systems, exchanging energy or matter (and, one might add, information) with their environment. Surely biological and social systems are open" (Toffler 1985: xv). Open systems are never independent, and so they are always constrained by the external limits imposed on them.

While complexity theory and contemporary environmentalism make it clear that there are ecological limits placed on human systems, they sometimes do not recognize the limits imposed by relations of power. Carson's book may have been the catalyst that formed the environmental movement's popular understanding of human relationships to the environment, but Steven Best and Anthony J. Nocella (2006) argue that contemporary environmental resistances forgot contributions to an understanding of the environment by non-whites, the working classes, women, non-heterosexuals, children and Indigenous peoples. They point out that; "Long before Rachel Carson, African-American abolitionists opposed the use of chemicals such as arsenic being used to grow crops" (13). Best and Nocella make it clear that there are *more to* environmental issues *because* they intersect with issues of race, gender, class, ethnicity and sexual orientation. They are quick to point out that the environmental movement arose in conjunction with the other social movements of the 1960s (15), and so could benefit by paying attention to the issues of other 'social justice' movements (20). What this implies is that environmental resistances are necessarily embedded within relations of power, yet the effects of power are not necessarily taken into account either by those resistances or by complexity theory.

Best and Nocella (2006) remind us that the distinction between humans, nonhumans and environments also intensifies binary distinctions which differentially constitute human subjects according to class, gender, age, race, sexual orientation, and ethnicity. They argue that:

> If, […], the definition of revolutionary environmentalism is broadened to include environmental justice […] and indigenous struggles against corporate exploitation and imperialism — which bring to the table key issues of race and class — then the contributions of Native Americans, Black liberationists, Latino/as, non-western peoples, and others can be duly recognized and integrated into a broader and more powerful resistance movement (13).

By pointing out that there are prejudices inherent within contemporary environmental resistances, Best and Nocella locate those resistances unambiguously within relations of power. Because the

environmental movement is embedded within relations of power, it can reinforce contemporary

relations of power. Thus, a more radical relational agency necessarily recognizes that it is impossible

to abstract particular *kinds of agents or relationships* from any other, precisely because the

omnipresence of power relations necessitates that power is dispersed throughout every relationship.

Because resistances are always embedded within the power relations that they seek to overturn,

there is the need to recognize the embeddedness of resistances within Modern relations of power,

otherwise, those power relations could be unwittingly reinforced. Foucault (1989b) argued that

resistances that naively seek to step outside power relations "[run] the risk of falling back on the idea

that there exists a human nature or base that, as a consequence of certain historical, economic, and

social processes, has been concealed, alienated, or imprisoned" (282). The return to an idea of human

nature is conceived as a risk *because* it ignores the constitutedness of identities and materialities. Such

a risk, as Foucault's analyses of Modern power relations suggest, entails that an inability to recognize

the constitutedness of identities and materialities will reinforce the hierarchical ordering of subjects and

come to see certain individuals or objects as more 'normal' or superior than others. Thus, according to

Foucault, resistances should not advocate the return to some 'natural' or essentialized identity. Rather,

Foucault argued that any resistance should entail continual redefinition of what is the most acceptable

form of existence or ways of living in the world.

Unlike environmentalism and complexity theory, Michael Hardt and Antonio Negri (2000)

explicitly acknowledge that power relations are dispersed throughout every relationship. More

specifically, they examine how the increased biopolitical production of identities and relationships

contributes to contemporary processes of globalization; "Biopower is a form of power that regulates

social life from its interior, […]. Power can achieve an effective command over the entire life of the

population only when it becomes an integral, vital function that every individual embraces and

reactivates of his or her own accord" (23-24). They argue that the spread of biopolitical production has

facilitated the movement of Western systems of thought and capitalist economics throughout the globe.

Moreover, Hardt and Negri argue that the spread of Western systems of thought and capitalist

economics throughout the world has generated a globalized Empire. Empire successfully infiltrates

every corner of the planet because it is associated with *deterritorializing flows*[4] that generate a multitude of identities and relationships which fracture current identities and territories. A globalized Empire is so successful *because* it produces identities and fractures territories; it is able to continually open up new spaces to biopolitical production. In this sense, Empire avails itself of deterritorializing flows that create multiple interconnections between different territories and individuals across the globe. Yet, at the same time, as Gilles Deleuze and Félix Guattari make clear, processes of deterritorialization are always followed by a reterritorialization that absorbs what has been opened up back into the management of a globalized capitalism. In this sense, Empire likewise increases global homogeneity.

Because the spread of globalizing processes indicates that the world's social-ecological systems are becoming increasingly complex and interconnected, it is contributing to the destabilization of those systems. As I have stressed, there are both ecological relations and relations of power that are inherent within every relationship. In this sense, both ecological limits and relations of power are likely to contribute to the destabilization of contemporary social-ecological systems. The importance of recognizing the complexity, interconnectivity and instability of globalized systems is that such systems can potentially shift into a radically different state. Like Foucault's epistemes, complex systems are nonlinear; they can radically and unpredictably shift. Moreover the recognition that shifts occur within complex systems "is the absolute of complexity theory" (Jenks and Smith 2006: 62). What this means is, like systems of thought, complex systems are not historically homogeneous. When radical shifts occur within a complex system it is precipitated by some "'singular moment' or a 'bifurcation point' — it is inherently impossible to determine which direction change will take" (Toffler 1985: xv). Precisely because complex systems are nonlinear, it is impossible to predict when, or under what circumstances, a shift will occur. And it is likewise impossible to predict what new stable state will emerge. Importantly for contemporary systems, it is *destabilized* systems that are more prone to unexpected shifts. Thus, the more complex global systems become, the more destabilized they can become and, hence, more prone to shift unexpectedly.

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[4] Deleuze and Guattari's notion of deterritorialization and reterritorialization will be discussed throughout this thesis as aspects of contemporary globalized capitalism. Deterritorialization and reterritorialization are "differing trajectories or lines of force [that] hold differing consequences for territories […]. Thus, lines of flight can work to unify territorial spaces (perhaps using processes of governmentality) or can work to disrupt territorial coherence thereby revealing multiplicities of various kinds" (Murdoch 2006: 92). Those disruptions to spaces or identities are caused by deterritorializing flows while those actions that can unify spaces or identities are "a counter movement, a *reterritorialization*" (93). *Both* of these processes or flows are inherent within contemporary globalized capitalism because capitalism a once needs to open up new multiplicities and spaces to global markets through deterritorializing flows while *at the same time* it needs to stabilize those multiplicities under the unifying identity of capitalism through a subsequent process of reterritorialization. Throughout this thesis, I will examine how both deterritorializations and reterritorializations present both possibilities and dangers.

I began this introduction with a photograph that served as a metaphor for the complex interconnections between diverse social and ecological systems. The Earth Day '92 t-shirt represents a particular set of relationships that are not only personal, but also social, ecological, national, local, environmental and political. But, I did not begin with such an image to locate myself within a particular historical trajectory as if to say 'here is me, interested in the environment even at age ten and now here is my doctoral thesis about the ways in which humans, nonhumans and environments are interconnected'. I never look at that photograph, and that t-shirt represents the majority of my own involvement with any sort of active environmental resistance. Rather, I returned to study environmental resistances and a radical relational agency years later as the result of particular contingent circumstances. While such events have constituted me in particular ways, my doctoral interest was by no means a necessary outcome. Instead, there have been many intervening events between then and now that complicate any reading of such contingent circumstances as linear. Indeed, the necessity of examining contemporary environmental resistances as an example of a radical relational agency stemmed from the relationality expressed both in the thought of Foucault and complexity theory — not the other way around. Therefore, the story of that Earth Day t-shirt is decidedly nonlinear and, as such, it represents not only the radical interconnectivity of complex relationships, but the nonlinearity of those relationships as well.

Hardt and Negri likewise recognize that contemporary globalized systems can be transformed. They argue that, because biopolitical production generates identities and relationships, it is simultaneously generating an emergent Multitude that opposes Empire. This Multitude thus functions as a bottom-up emergence which could potentially cause a new stable state to emerge. And, on the face of it, this globalized Multitude appears to acknowledge all implications of a radical relational agency. The Multitude is made up of diverse agents participating in many interconnected relationships that nevertheless contribute to widespread results. But Hardt and Negri (2005) explicitly argue that "Multitude is a class concept" (103). To the extent that the Multitude forms a globalized *class*, the implication is that it functions according to a specific set of goals. In this sense, Hardt and Negri assume that the collective emergence of a globalized Multitude is necessarily beneficial. But such an assumption fails to acknowledge that emergent phenomena are inherently unpredictable — there is never any guarantee that an emergent Multitude will generate change that is preferable to the current system of globalized capitalism.

Because Hardt and Negri argue that the Multitude is generated through deterritorializing flows, they suggest that such an emergence is likewise deterritorializing. Their insistence on a

deterritorializing resistance further reinforces the possibility that an emergent Multitude could have unforeseen consequences. For example, Indigenous peoples throughout the world have disproportionately experienced the negative effects of deterritorializing flows. Through colonization Indigenous peoples were evicted from their lands and experienced the fracture that is associated with deterritorializing flows. Thus, deterritorializing flows can have negative effects — they are *by definition* destabilizing. Deterritorializing flows are destabilizing and so, by insisting on processes of deterritorialization, Hardt and Negri's Multitude is similarly prone to destabilization. The failure to account for the possibility that a deterritorializing Multitude could generate harmful effects means that Hardt and Negri have not recognized the unpredictability that is implicated through the creation of a radical relational agency. A radical relational agency is generated, in part, because the outcome of any action is unpredictable. And so, in this sense, deterritorializing resistances do not acknowledge the implications of a radical relational agency.

Inspiration for developing resistances consistent with a radical relational agency can be found in non-Western systems of thought. Many Indigenous peoples and cultures, who have experienced effects of deterritorializing flows, exist within systems of thought that reflect the relationality and interconnectivity of humans, nonhumans and environments. *Because* Indigenous systems of thought often do not constitute a distinction between humans, nonhumans and environments, deterritorializing flows that evict Indigenous peoples from their territories likewise deterritorialize their cultural practices and knowledges. Thus, Indigenous resistances necessarily work to *re*territorialize their own lands, identities and knowledges. By developing practices and knowledges that reterritorialize, and affirm the interconnectedness between humans, nonhumans and environments, Indigenous ecological practices resist deterritorializing flows. Hence, Hardt and Negri's notion of a deterritorializing Multitude not only fails to acknowledge the potential risks in generating deterritorializing flows, but also the possibilities inherent within practices of reterritorialization. Indeed, by asserting the interconnections and associations between humans, nonhumans and environments, practices of reterritorialization can generate new identities and relationships.

As I have already argued, a radical relational agency is generated because ecological relations and relations of power are not static. Such vast and interconnected relationships between humans, nonhumans and environments make up the complex social-ecological systems in which we exist and, as a result of such complex interactions, unpredictability is characteristic of complex systems. Instead of assuming the outcome of any action, an environmental practice consistent with a radical relational agency aims to generate flexibility and adaptability when confronted with disturbances and

fluctuations. Flexibility and adaptability are important because they do not seek to establish one

system of thought, or one type of complex system as an end goal; flexibility and adaptability are

important because they are an *acknowledgement of* unpredictability. Thus, throughout this thesis, I will

examine the possibilities and risks associated with the radical interconnectivity of humans, nonhumans

and environments.

To map a radical relational agency in more detail, the argument of this thesis begins with

Foucault's thought and its intimations of a radical relational agency. The purpose of Chapter One is to

situate the definition of a radical relational agency as a response to Modern notions of agency. To do

this, Chapter One examines Foucault's early texts and the contingencies of Man's emergence in the

Modern episteme. This examination is important because it exposes the correlative understanding of

Nature as a passive object. Chapter Two explores the explicit investigations of power relations that

Foucault produced in his genealogical texts. In these texts, Foucault made it clear that there are risks

inherent within power relations. Yet, Foucault also argued that *it is possible for any relation of power

to be overturned*. Thus, Chapter Two initiates the theorization of a relational agency. But, Chapter

Three critiques Foucault's latent anthropocentrism in order to fill the gaps in his thought. As such, it is

a transitional chapter that begins to combine both Foucault and complexity theory. By proceeding first

through the thought of theorists influenced by Foucault — Judith Butler, Donna Haraway, actor

network theory — Chapter Three explicitly acknowledges the existence of nonhuman agency and

hence, a more *radical* relational agency.

Chapter Four examines contemporary globalized food systems that now span across the globe.

In this sense, both ecological relations and relations of power necessarily reinforce the complex

destabilization of those systems. Because a radical relational agency is not a possession of individuals,

but is generated as a result of the relationships *between* humans, nonhumans and environments, the

recognition that complex systems are self-organizing helps to explicate such a notion of agency.

Chapter Five examines Indigenous ecological practices as a counterpoint to Modern systems of

thought. In this sense, they provide inspiration for how contemporary environmental actions can

remain consistent with a radical relational agency. As acts of reterritorialization, Indigenous ecological

practices also expose the dangers of deterritorialization. Thus, Chapter Five also addresses the

possibilities of how we can respond to the instability of contemporary globalized systems. Finally,

Chapter Six poses questions and asks; 'Where do we go from here?' In Chapter Six, I examine both

the risks, and the possibilities, that are generated as an effect of a radical relational agency.

CHAPTER ONE

The Emergence of Man and Modern Agency

To investigate a radical relational agency, it makes sense to contrast it with *what it is not*. The necessity of determining what a radical relational notion of agency is not, is that such a notion of agency contradicts Modern notions of agency which view it as a quality embedded within individual humans. If a radical relational agency is counterintuitive to Modern understandings of agency, then it is assured to encounter opposition. Thus, the necessity of understanding what a radical relational notion of agency is not, is to examine Modern notions of agency as a theoretical development to which a radical relational agency responds. A radical relational agency responds to Modern notions of agency not only as a matter of course, but because Modern notions of agency are found to be insufficient in addressing a number of problems. First, Modern notions of agency are very *limited* in the sense that only particular subjects are granted the possibility of being identified as agents. The possibility of nonhuman or environmental agency is not addressed by Modern notions of agency because such restrictions on who or what is defined as an agent are integral to it. Furthermore, the limitation of agency to certain human individuals demonstrates that relations of power are embedded not only within agential practices, but also within the very definitions of Modern agency. Finally, because Modern notions of agency are dependent upon a series of contingent knowledges, they are not the transhistorical definitions that they purport to be.

In his early *archaeological* texts, Foucault implicitly critiqued a Modern notion of agency because his investigations explicitly undermine the correlative notions on which a Modern notion of agency is dependent. Through his examinations of shifts in what is thinkable, Foucault argued that any system of thought necessarily governs and organizes all that is thinkable within an episteme. In other words, within each episteme, the systems of thought and discursive orderings will be structured differently. The episteme that is relevant to discussions of contemporary notions of agency is the Modern episteme. In particular, the Modern episteme is associated with the emergence of Man as a discursive construction. As this chapter will argue, Modern notions of agency are dependent upon the emergence of Man. The term 'Man', as it is used without being problematized, implies the notion of 'mankind' or a universalized humanity. But this implied definition obscures the contingent history and power relations that are integral to its functioning as a unified category. The notion of Modern Man functions within a series of hierarchical binary oppositions that deny agency to certain individuals and so the term 'Man' *excludes,* rather than includes.

While Foucault's critiques of Man help to situate Modern notions of agency as a counterpoint to a radical relational agency, his analyses fail to interrogate the nonhuman and environmental specificities that are necessary to developing a radical relational agency. The term 'Man', *because* it distinguishes (certain kinds) of humans from nonhumans and environments, reflects back onto those nonhuman categories; it underscores the dualism that Western thought has created in the relationships between humans, nonhumans and environments. Man is thus, *by definition*, not Nature. The category of Man philosophically reinforces not only the discursive binaries between Man and Nature, but *material* realities as well. However, Foucault did not examine the particular binary oppositions which function to constitute Man and Nature as distinct. Although Foucault recognized that spatial and material arrangements can serve to reinforce the discursive constructions within an episteme, he did not address the Modern assumption that nonhumans and environments are not granted agency. In order to investigate a radical relational agency, Foucault's insufficiencies will have to be addressed because explicit to the development of *radical* relationality is that humans, nonhumans and environments are all participants within relations of power.

Integral to Foucault's archaeological texts are his descriptions of epistemic shifts as nonlinear and unpredictable. According to Foucault, history does not proceed in agreement with a teleological imperative. Rather, history is defined by unpredictable shifts that can cause a new episteme or system of thought to emerge. A nonlinear notion of history has a twofold relevance for notions of agency. In the first instance, Foucault's investigations of the Modern episteme indicate that, because of the nonlinearity of history, a new system of thought could emerge that will actually replace the Modern episteme. Associated with this recognition that the Modern episteme is *not* the end of history, is the corresponding implication that any notion of agency also does not encompass all possible definitions. A radical relational agency is both an alternative notion of agency to that of the Modern episteme and a notion of agency that *itself* recognizes nonlinearity. In what follows, this chapter will examine Foucault's archaeological analysis of the emergence of Man and some of the broader implications of this emergence that were not discussed by Foucault, but are necessary to the development of a radical relational agency. In particular, the granting of agency to only certain individuated subjects indicates that definitions of agency are embedded within relations of power. Thus, I will place such exclusionary practices within the context of Foucault's later, genealogical, notion of power/knowledge. But, I also argue that Foucault ignored the relations of power between humans, nonhumans and environments and, in doing so, neglected the radical implications of a relational agency to which his critiques lead.

Finally, this chapter will initiate an examination of the possibility of future emergences and what those might mean for emergent notions of agency.

The Emergence of Man and the Emergence of a Modern Notion of Agency

Rather than accepting the existence of Man as a transhistorical fact and cultural given, Foucault argued that the idea of 'Man' is a discursive construction. This argument does not suggest that human beings did not exist, but that certain ways of conceptualizing humans, and hence of *being* human, are not historically or culturally homogeneous. For Foucault, the emergence of Man was neither necessary nor essential, but dependent upon corresponding shifts in what was thinkable. Foucault contended that the idea of Man, or *any idea*, cannot occur unless contingent circumstances make it possible. Thus, before a certain historical moment, Man was unthinkable — the conditions for Man's emergence did not always exist. Likewise, the Modern notion of agency that I am examining and contesting is not historically or culturally homogeneous. Rather, it emerged via the relations of power within the historically constrained context of Western cultures. In this sense, Modern notions of agency are both historically recent in that they have not existed throughout the entirety of Western history *and* they are specific to Western cultures; they are *limited* definitions of agency that are not universally applicable. Thus, the emergence of Modern Western notions of agency is similarly impossible without the existence of particular historical and cultural conditions — conditions that include the emergence of Man.

In the epistemes previous to the Modern episteme, the Renaissance and Classical epistemes, the conditions for the emergence of Man as a category of knowledge did not exist. The shift to the Modern episteme occurred roughly between 1775 and 1825 because the conditions for Man's emergence appeared at this time; Foucault argued that the conditions for the emergence of Man included the establishment of a series of knowledges and disciplines *about human beings*. Man emerged in the Modern episteme because, at that time, there were established knowledges about human beings which pertained to health, education, biology, economics, politics and society. Prior to the Modern episteme, disciplines which took human beings as their object of study did not exist and so, without them, it was not possible to conceive of human beings in the same way. Thus, Foucault claimed that the central feature of the Modern episteme is that all human philosophical inquiry began to take on an anthropological tone and knowledge came to revolve around an understanding of what it means to be human. In short, Man could not have existed without the concomitant knowledges that created the conditions for emergence.

Modern notions of agency are similarly dependent upon the knowledges of Man because Modern notions of agency are explicitly *human* notions of agency. Prior to the anthropologization of systems of thought, agency was located outside humans and within God. It is only once the figure of Man emerges that a notion of human agency can be theorized. Foucault's dating of the Modern episteme locates its emergence within the secularized knowledges of Enlightenment humanism. Humanism "resurrected the notion of human agency and challenged God's monopoly to anchor all aspects of human existence. Humanism placed the subject at the centre of history and expressed a profound belief in people's dignity, in their own ability to solve problems" (Bleiker 2000: 54). It is only within the Modern episteme that human agency becomes possible because a secularization of thought allowed human subjects to be constituted as individual agents in charge of their own histories. Whereas previous systems of thought denied humans such a privilege, Modern thought is *characterized by the centrality of humans* within philosophical and scientific thought. Human agency, far from being a necessary human characteristic, is a historically contingent notion dependent upon the death of God and the emergence of Man.

The emergence of Man, as Foucault made clear, required the simultaneous emergence of a series of knowledges that aimed to study human beings. These knowledges included the human sciences with which we are familiar with today. The category of Man emerged because the human sciences created entire disciplines and discourses that aimed to describe the material, sociological, psychological and social existence of human beings. Prior to the existence of the human sciences, Man could not be understood as an object of knowledge, *or* as a discursive category. Man thus acquired an existence that had not previously been thinkable; "Western man could grasp himself in his own eyes as an object of science, he grasped himself within his language, and gave himself, in himself and by himself, a discursive existence" (Foucault 1973: 243). Because human beings became the object of knowledge in the Modern episteme across a variety of disciplines, Man emerged as the product of those knowledges. The human sciences characterize Man as an objectively existing category. By generating vast amounts of knowledge about what it means to be human, in the Modern episteme, Western thought constituted Man as a seemingly incontrovertible fact. Man exists in the Modern episteme not only as an object of knowledge, but as an *identifiable* category that includes a number of presuppositions. One of these presuppositions includes the assumption that Man is endowed with agential capacities. Through the thought of the human sciences, Man was constituted as a unified category that included the capacity for agency.

The Modern notion of Man underscores the conventional conclusion that "agency is attached to a 'self' and conceived as an element of psychological being, it is said to be an individual's capacity for action realized through decision and action" (Messer-Davidow 1995: 25). In order for a Modern notion of agency to emerge, there required a corresponding notion of the 'self' who would be endowed with agential capacities. The constitution of Modern Man via the human sciences generated just such an understanding of selfhood to which a notion of agency could be attached. In other words, Modern Man serves as the unitary category that provides agency the being to which it attaches. Because Modern agency is defined as a *possession* of human beings, it requires the Modern notion of Man in order to be the possessor of that agency; "agency is attached to an entity — an individual, a collective, or a social structure" (Messer-Davidow 1995: 24). According to such definitions of agency, agency cannot exist without something to which it can attach itself. Thus, within the Modern episteme, agency emerged only because Man was constituted as a discursive and objective category.

While disciplines in the Modern episteme were anthropologized, and took Man as the object of knowledge, Man was also constituted as the *subject* who studies. Man was constituted as a subject who studies because, as the pursuant of knowledge generated by the human sciences, Man is the active agent who produces those knowledges. It is in this sense that Foucault argues Modern Man is constituted as *both* subject and object. Foucault (1970b) argued that during the Modern episteme; "in the profound upheaval of such an archaeological mutation, man appears in his ambiguous position as an object of knowledge and as a subject that knows: enslaved sovereign, observed spectator" (340). There can be no Man-as-subject without a notion of Man-as-object. This doubling, though it is hidden, is the essential fact of the existence of Modern Man. Indeed, that Man is both subject and object is a necessary precondition for Man's emergence. Without the anthropologized knowledges of the Modern episteme, there would be no anthropologized disciplines in which to situate a knowledge of Man as an object. However, as the active pursuant of these knowledges, Modern Man is also constituted as a subject; without such a subject none of these knowledges would be possible. Because Man emerged only within the anthropologized knowledges of the Modern episteme and was *simultaneously* endowed with the ability to obtain those knowledges, the necessity of both subjectivity and objectivity becomes apparent.

Foucault's recognition that Modern Man is both subject and object is important because it serves as a critique of Modern Man. The recognition of the doubling of Man functions as a critique of Man because it destabilizes the Modern assumption that Man is an active agent. As Foucault (1970b) pointed out, Man is:

an individual who lives, speaks, and works in accordance with the laws of an economics, a philology, and a biology, but who also, by a sort of internal torsion and overlapping, has acquired the right, through the interplay of those very laws, to know them and to subject them to total clarification — all these themes so familiar to us today and linked to the existence of the 'human sciences' (338).

The Modern assumption that Man is able to understand those laws generated by the human sciences is contingent, in part, on the constitution of Man as a subject who studies. However, the recognition that Man is *also the object of study* complicates this assumption. Modern Man's objectivity is masked by a seemingly unproblematized subjectivity. Within the Modern episteme, "Foucault argues that there is no possible solution to the problem of knowledge, or of Man and his doubles. His critique of the modern episteme which targets the humanist foundation in the figure of Man undermines the claims to authority of discourses of knowledge" (Simons 1995: 25). Thus, Foucault's critique of Modern Man acknowledges that the doubling of Man is a fundamental and unresolvable inconsistency inherent within the Modern episteme. In this sense, as a contradictory condition, Man's doubling actually destabilizes Modern notions of agency.

Man's position as both subject and object complicates notions of agency that regard human agents as *only ever* subjects. The emergence of Man as a category requires that Man is positioned as both an object of knowledge and as the subject who knows. Without the constitution of Man as both subject and object, the emergence of Modern Man would not have been possible. But, Modern notions of agency are challenged by Man's position as both subject and object because the very definition of Modern agency is premised on the assumption that Man's agency is derived from a subjectivity. In this sense, subjectivity is viewed as the Modern precondition for agency. However, if Man is simultaneously constituted as an object of knowledge, then such definitions of agency no longer seem to apply. The constitution of Man as an agential being therefore appears as an illusion. The limitations of Modern notions of agency include not only its inability to theorize the agency of particular individuals that are defined as objects, but to theorize any agency as attached to a knowing subject, given that Man is always simultaneously both subject and object. Do away with distinctions between subject and object, and agency must be theorized as something else altogether.

Agency, within the Modern episteme, is necessarily a human characteristic because it is viewed as an essential quality of Modern Man. Modern agency denies agency to those who are not included within the category of Man, to some extent, because such individuals are not constituted as subjects. Man exists, in part, because the category is defined in hierarchical binary *opposition to* other (presumably) less complex living organisms or non-living entities. Within the Modern episteme, Man

is situated in relation not only to other non-agential humans, but in relation to nonhuman species as well. The Modern episteme "establishes in the whole living world a vast resemblance which can be arranged in a scale of decreasing complexity, from man down to the zoophyte" (Foucault 1970b: 295). Thus, because Man is the presumed subject of all knowledge, the Modern episteme locates humans at the pinnacle of biological and cultural development. Modern Man was viewed as more developed than any other nonhuman organism and so nonhumans and environments were denied agential capacities. Nonhumans are not afforded agency according to Modern definitions because they are explicitly constituted in opposition to Man. Thus, Modern notions of agency are unable to account for the possibility of nonhuman agents. This demonstrates a theoretical limitation to Modern notions of agency because they are inadequate for theorizing the agency of any humans, nonhumans and environments not included within the Modern notion of Man.

Foucault (2000f) argued that the task of the intellectual "is to try and isolate in their power of constraint, but also in their contingency in their historical formation, the systems of thought that have become familiar to us, that appear self-evident and are integral to our perceptions, our attitudes, our behaviours" (384). The Modern notion of agency is an artifact of familiar systems of thought and, as such, it appears as natural. However, Foucault argued that his task as an intellectual was to denaturalize systems of thought. And that is precisely what he endeavoured to do to Modern systems of thought because the process of denaturalization exposes systems of thought to some of the pressures that may result in their eventual disintegration. Thus, Modern notions of agency can be destabilized by questioning their seeming naturalness. In the following section, I will examine in greater detail the contingencies that deny nonhumans and environments agency within the Modern episteme.

The Emergence of Life and the Importance of Human Finitude

Paradoxically, the inability to account for the agency of nonhumans and environments is partially dependent upon Man's constitution as an animal and as a natural, living being dependent upon the environment. Associated with the emergence of Man is a correlative notion of *life*. Foucault (1970b) argued that prior to the Modern episteme, "life [did] not exist: only living beings" (175). Life did not exist as a thinkable possibility until the Modern episteme because the notion of life is dependent upon a particular understanding of natural, biological processes. Until the emergence of the Modern episteme, knowledge was not concerned with natural biological processes because such concerns were not the object of human knowledge. Rather, they remained — as with the notion of agency — subject to God's determinism. The emergence of life in the Modern episteme is important because it situates Man as a biological being who is no longer subjected to the whims of God. Modern

biology inaugurates the idea that Man is a living being who exists *within the laws of Nature.* Man is characterized as a living being, in part, because of the anthropologization of thought and, in part, because of its need to discover those laws of Nature that affect humans as living beings. Man acquired "the strange stature of a being whose nature [...] is to know nature, and itself, in consequence, as a natural being" (338). Man emerged as a living being not because of an identification with Nature, but because of an ability to *study* and classify Nature. Because Modern sciences constituted Nature as knowable, there emerged the correlative notion that Man would be able to conquer Nature.

Although Man emerged in the Modern episteme as a being endowed with agency, in part, because Modern knowledge became secularized, this secularization came at a cost. Without the existence of God to endow humans with religious immortality, humans were faced with the notion of our own finitude. When Man emerged as a living being subject to the laws of Nature, part of this fundamental recognition was that living beings — including humans — are destined to die. Foucault (1998d) argued that within the Modern episteme "the problems of philosophy are [...] all lodged within the domain that can be called that of human finitude" (250). Not only are Modern knowledges anthropologized and secularized, but they are also contingent upon the recognition of human finitude. In order to confront the certainty of death, Modern thought is characterized by Man's search for ways in which to overcome the inevitability of death. For example, Foucault (1970b) argued that Modern economics "is related, in fact, to the biological properties of a human species" (279-280). Thus, Modern economics deals with human finitude to the extent that its aim is to successfully create a balance between human needs, namely food, and the ability for that food to be produced. By doing so, economics should ensure that death (by starvation) is prevented. It is in this sense that Modern knowledge is concerned with human finitude.

Through the recognition of human finitude, Modern medicine endeavoured to examine the limitations imposed by the human body. The necessity of studying human physiology and disease was generated by the goal of increasing longevity. Foucault (1973) argued that "Western man could constitute himself [...], only in the opening created by his own elimination" (243). Modern Man was constituted through death because the recognition of human finitude necessitated the emergence of the human sciences. In other words, the acknowledgement of death actually directly initiated the emergence of Modern Man. Man emerged, in part, because Modern medicine was able to examine dead human bodies and establish medical knowledges that aimed to extend the *lives* of human beings. It is paradoxically via death that knowledge about human life is established; "the medical gaze pivots on itself and demands of death an account of life and disease" (179). Knowledge about life is

generated by observing the human body in death and, in doing so, contributing to medical discourses that seek to extend life as much as possible.

In the Modern episteme, death was no longer associated with a religious immortality, instead it became observable in its minute details to knowledgeable medical researchers. Humans are no longer immortal, but medicine offers Man the ability to observe death and, in the process, establish systems of knowledge about life and health. Rather than seek religious immortality, doctors now offer the promise of eternal good health; "medicine offers modern man the obstinate, yet reassuring face of his finitude; in it, death is endlessly repeated, but it is also exorcized" (Foucault 1973: 244). As the keepers of good health, doctors supply Man with the possibility of temporarily expelling death. Within Modern medicine, medical knowledge is presented as a possible route to conquer the immanence of death. Doctors became the saviours of the human body to the extent that "health replaces salvation" (244). Although the Modern episteme is characterized by secularized knowledges, those knowledges have transferred the importance of God into the possibility of understanding the laws of Nature. Foucault argued that "the army of priests watching over the salvation of souls would correspond [to] that of the doctors who concern themselves with the health of bodies" (37). While it is clearly impossible to escape death as an individual, the human sciences hold out the possibility that an increase in knowledge could sustain life just a little bit longer.

Through the anthropologization of knowledge in the Modern episteme, Man was consecrated as a being in nature rather than in the image of God. With the death of God, Man no longer looked to religion to answer questions, but instead established a series of scientific knowledges. The emergence of the human sciences in the Modern episteme, premised as they are on the recognition of finitude, actually represent Man's attempt to overcome the limitations of mortality. Foucault (1970b) argued that "man's finitude is outlined in the paradoxical form of the endless; rather than the rigour of a limitation" (342). In other words, the knowledges generated by the human sciences can be seen as an effort to understand the means through which immortality, without the necessity for God, could be restored. For example, the human sciences point out the possibility that the "evolution of the species has perhaps not reached its culmination" or that "forms of production and labour are still being modified" and, as a result, limitations might one day be overcome (342). And so, the Modern episteme rejects the possibility of immortality, but nonetheless aims towards a triumph over the limitations of Man's finitude. The importance of recognizing the Modern episteme's relationship with human finitude is that it underscores the relationship between Man and Nature that is characteristic of the Modern episteme.

The recognition that Man is a finite being, subject to the laws of Nature, indicates that the Modern episteme does not ignore that humans are situated within material environments and in relationships with nonhumans. Indeed, the cognizance of human finitude demonstrates that Modern Man is constrained by biological and ecological limitations. However, this recognition nevertheless serves to reinforce antagonistic relationships between humans, nonhumans and environments. As the attempts made by the human sciences to overcome the limits of finitude attest, Modern Man experiences great anxiety of the prospect of mortality. Because all humans must die, "Nature can no longer be good" (Foucault 1970b: 302). Within the Modern episteme Nature becomes the enemy of Man because Man's position as a natural, living being exposed humans to death and reveals the finiteness of existence. Nature thus becomes that which Man must tackle in order to confront the surety of human finitude. Not only do Modern knowledges attempt to overcome the limits imposed by being recognized as a living thing within Nature, but the ability *to know* Nature is refigured as Man's ability to *dominate* Nature. Thus, Man actually endeavours to *replace* God as the being who is able to know and alter the laws of Nature.

Jenks and Smith (2006) argue that Modern humanist thought has yet to be completely secularized because it "still rests on something akin to 'man in the image of God', particularly with respect to the centrality of mind and autonomy" (59). In other words, Man is simply the substitute for God because Man is positioned at the centre of all knowledge. Man is the being with the capacity to comprehend 'himself' as a being within Nature and, in doing so, open up the possibility for circumventing the limitations imposed by that Nature. This ability to know and to change the laws of Nature is correlative to the Modern notions of agency that established Man as the entity to whom agential capacity is attached. Modern notions of agency are dependent not only upon the knowledges that constituted Man as a thinkable category, but also upon Man's position as a natural, finite being that necessitated the definition of Man as a being with the capacity to acquire knowledge. Man's recognition of finitude generated the need to study the laws of Nature and, hence, established Man as an agent who *knows*. Thus, Modern notions of agency are constituted not only through the death of God, but also through Man's position as a *replacement* for God. Modern thought is not fully secularized because it has not questioned the centrality of humans as the source of all knowledge and as the sole possessors of agency.

For Modern thought the inability to account for nonhuman agency is a characteristic *embedded* within the very knowledges that generated it. Nonhuman agency is inconceivable because Modern knowledges have not completely secularized thought, the Modern notion of Man is simply a

replacement for God. A more truly secularized agency would include human, nonhuman and environmental actors. However, the attempt to overcome the limits of finitude prevents nonhuman agency from being recognized because Nature is viewed simply as a series of ultimately knowable laws. The constitution of Nature as an understandable field of inquiry through Modern thought reveals its failure to account for nonhuman agents because, according to this constitution of Nature, nonhumans are essentially defined as passive objects of study. The constitution of nonhumans as passive and devoid of agency is troubling because it demonstrates that there are (often concealed) relations of power that function *within* the human sciences. Indeed, this is precisely Foucault's point that power and knowledge — such as the knowledge generated by the human sciences — are inextricably intertwined. In his early texts, Foucault did not explicitly intend to expose that knowledges are always embedded within relations of power, but the exclusionary practices of the Modern episteme illustrate that the knowledges generated by the human sciences function to prevent the recognition of nonhuman agency. Because Modern definitions of agency explicitly exclude nonhumans, it represents not only an example of how power relations are embedded within the knowledges generated by the human sciences, but reveals a deficiency within those knowledges to account for relationships between humans *and* nonhumans. In the following section, I will argue that the constitution of Nature as *only an object* underlies the inability for Modern notions of agency to acknowledge the ways in which nonhumans and environments participate in relationship with humans. This inability to acknowledge nonhumans and environments complicates definitions of Modern agency, and points to the need for alternate theorizations.

Modern Man and Nature

Modern Man emerged through the human sciences as a natural being, in part, because of the recognition of the limits of human finitude — a recognition that instigated a correlative need for humans to understand the laws of Nature. The ability to understand the laws of Nature emerged as the corollary to the death of God and as an outcome of the secularization of knowledge because, in the absence of God, Man emerged as the entity at the centre of all knowledge. In other words, Man emerged at the centre of all knowledge not only as an identifiable reality, but also as the subject who studies the reality of the 'natural' world. Modern knowledges thus not only constitute Man, but because they endeavour to understand the laws of the natural world, they also constitute Nature. As Bruno Latour (2004) points out, "nature becomes knowable through the intermediary of the sciences; it is formed through networks of instruments; it is defined through the interventions of professions, disciplines, and protocols" (4). In other words, the relationship between humans and nonhumans — at

least in the Modern episteme — is mediated through the knowledges generated by science. Science serves as the primary source of connection between Man and Nature. However, as described in the previous section, Man and Nature are constituted as distinct because, through the intermediary of the sciences, Man is the subject who studies while Nature is the object of study.

Although Man's position as a natural being necessitated the correlative impulse to discover the laws of Nature, the knowledge that is generated through the sciences actually serves to reinforce the distinction between Man and Nature. Ilya Prigogine and Isabelle Stengers (1985) recognize this contradiction, they argue that:

> Science initiated a successful dialogue with nature. On the other hand, the first outcome of this dialogue was the discovery of a silent world. This is the paradox of classical science. It revealed to men a dead, passive nature, a nature that behaves as an automaton which, once programmed, continues to follow the rules inscribed in the program. In this sense the dialogue with nature isolated man from nature instead of bringing him closer to it (6).

Like Foucault's investigation of the Modern episteme, Prigogine and Stengers recognize in Modern science the paradox that allows Man to study Nature, while at the same time rendering that Nature inert and absolutely separate from humans. Thus, Nature moves in parallel opposition to Man. Although Nature is made to speak using the intermediary of Modern science through the accumulation of information about its natural laws, it is — at the same time — delineated as essentially silent. Thus, the distinction between Man and Nature is characterized as a distinction between those who know, speak and act, and between those who are observed, silent and static.

The Modern distinction between Man and Nature describes a relationship that not only renders nonhumans and environments as fundamentally passive, but is also a relationship that is undeniably antagonistic. Because Nature is, by definition, constituted as a passive object of study, in accordance with this formulation Nature is viewed as primarily inadequate. Foucault (1970b) argued that, within the Modern episteme, Man is "confronted by a nature that in itself is inert" (279). With Nature constituted as passive and inert, it becomes that which can be remade into objects suitable for human consumption. If humans are "confronted by a nature that in itself is inert", then it must be changed into something else altogether in order to be useful. In order for humans to survive in the natural world, this inert nature must be transformed into something that is productive. Thus, the distinction between Man and Nature reinforces the view that Nature is passive because it underscores the interpretation of Nature as a static background against which the more fundamental activities of Man take place. Furthermore, Man only finds use in Nature once it is made into something of inherent value to human

beings. Within the Modern episteme, Nature is constituted as an essentially passive resource to be forced by Man into useful productivity.

Man is constituted as the centre of all knowledge, in part, because Nature is rendered useful only through the intermediary of human scientific knowledges that transform passive resources into usable goods. The necessity of transforming Nature into useable resources is underscored by Man's position as a natural being who, faced with the prospect of finitude, must live within the limits imposed by Nature. Man's position as the centre of all knowledge is strengthened by the desire to study Nature, to know the laws of Nature, and, in order to address the prospect of inevitable death, to *perhaps* change those laws. The relationship between Man and Nature is characterized by this antagonistic and dichotomous, hierarchical arrangement. Man is defined as superior to Nature because Man is constituted as the one living being who is able to overcome the limitations imposed by Nature. The hierarchical distinctions between Man and Nature reinforce Modern definitions of agency which deny agential capacities to anyone, or anything, that is defined as passive. According to these hierarchically arranged definitions of agency, nonhumans are necessarily incapable of agential capacities. The distinction between Man and Nature thus underscores the inability for Modern notions of agency to account for nonhuman actors.

The paradox of Man's dichotomous relationship to Nature is that it emerged as a result of the recognition that Man is a *natural* being subject to the laws of Nature. Although Man was recognized as a natural being, Man was constituted as an agent with the capacity to learn those laws of Nature and to transform a passive Nature into products for human use. Thus, the relationships between humans, nonhumans and environments within the Modern episteme are characterized by binary orderings and antagonism. While Man is endowed with agency, Nature is not. It is against the background of an antagonistic relationship between humans, nonhumans and environments that an environmental resistance was able to emerge. In short, environmental resistances emerged as an effect of the distinctions between Man and Nature. As a result, environmental resistances are often unable to theorize adequately the relationship between humans, nonhumans and environments. In the next section I will examine how contemporary environmentalism emerged as a consequence of this distinction.

A History of Early Environmentalism

The Modern episteme constituted Nature as fundamentally distinct from Man. Because Man was characterized as *the* active surveyor of Nature, Nature was viewed as an inert backdrop and as an infinite resource to be consumed. According to this interpretation of Nature, the environment is merely

a static container in which human culture takes place. With the emergence of the Industrial Revolution,[5] Man's dichotomous relationship to Nature reinforces the increased extraction of natural resources from the environment. The Industrial Revolution signalled the beginning of an intense interaction with the planet's resources through the use of coal, oil, gasoline and other petroleum products. Furthermore, the knowledges accumulated through the Modern sciences allowed Western Man to further increase the transformation of Nature into useful goods; "knowledge of these constitutive laws of the environment allow us to become aware of the wealth and weaknesses of the environment" and "to organize the exploitation of our natural resources in a logical, productive way" (Lanthier and Olivier 1999: 67). Modern Man's need to transform a passive Nature into a productive set of resources underscores the processes of industrialization that occurred throughout the Industrial Revolution. Thus, the distinction between Man and Nature served as the philosophical legitimation out of which economic benefits were reaped from the environment in the form of oil, petrochemicals, increased agricultural output, mechanization of labour and colonial expansion.

With the invigorated extraction of natural resources that powered the Industrial Revolution, and the increased urbanization that mechanized factory work instigated, some individuals began to question the continued exploitation of Nature for economic gain. Nature functioned as a resource for human economic growth during the Industrial Revolution, but an oppositional move that aimed to *protect* Nature emerged *simultaneously*. Steven Best and Anthony J. Nocella (2006) trace the beginning of Western environmentalism to Luddites, Romanticism and American Transcendentalism (11). While Luddites protested the mechanization of their jobs, Romantic writers and artists criticized industrializing processes and, following Rousseau, "they praised nature as the antithesis to all that was rotten in modern life, and extolled the beauty and divinity of the wild" (11). Through these beliefs, Nature was promoted as a good in and of itself that was in need of conservation and protection, and that was to be held apart from industrialized human activities. Paradoxically, the distinction between Man and Nature was reinforced both by industrialists *and those who opposed industrialization*. The argument that Nature should be protected from industrial processes cements the distinction between Man and Nature because it assumed that Nature is a passive object that needs protection from the encroaching practices of Modern Man.

The beginning of a popular environmental movement can be traced to shifts in living, labour and economic arrangements that began with the Industrial Revolution. Early conservationists saw increasing industrialization and mechanization as an issue that affected their ability to pursue leisure

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[5] The Industrial Revolution occurred simultaneously with the emergence of the Modern episteme.

activities in rural wilderness and pastoral settings. Thus, concerned citizens and conservationists aimed to protect the countryside and wilderness from creeping human intervention. In Britain, after the increased urbanization of the Industrial Revolution, "it was town dwellers who sought to protect nature from further destruction, or gain access to nature to escape from the pollution of the industrial towns" (Rüdig 1995: 222). With the shift away from agricultural communities to urbanized settlements, city dwelling individuals felt the need to prevent development in particular rural locales in order to preserve Nature and to maintain access to outdoor recreational activities. Urbanized and industrialized spaces of cities were defined in opposition to the rural spaces of the countryside, reinforcing the distinction between Man and Nature. Conservationists explicitly aimed to protect rural spaces from the possibility of human intervention. Through these preservationist tactics, the relationships between Man and Nature remained antagonistic because they viewed Nature as being damaged by Man's intervention. Thus, Nature was continually constituted as passive even within early environmental movements.

In the United States, the transcendentalist movement is often identified as the beginning of contemporary environmentalism on the North American continent. In the nineteenth century, American environmentalism was characterized by "rugged individualism and solitary journeys into wilderness" that were undertaken by men in order to prove their manliness and virility (Best and Nocella 2006: 12). Best and Nocella (1995) argue that the distinction in the United States between wilderness and urban environments was even more pronounced than it was in Britain. By opposing a masculine wilderness to 'soft' urban spaces, the early American environmentalist's definition of Nature served to isolate rural wildernesses from urbanized developments. A distinction between Man and Nature is implicit in these early environmentalist resistances because they emerged as actions that aimed to further separate Man from Nature by cordoning off sections of Nature from Man's interference. Furthermore, the characterization of early environmentalists as rugged, male individualists, demonstrates that these environmental resistances are embedded within the very systems of knowledge and relations of power that facilitated the Industrial Revolution. Again, Nature is constituted as in need of protection while white, male, wealthy, heterosexual, sane, able-bodied humans are constituted as active protectors of that essentially passive Nature.

The emergence of early environmentalism within the Industrial Revolution functions as a response to the Modern knowledges that served to increase Man's ability to extract resources from a passive Nature. These environmental resistances do not demonstrate an alternative means of conceiving the relationships between humans, nonhumans and environments, but illustrate that a

discourse of protecting the environment emerged *simultaneously* with Man's need to increase the productivity of Nature. The constitution of Nature within early environmental resistances does not oppose the Modern separation between Man and Nature because, in fact, the distinction is a precondition for their emergence. Without a correlative acceptance of the distinction between Man and Nature, it would have been impossible for conservationists to argue that Nature is in need of protection. Nature is in need of protection *because* Nature is fundamentally separate from the human processes of industrialization and mechanization. The sciences that generated Man's understanding of Nature underscore not only the extraction of resources for human use, but also the desire to protect Nature from such development. Because Man studies a passive Nature, Man is constituted as *having the available knowledges* necessary to protect Nature.

Because Nature was constituted as passive within early environmental resistances, those resistances do not account for nonhuman agency any more than the Modern knowledges that contributed to the conditions of their emergence. Nature is denied agential capacities and so is in need of the protection that only Modern Man is able to give. Man is constituted as a *knowing* subject and agent within the Modern episteme and it is an effect of that knowledge and agency that allows Man to presume that Nature can be protected. Within those environmental resistances Modern Man remained the subject who studies and Nature remained the object of study. However, the distinction between Man and Nature, as Foucault has shown, is contingent upon the emergence of a particular set of anthropologized knowledges and correlative relations of power. As a result of these power relations Man is *simultaneously* a natural being and the subject who studies Nature. This tension, although it remained unnoticed, further implicates the inability of Modern notions of agency to account for Man's position within Nature. In his early texts, Foucault did not explicitly intend to expose that knowledges are always embedded within relations of power, but the exclusionary practices of the Modern episteme illustrate that power functions to prevent the recognition of nonhuman agency. In the next section I will address the relationship between power and knowledge in more detail.

An Exclusionary Agency: Power and Knowledge

Although the category of Man purports to be a universal and unitary category, it has not historically included every single human being within its definitions. Perhaps most obviously, the term 'Man' is a gendered one; it very evidently does not include *women* as members of the 'humanity' that it aims to describe. Thus, the emergence of the category of Man has marked all female bodies as *other than* human through its discursive construction. Likewise, though perhaps less obviously, the category of Man also does not include within its definitions particular humans who are *not* ethnically and

racially white, middle or upper class, heterosexual, educated or Western. The repercussions that such a prejudiced and partial conception of Man has had is that certain human beings are actually *denied* inclusion within a unitary humanity. Because agency is attributable as a characteristic of Man only, agency is likewise denied to those who do not conform to the concealed particulars of the Modern category of Man; "only certain individuals 'have agency,' while others have little or none. Some historians, for example, locate agency solely in the power of individual 'Great Men'" (Ahearn 2001: 114). Agency, according to Modern conceptions, is attributable only to a certain elite and 'Great' minority and thus excludes a majority of subjects from access to this agency. Modern notions of agency are thus restricted notions of agency, they are not inclusive.

The consequences that such a restricted notion of agency have are not merely discursive. Rather, the restriction of agency from certain individuals has very real effects. Within the "humanist or individualistic model of the person, agency is, by definition, a feature of each sane, adult human being. Those who are generally not constituted as agentic, such as women, children, natives [...], and the insane are, by definition within that model, not fully human" (Davies 2000: 55). Those who are not considered fully human are correspondingly denied the capacity for changing their own lives. Rather, such a definition of agency entails that certain individuals who do not qualify to be endowed with agency are constituted as *passive*. Historically, those constituted as passive within the Modern episteme have been prevented from participating in activities that, by definition, are within the purview of Man. The exclusion of certain human beings from agency denies them the full participation within Modern social systems; they are defined as less than human. Therefore, the consequences of a Modern, exclusionary definition of agency are great. The constitution of Man within a series of binary oppositions thus demonstrates the insufficiencies of Modern notions of agency. Because certain individuals are constituted as passive, and *by definition*, are prevented from acquiring agency, such a notion of agency is only applicable to a limited number of humans.

Although Foucault did not become interested in understanding power relations until his later, genealogical texts, the denial of agential capacities to certain human individuals, as well as nonhumans and environments, illustrates that knowledge functions as a practice of exclusion within the Modern episteme. Despite the fact that Foucault was not explicitly concerned with relations of power in his early texts, they all "address the practices of exclusion that constitute the discourse that will bear the honourific 'science'" (Flynn 2005: 32). In the Modern episteme, Man was constituted as an agent with the capacity to understand 'himself' as a natural being and with the ability to study the laws of Nature that confine 'him'. Because Man was able to establish a series of knowledges that purportedly make

Nature intelligible and transparent, nonhumans were constituted as mere objects of study. Thus, the category of Man serves to exclude nonhumans and environments — and certain humans — that do not fulfill the criteria, established by the human sciences, from being endowed with agential capacities. It is in this sense that I argue, relations of power are embedded within the knowledges and systems of thought through which the Modern episteme emerged, as evidenced by the exclusionary practices of those knowledges.

In his later, genealogical texts, Foucault denoted the link between power and knowledge as power/knowledge. In expressing this relationship by writing power *slash* knowledge, or power/ knowledge, Foucault highlighted the fact that knowledge and power mutually produce each other — they cannot be unlinked. Foucault (1997a) argued that:

> No knowledge is formed without a system of communication, registration, accumulation, and displacement that is in itself a form of power. No power, on the other hand, is exercised without the extraction, appropriation, distribution, or restraint of a knowledge. At this level there is not knowledge [...] on the one side and society on the other, or science and the state, but the basic forms of "power-knowledge" (17).

The expression power/knowledge indicates the connections that adhere between power and knowledge; knowledge does not exist without being embedded within relations of power and power is practiced through systems of knowledge. Within the Modern episteme the human sciences are both formed *within* relations of power and are also implicated in the *production* of power relations.

While the expression power/knowledge is characteristic of Foucault's later texts, it is evident that his insight that power and knowledge are indistinguishable is indicative of the knowledge and relations of power that he described within his early examinations of the Modern episteme. In fact, Foucault (2000b) retrospectively argued that in these early texts he "had been doing nothing except trying to retrace how a certain number of institutions, beginning to function on behalf of reason and normality, had brought their power to bear on groups of individuals, […]. I had done nothing else, really, but a history of power" (283). If Foucault's early texts trace the history of power throughout the Modern episteme, then what they have exposed is an exclusionary power relation that, through the human sciences, constituted Modern Man as a limited entity. The consequences of the emergence of Man has been the organization of humans, nonhumans and environments within a series of binary oppositions that order individuals according to their ability to access the knowledges generated by the human sciences. While Man was constituted as a subject with the ability to study the laws of Nature, those nonhumans, environments and other humans who serve as the object of study are constituted as being without agential capacities.

Foucault wanted to disprove the myth "that there is an antinomy between knowledge and power. If there is knowledge, it must renounce power. Where knowledge and science are found in their pure truth, there can no longer be any political power" (Foucault 2000d: 32). Knowledge and power are supposed, by this myth, to be in conflict because true knowledge is alleged to occur *only* where it is free from the biased and dominating effects of power. Foucault's formulation of power/knowledge functions in direct opposition to conventional formulations of knowledge and power. Power and knowledge are conventionally viewed as distinct because, were power to infiltrate knowledge, it would no longer be objective. But Foucault disputes the myth that knowledge and power are antithetical. Power and knowledge are not distinct because they are part of the same processes. As Foucault demonstrated, Man emerged as a result of Modern knowledges that also served to limit who was defined as fully human and who had *access* to those knowledges. Thus, instead of separating power and knowledge, Foucault (1980c) argued that the "political question, [...] is truth itself" (133). Indeed, truth and knowledge — because they are embedded within relations of power — are important to the aims of this thesis. In order to supersede the limitations that Modern notions of agency impose, it is necessary to recognize that those limits are a function of power relations. Such a recognition is necessary because it acknowledges that the limits entailed within Modern notions of agency are not integral to agency itself, but are a function of its historical conditions of emergence.

In *The Archaeology of Knowledge*, an early text, Foucault (1972) argued that; "the property of discourse — in the sense of the right to speak, ability to understand, licit and immediate access to the corpus of already formulated statements, and the capacity to invest this discourse in decisions, institutions, or practices — is in fact confined (sometimes with the addition of legal sanctions) to a particular group of individuals" (75-6). A recognition of power and knowledge are evident in this characterization of discourse because, as Foucault makes explicit, discourse serves to limit an individual's ability to access knowledge. This limitation is evidence of a power relation that is inherent *within* knowledge; power and knowledge structure the organization of individuals so that only certain individuals are given "immediate access to the corpus of already formulated statements". In Foucault's early, archaeological, texts, he took these 'statements' to be the substance of his research. What qualified as an object of study for Foucault were those statements issued by individuals who are *authorized* to speak. Thus, statements exist within a series of power relations that either deny or allow individuals to access knowledge and, as a result, the ability to access knowledge serves to regulate whether or not an individual is endowed with agency.

Redefining statements as 'speech acts', Herbert Dreyfus and Paul Rabinow (1983) point out that Foucault was interested in "*serious speech acts*" (48) and agree that he was "not concerned with *everyday* speech acts" (47). Serious speech acts are thus those statements that Foucault identified as being issued by an individual who is *authorized* to speak. However, Dreyfus and Rabinow argue that: "Any speech act can be serious if one sets up the necessary validation procedures, community of experts and so on" (48). In other words, the very ability to issue authoritative statements is contingent upon the power relations and knowledges that *define* it as such. The significance of understanding that the authority to make statements within the Modern episteme is limited to certain individuals, is that it further elucidates the exclusionary practices enforced through Modern systems of power and knowledge. If the ability to speak, *and to be taken seriously*, is equated with Modern notions of agency that view individuals as endowed (or not) with the capacity to act, then Foucault's acknowledgement that not all individuals are granted the authority to make statements is indicative of the exclusionary practices characteristic of the Modern episteme. Those individuals with access to the knowledges generated by the human sciences and granted with the authority to make statements, are those who are characterized as agents. Any individual, whether human or nonhuman, excluded from systems of knowledge is *not* constituted as an agent.

Agency thus functions according to a series of binary oppositions within the Modern episteme. Those who know and speak can act, those who are studied and silent cannot. In this sense, the distinction between subject and object is displayed as a fundamental distinction that functions within the Modern episteme. A Modern notion of exclusionary agency is premised on this distinction because agents are considered as subjects whereas those who are excluded from agency are considered merely as objects. However, this distinction between subject and object — as I have already pointed out — serves as the basis for Foucault's critique of the Modern episteme. Foucault's argument is that this distinction between subject and object actually masks the fact that Man is *both* subject and object. Moreover, it is necessary for Man's emergence for Man to be constituted as both subject and object because the knowledges generated by the human sciences (which objectify humans) are the necessary precondition for Man being constituted as the subject who knows and studies. In the following section, I will examine how Modern relations of power function to constitute humans as *both* subjects and objects in particular ways. And that, in doing so, continue to problematize Modern notions of agency that are premised on the *distinction* between subjects and objects.

The Anthropological Gaze

Implicated in Man's position as both subject and object is a complex notion of observation. In a way, this notion of observation epitomizes the means by which knowledge is acquired in the Modern episteme because it highlights the particular ways in which the relationships between subjects and objects are framed. The gaze, as Foucault described it, serves to constitute Man as both subject and object because the ability to observe an object is the purview of Man-as-a-subject while such acts of observation simultaneously generate the anthropological knowledges that constitute Man-as-an-object. The relationship between subject and object characteristic of the anthropological gaz, is such that it is embedded within Modern relations of power. These power relations, as I argued in the previous section, differentially constitute certain individuals as endowed with greater access to knowledge and endowed with more or less agency. In this sense, the anthropological gaze reinforces the assumption that subjects and objects are distinct. Such acts of observation situate knowledge within a series of power relations that determine, within the context of *each particular situation* who or what is objectified, and serve to underscore the dangers that are present within the Modern episteme. However, because Man is *both* subject and object means that such distinctions which reinforce Modern exclusionary power relations are more unstable than they might appear. Thus, I will argue that it is possible to rethink Modern notions of agency given that the exclusionary function on which they are premised — namely, the distinction between subjects and objects — is not as unwavering as it seems.

As I have already discussed, Modern medicine functioned as one of the anthropological knowledges that constituted Man as an *object* of knowledge. In particular, a recognition of Man's finitude generated the need to understand human anatomy and physiology in order to confront the limitations of Man's position as a natural being. Within Modern medicine, Man is observed and the human body is taken as an object of knowledge. Through the clinical examination of corpses, Man is objectified as a material object through the process of an autopsy. The corollary of Man's constitution as an object of medical knowledge is Man's position as the subject who gathers that knowledge. However, not all individuals are constituted as subjects within Modern medicine. Rather, as a form of specialized knowledge, medicine is not meant to be accessible to those other than certified doctors. Foucault (1973) argued that obtaining knowledge within "clinical medicine, does not mean placing the hidden or invisible within reach of those who have no direct access to them; what it means is to give speech to that which everyone sees without seeing — a speech that can be understood only by those initiated into true speech" (141). In other words, medical knowledges are created and maintained through the participation of learned professionals. Within the medical profession there is an exclusion of the uninitiated from the medical knowledge that perpetuates the discipline. The practice of

observing patients and medical symptoms is only permitted by qualified professionals. While some individuals are constituted as subjects able to gaze upon objects and situate them within a system of knowledges, other individuals are objectified by those knowledges.

Medical discourses reveal that not all individuals are constituted as subjects within the knowledges of the Modern episteme. Rather, the observation of patients by doctors indicates the constitution of fundamentally hierarchical relationships between individuals. Furthermore, doctors' authority and status reaches far beyond the bounds of physiological-clinical spaces and touches upon the social spaces in which we live. The penetrating medical observations of doctors are not restricted to the act of seeing human bodies; "medical space can coincide with social space, or, rather, traverse it and penetrate it. One began to conceive of a generalized presence of doctors whose intersecting gazes form a network and exercise at every point in space [...] a constant, mobile, differentiated supervision" (Foucault 1973: 35). The medical gaze inserts itself into social spaces so that it comes to supervise the health of entire populations. Medical discourse came to intersect with entire populations because it was the duty of doctors to engineer the health of entire nations. Medical knowledge concerning birth and death statistics, housing, and city planning came to play an increasing role in everyday life. Thus, the implication of Man's simultaneous emergence as *both* subject and object is that the distribution of subjectivity and objectivity is constrained by Modern relations of power. What is meant by this is that Modern systems of thought and relations of power rely on the assumed distinction between subjects and objects to deny certain individuals authority.

Another example that details the hierarchical constitution of Man within Modern relations of power are those relationships that occur between psychiatrists and their 'mad' patients. In this particular example, the power relationships between psychiatrists and their patients are hierarchical because psychiatrists are positioned as the *observers* of madness. The status of the psychiatrist who has access to knowledge, is fundamentally different to that of the patient; the psychiatrist "becomes the essential figure of the asylum" (Foucault 1965: 270). By organizing subjects in such a way, practices concerning mental health create a set of hierarchical relationships that are reinforced through discursive practices and the distribution of knowledges. Mad subjects are objects of themselves, gazing upon themselves vicariously with the aid of the psychologist's gaze, illustrating in horrendous detail the Modern predicament of being both subject and object of knowledge. Madness "became responsible for what it knew of its truth, it imprisoned itself in an infinitely self-referring observation; it was finally chained to the humiliation of being its own object" (265). Modern psychiatry, by ordering individuals hierarchically, demonstrates Foucault's assertion that power and knowledge are fundamentally

inseparable. Not all individuals have access to psychiatric knowledges and so those without access are constituted as without authority.

It is only through the doctor's authority that the mad are cured and able to gaze upon themselves, to objectify themselves, and in the process, to arrive at a positive knowledge of their own subjectivity. Therefore, it is under the supervised observation of the psychiatrist that the mad constitute *themselves* as both subject and object. While Modern medicine constituted Man as a subject through the observation of the human body as an object, psychiatry relies on the individual patient to occupy the positions of both subject and object. According to Foucault (1965), "the madman became an object of punishment always vulnerable to himself and to the Other; and, from the acknowledgment of his status as object, from the awareness of his guilt, the madman was to return to his awareness of himself as a free and responsible subject, and consequently to reason" (247). In other words, the knowledges of psychiatry force patients to recognize *their own* objectivity and, eventually, by conforming to psychiatric knowledges, to constitute themselves as sane and healthy subjects. Thus, it is the patient's position as an object that leads to mad individual to constitute themselves as a subject. In this sense, Modern exclusionary notions of agency are contested because the presence of both subjectivity and objectivity in the constitution of Man and of particular individual subjects demonstrates that it is impossible to separate the two aspects of Man's emergence. Indeed, the fact that subjectivity and objectivity are coextensive means that agency must be conceived as something *other than* the attribute of human subjects.

The doubling of Man's position as both subject and object allows us to reflect on Man's relationships to Nature. The disciplines that are collected under the human sciences allow Man to *understand* the laws of those disciplines, including the 'laws of Nature', while at the same time recognize that Man must submit to those laws. The recognition that Man is both subject and object complicates the constitution of Nature as essentially non-agential. Indeed, it is my argument that Modern notions of agency are inadequate to the task of theorizing agency within a world that includes a multiplicity of actors that are human, nonhuman and environmental. Because Modern notions of agency are dependent upon a subject to which they are attached, when the very possibility of a pure and uncomplicated subjectivity is questioned, then Modern notions of agency likewise lose the subject to which they attach. Because Modern notions of agency are contingent upon the existence of an entity, they utterly vanish when there is no entity that meets their qualifications of subjectivity. Just as Modern notions of agency inadequately theorize the possibilities of agential nonhumans and environments, they are likewise unable to theorize human agency once Man is acknowledged to be

both subject and object. Thus, new theorizations of agency are necessary. Acknowledging Foucault's recognition that no system of thought will ever last indefinitely, in the following section I examine Foucault's notion of a nonlinear history in order to point out that new theorizations of agency *are possible*.

<u>Nonlinear Epistemic Shifts</u>

Within the Modern episteme, history is viewed as linear and progressive. The notion of a linear, teleological history is a necessary component of the emergence of the disciplines of biology and economics. The recognition of humans as natural, *finite* beings plagued by death ushered in a concern with the progression of human history. Foucault (1970b) argued that "from the outset the living being is conceived of in terms of the conditions that enable it to have a history" because history "constitutes a sort of fundamental mode of being" (300). Because Modern Man is constituted as a living being confronted with the prospect of death, Man acquired a historical, temporal dimension. Faced with finitude, Modern anthropologized knowledges initiated a notion of history that constituted Man at the centre of all progress. By holding out the possibility of continual progression and improvement, Modern knowledges constituted history as a response to death. Thus, the notion that history is linear, progressive and continuous is an effect of the Modern disciplines out of which those very ideas arose. Locating the emergence of a linear history within contingent circumstances, Foucault exposed the notion of historical progress as contingent upon the emergence of the Modern episteme.

Through his examination of epistemic shifts Foucault (1970b) wanted "to bring to light [...] the epistemological field, the *episteme* in which knowledge, [...], grounds its positivity and thereby manifests a history which is not that of its growing perfection, but rather that of its preconditions of possibility" (xxiii-xxiv). In other words, Foucault's early archaeological texts were explicitly designed to counter the Modern notion of history as linear. Foucault's aim was to analyze how systems of thought emerge, not according to a natural progression, but through the contingent circumstances out of which new knowledges can emerge. According to Foucault, shifts between epistemes occur contingently, without teleology, and they occur jarringly, without progressing smoothly from one episteme to the next. These epistemic shifts are not linear, they occur randomly and unexpectedly; "these changes should be examined more closely, without being reduced, in the name of continuity, in either abruptness or scope" (xii). In other words, history is not characterized by continuity. Rather, historical shifts occur abruptly; history is nonlinear.

History is not only nonlinear because it appears to shift abruptly, it is also nonlinear because at any given moment in time there are always multiple directions that it might take; any "discursive

formation does not occupy therefore all the possible volume that is opened up to it [...]; it is essentially incomplete, owing to the system of formation of its strategic choices. Hence the fact that, taken up again, placed and interpreted in a new constellation, a given discursive formation may reveal new possibilities" (Foucault 1972: 75). The recognition that history is nonlinear means that there are always other possible directions available to be taken. Any given system of thought is always partial because it never fulfills all the possible options. Rather, the direction taken by any episteme represents only one plausible historical trajectory. In other words, not only are epistemic shifts contingent upon the conditions of possibility that enable them, but no specific emergence is ever a *necessary* outcome of those conditions. It is highly possible that, were the same conditions to arise again, an event *other than* the emergence of Man and Modernity would have occurred.

A nonlinear notion of history is not teleological because there are always a multiplicity of possible directions that history can take. Because nonlinear notions of history can never determine at the outset what changes might occur, it means that it is inherently difficult to predict the scenario that will likely succeed. Nonlinear epistemic shifts, however, do not mean that *all* change is infinitely possible. Rather, as Foucault's examinations of the Modern episteme make clear, possibilities are always embedded within systems of thought and power relations. Epistemic shifts are always contingent upon the relations of power from which they emerge. Foucault (1986c) argued that:

> we live in a world in which things have been said. These spoken words in reality are not, as people tend to think, a wind that passes without leaving a trace, but in fact, diverse as are the traces, they do remain. [...]. Thus spoken language, as a language that is already present, in one way or another determines what can be said afterward either independent of or within the general framework of language (179).

The possibilities for future epistemic shifts are constrained by the previous discourses, or systems of thought, that have come before. Although nonlinear histories are decidedly not teleological, they are constrained within discourses that include "frameworks of knowledge and power through which we comprehend (and constitute) the world around us" (Bleiker 2000: 11). In other words, nonlinearity is not synonymous with the notion that *anything* is possible. Rather, the recognition of nonlinearity is a recognition that the future is unpredictable.

Because Foucault's descriptions of nonlinear epistemic shifts recognize that systems of thought are constrained by relations of power *and yet* also happen unpredictably, Modern notions of agency are undermined. Implicit within Modern notions of agency that take Man to be the central governing force of history, is that humans are necessarily the originators of any historical emergence. For example, "models of agency put forward by the civil rights, New Left, and women's liberation movements of the

1960s expanded the humanist-Marxist notion of working-class agency in history. These movements believed that they, too, could act as agents of history by making change" (Messer-Davidow 1995: 28). However, Foucault refused to identify any particular human agent, or agents, as the cause of epistemic shifts. Confronted with nonlinearity, Modern notions of agency have no response except to view agency within such systems as utterly absent. But, "nonlinear means that small changes in system variables can have disproportionate outcomes [...] interactions [...] produce the nonlinearities that make the social world a world of surprises" (Eve *et al*. cited in Jenks and Smith 2006: 4-5). In order to theorize agency within nonlinear systems it is necessary to account for ways in which tiny variables, constrained by relations of power, can generate disproportionate change. Thus, change and agency are not absent within nonlinear systems of thought — but they must be theorized as both constrained and unpredictable.

The move from a linear history centred on the primacy of Man, to a nonlinear and unpredictable history constrained by relations of power, does not suggest that humans are denied the possibility of ever changing history. Rather, Foucault (1972) himself was explicit about the possibility of change; he stated that "I have not denied — far from it — the possibility of changing discourse; I have deprived the sovereignty of the subject of the exclusive and instantaneous right to it" (230). While Foucault does not deny the possibility of change, he does deny that *Man* is the central figure in instigating that change. In short, Foucault's recognition of nonlinear shifts explicitly critiques Modern notions of agency. Because Foucault's notion of nonlinear epistemic shifts denies that human subjects have the exclusive ability to generate change, Modern notions of human agency and subjectivity are problematized. In this sense, agency can no longer be viewed as characteristic solely of subjects — or humans. By locating the emergence of Man within a particular historical framework, Foucault refused to identify Man as an ontological *a priori*, but argued that Man exists *only within* a set of contingent relations of power. In other words, Modern Man is refigured as a relational being rather than as an autonomous being endowed with agential capacities. Through Foucault's epistemic investigations, the "sovereignty of the subject" to initiate change is challenged and is replaced, not with a determinism or a nihilism, but with an opportunity to destabilize the central position that Man has held within knowledge, power and agency throughout the Modern episteme.

Robert Markley (1999) argues that the very recognition of nonlinear epistemic shifts leads to the possibility of destabilizing Modern thought. For Markley, Foucault's understanding that from within any episteme there emerges shifts in what is thinkable, "does not lead to epistemic determinism", but instead leads to the possibility of a radical critique of what has become accepted as thinkable (158). By

recognizing that epistemes necessarily shift, Markley argues that Foucault's analyses have opened up the space for other possibilities in what is thinkable. In other words, by pointing out the contingency of the knowledges, discourses and relations of power that emerged within the Modern episteme, Foucault began to carve out spaces for possible future shifts. By showing that history does not necessarily chart a path towards 'progress', Foucault's investigation of epistemic shifts "radicalizes our sense of the contingency of our dearest biases and most accepted necessities, thereby opening up a space for change" (Flynn 2005: 33). The very practice of thinking through what is thinkable allows us to confront our epistemic limits and recognize within them a contingency that implies that they are necessarily *unstable*. By acknowledging that Man is an arbitrary historical development, there are spaces opened up for possible redefinitions of Modern notions of agency that depend on Man's existence.

Emergent Notions of Agency

Modern notions are not the only possibility for theorizing agency. They are not transhistorical and are dependent upon a specific set of power relations associated with their historical emergence. By describing the contingent emergence of Man, Foucault's early texts contribute to dismantling historically and culturally specific notions of Modern agency. Throughout this thesis I argue that Modern notions of agency are insufficient for dealing with the implications of the recognition that humans are natural beings situated within ecological, material realities. Within the Modern episteme, the recognition that Man is a being within Nature merely served to reinforce a distinction between humans, nonhumans and environments. Furthermore, Modern thought placed Man at the centre of all knowledges and constituted Man as the sole possessor of agency — positioned in binary opposition to a Nature constituted as passive and, at best, in need of protection. With the anthropologization of knowledge, Modern systems of thought replaced God with the new category of Man at the centre of all thought, history and agency. A more properly secular notion of agency would, as Jenks and Smith (2006) point out, recognize that; "Even the most abstract human idea occurs in relation to terrestrial ecology" (26). To recognize that humans exist within material and discursive relationships with nonhumans and environments would be to remove Man (and by extension God) from a central theoretical position.

If contemporary notions of agency are to become truly secularized, they must account for the embeddedness of humans not only within relations of power, but within material and ecological relationships as well. Furthermore, such a notion of agency must reflect the agential capacities not only of humans, but of nonhumans and environments as well. Throughout the remainder of this thesis

I will discuss the notion of a *radical relational agency* as an alternative notion of agency to that constituted within the Modern episteme. I will argue that a radical relational agency accounts for the insufficiencies that are characteristic of Modern notions of agency because a radical relationality is contingent upon the recognition that humans exist within relations of power that are also ecologically constrained. In doing so, I suggest that a radical relational agency should *replace* Modern definitions of agency within contemporary environmental resistances. However, as the recognition of nonlinearity suggests, no specific change can ever be guaranteed — including any that I suggest within this thesis. Thus, like Foucault (1970b), any hints that I provide of future changes "are not affirmations; they are at most questions to which it is not possible to reply; they must be left in suspense" (421). Unlike Modern notions of agency that predict a linear trajectory and predictable achievement, a radical relational agency, cognizant of nonlinear shifts, recognizes that any political goals are never guaranteed to succeed.

Foucault (1970b) did argue that our ability to understand the episteme in which we exist (whether it be the Modern episteme or not) is compromised *because* we are limited to certain contingent possibilities in what is thinkable; "because we are still caught inside it, [it] is largely beyond our comprehension" (239). But, although Foucault argued that we are currently existing within the Modern episteme, or that the Modern episteme lasted at least until the publication of his texts, it is my contention that the instability of Modern systems of thought necessarily contribute to the emergence of future epistemes. Crucial to my argument is the recognition that Modern notions of thought will not last indefinitely, in part, because Foucault's own examinations endeavoured to destabilize the centrality of Man within contemporary thought.[6] Indeed, Foucault himself did not deny that "we [could] see the emergence of what may perhaps be the space of contemporary thought" (286). However, where Foucault foresaw the death of Man prefigured in Nietzsche's thought where it "marks the threshold beyond which contemporary philosophy can begin again", I look forward to a radical relational agency that acknowledges the agential relationships between humans, nonhumans and environments (373). I am not suggesting that a radical relational agency is a foregone conclusion, but that it exists as one potential emergence. Throughout the remainder of this thesis I suggest that the break up of the Modern episteme is, nonetheless, signalled by a potential shift in which humans are recognized as being embedded within ecological relationships and ecological limits.

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[6] In subsequent chapters I will discuss in greater detail the emergence of a radical relational agency as an alternative to Modern humanist thought.

Foucault's analyses of the Modern episteme provide the legitimation for a critique of Modern notions of agency because they demonstrate that such notions of agency are inadequate to situating humans within material, ecological relations and within relations of power. However, Foucault's own descriptions do not *explicitly* acknowledge that humans exist in power relations with nonhumans and environments. The recognition that humans are embedded within material and ecological relations of power is not an effect of Foucault's own analyses, but occurs because Foucault acknowledged that humans exist within a series of *relations*. Foucault (1998a) argued that "we do not live in a kind of void within which individuals and things might be located [...], we live inside an ensemble of relations that define emplacements that are irreducible to each other and absolutely nonsuperposable" (178). Thus, Foucault's recognition of a relationality implied that human isolation from nonhumans and environments is impossible. Although Foucault was not explicitly interested in the environment, his analysis of the Modern episteme implies an awareness of the fact that humans are not isolated from the nonhuman spaces in which they live.

The Modern episteme, however, obscures the relationality between humans, nonhumans and environments because Man was constituted as a binary category that was defined in direct opposition to Nature. Recall that Man's emergence was defined in relation to a Nature that was viewed as both treacherous (because it meant that Man, as a natural being, was finite) and passive. By defining Nature in this way, the Modern episteme facilitated the impression that humans are separate from nonhumans and the environment. In doing so, the Modern episteme generated a series of knowledges that define the relationships between humans, nonhumans and environments. However, such understandings of Man and Nature are embedded within power relations. The environment:

> must not be understood as the naturally given sphere of ecological processes which human powers try to keep under control, nor should it be viewed as a mysterious domain of obscure terrestrial events which human knowledge works to explain. Instead, it emerges as a historical artifact that is openly constructed, [...]. In this great network, the simulation of spaces, the intensification of resources, the incitement of discoveries, the formation of special knowledges, the strengthening of controls, and the provocation of resistances can all be linked to one another (Luke 1999: 67).

The possibility for rethinking the relationships between humans, nonhumans and environments exists because such characterizations of Nature as passive are contingent upon the relations of power particular to the Modern episteme.

In rethinking the relationships between humans, nonhumans and environments in terms of agential practices, a radical relational agency recognizes not only that humans are embedded within

ecological materialities, but that humans necessarily *participate* in relations of power with nonhumans. Thus, a radical relational agency is contingent upon theorizations that situate humans within relational spaces and explicitly recognize the participation of nonhumans and environments. The necessity of rethinking Modern notions of agency within a relational framework is, in part, to address the practices of exclusion that underscore Modern systems of thought. Throughout the Modern episteme, Western thought constituted the relationship between Man and Nature as fundamentally antagonistic. The effect that such antagonism had on Modern notions of agency is the denial of agency to nonhumans, environments and to those humans that were constituted as not *fully* capable of being included within the category of Man. From this we can ascertain that there are exclusions, hierarchies and violence hidden within Modern definitions of agency. A radical relational agency is not exclusionary precisely because it recognizes that humans exist in overlapping relationships with nonhumans and environments.

In the next chapter I examine Foucault's later, genealogical, texts in which he develops his notion of power. Within these texts, Foucault's "object of analysis is not power itself, but power relations" (Bleiker 2000: 128). Foucault's insistence that power is a *relation* rather than a possession of individual entities serves as the basis for my insistence on theorizing a *relational* agency. My argument is that, because power is a relation it generates a correlative notion of relational agency. A relational notion of agency, derived from Foucault's examination of power relations, because it argues that *every* relationship entails agential practices does not, however, ignore the correlative recognition that power is embedded within any relationship. Indeed, Foucault's insistence on the omnipresence of power relations recognizes that power often functions as a limitation on relationships. Furthermore, within his genealogical texts Foucault describes the risks associated with the relations of power within the Modern episteme. But, rather than characterizing the power relations of the Modern episteme as an insurmountable totality, I will argue that recognizing the dangers that they present is both inherent within a notion of radical relational agency and serves as a reminder to rethink the use of Modern, exclusionary notions of agency.

CHAPTER TWO

Omnipresent Relations of Power and Agency

In the previous chapter, I argued that Modern notions of agency are contingent on the emergence of Man as a *living human being,* constituted in opposition to a passive Nature. I argued that Modern notions of agency are fundamentally binary and, because of their binary distribution, function to *exclude* certain humans, as well as nonhumans and environments, from possessing agential capacities. Modern notions of agency are not only insufficient to the task of acknowledging that humans exist within material, ecological environments, but because their binary construction serves to limit access to agency, they also reinforce Modern power relations that have legitimized the discrimination of those who are constituted as non-agential. Although Foucault was not explicitly interested in Modern notions of agency or the agency of nonhumans and environments, I argued that his critique of Man and the Modern episteme are useful for destabilizing Modern notions of agency and creating space for theorizing a radical relational agency. While the previous chapter examined how binary notions of agency are contingent upon the knowledges of the Modern episteme, this chapter examines how Foucault's notion of a constituted subjectivity functions as a critique of Modern *a priori* notions of agency. This chapter also moves beyond a critique of Modern notions of agency and suggests that implicit within Foucault's notion of power relations is a correlative notion of relational agency.

In the previous chapter I argued that the hierarchical distribution of the relationships between humans, nonhumans and environments indicates that power relations function *through* Modern knowledges and the human sciences. Yet, Foucault did not develop an understanding of power until his later texts. In these later, genealogical texts, Foucault explicitly argued that relations of power are omnipresent and all-encompassing — to the extent that there is nowhere that is outside power relations. Indeed, as I have already pointed out, Foucault (1978) put it succinctly: "Power is everywhere" (93). One of the consequences of power's omnipresence, and its particular relevance to definitions of agency, is the recognition that Modern individualized subjectivities and identities are constituted through relations of power. The ramification of Foucault's argument that the subject is constituted within power relations, is that it explicitly denies the possibility of an *a priori* agency. Indeed, the constitutedness of subjectivity means that any characteristic of humans, or of individual humans, is necessarily *an effect* of the ways in which we have been constituted. Which is to say that there are no *a*

priori characteristics, including no *a priori* agency. Thus, the assumption that agency is embedded within individual subjects is itself a result of how Modern subjectivity is constituted.

As well as arguing that humans are constituted as *individuated* subjects through Modern relations of power, Foucault also argued that the material functions of the human body are constituted within power relations. In his genealogical texts, Foucault described a Modern notion of biopower that orders the *material realities* of human bodies to the extent that our physical existence is constituted in ways that are beneficial to capitalist states. Thus, a biopolitics serves to produce subjects and materialities in ways that ensure the proper functioning of capitalist economic processes. The importance of the recognition that material realities are constituted through power relations is that it applies not only to human bodies, but to the materiality of nonhumans and environments. Indeed, Foucault argued that relations of power are implicated not only in the formation of knowledge and systems of thought, but also within architectural arrangements and spatial orderings. In this sense, power functions *within* material objects. As I have already suggested, Foucault was not explicitly concerned within the constitution of nonhumans and environments, but I argue that he latently acknowledged that humans exist within ecological systems.

Foucault's notion of biopower, which signals the extension of his argument to include nonhumans and environments, will become increasingly important throughout this thesis because it signposts the spread of power relations beyond the purview of Modern anthropologized thought. In this sense, biopolitical power relations function not only to constitute humans, but also nonhumans and environments as well. This recognition is particularly significant for understanding contemporary environmental resistances because it places them at the juncture of power and knowledge, which *includes* the continued extension of human biopolitical production of nonhumans and environments. What is meant by this is, and as I will argue throughout this chapter, just as Modern knowledge and systems of thought were increasingly anthropologized contemporary systems of thought are also being *environmentalized* to the extent that nonhumans and environments are increasingly managed and order by contemporary discourses and power relations. The recognition that there is an increasing environmentalization of knowledge has two effects; first is the recognition that there are risks associated with contemporary environmental resistances that need to be addressed by environmental activists. In terms of Modern notions of agency, the recognition that knowledge is no longer simply anthropological further destabilizes those notions of agency which are assumed to be *only* human and, as I shall argue, it opens up a space for redefining agency as relational. In short, I will argue that the

move from an anthropologization of knowledge to an *environmentalization* of knowledge creates both opportunities and further risks.

Foucault's genealogical analyses of the constitutedness of subjects demonstrate that there is no escape from omnipresent relations of power and, therefore, they are often denounced as undeniably pessimistic. In this sense, the recognition that power is all-encompassing seems to deny that there is any space left for agency. However, Foucault did not explicitly deny the existence of agency. Rather, he argued that the omnipresence of power entails profound risk because *no action or resistance is ever guaranteed* to succeed. Because power relations can always be overturned, it is possible that any one action can have multiple effects — both beneficial and detrimental. Thus, recognizing that a relation of power can always be overturned again exposes both the limitations and the *possibilities* inherent to omnipresent power relations. It is in this sense that I argue a relational power implies a correlative notion of relational agency. Throughout this chapter I will argue that the relationality of power and its inherent changeability means that a relational agency is correspondingly omnipresent. However, I argue that there are limitations within Foucault's thought because, while his notion of relationality implies a radical relational agency, he does not explicitly acknowledge that nonhumans and environments are *necessarily* agents when viewed within a relational framework.

The Constitution of Subjects within Power Relations

In his early texts, Foucault stressed that the notion of 'Man', as a philosophical concept, is a historical emergence contingent upon the formation of the human sciences. In his later, genealogical texts, Foucault examined how subjects are constituted through relations of power. Foucault's argument that subjects are constituted through power relations is explicitly positioned against the assumption that any putatively 'human' characteristic exists as a result of an innate humanity. Foucault (2000d) argued that such a belief:

> exhibits a very serious defect — basically, that of assuming that the human subject, the subject of knowledge, and forms of knowledge themselves are somehow given beforehand and definitively, and that economic, social, and political conditions of existence are merely laid or imprinted on this definitely given subject. [Foucault's] aim [was] to show [...] how social practices may engender domains of knowledge that not only bring new objects, new concepts, and new techniques to light, but also give rise to totally new forms of subjects and subjects of knowledge (1-2).

Power relations therefore do not order and organize an already existing subject. Rather, those acts of ordering and organizing *create* subjects. In other words, the emergence of Man in the Modern

episteme not only engendered a new way of thinking about human beings, but its attendant forms of knowledge and relations of power *produce* human subjectivity in particular ways.

Although power is often conceived as an undeniably oppressive force, Foucault (1983b) argued that there are actually *two* meanings of the word subject; "subject to someone else by control and dependence, and tied to his own identity by a conscience or self-knowledge. Both meanings suggest a form of power which subjugates and makes subject to" (212). These definitions of subjectivity both highlight the fact that power relations are integral to subjectivity. It is the first meaning, however, that is most often designated as concerning relations of power; those who are subject to the control of others are easily identified as subjugated. Foucault, on the other hand, is concerned primarily with how we are subject to *our own identities*. Because humans are constituted as individual subjects within Modern relations of power, it is a form of subjugation that subjects us to our own identities. In other words, Foucault argued that the constitution of subjects through relations of power is a form of subjection *because* it demands that subjects are constituted in particular, individual ways. Yet, integral to this form of subjection, is that individuals *constitute themselves* as the particular kinds of individuals that are productive members of society. This constitution of subjects as individuals with unique identities is, however, a form of subjugation that is peculiar to the Modern episteme.

Foucault (1983b) argued that Modern power relations are characterized by a "matrix of *individualization*, or a new form of pastoral power" (215 emphasis mine). Modern techniques of pastoral power individualize because they produce subjects that are arranged according to their individual characteristics and then organized hierarchically; such subjects are more easily governable. Although pastoral power is a pre-Modern technique of Christianity, it has "spread out into the social body" and "found support in a multitude of institutions" even as knowledge was increasingly secularized and anthropologized. Because these techniques are dispersed throughout all social institutions they affect all individuals and they are successful precisely because they *produce* identities rather than overtly oppress individuals. In this sense, recognizing that subjects are subjected through their own identities rather than subjected to an external power demonstrates our complicity within Modern power relations — and likewise how dispersed those power relations really are. Foucault (1983b) argued that power "is individualizing [...]; it is coextensive and continuous with life; it is linked with a production of truth — the truth of the individual himself" (214). Because an individualizing power exhorts us to produce our individual truths, it subjects us and ties us to our identities. Thus, it is a power that *works best* at the individual level because — at the individual level — it functions to produce subjects that are beneficial to capitalist states.

The form of subjugation, peculiar to the Modern episteme — that compels humans to constitute ourselves as *individuals* — subjects us to our own identities because it means that we must behave in accordance with the 'truth' of who we are as individuals. In this sense, Foucault (1978) identified *sexuality* as the ultimate truth of individuality in the Modern episteme because, at the end of the eighteenth century, sexuality "became the stamp of individuality" (146). In the Modern episteme, power relations compel us to 'confess' the truths of our identities. A once religious imperative, now adopted by a secularized pastoral power, we no longer confess to priests but we nonetheless 'confess' our truths because those confessions produce our identities. Confessions speak the truth of individual sexualities; "it is up to sex to tell us our truth, since sex is what holds it in darkness" (77). Sex is a secret that sustains individual identities, hidden from view until confession exposes it. By confessing our deepest sexual truths, we produce ourselves and subject ourselves to our own individual identities. Thus, within the Modern episteme, subjects are governed by producing discursive 'truths' rather than by direct domination. By producing our own truths, we are subject to our own self-knowledge. Because Modern power relations function through our own individual truths, Foucault effectively situates human subjects within a seemingly inescapable situation. If the truth of *who we really are* is produced within relations of power, then power is truly inescapable.

Individual identities are not produced without a whole series of attendant knowledges that necessarily limit and constrain those identities. Foucault (1978) argued that "one does not confess without the presence (or virtual presence) of a partner who is not simply the interlocutor but the authority who requires the confession, prescribes and appreciates it, and intervenes in order to judge, punish, forgive, console, and reconcile" (61-62). A judge must complete the confession and determine whether a subject conforms to the norms of identity set out by Modern scientific knowledges. Foucault argued that this "hermeneutic function" is necessary because individual truths must be interpreted through the knowledges generated by the human sciences (67). Individual truths must be filtered through scientific knowledges because it is, precisely, an expert judgement that determines how subjects are ranked. According to Foucault, there is "a latency essential to sexuality [that] made it possible to link the forcing of a difficult confession to a scientific practice" (66). The linking of sexuality to the truth of human identity precipitated the emergence of entire scientific disciplines dedicated to its study. Sexuality became congruous with, and impossible without, the expert discourse of doctors, psychiatrists and psychoanalysts to interpret its 'scientific' meaning.

Subjects are constituted as individuals within the Modern episteme because it is a subjection that allows humans to be individually ordered, arranged and classified hierarchically. Individuality is

important because it differentiates and then ranks subjects because, through the scientific examination of sexuality, individuals are hierarchically arranged according to how closely they match up with identified norms. Thus, the human sciences determine whether an individual is 'natural' or normal:

> what came under scrutiny was the sexuality of children, mad men and women, and criminals; the sensuality of those who did not like the opposite sex [...]. It was time for all these figures, scarcely noticed in the past, to step forward and speak, to make the difficult confession of what they were [...]. Whence the setting apart of the "unnatural" as a specific dimension in the field of sexuality (Foucault 1978: 38-39).

The emergence of scientific knowledges that rank and order individual subjects is therefore a necessary component of the production of individualized subjects. The scientific knowledges, because they generate statistics and information, are required to set apart 'unnatural' identities and sexualities. It is precisely a scientific definition of 'unnaturalness' that individualizes subjects because it demands that subjects be differentiated by their failures to comply with scientific norms.

Foucault's examination of Modern relations of power reveals that those power relations compel us to constitute *ourselves* as individuals — tied to our own (sexual) truths — in conformity with scientific knowledges that then rank us according to how well our identities comply with those knowledges. Thus, Foucault argued that the particular aim of Modern power relations is to constitute us as individuals who are *subjected* to our own identities. Individualized identities are a means of subjection employed by the Modern episteme that entails a certain amount of conformity. The constitution of individualized identities makes us subject to those identities, in part, *because* they appear to emanate from within ourselves. The success of such subjectifying practices is that they also entail a series of scientific knowledges that arrange subjects in accordance with how well they conform to a predetermined set of characteristics and thus demonstrating Foucault's argument that power and knowledge are indivisible. Indeed, as Foucault has illustrated, the indivisibility of power and knowledge is essential to the production of individualized identities. As he argued, the truth of who we are is, in the Modern episteme, associated with a sexuality that is compelled to function in accordance with a scientific norm.

Studying the constitutedness of Modern subjectivity, Foucault's (1998b) intent was to "reverse the philosophical aim of proceeding upward to the constituent subject" and instead "[proceed] back down to the concrete practices by which the subject is constituted in a domain of knowledge" (462). Instead of discovering the characteristics of subjects prior to their entrance into relations of power, Foucault argued that Modern relations of power constitute individualized subjects with particular characteristics. As Foucault demonstrated, subjects are constituted by their practices, by knowledge;

subjects are constituted by what they do. Defining subjectivity, for Foucault, cannot entail that subjects exist prior to their entrance into power relations because subjectivity is only ever *the result* of multiple and diverse sets of relations and practices. This observation has a number of implications for my investigation of Modern notions of agency. First, Foucault's insistence on the constitution of individual subjects implies that any characteristic of humans is generated *through* relations of power and therefore demonstrates that Modern *a priori* notions of agency are necessarily *an effect of* the constitutedness of Modern, individualized subjects. Second, the hierarchical constitution of subjects according to scientific norms again illustrates that limits are placed on *the kinds of individuals* that can be constituted as agents.

Because Modern power relations function to produce subjects as individuals, their constitutedness serves to underscore a critique of Modern notions of agency. In the previous chapter, I argued that Modern notions of agency are contingent upon the emergence of Man as an epistemological category. Likewise, Modern notions of agency are dependent upon the constitution of subjects *as individuals*. While Man's emergence underscores the binary construction of Modern notions of agency, an individualized subjectivity highlights the Modern assumption that agency is an *a priori* characteristic of individual human subjects. Because Foucault's investigations of Modern power relations revealed that the notion of individualized, autonomous subjects is an effect of those relations of power, it serves as a critique of Modern conceptions of individualized agency. In other words, the very notion of an individual, autonomous agency is dependent upon the corresponding production of individualized subjects. Modern formulations of agency define it as a possession of autonomous subjects, but — as Foucault has illustrated — subjects cannot 'possess' anything because subjects are, themselves, the effects of a multiplicity of changing power relations. Subjects do not 'possess' power not only because power is not available to possess — it is, explicitly, a relation — but because subjects themselves are continually being constituted and re-constituted as an effect of those relations. Thus, if subjects seem to 'possess' agency, it is only an *effect* of the ways in which subjects have been constituted. However, as I have already suggested, because a relational agency is not a possession, it does not require a particular kind of subject to which it attaches. Rather, a relational agency is generated through the *relationships* between various individuals. Throughout the remainder of this chapter I will examine how this agency is generated. In the next section, I argue that Foucault's genealogical analyses of the constitution of materiality implies that nonhumans and environments are likewise participants within power relations. And, therefore, I argue that their participation within power relations similarly implies their participation within a relational agency.

<u>The Constitution of Materialities</u>

In his later texts, Foucault employed a genealogical analysis which aimed to examine the historical specificities of how power relations constitute individual subjects *and their material realities*. In order to understand a genealogical history, Foucault (1980c) argued that:

> One has to dispense with the constituent subject, to get rid of the subject itself, [...], to arrive at an analysis that can account for the constitution of the subject within a historical framework. And this is what I would call genealogy, that is, a form of history that can account for the constitution of knowledges, discourses, domains of objects, and so on (117).

Genealogy requires a historical approach that includes examinations of knowledges, subjects and power as well as objects and materialities. Though this approach is not dissimilar to the archaeological methodologies Foucault used in his early texts, it explicitly makes a link between knowledge, power and *materiality*. Foucault's genealogical texts inaugurate a more discernible interest in materiality because they recognize that the effects of power constitute not only individual subjectivities and identities but also physical bodies and objects. Foucault's genealogical interest in materiality is important not only because it acknowledges the material realities of human subjects, but because it implicitly recognizes the constitution of nonhuman and environmental materialities. It is in this sense that I argue his genealogical texts imply that nonhumans and environments are likewise participants within power relations.

Genealogy views history as a series of "discursive events" that are both immaterial and *material*:

> it is always at the level of the material that it takes effect, [...]. It is not the act or the property of a body; it is produced as an effect of, and within, a dispersion of matter. Let us say that the philosophy of the event should move in the at first sight paradoxical direction of a materialism of the incorporeal" (Foucault 1998e: 69).

Discourse is always implicated within the production of material realities because it organizes and orders materialities through relations of power. This recognition is paradoxical to Foucault because it means, in a sense, that discourse itself is *actually material*; which is to say that discourse and materiality are inseparable. Discourse is material according to Foucault because it always entails a system of thought and a series of knowledges that constitute material realities within relations of power. Thus, for example, the human sciences that constituted Man as a philosophical reality and as the subject of a whole series of anthropologized knowledges, also enacted particular orderings of the human body. Such a recognition is important because it underscores Foucault's argument that power and knowledge are inseparable. Foucault (1970a) argued that discourse entails "a violence which we do to things, or in any case as a practice which we impose upon them" (67). That power/knowledge

violently affects materiality indicates that such effects are not limited to the constitution of humans in particular but are spread throughout all relationships. And so, by pointing out the material effects of power and knowledge, Foucault's genealogical texts implicitly acknowledge the manifold effects that systems of thought have on nonhumans and environments.

Within the Modern episteme, human bodies are ordered and arranged through the biological, physiological and anatomical knowledges of the human sciences. In the previous chapter, I examined how knowledge of Man as a natural living being emerged within the Modern episteme as a result of the anthropologization of knowledge. This is important because, whereas the systems of thought within previous epistemes controlled subjects through the threat of death, the Modern episteme is concerned primarily with human *life*. This is significant because it underscores the means by which power relations and scientific knowledges are increasingly extending their reach beyond humans. In this sense, the concern for life signifies all life, not just human. In terms of humans in particular, sexuality remains crucial to the constitution of bodies because it provides the link between the discursive truths of individualized subjects and the utility of human populations. Interest in the productive and reproductive capacities of populations signals the accumulation of knowledges centred around the recognition that humans are a living *species*; "at the juncture of the 'body' and the 'population,' sex became a crucial target of a power organized around the management of life rather than the menace of death" (Foucault 1978: 147). Instead of threatening subjects with death, biological reproduction, health and utility are now managed through the human sciences because such management makes populations more productive. Thus, the threat of death is no longer necessary to engender a productive citizenry. Rather, the knowledges generated by the human sciences serve to manage the productivity of individuals and populations.

With this "entry of life into history", the Modern episteme could organize and classify both individual subjects and entire populations (141). In this sense, a *biopolitics* is central to generating economic productivity. To manage the biological and anatomical reproduction of humans as a species and as an entire population, the human sciences accumulated knowledges centred around the functioning of the human body and through the collection of statistical information by way of census data and other means. By collecting statistics and accumulating knowledge of a population, biopolitics creates a norm to which human bodies must comply; "A normalizing society is the historical outcome of a technology of power centred on life" (Foucault 1978: 144). Again, scientific knowledges generated by a biopolitical concern for life necessarily create a series of norms which produce bodies in particular ways. Because such knowledge is statistical, there will inevitably be those bodies and

populations that do not comply with biopolitical norms. By ordering bodies and populations according to their compliance with biopolitical norms, a means of ordering materialities hierarchically is established; Foucault argued that Modern biopolitical relations of power undoubtedly "acted as factors of segregation and social hierarchization, [...], guaranteeing relations of domination and effects of hegemony" (141). The hierarchical organization of bodies and populations according to biopolitical norms ensures that those segments of the population that are least productive are either returned to efficient production or excluded from economic production altogether.

The Modern state's concern for disease, population, reproduction, sexuality, life and death considers the human body "a machine" that is also representative of "the species body, the body imbued with the mechanics of life and serving as the basis of the biological processes" (Foucault 1978: 139). This mechanistic species body concerns governments because it underlies the economic implications of a useful population. Biopolitical concern for population demographics, a healthy workforce and the productivity of citizens helps states maintain the labour power necessary for their continuation. Foucault (1978) argued that capitalism would not have been possible had biopolitics not enabled "the controlled insertion of bodies into the machinery of production and adjustment of the phenomena of population to economic processes" (141). Thus, biopolitics not only reorganized discourses concerning life, it also facilitated the emergence of our current economic system. Capitalism is successful, in part, because the human sciences were able to successfully organize healthy and efficient bodies into a productive arrangement; "biological traits of a population become relevant factors for economic management, and it becomes necessary to organize around them an apparatus which will ensure not only their subjection but the constant increase of their utility" (Foucault 1980b: 172). By producing human bodies in ways that constitute them as economically useful, biopolitical relations of power ensure the continued functioning of capitalist economic relations.

As I have already argued, Modern relations of power rely on individual subjects to *produce themselves*, and the constitution of materialities is no different. Because biopolitical relations of power exhort individuals to produce themselves in conformity with the norms suitable to an efficient and productive population, Foucault argued that systems of judgement and observation are established to apply those norms throughout society. In the previous chapter, I analyzed Foucault's notion of an anthropological gaze which constituted individuals as *both* subject and object. Likewise, Foucault's descriptions of a biopolitical observation in his genealogical texts highlight the means by which observation and judgement exhort subjects to constitute themselves. For Foucault, the principal

example of observation and judgement is Jeremy Bentham's panopticon. Organized around a central observation tower, the panopticon is a prison that arranges human bodies in individual cells. From the central observation tower a guard gazes onto the prisoners, but is unseen by the inmates imprisoned within their individual cells. There are individualizing effects of the panoptic observation because the guard observes each prisoner individually and, in doing so, serves a function that makes it possible to enforce scientific norms and establish judgements; "surveillance makes it possible to qualify, to classify, and to punish" (Foucault 1977b: 184). A panoptic form of observation, above all, individualizes and organizes subjects according to their particular adherence to specific scientific norms.

The panopticon is the representative architecture of Modern forms of observation because its technologies of individualization, its creation of norms and systems of judgement have been dispersed throughout all of society. Foucault (1977b) argued that panopticism was "destined to spread throughout the social body; its vocation was to become a generalized function" (207). The reason that Modern relations of power are so effective at producing material subjects who are beneficial to capitalist societies is that such relations of power are not an overt form of physical domination. Biopolitical power relations function so effectively because *they are invisible*. This invisibility is made explicit by considering the design of the panopticon; within a panopticon it is impossible to know when, or by whom, the central observation tower is occupied because its inner room is invisible to the prisoners each within their own individual cells. Because prisoners are potentially observed at any given moment, they must constantly behave as if they are being observed. Such power relations are invisible because they have the effect that individuals are self-policing and judge *themselves* according to norms, while constituting their own subjectivities in accordance with those norms. Because individuals produce themselves, such a power is not oppressive in a straightforward top-down manner; it is not a power which "says 'you must not'" (Foucault 2007: 154). It is, precisely, *productive*. Biopower is, therefore, an invisible and productive power that exhorts individuals to police themselves and constitute their identities in accordance with scientific norms.

The forms of surveillance and judgement that exhort subjects to produce themselves are never confined to one particular location. According to Foucault, these power relations are always dispersed. Because power is not oppressive, but functions through the constitution of individual identities and materialities, it is not concentrated within any one individual or institution, but has spread throughout society. Foucault (1977b) argued that in our society, "judges of normality are everywhere. We are the society of the teacher-judge, the doctor-judge, the educator-judge, the 'social worker'-judge" (304).

While the prison is the most obvious example of a space in which forms of observation and judgement are put to work, it is not the only example. Hospitals, asylums, schools and other institutions are dispersed junctures of power/knowledge that likewise spread the norms and systems of judgement according to which individuals produce themselves. For example, as I pointed out in the previous chapter, Foucault argued that medical knowledge was spread out into the social body. A "surplus of power" was bestowed upon doctors because the knowledges generated by Modern medicine facilitated the management of healthy and productive populations (Foucault 1980b: 177). By observing populations and thereby generating statistical norms, biopolitical power relations are dispersed throughout society. Because the judges of biopolitical norms are everywhere, individual subjects are continually confronted with pressures to produce themselves in accordance with those norms.

The dispersal of biopolitical power relations means that, because they have spread out into the social body, they not only constitute human materialities, but nonhuman and environmental spatialities as well. The city, according to Foucault (1980b) "with its principal spatial variables appears as a medicalizable object" (175). This noso-political organization of space functions as both population control and urban planning. To maintain the continued health of the labour force, a form of biopolitical observation arranges both bodies and *nonhuman* spaces. The actual physical spaces of the urban landscape, including hospitals, schools, prisons and other institutions, are arranged according to those norms that generate productive and useful individuals and populations. In order to maintain the economic productivity and utility of entire populations, city spaces are organized to create the most efficient functions. As Edward Soja (1989) argues: "In Foucauldian terms, cities are the convergent sites of (social) space, knowledge, and power, the headquarters of societal modes of regulation" (235). In other words, just as the architecture of the panopticon entails a certain series of material relationships, so the spatiality of entire cities are embroiled within power relations. All of this is to say that biopolitical power relations not only produce human identities and materialities, but are implicated in the production of the very material spaces in which we live. Such a recognition is significant because it underscores the means by which biopolitical power relations are dispersed throughout *all* relationships between humans as well as nonhumans and environments.

The importance of linking biopolitical power relations, and the knowledges produced by the human sciences, with their *material effects* is that it establishes a relationship between power, knowledge *and materiality*. This linkage underscores the omnipresence of power relations; human bodies and populations as well as architecture and spatialities are constituted within relations of power. The norms and statistics generated by the biopolitics endemic within the human sciences have meant

that individuals are exhorted to produce themselves as productive bodies useful to capitalist economies. Such a relationship, between power, knowledge and materiality, thus demonstrates that the theorization of power/knowledge, discussed in the previous chapter, means that these discursive knowledges necessarily come to bear upon material realities. Foucault (1980a) argued that when biopolitics "takes hold on the body, this isn't through its having first to be interiorized in people's consciousnesses" (186). Biopolitical relations of power do not simply *interpret* bodies and spaces, but arrange the materialities themselves. In this sense, power and knowledge are coextensive with materiality, so that Foucault's arguments could be expanded and understood as power/knowledge/ materiality.

As I suggested at the beginning of this section, Foucault's notion of biopolitics implies that contemporary power relations and systems of thought have become increasingly concerned not only with humans, but with the management of nonhumans and environments as well. It is in this sense that I argue there is an increasing environmentalization of thought that extends — or perhaps eclipses — the anthropologization of knowledge. Indeed, as Foucault's genealogical texts suggest, nonhumans and environments are likewise produced within relations of power. Although Foucault did not explicitly acknowledge that nonhumans and environments are participants within relations of power, his recognition that nonhumans, spaces and environments are produced within biopolitical power relations demonstrates a latent validation that humans participate in relationships with nonhumans and environments. This recognition signals not only the dispersal of biopolitical power relations to include the production of nonhumans and environments, but a concomitant destabilization of Modern notions of agency which are premised on the constitution of nonhumans and environments as passive objects of study. In this sense, the implication that nonhumans and environments are *participants* within relations of power challenges the Modern assumption that nonhumans and environments are passive.

I argue that Modern notions of agency are destabilized not only by Foucault's insistence that human identities and materialities are produced within omnipresent power relations — and hence destabilize the notion that agency is an *a priori* characteristic — but are also destabilized by the implication that nonhumans and environments are embedded within biopolitical power relations. By recognizing the power relations between humans, nonhumans and environments, the centrality of Modern Man is contested. If nonhumans and environments are constituted as participants within power relations, rather than as a passive Nature that is distinct from Man, then the Modern assumption that agency is necessarily a possession of *human* subjects begins to falter. Thus, the implication that humans, nonhumans and environments exist as participants within power relations denies the Modern

assumption that only human subjects can be active agents. In the following section I will discuss in greater detail how nonhumans and environments are produced within biopolitical relations of power, with the intent of drawing out the tacit recognition that nonhumans and environments are *participants* within power relations.

The Biopolitical Production of Nonhumans and Environments

As I argued in the previous section, Foucault's recognition that materialities and urban spaces are constituted through Modern relations of power implies that nonhumans and environments are likewise constituted within power relations. Indeed, as the management of life, health, utility, economy and population, Foucault's notion of biopolitics also implicitly describes the management of nonhuman environments and natural resources. Environments are managed through biopolitical power relations, in part, because they are explicitly viewed as resources for economic gain. Just as capitalism constitutes human bodies as productive, nonhumans and environments are constituted as useful within capitalist relations of power. For example, the use and manipulation of resources including land, water, oil, timber, agriculture, shipping and transportation could be viewed as biopolitical interventions. While Foucault associates biopolitics with an extension of medical knowledges that concern the human body, biopolitics is also an extension of the scientific investigations of life that aims to increase the economic productivity of individuals and populations. The outcome of expanding such analyses is that any intervention at a biological level which aims to increase the economic efficiency and productivity is recognized as biopolitical. From the arrangement of farms to increase crop yields, to forest management, to the re-routing of waterways, to the development of oil rig technology, any involvement with life or environments are biopolitical practices that strive to increase the efficiency of capitalist production.

The consequence of acknowledging that nonhumans and environments are constituted within modern relations of power is that any intervention that involves *life* can be interpreted as biopolitical. Thus, the biopolitical concern for human life has become increasingly environmentalized and is now concerned with the productivity of nonhuman and environmental life. It is not only the capitalist concern for increasing the economic productivity of nonhumans and environments that is implicated in the spread of biopower, but also environmental assertions of sustainability. Timothy Luke (1995) argues that; "Sustainability, like sexuality, becomes a discourse about exerting power over life" (76). These biopolitical aspects of sustainability are evidenced when environmentalists aim to create the most efficient systems of farming, energy use, water conservation, methods of transportation, architecture and waste management. Creating efficient, sustainable ways of interacting with the

planet's resources are important to environmentalists because these resources are seen as scarce. In order to make best use of these scarce resources, some environmentalists look for practices that are able to sustain our present way of life. By identifying those discourses and practices that lead to the most sustainable use of resources, economic utility is supported by environmentalism and the effects of biopolitics are exerted over ever-widening areas of life. For Luke, sustainability "can represent an effort to reinforce the prevailing order of capitalistic development by transforming sustainability into an economic project" (75). It is in this sense that biopolitics produces nonhumans and environments as productive participants within society and, at the same time, capitalism is reinforced. Sustainability serves to enhance the economic utility of any intervention of biological or environmental systems by making economic processes more efficient.

The recognition that nonhumans and environments are inserted within contemporary biopolitical power relations is most explicit where population is concerned. Some environmentalists argue that human population should be limited to the amount that the world's biological and environmental resources can support. This notion is straightforwardly biopolitical because it endeavours to manage human populations by maintaining reproductive limits in line with the availability of scarce resources. It is in this sense that biopolitics underscores an environmentalization of thought because it demonstrates an intersection between humans, nonhumans and environments. By acknowledging that humans are embedded within ecological limits, biopower implicitly recognizes that humans, nonhumans and environments are all participants within power relations. Furthermore, in attempting to limit the world's population, "environmentalist discourse often works to amplify both the normativity and the discrimination, by emphasizing the 'natural requirement' of population limitation — the 'natural requirement' of the subordination of human needs to an abstract notion of 'carrying capacity' that passes as an ecological common good" (Sandilands 1999: 87). Environmentalism links humans, nonhumans and environments because it aims to limit human reproduction to 'natural' ecological levels. As a result certain kinds of environmental politics — those that set up norms of 'sustainability' and abstract requirements of 'carrying capacity — reinforce existing biopolitical power relations that govern reproduction, economic utility and population.

Environmentalism also generates a series of environmental knowledges that aim to produce humans, nonhumans and environments in accordance with environmental norms. The creation of norms, as I have already demonstrated, function as a measure against which all behaviour is judged. In this sense, environmental norms function as an additional system of judgement according to which individual subjects must produce themselves. Through the establishment of normalized environmental

behaviour, "the world will come under watch, and the global watch will police its human charges to dispose of their things and arrange their ends — in reengineered spaces using new energies at new jobs and leisures — around these environing agendas" (Luke 1995: 75). This example demonstrates that the environmentalization of thought observes how humans, in particular, produce themselves *in relation to* the conservation of nonhumans and environments. Luke (1995), however, goes so far as to suggest that certain environmental organizations are already attempting to create a "green panopticon, enclosing nature in rings of centred normalizing super-vision where an eco-knowledge system identifies Nature as 'the environment'" (77). A 'green panopticon' not only watches over humans, but also serves to produce nonhumans and environments in particular ways.

The contemporary environmentalization of knowledge underscores the transformation of Nature into 'the environment'. Prior to the emergence of a notion of 'the environment' it was impossible to group together the multiple knowledges that it variously concerns and generates: human behaviour, biology, ecology, materiality and spatiality. Such knowledges identify a particular thing as 'the environment' and establish a particular set of practices in relation to 'the environment'. Before 1965, terms such as 'the environment' or 'environmentalism' did not exist as the widely identifiable topics that they are today (Luke 1995: 59). In this sense, a notion of 'the environment' is not the same as the notions of Nature that emerged in the Modern episteme because it encompasses markedly different instantiations of power and knowledge. While Nature was defined as distinct from Man, the environment is conceived as a kind of space in which humans are inextricably embedded. Whereas Nature serves as a passive object of study, the environment is *precisely that which can be managed* through various systems of knowledge and scientific investigation. Thus, the notion of 'the environment' is implicated in an environmentalization of knowledge and power relations that have spread from the biopolitical management of human life and productivity — and the Modern anthropologization of knowledge — to encompass the economic productivity of nonhumans and environments as well.

A notion of 'the environment' *makes it possible to describe* the relationships between humans, nonhumans, spaces and resources by generating a correlative series of knowledges, regulations and prohibitions. With the emergence of the environment and environmentalism through a series of 'environmentalized' knowledges, such environmental norms have come to bear on contemporary relationships between humans, nonhumans and environments. Furthermore, that the very notion of 'the environment' is an effect of biopolitics and can be interpreted an extension of Foucault's descriptions of how contemporary power relations produce identities and materialities, and manage *life*,

demonstrates that those relations of power constitute contemporary relationships between humans, nonhumans and environments in ways that aim to make those relationships more productive. As has already been acknowledged, the assertion of environmental practices, which aim to generate sustainable relationships between humans, nonhumans and environments, is symptomatic of the environmentalization of knowledge and biopolitical power relations because it contributes to the generation of environmental knowledges, norms and regulations. Therefore, a notion of 'the environment' underscores a shift that makes it possible to locate humans within an ecology and, in doing so, to manage the relationships *between* humans, nonhumans and environments. In this sense, the consequence of defining 'the environment' as a source of economic wealth is that it engendered a subsequent series of biopolitical power relations, environmental norms and systems of observation that endeavour to manage the relationships between humans, nonhumans and environments.

The importance of recognizing the shift from the constitution of Nature to the production of 'the environment' is not only to acknowledge the fact that biopolitical power relations have spread beyond the management of human life, but to recognize that the emphases change once it is made explicit that humans are embedded within ecological materialities. As I suggested at the beginning of this chapter, the environmentalization of power relations and systems of thought presents both risks and possibilities. While it is clear from this section that the environmentalization of thought comes with concomitant dangers and risks, such as the increasing spread of biopolitical norms and regulations, this environmentalization of thought also signals a new configuration of thought and power relations that threatens to destabilize Modern notions of agency. Because Modern notions of agency theorize a distinction between Man and Nature, nonhumans and environments are unable to legitimately participate within power relations *because* they are always constituted as *not*-Man. However, the increasing environmentalization of knowledge and biopolitics suggests that such definitions of agency are becoming progressively more untenable. Once humans are recognized as being embedded within a nonhuman 'environment', the distinction between Man and Nature that underpins Modern notions of agency is destabilized.

The increasing environmentalization of knowledge has a particular relevance to my argument in a number of ways. First, as I have argued throughout this section, the spread of biopolitical power relations to include the management of nonhumans and environments is explicitly associated with the continued efficiency and dispersal of contemporary capitalism. It is also in this sense that contemporary environmental resistances, which aim for increased sustainability, are implicated in the increasing biopolitical management of life and utility. Thus, in order to generate an environmentalism

that is not environmentalizing, it is necessary to recognize that practices of sustainability are informed by a biopolitical management of life. Second, I argue that the implication that nonhumans and environments are participants within power relations serves to destabilize Modern notions of agency which exclude them from being constituted with agential capacities. Because environmentalization reveals that humans are embedded within nonhuman environments, the Modern distinction between Man and Nature is contested. Lastly, the implication of such an environmentalization is that it may signal the break up of the Modern episteme because it surpasses the anthropological focus of all knowledge. In part, the environmentalization of knowledge is still consistent with the Modern episteme, because nonhumans and environments are constituted simply as economic resources. Nonetheless, this de-centring of Man is important because it underscores Foucault's observation that Modern systems of thought will one day be eclipsed.

Governmentality: Environmentality

Foucault (1983b) defined the tendency for capitalist states to manage power relations as a 'governmentality' that aims to control the *circulation* of power relations. He argued that "power relations have been progressively governmentalized, that is to say, elaborated, rationalized, and centralized in the form of, or under the auspices of, state institutions" (224). As this chapter has outlined, governmentality attempts to manage the circulation of power relations not through overt oppression, but by producing individuals who are organized according to the efficient principles of capitalism. Furthermore, it is possible to argue, as Luke (1995, 1999) does, that an "environmentality" increasingly functions as an extension of that governmentality. This recognition of an 'environmentality' is important because it specifically identifies the dangers associated with the increasing environmentalization of knowledge:

> Foucault does not explicitly define these spaces, methods and knowledges as 'environmental', [yet] these enviro-disciplinary maneuvers are the origin of many aspects of environmentalization. As biological life is refracted through economic, political and technological existence, 'the facts of life' pass into fields of control for any discipline of eco-knowledge and spheres of intervention for the management of geo-power (Luke 1999: 143).

Environmentalities further the notion of governmentality by pushing it to its necessary conclusion. In other words, although Foucault failed to identify it himself, environmentalities are an extension of the governmentalizing power relations that he examined. While Foucault was unwilling to examine the relationships between human beings, ecologies and nonhumans, the drive towards environmentality to manage *all life* is consistent with his description of a how a governmentality manages power relations.

As I argued in the previous section, environmentalists invariably insert themselves into existing power relations, and through the environmental knowledges that are created, they assert their own disciplinary and biopolitical management of contemporary life. Thus, environmentality expresses the ways in which environmentalism attempts to manage power relations between humans, nonhumans, materialities, spaces, bodies and environments. Like governmentalities, environmentalities are productive of both knowledges and materialities and, though environmental knowledges might not be institutionalized within governments, such knowledges nonetheless establish certain subjects as more authoritative than others. For example, Luke (1995) argued that to be "'an environmentalist' quickly becomes a power expression of the eco-knowledge formations of environmentality in which the geo-powers of the global ecosystem can be mobilized through the disciplinary codes of green operational planning" (74). In this sense, environmentalists become the arbiters of environmental knowledge and emerge as the subject from whom judgement emanates. By creating systems of knowledge and the attendant authorization structures, environmentalities have facilitated the dispersal of biopolitical power relations to an even greater variety of bodies, spaces and materialities. An environmentality interlinks scientific knowledges, materialities and ecologies by attempting to manage *all* power relations that occur between humans, nonhumans and environments.

As I have already discussed, the development that makes an environmentalization of thought and biopolitical power relations possible, is the transformation of Nature into 'the environment'. In this sense, an environmentality is prefigured by the emergence of a notion of 'the environment'. By recognizing that environmentalities exist as attempts to manage not only the relations of power between humans, but those between all species, objects, biological processes and, indeed, all environments on the planet, this predictable outcome of Modern governmentality appears overwhelmingly, impossibly insurmountable. Reframing Foucault's genealogical analyses of material realities in terms of their effects on nonhumans and environments also reinforces the recognition that environmentalism is implicated in the spread of biopolitical power relations. The pessimism of such a notion of power is the recognition that even those actions that are defined as resistances are *themselves* embedded within power relations. As is demonstrated by those environmental resistances that have the environmentalizing effects of spreading biopolitical relations to nonhumans and environments, any form of resistance can spread the very relations of power that they ostensibly resist. In this sense, the destabilization of the distinction between Man and Nature does not suggest that emergent systems of thought are any less constraining than Modern systems of thought. On the surface of it, the

omnipresence and dispersal of governmentalizing and environmentalizing power relations seems to negate the possibility of any agency.

Governmentalized and environmentalized relations of power seem to indicate that agency does not exist and thus generates criticism for failing to account for any autonomous agency free from relations of power. One such criticism is repeated by Sheldon S. Wolin (1988) who argues that Foucault "offers no hope of escape. [...]. There is no exit because Foucault has closed off any possibility of a privileged theoretical vantage point that would not be infected by the power/knowledge syndrome" (186). Because Foucault's recognition that power is omnipresent means, precisely, that there is no outside position from which agents can oppose power relations it is argued that there *is no agency at all* within such a theorization of power. Because notions of agency are often premised on the assumption that agents have a status that distinctly separates them from the contaminating effects of power, such notions of agency require the existence of spaces that are *not* embedded within relations of power. However, Foucault's notion of power is necessarily positioned in opposition to those definitions of power which see it as an oppressive force that extinguishes all agential possibilities. Because Foucault does not define power as an oppressive possession of individuals or governments, the argument that the omnipresence of power negates all agency can be contested. Indeed, Foucault's assertion that power is *relational* serves as the basis for my argument that power and agency are not antithetical.

Foucault's notions of governmentality (and by extension environmentality) are important in this sense because they destabilize definitions of power that define nation states as the sole *possessors* of power. Indeed, according to Foucault (1983b), governmentality strives "to structure the possible field of action upon others" (221). Hence, governmentality is a means of describing how a non-ontological relational power is *structured* by governments and institutions rather than possessed as an oppressive force. Indeed, the view that power is a possession only of nation states, is an effect of governmentalization because governments try to constitute themselves *as though* they manage all power relations; "governmentality, which is at once internal and external to the state [...] is the tactics of government that make possible the continual definition and redefinition of what is within the competence of the state and what is not" (Foucault 1991a: 221). One of the explicit tactics of governmentality is to perpetuate the belief that power is not everywhere, but is instead a possession exclusive to states and their institutions. By making it seem as though power is available only "within the competence of the state", this tactic of governmentality is meant to repudiate the fact that power relations occur within all relationships. Thus, governmentality and environmentality aim to constrain

the circulation of power relations by ceaselessly defining and redefining particular arenas of power as within the jurisdiction of state or institutional authority.

What governmentalizing and environmentalizing power relations mask are technologies that *produce* individuals; "power produces; it produces reality; it produces domains of objects and rituals of truth. The individual and the knowledge that may be gained of him belong to this production" (Foucault 1977b: 194). Subjectivities, identities and materialities are the direct outcome of biopolitical power relations because, as Foucault has argued, such identities and materialities are *produced* — power relations work through the production of individuals and knowledges rather than through a forceful oppression. As Foucault argued, such a power is a "relational power that sustains itself by its own mechanism" (177). The mechanism of governmentalizing and environmentalizing power relations that guarantees their continued effectiveness are their productive capabilities. But, the recognition that power relations are productive serves as a direct critique of Modern definitions of power which view it as inherently oppressive. Indeed, that these relations of power are productive rather than oppressive suggests that it is possible to re-produce produced identities and materialities in ways *other than* those sanctioned by capitalist relations of power.

Foucault's (2007) description of a relational power that *produces* subjects was developed in opposition to Western notions of power which define power as a force that "says 'you must not'" (154). According to Foucault, the notion that power is negative and oppressive is "a totally insufficient conception of power, a juridical conception, a formal conception of power" (154). The notion that power is an oppressive force which restricts individuals is therefore a particular conception of power that is peculiar to Modern systems of thought. Such a juridical conception of power is concerned with "where power is, who holds power, what the rules are that govern power, what the system of laws is that power established over the social body" (154). Thus, it is according to Modern juridical notions of power that agency cannot exist where power exists. According to a juridical notion of power, Foucault's insistence on the omnipresence of power relations *does* limit human agency because, conceived in such a way, power is necessarily antithetical to human action. However, a concept of relational power renders such questions incomprehensible because — as a *relation* — power cannot be possessed. Rather than oppressing individuals through rules, restrictions and prohibitions, power relations are productive and creative because they generate subjectivities, identities and materialities. Because a relational power is productive rather than oppressive, the opposition between power and agency can be re-conceived.

Foucault (1983b) argued that; "power relations are rooted deep in the social nexus, not reconstituted 'above' society as a supplementary structure whose radical effacement one could perhaps dream of. In any case, to live in society is to live in such a way that action upon other actions is possible — and in fact ongoing" (222). Because Foucault recognized that power is a relation and is, explicitly, *not* a possession of governments, it cannot be erased. While, initially, an inability to efface governmentalizing power relations appears to remove agential capacities forever, the fact that power exists throughout *all* relationships suggests that power can never be possessed *exclusively* by governments. Because "Power […] does not exist", power cannot be possessed and, hence, power is not a positivity (219). Relations of power are, instead, practices or actions carried out in *all* relationships between humans, nonhumans and environments. Foucault defined power relations, not as an entirely one-sided relationship between a state and its citizens, but as *the prerequisite of all relationships*. Because power exists in every relationship, and because relations of power are productive, it does not make sense to define power and agency in opposition to each other. Rather, the omnipresence of power means that agency exists as an *aspect* of those omnipresent power relations.

The recognition that power is dispersed throughout every relationship does not mean that any existing power relations "are necessary, or in any case, that power constitutes a fatality at the heart of societies, such that it cannot be undermined" (Foucault 1983b: 223). Rather than an inescapable oppressive force, an omnipresent and dispersed relation of power means that the possibility, and likelihood, of changing any power relation is increased. For Foucault (1983b), power relations are not static, but are about "reciprocal incitation and struggle" (222). *Relations* of power are not merely metaphorical, but are relationships in the very literal sense of the word. Regarding power as relational does not merely serve as an alternate *theory* of power because the view that power is relational negates the possibility that power is a *thing*. Rather, because power is only *ever* a relation it is thus, by definition, an action; it is not a noun, it is a verb. For Foucault; "Power is a strategic action, far too complex and idiosyncratic to be assessed through a grand theory" (Bleiker 2000: 130). Because power is a relation, the multiplicity of actions that it entails cannot be expressed through one particular theory. Therefore, the recognition that power is a relation, that it is reversible, productive, and *active* means that agency need not be extinguished by an omnipresent power. Redefined as a relation, power is no longer that which agential practices oppose; the implication is that — because power relations are productive and subject to continual change — power and agency exist simultaneously within the same relationships.

Foucault (1986b) argued that: "We evolve in a world of perpetual strategic relations. All power relations are not bad in and of themselves, but it is a fact that they always entail certain risks" (373). The risk that power relations pose is *precisely* that the outcome to any action can never be guaranteed including those actions, as Foucault has argued, that are resistances which aim to overturn Modern relations of power. Such a recognition entails a certain vigilance because the lack of guarantees means that we must pay attention to all possible risks. Indeed, this is Foucault's (1983a) point. He argued that the "point is not that everything is bad, but that everything is dangerous, which is not exactly the same as bad. If everything is dangerous, then we always have something to do. So my position leads not to apathy but to a hyper — and pessimistic activism" (231-32). Rather than reading the omnipresence of power as a limit to agency, Foucault argued that the risks of an omnipresent power *necessitate* that there will always be something to do *because the stability of any one power relation can never be guaranteed*. The vigilance that a relational agency demands is that we be constantly aware of our actions. Foucault's notion of relational power does not extinguish agency; an omnipresent relational power means that we can never *stop* changing and doing things.

Despite the increasing environmentalization of all power relations between humans, nonhumans and environments, the implication that no power relation is ever stable means that such a process is neither inevitable nor guaranteed to succeed. Indeed, as has already been discussed, environmentalizing power relations are not oppressive, but are productive in their attempts to *manage* relations of power. Foucault (1978) emphatically insisted that "Where there is power, there is resistance, and yet, or rather consequently, this resistance is never in a position of exteriority in relation to power" (95). The omnipresence of resistance, and hence the possibility that power relations can be overturned, in fact *exposes why* governmentalizing and environmentalizing power relations must work to constantly produce individuals and materialities; they *are always under attack*. Although resistance is not synonymous with a notion of agency, Foucault's assertion that power and resistance are inseparable is relevant to my argument that power and agency are *both* omnipresent. If power relations can always be overturned — by any action, intentional or otherwise — it suggests that an ability to act is implicated within the very omnipresence of power. Thus, instead of encountering an absence of agency in Foucault's texts, we find an *overabundance* of agency.

Agency is Embedded within Relations of Power

The recognition that power relations are omnipresent does not, as I have argued, mean that agency is extinguished. Rather, I argue that agency is embedded within relations of power because those power relations can always be overturned. Implicated in this recognition is Foucault's assertion

that it is always possible to rework existing relations of power. Using an example from environmentalism, Foucault (1989b) pointed out that:

> there has been a whole so-called ecological movement — a very ancient one, [...] that was often in opposition, as it were, to a science or, at least, to a technology underwritten by claims to truth. But this same ecology articulated its own discourse of truth: criticism was authorized in the name of a knowledge [*connaissance*] of nature, the balance of life processes, and so on. Thus, one escaped from a domination of truth not by playing a game that was totally different from the game of truth but by playing the same game differently (295).

Because environmentalists make the argument that the planet's resources are finite, they do so in adherence with the same scientific knowledges generated by the Modern sciences. In this sense, they are constrained by contemporary power relations. However, Foucault argued that environmentalists are able to use scientific knowledges to their advantage by "playing the same game differently". It is impossible to escape power relations, but it is possible to *rework* those power relations and make them do something different. The corollary, implicit within any such reworking of power, is that no such a reworking is guaranteed to succeed. But it is this lack of guarantees that makes a relational agency possible.

Throughout this chapter, I have argued that a relational agency is implicit within Foucault's notion of power relations for a number of reasons. I examined Foucault's notion of relational power as both a critique of Modern notions of agency *and* as the inspiration for a complete redefinition of agency. First, I argued that Foucault's genealogical texts critique Modern notions of agency because his argument that power relations produce identities and materialities problematizes Modern assertions that agency is an *a priori* characteristic of humans. In this sense, agency cannot be an innate characteristic of individuals because power relations exhort individuals to produce *themselves* as agents. Secondly, I argued that the increasing environmentalization of biopolitical production, because it has spread to manage the economic utility of nonhumans and environments, destabilizes Modern anthropologized knowledges. Because Modern systems of thought take Man to be the central figure, an environmentalization which acknowledges that humans are inextricably connected to nonhumans and environments undermines the assumption that Man and Nature are distinct. Lastly, I argued that critics of Foucault who castigate him for the apparent lack of agency in his description of an omnipresent power, expose an assumption that power and agency are incommensurable. Instead, I argued that a relational power actually generates a relational agency to the extent that power and agency are coextensive. Because power relations are omnipresent does not mean that agency is

impossible. Indeed, as Foucault made clear, the very fact that power relations are subject to reversal means that continual action is required.

Although Foucault did not explicitly recognize that nonhumans and environments are participants within an omnipresent relation of power, I have argued that the increasing environmentalization of biopolitics belies the recognition that nonhumans and environments are, indeed, participants. Furthermore, because agency *is precisely a relation* rather than a possession of individuals, it undermines Modern notions of agency that define it only as a characteristic of human subjects. In this sense, an inevitable outcome of a relational notion of power is that, because power is not a possession, it cannot be confined *only to humans*. Hence, Foucault's notion of power relations implies a more *radical* notion of power which acknowledges that humans are embedded within ecological materialities. This recognition indicates that Foucault's analyses of power relations are incomplete. That nonhumans and environments are constituted by the very relations of power that Foucault described, reveals a profound omission within his notion of relationality. Thus, I argue that Foucault's notion of a relationality is, in fact, more radically all-encompassing than even he acknowledged; Foucault's thought actually generates a radical relational agency despite his omission of nonhuman and environmental agents. Acknowledging that nonhumans are participants within relations of power is another step towards defining a *radical* relational agency.

Because power is omnipresent, a relational agency does not aim to *erase* relations of power and it cannot legitimize any resistance that has a pretense of overturning Modern power relations. A relational agency cannot nullify power relations because such a task is impossible. Yet, my argument that a relational agency is the outcome of biopolitical power relations does not therefore suggest that an environmentality is *necessary* in order for a relational agency to exist. Rather, I argue that a redefinition of Modern notions of an autonomous agency, possessed by individuals, into a notion of radical relational agency is, in fact, *a precondition for contemporary environmental resistances* if they do not wish to reinforce environmentalizing power relations. If environmental resistances do not intend to perpetuate an environmentalizing biopower, then they must recognize the dangers inherent within an omnipresent power. Throughout the remainder of this thesis, I will argue that a radical relational agency best serves contemporary environmental resistances because it recognizes that, since no action is ever guaranteed to succeed, risk is a feature of every relationship between humans, nonhumans and environments.

In the following chapter, I will critique Foucault's latent anthropocentrism and endeavour to fill in his omissions in order to define a more *radical* notion of relational agency which accounts for the

relationships between humans, nonhumans and environments. In particular, I examine Foucault's final texts as his most explicit response to the constitutedness of subjects and to the omnipresence of power relations. These texts express a notion of relational agency that makes Foucault's anthropocentrism all too apparent. By illustrating an individualized and, specifically, human response to the omnipresence of power, I will argue that Foucault's thought remains too attached to the anthropologized systems of thought that he aimed to critique. As I have argued in this chapter, an explicitly relational notion of agency *always* tends towards acknowledging the agency of nonhumans and environments because, as a relation, it cannot be defined as an exclusively human characteristic. In this sense, Foucault's thought is inadequate to the task of defining the nonhuman agency that it *simultaneously* implies. To define a radical relational agency, it will be necessary to go beyond the thought of Foucault and, as such, I turn to complexity theory because it describes complex, relational systems that include humans, nonhumans and environments.

CHAPTER THREE

Defining a Relational Agency within Ecological Limits

To define a radical relational agency, it is necessary to account for the fact that humans are embedded not only within relations of power, but also within material ecologies. In the previous chapter, I argued that Foucault's notion of a relational power implied a *more radical* notion of relationality than Foucault himself acknowledged. Because Foucault's notion of power is explicitly relational, and because it denies the notion of an *a priori* agency, there is no particular reason to characterize agency as peculiarly human. Rather, the notion of a relational agency should *open up* definitions of agency to include not only humans but also nonhumans and environments as well. Furthermore, I argued that an increasing environmentalization of power relations has destabilized the centrality of humans. In this sense, I argued that the implication of such an environmentalization is that nonhumans and environments are *participants* within power relations. The recognition that nonhumans and environments are participants within relations of power is important because it suggests that they are agents in their own right. The implication of the agential capacities of nonhumans is, however, ignored by Foucault. This omission demonstrates that Foucault did not fully reject the anthropologized thought that he critiqued. Foucault's inability to account for the agential capacities of nonhumans thus exposes a latent anthropocentrism in his thought.

Throughout this chapter I will argue that Foucault's omission of nonhumans and environments as participants within relations of power is a contradictory flaw in his notion of relational power. On the one hand, as I have argued, Foucault's notion of a relational power does not *necessarily* require a human subject because it is no longer viewed as a possession of particular individuals. Unlike Modern notions of agency, a relational agency is not constituted as hierarchical or exclusionary. Thus, a relational agency always seems to imply, and lead to, a more radical inclusion of nonhumans and environments. On the other hand, Foucault did not acknowledge this implication of a relational power or the increasing environmentalization of biopower and, therefore, neglected to recognize that nonhumans and environments are participants within power relations. In this sense, Foucault's omission of nonhumans and environments is contradictory because his relational notion of power necessarily implies that nonhumans and environments be included. The purpose of this chapter is thus to augment Foucault's thought and to investigate how a radical relational agency can be expanded upon by those theorists who *do* recognize the agential capacities of nonhumans and environments.

To begin, I will examine Foucault's notion of self-fashioning as his response to the ways in which individuals are constituted within Modern power relations. As I argued in the previous chapter, the omnipresence of power does not foreclose the possibility of an agency altogether. Although Foucault's genealogical texts are critiqued for their seeming erasure of agency, I argued that the relationality of power implies a correlative notion of relational agency. In this sense, I argued that a relational agency is *embedded* within relations of power. While I argued that a relational agency is inherent within Foucault's genealogical texts, it is his final texts that are most often taken to reveal a Foucauldian notion of agency. Foucault's description of self-fashioning is presented as a means by which to rework those identities constituted within Modern power relations and this notion of self-fashioning often serves as Foucault's most explicit intimation of agency. However, I will argue that, because self-fashioning takes place on an individual level, it ignores the radical relationality that is implied by a notion of relational power. As I will argue, a relationality suggests a *less isolated* practice than self-fashioning entails. At the same time, nonetheless, there are theorists and environmental activists who are influenced by self-fashioning and point out that the consequences of fashioning one's identity are such that it may be possible to fashion identities which reflect the embeddedness of humans within ecological materialities. Although self-fashioning does not fulfill the radical relationality of power relations, I will argue that its emphasis on invention and creativity is nonetheless vital.

Beyond Foucault, there are those theorists who have been influenced by his thought and his notion of a relational power. In this chapter I will examine the thought of those theorists who expand upon his notion of a relational power and push it in the direction of a more *radical* conception of relational power. Such theorists, more than Foucault himself, recognize that we live a world populated by more than just humans. The importance of recognizing that humans exist in relationships with nonhumans and environments is that it extends a relational agency to include not only the limits imposed by power relations, but also recognizes that there are material, ecological limits on human power relations. While Modern systems of thought are characterized by the recognition that Man is a natural being, such systems of thought nonetheless constitute human beings as superior to Nature and, hence, as distinct from Nature. In this sense, the emergence of Man did not include a recognition that humans are bound by ecological limits. Later in the twentieth century, the emergence of a notion of 'the environment' made it possible to locate human beings as *part of* a larger ecological system. However, as I argued in the previous chapter, an increasing environmentalization of power relations is also associated with a correlative biopower that aims to manage the productivity of all humans, nonhumans and environments. It is important to recognize that humans live within the material

constraints of a finite planet because, just as power relations limit action, so do ecologies. Because of human embeddedness within ecological limits it is important to turn to those theorists who explicitly recognize nonhumans and environments as active participants within both ecological relations and relations of power.

One of the arguments that is implicit within contemporary environmental actions is that humans are necessarily limited by finite resources. While Modern capitalist power relations treat the planet as infinitely renewable and innately stable, contemporary environmental resistances argue that such limitless extraction should be curtailed in favour of more regulated practices. An examination of Modern thought reveals that such relationships between humans, nonhumans and environments are, in part, the outcome of a hierarchical ordering that constitutes humans, through the means of Modern knowledges, as scientifically presiding over the biological and ecological functions of life on the planet. Although Modern thought presumed that humans can overcome any limit imposed by Nature, environmentalists argue that humans are constrained by the ecological limits of the world. The transformation of Nature into 'the environment' has involved a corollary emergence of environmentalizing processes which aim to increase the efficiency and sustainability of human interaction with nonhumans and environments (in the form of natural resources or other commodities). In this sense, complexity theory is important because it explicitly acknowledges that humans have relationships with nonhumans and environments, and likewise acknowledges that humans are subject to the limits imposed by complex ecologies.

The use of complexity theory to extend Foucault's notion of a relational power, and an implied relational agency, is not only a simple correlative extension of his notion of agency because Foucault's thought is similar to complexity theory in other ways. For example, the amalgamation of Foucault's thought with complexity theory can occur, in part, because both view history and change as inherently nonlinear. As I argued in the first chapter, Foucault's notion of epistemic shifts acknowledges that such events are unpredictable. Correspondingly, complexity theory argues that changes within complex systems happen unpredictably. Additionally, in the previous chapter, Foucault's notion of a relational power described power relations as inherently dispersed. Likewise, complex systems are interconnected and interrelated to the extent that contemporary social and ecological systems consist of relationships that span the whole planet. Where Foucault and complexity theory part ways occurs *precisely* because complexity theory stresses the ecological limits of systems and the relationships that they entail, while Foucault stressed relations of power which he nevertheless did not *acknowledge* as inclusive of nonhumans and environments.

By combining Foucault's thought with complexity theory, throughout this chapter, I will argue that a radical relational agency must include more than just humans. To do this, I will begin with a critique of Foucault's notion of self-fashioning. In this sense, Foucault's thought remains more tied to Modern thought than he recognized. I will examine theorists influenced by Foucault who explicitly argue for a recognition of nonhuman agency. In order to arrive at a such definition of nonhuman agency, I will examine a variety of theorists who postulate the notion of nonhuman agency in sometimes contradictory ways. In particular, I will argue that a radical relational agency requires that nonhumans be recognized as agents *with diverse identities* because the erasure of disparate identities is incompatible with a recognition of relationality. Just as I argued in the previous chapter that a notion of relational power implies that a multiplicity of agents are participants, I argue that it likewise implies that those agents have diverse ontologies.

Self-Fashioning and the Environment

In the previous chapter, I examined Foucault's notion of relational power as described within his genealogical texts and argued that a notion of relational agency is implicit within his descriptions. In particular, I argued that a relational agency exists because no power relation is ever guaranteed to remain the same. Although a notion of relational agency is implicit within Foucault's genealogical texts, in his final texts a notion of agency is made more explicit. Within his genealogical texts, agency is *precisely* relational and cannot be possessed by subjects. I argued that this relational agency exists as a result of the relationships that occur *between* individuals and, as such, implies that those individuals need not be human. Self-fashioning, however, reveals an agency that is something more akin to an *individualized* human agency. Foucault's notion of self-fashioning is important because it explicitly acknowledges that, even though power exhorts us to produce ourselves in particular ways, it is possible to produce ourselves in other ways. In this sense, a notion of self-fashioning makes explicit that not only are relations of power subject to reversal, but that the production of identities and materialities is never complete. However, the implication that *self*-fashioning is an individual process ignores the related implication that any fashioning is always the result of *multiple* relationships.

In his final texts, Foucault's interest shifted away from genealogical analyses of power relations to histories of what he referred to as 'technologies of the self'. Examining technologies of the self represents an alternative means of looking at the constitutedness of subjectivity than that found in Foucault's genealogical texts because they are explicitly concerned with determining how it might be possible for subjects to re-constitute their own identities. Foucault (1997d) argued that:

The history of the "care" and the "techniques" of the self would thus be a way of doing the history of subjectivity; no longer, however, through the divisions between the mad and the nonmad, the sick and the nonsick, delinquents and nondelinquents, nor through the constitution of fields of scientific objectivity giving a place to the living, speaking, labouring subject; but, rather, through the putting in place, and the transformations in our culture of "relations with oneself," with their technical armature and their knowledge effects (88).

Technologies of the self are thus concerned explicitly with how we relate to *ourselves* rather than to others. A history of technologies of the self is presented as a means of understanding how subjectivity is constituted in different ways throughout history. Because these 'relations with oneself' that Foucault described are implicated in one's ability to produce oneself in *different ways* than those presented by biopolitical power relations, I contend that Foucault's examination of these technologies serves as a way of uncovering the agential capacities of individual human subjects.

Technologies of the self do not remain the same historically and culturally. Foucault (1988c) endeavoured to examine the "sense of strangeness" regarding relations to the self in antiquity (258). In *The History of Sexuality: Volume II*, Foucault (1985) examined "how, in classical antiquity, sexual activity and sexual pleasures were problematized through practices of the self, bringing into play the criteria of an 'aesthetics of existence'" (12). By contrasting an aesthetic of existence in antiquity to the production of subjectivity in Modernity, Foucault (1997e) argued that, instead of an aesthetics of existence, Modern technologies of the self have increasingly tended towards knowing the self; "'Know thyself' has obscured 'Take care of yourself'" (228). As Foucault's genealogical texts make clear, the constitution of individualized subjectivities has eclipsed the care of the self. Foucault (1983a) argued that the care of the self in antiquity is "diametrically opposed" to "the Californian cult of the self [...] which is supposed to tell you what your true self is" (362). While biopolitical power compels humans to constitute ourselves *as individuals*, in antiquity the rules governing care of the self did not form an imperative. Greek "practices of the self" did not form an "equivalent to an obligation for the subject to speak truthfully concerning himself; it never opened up the soul as a domain of potential knowledge" (Foucault 1985: 89). Only within the Modern episteme does speaking the truths of our identities become the primary mode in which we relate to ourselves. By examining different technologies of the self, Foucault gathered inspiration for how it may be possible to relate to ourselves in other ways and, hence, how it is possible to re-constitute ourselves.

Self-fashioning is a way of relating to the self which accepts that subjects are produced within relations of power. Foucault (1989b) stressed that "the subject constitutes itself in an active fashion through practices of the self" which "are nevertheless not something invented by the individual

himself. They are models he finds in his culture and are proposed, suggested, imposed upon him by his culture, his society, and his social group" (291). In this sense, agency becomes synonymous with an ability to actively fashion oneself within the constraints of power relations because, as Foucault explicitly argued, re-fashioning identities even within those constrained limits is possible. Instead of accepting that those normalized and hierarchized identities which encompass Modern subjectivities are the final possible option, Foucault argued that those models nevertheless supply individuals with enough material to act in other ways. Although there are no new subjectivities, only new combinations of those that have already been given, a recognition that fashioning of the self is possible acknowledges that, though subjects are produced within relations of power, action and agency are not extinguished. Rather than proclaiming that subjects are constituted permanently without the potentiality of change, self-fashioning recognizes that it is possible to re-constitute ourselves. Practices of self-fashioning are thus, always, a re-fashioning.

Since Modern power relations constitute subjects as individuals, in a way it makes sense to respond to those power relations at the level of the individual subject. Yet, Foucault's own notion of a relational power *presupposes* that individuals cannot be isolated. Although self-fashioning acknowledges that it is possible to re-fashion identities within Modern power relations, these relations are relations *only* to oneself. Thus, I argue that Foucault prioritized an *individualized* human self. Indeed, James Bernauer (1988) argues that, "Foucault's employment of aesthetic terms points to the power which this agonism has for ecstatic art, for leaving itself behind in transgressing the prisons of a particular historical determination and for creating a new relation to event and, thus, self" (71). Foucault's self-fashioning, as an aesthetic practice, argues that in fashioning *the self as a work of art*, it is possible to transgress or transform those particular and individualized identities that have been constituted within Modern relations of power and create a *new relation to the self*. However, at the heart of such practices, there still remains an individualized self. In the sense that self-fashioning responds to the constitution of an individualized subject, it likewise continues to be centred on individual human subjects. To take the re-constitution of Modern individualized identities as a political aim, is to likewise attribute priority to an individualized subjectivity. By taking the individualized identity that has been constituted through Modern relations of power and transgressing it, that individualized subject still remains the central notion against which all agential practices must respond.

Although Foucault's notion of self-fashioning describes how individuals can re-fashion themselves as a kind of agential practice, it does not amount to a radical relational agency. Self-fashioning is, by Foucault's own admission, characterized by care of the *self*. Moreover, in the sense

that self-fashioning is closest to a notion of an *individualized* agency, because it endeavours to explain how individual human action is possible, it places humans at the centre of all action. As such, self-fashioning is an implicitly anthropocentric notion of agency. What remains unacknowledged within a notion of self-fashioning are the consequences of a *specifically relational* power that implies there are other participants with whom we relate. As I argued in the previous chapter, a relational notion of power *requires* that subjects are embedded within a series of relationships with other agents. While self-fashioning offers the possibility of an agency, in that the re-constitution of identities is an agential practice, it is not a radical relational agency because it does not recognize that relationality entails relationships to others — there is no possibility for re-constitution without these relationships.

What remains useful within Foucault's notion of self-fashioning is an explicit acknowledgement that subjects are not constituted once and for all. Indeed, the process of creative re-fashioning is a theme that I will return to later in this thesis. Such a notion of creativity and innovation can be helpful for formulating environmental resistances. For example, an agential practice of self-fashioning points out the necessity of questioning the 'naturalness' of human relationships and interpretations of nature and the environment. Éric Darier (1999b) argued that "most environmental ethicists rarely question their underpinning naturalist/essentialist assumptions and even more rarely examine their own discourses strategically" (228). By applying notions of self-fashioning to the problem, Darier suggests that environmental activists could question this seeming naturalness, experiment with their identities and creatively re-fashion human relationships with nonhumans and the environment. An environmental practice of self-fashioning, although it specifically focusses on individual identities, would necessarily affect others with whom we relate. Indeed, it would affect others precisely because isolation is impossible. In this sense, even a practice of self-fashioning — because it *must* take place within relations of power — implies that, in fact, such a practice can never be individual because its effects cannot be contained.

Another example of how self-fashioning has effects beyond the individual, is the practice of writing about nature because it is an act that intentionally locates humans within actual material environments. While Foucault (1997c) argued that "writing constitutes an essential stage in the process to which the whole *askesis* leads: namely, the fashioning of accepted discourses, recognized as true, into rational principles of action", Sylvia Bowerbank (1999) argues that nature writing serves to fashion discourses which describe the relationships between humans, nonhumans and environments (209). Bowerbank argues that when we write about nature rather than ourselves, "the care of the self is reconfigured to make care of place essential to its meaning. The abstract principle of caring for the

earth is localized and distributed among manageable projects undertaken in specific, meaningful places" (171). In this sense, nature writing is a practice that proceeds beyond the individual in an attempt to re-fashion the relationships between humans, nonhumans and environments; those who engage in Nature writing do so to situate themselves within a personally locatable place. And, although Nature writing is carried out in private, such "writings create a new cultural repertoire of appropriate emotions and habits, articulated in light of the ecological knowledge that only now is being constructed at the material and social levels" (172). Thus, writing about nature serves to construct the environment in ways that place individuals within ecological limits. While self-fashioning is directed towards individual re-fashioning, Bowerbank makes it clear that fashioning oneself often affects the fashioning of others.

These examples of how a Foucauldian re-fashioning can be developed as an environmental practice implicitly reveal that it is impossible to retain the effects of any fashioning at the individual level. Because individuals are necessarily embedded within a series of power relations, isolation is impossible. However, these examples of environmental self-fashioning, because they are still attempts to re-fashion individual human identities, still take humans to be the central agents. In this sense, they only focus on human practices and therefore deny the potential for an explicit recognition of nonhuman and environmental agency. When theorists recognize that humans are always situated within particular environments, but *do not* recognize that nonhumans and environments are active participants within omnipresent power relations, a more radical notion of relationality is denied. As I have argued throughout this section, a practice of self-fashioning, because it always takes place within the constraints of power relations, will necessarily have effects on those with whom we relate. Yet, such a practice does not explicitly recognize that isolation is impossible.

Performativity and Nonhuman Agency

Unlike Foucault, who does not specifically discuss notions of agency, Judith Butler (1992) explicitly argues that relations of power do not negate a notion of agency; "to claim that the subject is constituted is not to claim that it is determined; on the contrary, the constituted character of the subject is the very precondition of its agency" (12). According to Butler, agency is only possible because subjects are constituted within power relations. Like Foucault's argument that re-fashioning is always possible, Butler argues that because subjects are *produced* by power, they must be *continually produced*:

> For if the subject is constituted by power, that power does not cease at the moment the subject is constituted, but is subjected and produced time and again. That subject is neither a ground nor a

product, but the permanent possibility of a certain resignifying process, one which gets detoured and stalled through other mechanisms of power, but which is power's own possibility of being reworked (13).

Because subjects do not exist prior to their constitution within power relations their constitutedness guarantees the repeated and continual production of those subjectivities. Butler's argument is thus an explicit illustration of the agential capacities inherent within constituted subjectivities. While agency was only implied by Foucault's notion of self-fashioning, Butler explicitly argues that the re-constitution of subjects is, in fact, an agential process.

Butler's notion of performativity expands on self-fashioning as an agential process, and explains more precisely how agency is acquired. Her notion of performativity refigures the recognition that subjects are constituted through relations of power by pointing out that the discursive performance of identities can *mask* the fact that subjects are constituted; "identity is performatively constituted by the very 'expressions' that are said to be its results" (Butler 1990: 33). In this sense, Butler acknowledges that, although subjects are constituted within power relations, identities are instead viewed as natural and essential characteristics of individuals; the fact that individualized identities are produced within power relations is obscured through the seemingly 'natural' performance of identities that conform to discursive norms. The importance of recognizing this disconnect between the constitutedness of subjects and an illusory naturalness is that the ways in which this tension is exposed can *destabilize* seemingly natural characteristics. To maintain the appearance of natural and essentialized identities, a performance of identity must be constantly re-performed. All performance "is *repeated*. This repetition is at once a reenactment and a reexperiencing of a set of meanings already socially established; and it is the mundane and ritualized form of their legitimation" (178). By repeating performances, subjects enact a sameness that gives the impression of a unitary and *a priori* identity. In this sense, there is an imperative to repeat socially coherent identities so as not to expose those identities *as performances*.

Mis-performances which do not adhere to seemingly natural and essential categories, expose those discursive categories as the "regulatory fictions" that they are (Butler 1992: 32). Because it is possible to reveal the illusory quality of Modern individualized identities, to do so serves as a way of undermining the power relations through which those identities are constituted. Because identities are not essential, and must continually be performed, the opportunity for mis-performance is constant. Butler (1990) argues that any "injunction *to be* a given [subjectivity] produces necessary failures" (185). In other words, the fact that subjectivities are performed means that any attempt to

create a *unified* category of subjects will necessarily reveal that there will always be subjects unable to perform their identities accurately. Thus, what Butler argues is that, to mis-perform an identity is to expose that all 'natural' identities are contingent, historical and arbitrary. As such, it is also an act that explicitly *denies* the naturalness of given identities because any failure to comply can be reconstrued as a possible act of subversion. By demonstrating that constituted, or performed, identities are inherently unstable, Butler argues that agency is a process of redefinition, or resignification. In this sense, the agential practices that Butler describes are primarily viewed as discursive. Indeed, for Butler, agency is almost entirely discursive. She argues that "the question of *agency* is reformulated as a question of how signification and resignification work" (1990: 184). Thus, through the performance of identities, identities are resignified; performance is a discursive agential practice that demonstrates that power is always embedded within knowledge and discourse.

Like Foucault, Butler also argues that materiality does not remain untouched by discourse. She argues that bodies are discursively signified through a form of "material violence" that acts upon subjects; for example, "the category of sex imposes a duality and a uniformity on bodies in order to maintain sexuality as a compulsive order" (1992: 17). Although Butler's example specifically pertains to gendered identities, the argument is that *any* discursively performed identity orders and arranges the very *materiality* of human bodies. Her point is that because performed, or constituted, identities must adhere to those particular identities that are generated through normative knowledges and omnipresent relations of power, they amount to a material violence that is inflicted upon human bodies. This material violence orders bodies in specific ways that, for example, constitute subjects either as female or male. Thus, even before sexual identities emerge, bodies are violently marked by discourses of gender. According to Butler, "'sex' works its silent 'violence' in regulating what is and is not designatable" (19). Given the physical violence that is imposed by signification, Butler is clear that discourse effects not only discursive identities, but *actually structures* material bodies. In this sense, the discursivity central to Butler's notion of agency-as-resignification does not take place entirely on a discursive level. However, her descriptions of performance and resignification omit an acknowledgement that the identities of nonhumans and environments are likewise performed. Although Butler recognizes that performativity has material effects on bodies and that systems of thought *do* have a noticeable effect on material realities, she nevertheless does not acknowledge the agency of nonhumans.

Like Butler, Bronislaw Szerszynski *et al.* (2003) view performativity as a process of signification and resignification. However, they explicitly advocate that the identities of nonhumans

and environments are similarly performed. In this sense, by acknowledging that the identities of nonhumans and environments are no more 'natural' than those of humans, they suggest that performativity can provide a creative, innovative and inventive approach to viewing relationships between humans, nonhumans and environments. They argue that performance "is a means by which we may come to know, and as something which necessitates a different way of thinking about knowledge — not as static or passive, but as active, distinctly relational, forming distinctive events and experiences by which it is possible to know more" (4). Performances actually *produce* new knowledges through which humans frame their relationships to their environment. This more profound relationality recognizes not only human knowledges, but includes nonhumans and environments as well, a possibility that leads beyond Butler's notion of performativity. By acknowledging that the identity of nonhumans and environments are likewise performed, Szerszynski *et al.* argue that this more inclusive notion of "performance is pushing accepted conventions and idioms towards liminal spaces where new meanings might be created" (12). Such a recognition implies not only that nonhumans and environments are constituted within relations of power, but also that these performances are actively *performed by* nonhuman and environmental agents.

Performed environments are composed of intersecting knowledges that are sometimes biopolitical, academic, scientific, personal, anecdotal, literary, mythological or mundane. This intersection of knowledges makes the performance of nonhuman and environmental identities complex and varied; there is no *one performance* because there are multiple and often conflicting performances. Indeed, the transformation of Nature into a notion of 'the environment' implies such multiplicity and divergence. Stephen Healy (2003) argues that: "Understanding the world as something performed in relationships underlines the flexibility and impermanence of any state of reality, and how work over time and space is necessary to maintain it" (98). Any example of performed identity, including those of nonhumans and environments, is subject to change and must be re-performed in order to be perpetuated. Although identities necessitate repeated performances in order to be sustained, such repetition does not mean that "Reality" is "in our heads but is a rather complex, many-layered performance, constituted by the multiple performances of the relationships between both people and the things that go to make it up" (98). In other words, by extending the notion of performativity to include nonhumans and environments, a reasonable recognition is that nonhuman and environmental performances are *not merely the result of human signification*. Healy stresses that the performance of environments "is one in which [it is recognized that] humans are intimately embedded rather than detached from" a surrounding environment (106). Environmental performativity recognizes that there

are *active* relationships between humans, nonhumans and environments; social significations are not simply mapped onto passive environments.

A more radical notion of a relational agency necessitates that nonhuman objects, spaces and practices are no longer viewed as static receptacles for discursive constructions, but must be recognized *as participants* within power relations. Descriptions of performed environments acknowledge that material relationships between humans and nonhumans are complex, and that humans are necessarily embedded within material spaces and environments. Thus, the notion of performativity highlights the locatedness of those performances; humans relate not only to fellow human beings but to spaces, landscapes, wilderness, environments and other nonhumans. More importantly, notions of environmental performativity explicitly recognize the agency of nonhuman participants. Such a recognition is necessary in order to develop a more radical notion of relationality that acknowledges nonhumans and environments as participants within power relations. But it is equally important to unambiguously acknowledge that embracing a multiplicity of nonhuman participants within performativity does not suggest a return to biological determinism, nor does it mark the absorption of the 'natural' into the social. According to a more inclusive notion of performativity, a radical relational agency is extended to nonhumans out of necessity and in order to make it internally coherent. By ignoring nonhuman participants within the radical relationality that both self-fashioning and performativity imply, is also to silence pockets of nonhuman and environmental agency that inevitably emerge.

Recognizing that humans are embedded within ecological systems, Nigel Clark (2003) unequivocally asserts that nonhumans and environments are indisputable participants within performed identities and, hence, power relations. Clark contends that we must:

> extend [performativity] radically, beyond the scope of the social, the cultural, or the linguistic that conventionally delineates the social sciences and humanities. Once we acknowledge a differentiating force, a 'literacy' or a communicative competence implicit in living matter, then nature and culture cease to appear as self-enclosed spheres, and at least the hint of a mutual intelligibility opens up. In this way, just as it is possible to identify a whole range of social constructions and conditionings of the natural world, so too, is it conceivable that biophysical forces never cease to animate and articulate the socio-cultural domain (169).

Once it is recognized that there are communicative capacities involved in the relationships between humans, nonhumans and environments, the inability for a notion of performativity to account for the agential capacities of nonhumans and environments is questioned. If there is mutual intelligibility between humans, nonhumans and environments, the assumption that nonhumans and environments do

not perform *their own* identities is problematized. Indeed, as Clark explicitly argues, to assume that nonhumans and environments are passive, is to foreclose the recognition that they contribute to both ecological and social processes.

That there are possibilities of communication, or at least mutual intelligibility, between humans, nonhumans and environments suggests that it is necessary to rethink the practice of signification as a wholly human process. Rather, the implication of recognizing nonhumans and environments as *contributors* within social and relational processes that *always* include a multiplicity of agents — human, nonhuman and environmental — is that performed identities are no longer viewed as simply another aspect of human signification. In this sense, the focus on signification becomes one of *communication*. The shift from an emphasis on signification to an emphasis on communication is important because it firmly situates nonhumans and environments as participants within a larger series of relationships. In short, they can no longer be viewed simply as passive recipients of human signification. This shift therefore destabilizes Modern notions of agency by acknowledging not only that humans have relationships with nonhumans and environments, but that those nonhumans and environments are agents in their own right. Thus, I argue that anthropocentric examples of self-fashioning and performativity needlessly ignore and silence the contributions of nonhuman participants. By acknowledging the participatory and communicative agency of nonhumans and environments, a more *radical* notion of agency is starting to develop.

A Nonhuman (Cyborg) Agency

Donna Haraway, like Judith Butler, is influenced by Foucault. However, Haraway expands on Foucault's thought in order to explicitly develop a notion of *nonhuman* agency. Unlike Butler, Haraway gains her inspiration from Foucault's notion of biopower rather than his notion of self-fashioning. In the previous chapter, I argued that biopolitical power relations are becoming increasingly environmentalized and now manage the efficiency and productivity of nonhumans and environments. Similarly, Haraway argues that her notion of a 'cyborg politics' is an extension of biopolitics because it describes how humans, nonhumans, animals, machines, environments and technologies are all *produced* within contemporary power relations. Haraway (1991) admits that "Michel Foucault's biopolitics is a flaccid premonition of cyborg politics, a very open field" (150). This biopolitical production of nonhumans, environments, animals and machines generates a notion of nonhuman agency, in part, because — as Haraway argues — the boundaries between humans and all sorts of nonhumans are blurred. Haraway asks: "Why should our bodies end at the skin, or include at best other beings encapsulated by skin?" (178). In this sense, Haraway asserts that biopolitical power

relations are increasingly extended beyond what is human *precisely because* it is impossible to determine what is human and what is not. Haraway's notion of a nonhuman agency is thus actively derived from a synthesis between human and nonhuman, nature and culture, human and animal, organism and machine that is contesting their boundaries.

The importance of recognizing that the boundaries between humans and nonhumans are being blurred is that it destabilizes Modern distinctions between Man and Nature as well as the assumption that agency is attributable only to humans. Because of this broad coalescence between humans, nonhumans and environments, it is no longer possible to make a distinction between which particular participant is endowed with agency and which is not. Rather, agency is distributed among a wide variety of participants; humans, nonhumans, animals, objects, spaces, machines, environments, plants, technologies and communications devices are all participants within power relations. According to Haraway's argument, nonhuman agency exists *because* differences are indeterminable. Haraway (1991) argues that within contemporary power relations, "It is not clear who makes and who is made in the relation between human and machine" (177). The erasure of the distinction between who acts/makes and who is passive/made has the effect of effacing the difference between those who have agency and those who do not because it disrupts the Modern dualism between subjects who study and objects that are studied. This means that the distinctions between "Nature and culture are reworked; one can no longer be the resource for appropriation or incorporation by the other" (151). That the distinction between who makes and who is made, or who studies and who is studied, is no longer apparent means that those notions of agency that are contingent upon such a distinction are inevitably destabilized. The recognition that the boundaries between humans, nonhumans and environments are necessarily indistinct therefore means that any characteristics attached to those distinctions, such as agency, are no longer tenable.

Haraway overtly embraces the implications of a radical relationality and delights in the recognition that there are no longer any characteristics that are purely human. By exposing the slipperiness of boundaries Haraway contends that we are no longer able to determine where ourselves, bodies, biologies, organisms stop and where the spaces, machines, technologies, environments around us begin. Thus, Haraway argues for a 'cyborg politics' which — because cyborgs are hybrids of humans, nonhumans and machines — engender a world "in which people are not afraid of their joint kinship with animals and machines, not afraid of permanently partial identities and contradictory standpoints" (154). A cyborg politics unambiguously denies the distinction between self and the wider community made up of humans, animals, organisms, machines, technologies, environments and

numerous other participants. Questioning the enacted boundaries that purportedly separate humans

from the world around us allows us to see ourselves as embedded within nonhuman and environmental

realities. Haraway argues that cyborg politics are "a kind of disassembled and reassembled,

postmodern collective and personal self" (163). As a result of this radical blurring of boundaries,

Haraway's notion of a cyborg politics implies a definition of agency that necessarily includes all

manner of diverse agents. Because it is no longer possible to determine the boundaries that make

humans and nonhumans distinct, the characteristics that belonged exclusively to humans, such as

agency, are now dispersed across these blurred categories.

Because agency is no longer a characteristic of a distinct category of humans, it is recognized

that agency is dispersed throughout all relationships. Haraway's notion of a cyborg politics is thus an

important expansion of Foucault's notion of biopower because she argues that a political figure — that

of the cyborg — which blurs the boundaries between humans, nonhumans and environments is the

necessary outcome of the biopolitical production of all forms of life. Because the former distinction

between humans, nonhumans and environments that is so central to Modern systems of thought has

collapsed, Haraway's argument describes one way in which nonhumans and environments have

acquired agency. According to Haraway's argument there is a *conflation* of nonhumans and humans

and because nonhumans are no long distinct from humans, characteristics such as agency can no longer

be said to belong only to humans. This conflation between humans and nonhumans is significant

because it underscores the arbitrariness of the Modern distinction between the two and, in doing so,

destabilizes the seeming naturalness of constituting nonhumans and environments as non-agential.

However, this blurring of boundaries between humans and nonhumans, despite its recognition of

nonhuman agency, can *efface* the radical differences that exist between humans, nonhumans and

environments. This erasure of differences is dangerous because it indicates an anthropocentrism of

sorts. Because nonhuman agency is recognized as a result of the blurring of boundaries, there is an

implication that nonhumans have simply been absorbed into the category of 'human' and, hence, this

granting of agency can be interpreted as anthropomorphic. A radical relational agency must recognize

that there can be radical differences which exist between humans, nonhumans and environments; to

flatten all differences is to ignore the implication that nonhumans have identities which are distinct

from purely anthropomorphic characteristics. In the following section I will examine how different

theorists conceive of the ways in which multiple agents, including humans, nonhumans and

environments, interact in networks and assemblages.

Acting Together: Networks and Assemblages

Following from Foucault's recognition that power is both relational and productive, actor-network theory aims to describe how *all* humans, nonhumans and environments are produced within those relations of power. In this sense, actor-network theory acknowledges the implication that power relations include nonhuman and environmental participants. Moreover, actor-network theory explicitly recognizes what Foucault's investigations merely implied — that *all* participants within power relations are agents. John Law (1999) argues that:

> actor-network theory may be understood as a *semiotics of materiality*. It takes the semiotic insight, that of the relationality of entities, the notion that they are produced in relations, and applies this ruthlessly to all materials — and not simply those that are linguistic. This suggests: first that it shares something important with Michel Foucault's work; second that it may be usefully distinguished from those versions of post-structuralism that attend to language and language alone; and third [...] that it expresses the ruthlessness that has often been associated with the march of modernity (4).

The consequence of actor-network theory being influenced by Foucault's thought is that it views actors as *primarily* constituted within a relational space. Actor-network theory proceeds from Foucault's understanding of a relational power and recognizes that relationality explicitly entails the production of all nonhuman and environmental materialities. Furthermore, it acknowledges that those nonhumans and environments *play a role* within those relationships that exposes their agential capacities.

Extending the recognition that *all* actors — whether human or nonhuman — are produced within a relational space, actor-network theory explicitly defines every participant within power relations *as an agent*. Latour (2005) argues that what matters within actor-network theory "is the precise role granted to non-humans. They have to be *actors* [...] and not simply the hapless bearers of symbolic projection" (10). In this sense, unlike Haraway's cyborg agency, actor-network theory explicitly destabilizes the Modern distinction between humans and nonhumans *without* suggesting that the two categories are becoming blurred. Indeed, the recognition that nonhumans and environments are not "the hapless bearers of symbolic projection" implies that they maintain their own distinct identities within relational spaces. Thus, actor-network theory acknowledges that nonhumans are *actors in their own right*; not by consequence of becoming bound to humans, but because of the places that they hold within relational networks. Actor-network theory is important *because it very explicitly extends agency* to nonhuman actors without effacing the differences that exist between various humans, nonhumans and environments. By recognizing the agency of nonhumans, actor-network theory destabilizes the constitution of nonhumans as passive objects of scientific observation. Indeed, actor-network theory explicitly describes the ways in which scientific knowledges are generated not *by*

scientists as individuals, but instead demonstrates that knowledge is generated as a result of scientists'

embeddedness in relational power networks which include the nonhumans that they study. As Latour

argues, because nonhumans are not simply the products of human signification and are instead agents

within relational networks, their contributions to knowledge and science must be recognized.

In the sense that actor-network theory recognizes that nonhumans are participants within power

relations, it also suggests that nonhumans are actively involved in the production of scientific

knowledges. Jonathan Murdoch (2006) argues that Latour, in particular, with his interest in the

accumulation of scientific knowledges:

> adopts a Foucauldian perspective on the 'microphysics' of power in science, and shows how the
> generation of scientific knowledge relies upon the construction of complex alliances or
> networks. Importantly, power is seen to lie not in the properties or abilities of the scientists
> themselves but in the very relationships they manage to establish between actors and entities of
> various kinds (62).

Latour's adoption of a relational notion of power thus demonstrates that nonhumans are not granted

agency because they have become a sort of agent that is simply augmented by a human agency that has

become attached to them, but because those nonhumans actually establish their *own kinds* of

relationships. The consequence of Latour's recognition that nonhumans participate within the

constitution of scientific knowledges is that the Modern construction of humans as subjects who study,

and nonhumans as passive objects of study, is thoroughly destabilized. By acknowledging that

nonhumans are actors, as humans, we must give up our authority as 'experts' who make silenced

objects speak. Rather than viewing nonhumans as merely a linguistic or social representation, it is

necessary to grant them full status as participants and agents. In undoing the notion that agency is

attached to humans by virtue of their ability to know — as is assumed by Modern systems of thought

— actor-network theory is able to move beyond the anthropocentrism latent in Foucault's account of

relational power.

According to actor-network theory, both humans and nonhumans have agential capacities

because they are constituted relationally within a power 'network'. The actor-network "view of agency

begins not with fully formed agents but with an already constituted social space (the network) and

shows how agents (both human and non-human) emerge from a series of trials in which they are

continually striving to become actors with powers" (Murdoch 2006: 68). Thus, as has already been

discussed, the actor-network notion of nonhuman agency follows directly from Foucault's insistence

that any characteristic of an individual is necessarily produced through relations of power. Indeed, just

as Foucault's notion of power was precisely relational instead of ontological, actor-network theory

explicitly acknowledges that agency is likewise non-ontological. Indeed, "ANT is based on no theory of the stable actor; rather it assumes the *radical indeterminacy* of the actor" (Callon 1999: 181). In a sense, this argument not only suggests that *agency* is non-ontological, but that *agents themselves* do not have an ontological existence. Although it is consistent with a radical relational agency that agents are constituted differentially within power relations, if what is meant by the radical indeterminacy of agents within actor-networks is that agents are so indeterminate as to be interchangeable, then this has the same effect of flattening out the radical differences between agents as does Haraway's blurring of boundaries. Indeed, to fail to recognize the ontological and *radical* differences that exist between agents is, as I have already argued in the previous section, to erase the distinctness between agents and, in doing so, to remove a crucial component of radical relationality.

The problem with the assumption that agents do not exist is that such an assumption extends the characteristics of a non-ontological agency onto the agents themselves and has the potential to erase the radical differences that exist between humans, nonhumans and environments. Because networks are a sort of frame that actor-network theory gives to relationships between humans, nonhumans and things, and out of which a relational agency is produced, these networks can be seen as a kind of object from which agency flows. In other words, while agents are radically indeterminable and therefore non-ontological, networks start to seem more like structures that generate agency *instead of the agents themselves*. By arguing that agents, because they are non-ontological, do not matter in their own particular specificities, actor-network theory runs the risk of neglecting to account for the radical differences between actors. As Lee and Stenner (1999) argue; "as we break ontological boundaries and render everything 'networky', we will become insensitive to complexity and heterogeneity" (110). Because actor-*networks* have a tendency to erase differences, actor-network theory's characterization of nonhuman agency is not suitable to a *radical* relational agency, because explicit to such a notion of agency is that — though both humans and nonhumans have agential capacities — there are still profound differences between them.

To understand how it might be possible to recognize the agency of nonhumans and environments without erasing the radical differences between them, I point to Manuel DeLanda's (2006) description of assemblages. In *A New Philosophy of Society*, he outlines a notion of *assemblage* that he has fashioned from the "relatively few pages dedicated to assemblage theory in the work of Deleuze" (3). According to DeLanda, assemblages are made up of many interrelated parts that are not just human parts and, as such, consist of relationships between a multiplicity of agents *without* effacing their complexity and heterogeneity. DeLanda argues that:

assemblages, being wholes whose properties emerge from the interactions between parts, can be used to model any of these intermediate entities: interpersonal networks and institutional organizations are assemblages of people; social justice movements are assemblages of several networked communities; central governments are assemblages of several organizations; cities are assemblages of people, networks, organizations as well as a variety of infrastructural components, from buildings and streets to conduits for matter and energy flows; nation-states are assemblages of cities, the geographical regions organized by cities, and the provinces that several such regions form (5-6).

Assemblages, then, are made up of *many different components* and even other assemblages. Assemblages are made up not only of individual humans, nonhumans and spaces, but also consist of *groups of humans and other assemblages*.

Importantly, each assemblage, or component of an assemblage, according to DeLanda, is not the same as the whole because different parts are not interchangeable. Each agent *still retains a discrete identity* that is not able to impose itself onto any other agent and is not substitutable with any other agent. As DeLanda makes clear, assemblage theory is an ontology. Assemblage theory does not neglect the radical differences between agents because it recognizes that each individual participant is granted *its own* ontological status. DeLanda (2006) argues that: "The ontological status of any assemblage, inorganic, organic or social, is that of a unique, singular, historically contingent individual. Although the term 'individual' has come to refer to individual persons, in its ontological sense it cannot be limited to that scale of reality" (40). The argument that DeLanda makes here is of exceptional importance to a radical relational agency because he recognizes an ontology *without* reverting to an essentialized identity. DeLanda argues that, because of each agent's historical contingency, a unique identity is produced. He does not return to a Modern notion of human individuality, but acknowledges that agents include a vast and differentiated multiplicity of humans, nonhumans and environments. Individuals are not simply characterized as human individuals because such an ontology includes nonhumans, environments or even assembled groups of human, nonhuman and environments. As DeLanda argues, his definition of ontology escapes essentialism; "individual organisms are the component parts of a larger individual whole, not the particular members of a general category or natural kind" (27). Essentialism is avoided *because* DeLanda conceives of individuals as members of a larger assemblage instead of the representative examples as defined by the Modern episteme. Moreover, as DeLanda makes clear, these are not essentialized categories because each individual and assemblage is necessarily developed through particular historical contingencies.

Assemblages are the result of *co*-constructions of identities that change over time and occur within the context of specific variables that are locatable only in relation to a particular assemblage;

"despite the tight integration between its component[s] […], the relations between them are not logically necessary but only contingently obligatory: a historical result of coevolution" (DeLanda 2006: 12). This notion of co-evolution highlights the contingencies from which assemblages arise and, because a process of evolution indicates change throughout time, that identities are not static. Because assemblages are not essentialized group identities, but are contingent upon historical co-constructions, DeLanda's ontology is also relational. For DeLanda, the relationships between the whole assemblage to its individual parts *replaces* the notion of essential and individualized identities. Because what this part to whole relationship describes is, in fact, a set of relations, there are no essences to assemblages or their individual components. They have ontological status *because of* their ability to relate to, interact with and affect each other. DeLanda (2006) argues that: "social assemblages larger than individual persons have an objective existence because they can causally affect the people that are their component parts, limiting them and enabling them, and because they can causally affect assemblages at their own scale" (38). DeLanda's notion of assemblage theory does not negate differences between individuals because the ontological status of individuals (or groups of individuals) is derived, in part, through *their very ability to relate to each other*. Thus, unlike actor-network theory, DeLanda's notion of relationality does not deny the ontological differences between agents. Indeed, DeLanda's relational ontology explicitly acknowledges that agents maintain their own unique identities.

DeLanda's ontology, while recognizing the material existence of individual elements, resists essentialism by demonstrating that identities are contingent and relational. Yet, the contingent and relational production of identities does not *efface* identities because ontological differences are a necessary prerequisite for that relationality. Just as Foucault questioned the notion of the agential subject as an individual entity made up of essentialized and static elements, so does DeLanda's relational ontology. However, DeLanda explicitly argued that there is an ontological existence to differences between individuals and assemblages. Indeed, a notion of relationality requires *things with which to relate*; identities cannot be effaced because were no differences to exist it would mean that, by definition, relationships would no longer be possible. In this sense, the result of a relational ontology is the implication of a more *radical* relational agency in which humans, nonhumans and environments interact while nevertheless maintaining their own differences. A radical relational agency means that humans (or other individuals) cannot exist in isolation because, without other individuals with whom to relate, the creation of any relational identity would be impossible. To deny the ontological and material existence of agents would thus be to inadvertently erase the differences necessary to a radical relational agency.

To combine the theoretical implications of the nonhuman notions of agency that I have described throughout this chapter, is to arrive at a possible description of a radical relational agency. As I have already argued, the primary assumption of this notion of agency is that all agents — human, nonhuman and environmental — are all produced within the limits of omnipresent relations of power. Because this power is explicitly relational, any instantiation of power is capable of being overturned. In the previous chapter, I argued that it is precisely because of this lack of guarantees that a relational agency is generated. By examining the work of theorists who explicitly acknowledge that nonhumans and environments are participants within relations of power, I have argued that there are no limitations to these relationships which make them purely human. Indeed, a radical relational agency is generated, in part, because the Modern distinctions between humans, nonhumans and environments has been breaking down. However, I have also argued that a radical relationality entails the existence of radical differences between agents that cannot be effaced. Without such differences, a relationality would be impossible. Thus, a radical relational agency is generated as a result of relationships between *different kinds of individuals*.

Contemporary Environmental Resistances, Complexity Theory and Ecology

The notion of 'ecology', like the notion of 'the environment', is a very recent invention. The emergence of a full-fledged environmental movement in the 1960s is characterized, in part, by the fact that; "'Ecology' became a word known to (if rarely understood by) the average citizen" (Sale 1993: 23). Prior to the widespread influence of the contemporary environmental movement words, such as 'ecology', were not part of an everyday vocabulary. This recognition is important because of what the term ecology denotes; "'ecology' is not the same thing as 'environment': the environment is what is out there; ecology is how we study it, specifically the relation of species to each other and to their environment" (Sale 1993: 23). The science of ecology, unlike the Modern human sciences, *begins with the premise that* humans, nonhumans and environments necessarily interact. As Hawken (2007) argues, the "first principle of ecology 101: [is] namely, that everything is connected" (58). While Nature was constituted by Modern scientific knowledges as fundamentally separate from Man, the scientific practice of ecology proceeds from a different assumption. In short, the ecological assumption that everything is interconnected is radically different from the Modern notion that Man and Nature are distinct. The recognition that humans are embedded within ecological relationships is important because it underscores the transformation of Nature into 'the environment'. Moreover, I will argue that it is consistent with a fundamental recognition of a radical relational agency — that agents are *limited* by ecological relations as well as relations of power.

A radical relational agency acknowledges that not only do relations of power limit human behaviour, but that humans are likewise limited by ecological constraints. This means that there are neither any purely human, nor any purely nonhuman, interactions or relationships. As Jenks and Smith (2005) argue:

> Human construction is subject to *ecological* constraint: it does not and cannot take place in the special world of 'humanism' [...]. And if human constructions take place in real time and space, i.e. in terrestrial ecology, two things follow: they are likely to be co-influential; they cannot be said to take place *within* human minds, cultures, custom, language or whatever else is proposed to stand as boundaries. This 'within' and the dichotomy of internal/external are a particularly entrenched topology amongst ancient and modern thought which must be resisted (26).

By recognizing ecological limits, it is acknowledged that humans are firmly attached to and *situated* within an environment, a space and an ecological topography; the formation of human subjects intersected, cross-hatched and marked by the wide variety of nonhuman participants with whom we interact. Thus, a radical relational agency is *radical* because it recognizes that nonhuman, environmental and ecological relations of power place constraints on humans.

I have chosen to examine ecology and environmental actions as exemplars of a radical relational agency they explicitly seek to rethink the relationships that occur between humans, nonhumans and environments. As Murdoch (2006) points out, "the ecological approach shades neatly into the relational approach, that is, it emphasizes how heterogeneous relations link social actors into particular spatial domains" (3). In this sense, ecologies are an explicit mapping of the diverse relationships between humans, nonhumans and environments. The similarities are observable between a relationality and an ecology because, as I have argued throughout this thesis, a radical relational agency *itself* approaches the ecological recognition that everything is interconnected because, it asserts that relationships necessarily occur between humans, nonhuman and environments — and that it is impossible to escape these relationships. The corollary of this recognition is that, not only is everything interconnected, but those interconnections that occur between various agents impose *limits* on possible actions. Foucault has made it clear that power relations can constitute limits, but he did not acknowledge that nonhuman material ecologies can inflict limits on possible actions. The recognition that material ecologies pose limits on the actions and relations between nonhumans, humans and environments is also central to a radical relational agency because, inherent to the notion of radical relationality that I describe, is an understanding that relationships are always constrained in some way. Without the recognition of such limits, a relational agency might have a tendency to preference the *human* and the social.

Complexity theory asserts that there are *complex* relationships that occur between humans, nonhumans and environments. Furthermore, complexity theory asserts that these relationships are necessarily constrained by material limits. As I have already argued, the notion that there are limits constraining possible actions is necessary to understanding a radical relational agency. In the previous chapter, I examined how power relations place limits on relationships. However, a Foucauldian notion of power relations does not recognize that there are material and ecological limits which likewise constrain relationships. Complexity theory is significant in this respect because it points out that, *because the systems in which we live are so complex, there are necessarily events and limits that are beyond human control.* In this sense, the recognition that humans are located within complex systems means that there are certain ecological or material limits that constrain relationships and actions. And this is also what contemporary environmentalism argues — that human systems are bound by finite ecological limits.

Complexity theory points out that complex systems are necessarily constrained by their own 'path dependencies', which means that complex systems are always, in fact, *limited* by contingencies particular to each system. Thus, there are necessarily limits that are significant to the continuation of any complex system which *are not* synonymous with the power relations discussed in the previous chapter. The notion of path dependence shows that "causation can flow from contingent events to general processes, from small causes to large system effects, from historically or geographically remote locations to the general. Path dependence shows that the ordering of events or processes through time very significantly influences the non-linear ways in which they eventually turn out" (Urry 2005b: 6). In short, path dependence means that complex systems are always dependent upon historical contingencies; there are always historical dimensions that limit the relationships within complex systems. This recognition of historical specificity resembles Foucault's (1970b) insistence that any discourse, or system of thought, reflects the "preconditions of possibility" that characterize its history (xxiii-xxiv). But, whereas Foucault argued that limits are a function of power relations, complexity theory argues that limits are a function of a multiplicity of various interactions, materialities and ecologies. While Foucault's thought demonstrated that systems of thought are contingent upon relations of power, complexity theory acknowledges that humans exist within ecological constraints.

Although complexity theory recognizes that humans are constrained by ecological limits, it does not herald a return to environmental determinism. Rather, like Foucault's nonlinear notion of history, complexity theory likewise suggests that path dependencies do not necessitate linear changes; "The path concretizes a history and the space of a present. Only from the point of view of linear

determination based on minimal or trivial interactions is a future determined" (Jenks and Smith 2006: 249). The notion of path dependence recognizes that there are constraints placed on complex systems, but such constraints do not mean that history is determined. Instead, like Foucault, complexity theory explicitly acknowledges that history is nonlinear. The recognition that complex systems are nonlinear suggests also that human systems have necessarily *evolved* within the material and ecological limits of those systems. This notion of evolution (or, more precisely, co-evolution) is important because, as Jenks and Smith (2006) point out, "to suggest that human culture *evolved* is to suggest constraint" (26). The nonlinear evolution of complex systems, including the human cultures embedded within those systems, means that humans are limited by the evolutionary histories of those systems both in terms of historical contingencies *and* in terms of the material limits that they impose. Thus, because human cultures — and systems of thought — evolved within material ecologies; both ecological relations and relations of power have necessarily limited human interactions.

The recognition that complex systems have evolved (or rather, co-evolved) thus highlights both the constraints and possibilities associated with complexity. Like the relations of power that entail both possibilities and constraints, complexity theory acknowledges that there are both limitations and potentialities within complex systems. Indeed, by acknowledging that history and change are nonlinear, complexity theory highlights the *unpredictability* of complex processes:

> Complexity though is not the same as simply complicated. Complex systems analyses investigate the very many systems that have the ability to adapt and co-evolve as they organize through time. Such complex social interactions are likened to walking through a maze whose walls rearrange themselves as one walks through; new footsteps have to be taken in order to adjust to the walls of the maze that are adapting to each movement made through the maze. Complexity investigates emergent, dynamic and self-organizing systems that interact in ways that heavily influence the probabilities of later events. Systems are irreducible to elementary laws or simple processes (Urry 2005b: 3).

The importance of recognizing that there are unpredictable potentialities within complex systems is to not only illustrate its differences from a biological or ecological determinism, but to suggest that there are always possibilities that such systems can behave *in different ways*. Complexity theory, because it recognizes that systems are nonlinear and not simply deterministic, holds out the possibility that unpredictable changes can occur. In this sense, like a Foucauldian notion of power relations, complexity theory underscores the dynamism and unpredictability that is a result of a vast number of interconnected agents — human, nonhuman and environmental — interacting, adapting and changing.

The importance of turning to complexity theory is not only to outline the implications that human systems are constrained by ecological limits, but also because it shares something with a radical

relational agency in that it acknowledges that different kinds of relating and organizing are always possible. Clark (2005) argues that complexity theory "enables theorists to acknowledge the unmanageability of the contemporary world while also holding open the possibility that novel forms of organization or structuring might emerge spontaneously out of a sea of dense and disorderly interaction" (166). Complexity theory is relevant, then, to understanding how a *multiplicity* of different agents can generate change. It is in this sense that complexity theory is similar to a Foucauldian notion of power relations because it suggests that to act in other ways is always possible. However, where complexity theory and a Foucauldian notion of relational power differ, is that complexity theory acknowledges that there are *many different kinds of agents* that are decidedly nonhuman. As I have argued throughout this chapter, this diversity of agents is necessary in order for a radical relational agency to exist. Complexity theory — as the name suggests — is necessarily concerned with the *complex* qualities of nonlinear systems. In this sense, complexity theory also stresses the diversity, heterogeneity and complexity of agents within those systems.

The argument that I have made throughout this chapter is that a radical relational agency *explicitly* recognizes that isolation is impossible; there is agency only because *we cannot exist in isolation*. Moreover, the heterogeneity of each agent means that each agent is not reducible to any other agent. In this sense, there are ecological limits, in part, *because* each agent retains its own identity. Understanding that there is a diversity of heterogeneous agents also points to the recognition that humans exist within material ecological limits; "diversity is a fundamentally ecological concept: it refers to a differentiated field and, especially in the case of the living, it refers to adaptation, to an environment that is differentiated and potentially contains other life forms" (Jenks and Smith 2006: 97). The diversity of possible agents *generates* a radical relational agency because it means that adaptive actions are always carried out as a response to the limits imposed by differentiated agents. Thus, a radical relational agency acknowledges that isolation is impossible because, although identity is derived relationally, it cannot be effaced. As I indicated in the first chapter, Modern thought is not completely secular because it prioritizes the centrality of the human mind and its autonomy. A radical relational agency, by definition, cannot prioritize human thought or autonomy. Rather, it points out that human thought can only take place within the ecologically constrained limits of complex systems and diverse assemblages. A radical relational agency does not view agency as an innate characteristic of human beings, but as a result of the relationships that occur between humans and many, many nonhumans; a radical relational agency proliferates *because* it is relational.

A Radical Relational Agency

As I have argued throughout this chapter, the usefulness of applying complexity theory to a radical relational agency is that it makes explicit the ways in which human systems are constrained by material environments and ecosystems, and are situated within relations of power *that necessarily include nonhuman agents*. The adoption of complexity theory has occurred relatively recently, it was "in the late 1990s that the social sciences begin to go complex", and hence there remains much work to be done in situating it (Urry 2005b: 2). Throughout this chapter I have suggested that it is possible to situate complexity theory within a larger discussion about a radical relational agency that includes Foucault and environmentalism as well as theorists influenced by a Foucauldian notion of power relations. In terms of the relationship between Foucault's thought and complexity theory, I have argued that there are both similarities and differences. While both Foucault and complexity theory acknowledge that history is nonlinear, unpredictable and necessarily open to change, the move to complexity theory is *necessary* because it acknowledges that humans are constrained by ecological limits. In this sense, complexity theory serves to explicitly acknowledge the implications of a relational power by demonstrating that humans, nonhumans and environments are interconnected within vastly complex systems. Complexity theory is thus important to understanding a radical relational agency because of the similarities that it shares with Foucault's thought and because it functions as a corrective to Foucault's omissions.

Although complexity theory emerged within scientific disciplines, it is applicable to a notion of radical relational agency because it recognizes that complex systems are necessarily social *and* ecological. Complexity theory is "a subject that's still so new and so wide-ranging that nobody knows quite how to define it, or even where its boundaries lie" (Waldrop 1992: 9). Because the boundaries of complexity theory are still being defined, its application to a radical relational agency is not a foreclosed option. Indeed, I argue that complexity theory serves a vital function in defining a radical relational agency because it facilitates the transformation of a recognition of limits to explicitly include ecological limits. By applying the insights of complexity theory to notions of a radical relational agency, it is possible to broaden an understanding of both ecological limits and the constraints imposed by power relations. On the other hand, there is no specific account of power within complexity theory and so it is necessary to reflect a notion of power back onto an understanding of complex systems. As I argued in the previous chapter, all relations are relations of power, including those circumscribed within ecological constraints. In this sense, complexity theory benefits from an integration with a radical relational notion of agency because understanding how agency is generated within complex systems allows its insights to be applied to political actions.

In the following chapter, I will examine in greater detail the implications of what it means to exist within complex and interconnected systems. In particular, I will argue that the interconnections between humans, nonhumans and environments — generated in part through the globalizing processes legitimized by biopolitical production — are becoming increasingly complex and, hence, increasingly unpredictable. I argue that the increasing complexity and interconnectivity of contemporary globalized systems mean that they are becoming increasingly destabilized. Given that contemporary globalized systems generate relationships between humans, nonhumans and environments that span across the globe, I argue that such globalization is indicative of environmentalists' arguments that planetary systems are becoming destabilized. Given that this is the case, I argue that the unpredictability of destabilized systems has consequences for how environmental resistances are to proceed. Indeed, it indicates the importance of understanding a radical relational agency because, as I have already suggested, such an agency is generated *because* the outcome of action is never guaranteed.

CHAPTER FOUR

Food, Farming and Fossil Fuels: Globalized Complexity and Instability

Following the development in the previous chapter, from Foucault's notion of self-fashioning to a radical relational agency, this chapter proceeds from the acknowledgement that humans, nonhumans and environments are radically interconnected. Indeed, one of the key insights of complexity theory that contributes to a radical relational agency is that complex systems are neither purely human nor purely ecological. Rather, humans, nonhumans and environments are part of the same complex systems. As David Salt and Brian Walker (2006) argue: "We exist in linked social and ecological systems […] the social-ecological system that we are all part of [is] one interlinked system" (32). Thus, to reflect this interconnectivity, I use the borrowed terminology "social-ecological system" to denote the recognition that humans, nonhumans and environments cannot be conceived as existing within separate systems. In the previous chapter, I argued that Foucault's thought implies a more *radical* relational agency than he acknowledged. By examining theorists influenced by Foucault's recognition of an omnipresent power, I argued that a radical relational agency recognizes the diversity of different agents without effacing that diversity. In this chapter, I expand on the notion of a radical relational agency by exploring the profound interconnectivity that is characteristic of *globalized*, complex social-ecological systems.

The recognition that contemporary social-ecological systems are necessarily *globalized* is important for a number of reasons. First, a recognition of globalization demonstrates a point of connection between Foucault's notion of dispersed power relations and the assertion by complexity theory that all systems are interconnected. This similarity may appear superficial, however it illustrates a radical relationality that extends all around the planet and, in doing so, indicates that contemporary systems are becoming *increasingly* complex and interconnected. Second, because globalization emerges in part due to the governmentalizing and environmentalizing power relations that aim to generate efficient capitalist production, it indicates that contemporary biopolitical power relations have a destabilizing effect on complex social-ecological systems. In this sense, complexity theory does not recognize that every relationship is a power relation, and so Foucault's thought remains essential to the discussion of contemporary complex systems. Finally, because globalization is characterized by an increasing complexity and interconnectedness, I will argue that it is likewise an increasingly destabilizing process. Because complexity theory argues that destabilized systems are necessarily prone to unexpected shifts, the consequence of this instability is a greater likelihood that contemporary

complex systems could generate unforeseeable emergent phenomena. Thus, throughout this chapter, a radical relational agency will be examined in the context of contemporary processes of globalization.

As I argued in the previous chapter, the nonlinearity of Foucault's notion of history and the nonlinear evolution of complex systems both suggest that change is unpredictable. Furthermore, the possibility that power relations can always be overturned reveals that there is always an unpredictable element to relations of power. In this sense, the increasing instability of contemporary globalized social-ecological systems is significant because it, in fact, suggests that unpredictability is becoming increasingly pronounced; as systems destabilize, they are more susceptible to *unforeseen* shifts. In order to examine how the increasing complexity and interconnectedness of contemporary social-ecological systems increases the possibility that an *unpredictable shift* will occur, I will use examples pertaining to food, farming and fossil fuels. At the most intimate level, issues of food, farming and fossil fuels indicate the basic interconnectivity of humans, nonhumans and environments. Humans' embeddedness with soil, industrial agriculture, petrochemical fertilizers and pesticides, farm labourers, oil rigs, nutrients and minerals, seasons, climates, rainfall, and all the other apparatuses of food, fuel and farming demonstrate the mundane ways in which humans, nonhumans and environments interact on a daily basis. In part *because* these issues are mundane, they immediately and directly connect humans to the complex social-ecological systems in which we exist. For example, eating food physically and materially demonstrates the interconnections between humans, nonhumans and environments; ingesting an item *grown in the ground* literally demonstrates an interdependence. Thus, the increasing complexity of these global interconnections confirm that there would be profound implications were our contemporary social-ecological systems to become destabilized and shift into an alternate state.

I choose to examine issues concerning food, fuel and farming because their globalized — and increasingly unstable — characteristics are problems against which contemporary environmental resistances frequently protest. Because a recognition that the world is finite is integral to the ecological thinking characteristic of contemporary environmentalism, many protests and actions are focussed on the unsustainability of globalized systems of food, fuel and farming. Issues concerning the politics of consumption, industrial food production, use of petrochemical fertilizers and pesticides, the treatment of farm labourers, economic subsidies, genetic modification, food miles, chemical additives, packaging, and contamination all occur as the topics of environmental campaigns. Indeed, the recognition that issues of food, farming and fossil fuels are integral to human well-being indicates that contemporary environmental resistances share some of the same understanding of vast

interconnectedness as does complexity theory. In this sense, environmental resistances concerning food, fuel and farming serve as an appropriate example for the globalized social-ecological systems I will discuss. However, some of the contemporary environmental actions against the perceived shortcomings of these globalized systems do not account for the extreme unpredictability and interconnectedness that complexity theory demonstrates. By failing to recognize the unforeseen consequences of their desired 'sustainable' practices of eating, agriculture and the production of energy, contemporary environmental action sometimes neglect one of the main competencies of a radical relational agency. Thus, I will argue that the current environmental practices often do not recognize the unpredictability that is inherent to complex systems and the generation of radical relational agency.

Unpredictability is important to a radical relational agency because, implicit within a recognition of unpredictability, is an understanding that the outcome to any action *is never guaranteed*. Indeed, as I have already argued, this lack of guarantees is precisely what generates a radical relational agency because it means that there is always something to do. But, because the result of any action or resistance is unpredictable, a radical relational agency requires a different way of conceiving the means by which it is possible to effect change. In a sense, the unpredictability of complex systems seems to negate the possibility of changing current systems in any *particular* way. However, the notion of self-organized emergences, as described by complexity theory, illustrates some of the possible ways in which collective phenomena can manifest themselves. While Foucault was unable to explain the mechanism by which abrupt shifts can happen, complexity theory, on the other hand, explains how self-organized systems (such as complex systems) can develop emergent properties that are both *collective* and *decentralized*. The notion of self-organization as a collective and decentralized process helps to develop a notion of radical relational agency because it emphasizes the interconnectedness of humans, nonhumans and environments without denying each their own ontological status.

The purpose of this chapter is to highlight the interconnectedness, unpredictability and globalization of contemporary social-ecological systems. Our contemporary social-ecological systems are inherently unstable due to their extreme complexity, their interconnectedness and the ways in which relationships between humans, nonhumans and environments span across the globe. I argue that the instability of the current arrangements in our social-ecological systems means that, in part, environmental activists have correctly perceived the need to alter those current arrangements. But, using food, farming and fossil fuels as examples of highly complex, interconnected and unstable arrangements, I will argue that some responses that contemporary environmental resistances have theorized actually exacerbate the problems that they have identified. I will also point to the relations of

power that are immanent within these arrangements because complexity theory often omits power as a contributing factor to the complexity of globalized systems. Therefore, the insights gathered from complexity theory do not completely replace the relationality implied by Foucault. Rather, Foucault's thought is still needed to remind us of the dangers inherent within relations of power. Thus, in order to respond to the instability of globalized social-ecological systems and the dangers associated with increasing environmentalities, I will suggest that understanding a radical relational agency is necessary precisely because it is generated through the very interconnectedness, unpredictability and instability characteristic of contemporary globalized systems.

Industrialized and Globalized Agriculture

In order to examine how relations of power can reinforce the instability of contemporary social-ecological systems, I have chosen to develop examples pertaining to food, farming and fossil fuels. In particular, I argue that the power relations and systems of thought examined throughout the previous chapters have contributed to the contemporary rise of a globalized and industrialized agriculture. I argue that an environmentalizing biopolitical management of productivity has reinforced the spread of globalizing power relations because it is symptomatic of the increasing attempt to make all participants throughout the globe (whether nonhuman or human) more economically useful. More specifically, the spread of biopower encourages the spread of globalizing power relations because it produces all constituent elements within the system as economic resources to be used without consequence. The importance of recognizing the ways in which biopolitical power relations reinforce globalizing processes is twofold: in the first instance, it demonstrates that complex systems *are not purely ecological*; in the second instance, it demonstrates a recognition central to complexity theory — that highly complex and interconnected systems are susceptible to destabilizing fluctuations. In the discussion that follows, I will argue that *both* finite ecological limits and the constraints imposed by power relations destabilize globalized social-ecological systems.

After the Second World War, agriculture adopted industrial practices which had not previously been experienced. This 'Green Revolution', as it is labelled, signifies the beginning of intensive inputs of mechanized labour and the use of petrochemical pesticides and fertilizers. Prior to the Green Revolution, farming had yet to be mechanized. After the Green Revolution, farming was practiced in a highly industrialized manner:

> farm inputs such as labour, fertilizers, seeds, water, and others that were previously produced on the farm were replaced by inputs that had to be purchased off the farm. Fossil-fuel-driven machines were manufactured, which replaced human labour and enabled larger tracts of land to

be farmed. Commercial 'high yield' hybrid seeds were developed, along with the chemicals and pesticides that were a prerequisite in order for these seeds to produce any bud of food. Such seeds also required huge amounts of water, and, […], great feats of engineering enabled large dams to be built and rivers to be rerouted/diverted, allowing water to be delivered to formerly arid lands (Barker 2002: 251).

The Green Revolution demonstrates that the industrialization of farmlands occurred in much the same way as cities were industrialized a century and a half earlier during the Industrial Revolution. Thus, I argue that industrialized agriculture, because it requires a high degree of chemical input, organization and distribution of resources, and globalized trade, demonstrates one manifestation of the increasing complexity of contemporary social-ecological systems.

As well as the industrial agricultural inputs developed during the Green Revolution, contemporary globalized food production also relies on vast systems of transportation, trade and the existence of globalized economies. In order to ship produce, grains and other edibles from one side of the world to another, globalized food production indicates a high degree of complexity, because such dispersed and profoundly interconnected relationships necessarily require a profound degree of global management and interaction. Because of the complexity, interconnectedness and globalized nature of contemporary industrialized food production, agricultural relationships can now span thousands of kilometres. Therefore, environmentalists point out that there is a disconnect between the excessive consumption of Western nations and the impact on ecosystems in the less developed Southern hemisphere. Because globalization makes it possible to extend relationships across the globe; "most manufactured goods and agricultural products consumed in richer countries are produced in the South. Global corporations benefit from raw materials and cheap labour to be found there" (Norberg-Hodge 2008: 14). Thus, the degradation of land in developing nations is — because social-ecological relationships span the globe — related to patterns of consumption in Westernized nations. With the advent of globalized consumer capitalism and industrialization, the contemporary social-ecological systems on this planet have become progressively more intertwined.

The vast interconnections and linkages required of globalized industrial agriculture ensure that changes made in one part of the planet will necessarily have an impact on elements of a system that could be separated by vast geographic differences. It is for this reason that consumption patterns in industrialized nations can have adverse effects on environments and ecosystems on the other side of the planet. Complexity theory elucidates this profound spatial and ecological interconnectivity by acknowledging that: "All over the world there are countless examples of how economic globalization is worsening environmental destruction" (Capra 2002: 147). In this sense, both complexity theory and

environmental resistances recognize that the increasing complexity and interconnectivity of contemporary social-ecological systems means that they are subject to destabilization. Central to contemporary environmental action is criticism of industrial agricultural methods; from pesticide run-off to seed ownership to farm animal wastes to rights of access to human survival, industrial agriculture serves as a rallying point. As environmental resistances point out, the over consumption of food in the Western world has had direct consequences on agricultural systems on the other side of the globe.

Social-ecological systems are linked both globally and locally, and — increasingly — across vast geographies. This interconnection of systems spans the largest to the smallest scales. For example, Graham Harvey (2008) examines the complex social-ecological systems that entail relationships which interlink the most minute soil systems with international trade. He illustrates a linkage of systems and scales between industrial agriculture, chemical fertilizers, consumer capitalism, the biological processes of decomposition and mineral profiles of soil. Harvey points out that "when you kick over a clod of earth, it's hard to grasp the complexity of it", and so the amount of organisms, minerals and processes performed by soil can be hidden beneath the seeming simplicity of its existence under our feet (37). Complex systems within dirt regulate its nutrient profile, its ability to produce nutritious food, its ability to hold water and its ability to resist soil erosion which means that any changes made within these interlinked systems can have effects on such abilities. Moreover, the minerals and nutrients in our food have a direct link to the health of the soil in which it is grown. In this sense, the complex systems within topsoil are linked to globalizing processes because, as industrialized farming methods increase and as trade continues between disparate geographies, the preference of Western palates will directly determine what is grown in the soil of far-flung trading partners, how it is grown and *how much* of it is grown.

Through the interrelatedness of systems at different scales, soil affects ecosystems, human health, crop quantities, local and global economies, food preferences, and many other innumerable relationships. Because of the intensive farming methods used by industrialized and globalized agriculture, soil has become increasingly unable to produce nutritious food. If soil has been made unhealthy by mechanized farm labour and liberal use of chemical fertilizers and pesticides, then there is an accompanying drop in the nutritional value of food that is harvested. This relationship between human input and the soil's output is a consequence of the interconnections between complex systems at varying scales. Harvey (2008) argues that "the farming methods of industrial countries seem designed to wreck this ordered complexity" (40). The interconnectedness of social-ecological systems across different scales, from global economies to soil nutrient profiles, means that it is impossible to see

globalized industrial agriculture (or any other system) as entirely isolated. Indeed, the outcome of this tight interconnection between systems has meant that; "soil degradation has already reduced global agricultural productivity by around 15 percent in the last fifty years" (Salt and Walker 2006: 2). The increasingly complex and globalized relationships that characterize Modern industrial agriculture mean that the consequences of diminishing soil quality and food productivity will be felt at all scales and in all corners of the globe. Indeed, the complex interconnections facilitated by globalization have the effect of ever-tightening the relationships between dispersed systems.

Although a profound interconnectivity is characteristic of the world's increasingly complex and globalized food and farming systems, this interconnectivity is often ignored or remains unrecognized in analyses of the relationships between humans, nonhumans and environments. Salt and Walker (2006) point out that; "often people concentrate solely on the scale of direct interest to them (their farm, their company, their catchment, or their country), but the structure and the dynamics at that scale, and how the system can and will respond at that scale, strongly depends on the states and dynamics of the system at the scales above and below" (Salt and Walker 2006: 90-91). The repercussions of ignoring this interconnectivity — this profoundly *radical* relationality — that links all scales of social ecological systems are particularly enhanced by the processes of globalization. Because globalization makes relationships and interconnections stretch across the globe, it becomes increasingly difficult to monitor the outcome of local actions. It is for this reason that changes in soil quality or other social-ecological aspects essential to the world's food production can go unnoticed; "Urbanization and many aspects of globalization that tighten intersystem linkages, hierarchies, interdependencies between local resource users and the wider society […], tend to distance users from their dependence on life-support ecosystems, disconnect the production from consumption, and disconnect the production of knowledge from its application" (Yorque *et al* 2002: 432). In other words, the increasing interconnections that are characteristic of globalizing processes, in fact, *de*-link humans from experiencing the direct consequences of their actions. Because such consequences are experienced, not in their own localities, but on the other side of the globe.

According to complexity theory, complex social-ecological systems are always changing and adapting in response to feedback that is either positive or negative — with the difference between the two determining the stability of a system. Whereas negative feedback is associated with system stability, positive feedback can instigate massive shifts in complex systems. Negative feedback is regulating and equalizing while positive feedback amplifies the conditions of a system. To understand this in more concrete terms, one example that is often given of negative feedback is that of thermostatic

controls; a thermostat regulates a room or a building's temperature and keeps it within a relatively comfortable state. To imagine a positive feedback mechanism used in place of a thermostat, when evaluating the temperature of a room and noticing a drop in temperature "it would start pumping hotter air, causing the room to grow even warmer, causing the device to pump hotter air. Next thing you know the goldfish bowl is boiling" (Johnson 2001: 138). What happens through positive feedback loops is that the magnification of each response actually *creates an increasingly greater response*. In terms of globalized agricultural systems, positive feedback would entail the accumulation of characteristics that further increase global links across various social-ecological systems. Such examples might include the outsourcing of labour or the use of migrant labourers, development of transportation methods that increase shipping distances, loosening of trade restrictions, or anything else that generates the ability to establish complex interlinkages between disparate locales. This notion of positive feedback is important because it highlights the intuition that globalizing practices reinforce the destabilization of contemporary social-ecological systems.

Globalization amplifies and exacerbates its own effects by making it impossible to recognize the consequences of an action whose outcomes are felt on the other side of the globe. This increased interconnectivity, and the *simultaneous dispersal* of those interconnections, means that it is often difficult for participants within complex social-ecological systems to modify their actions based on the feedback that they witness; "tightening of processes of globalization weakens the tightening of societal feedback loops to ecosystem dynamics essential for sustaining and building adaptive capacity and for securing the flow of critical ecosystem services" (Yorque *et al* 2002: 432). Processes of globalization make it hard for humans to measure the impacts that our interconnections with nonhumans and environments might have on local and global ecosystems. The recognition that complex social-ecological systems are susceptible to the amplifying effects of positive feedback *and* the correlative recognition that our ability to identify that feedback is diminishing, is an important recognition because it highlights the destabilizing effects of globalizing processes. Thus, contemporary environmental resistances and complexity theory both similarly argue that the processes of globalization can have deleterious consequences for the world's ecosystems. And, more importantly, they both argue that those consequences are inherently destabilizing.

Because contemporary globalizing processes are continually reinforcing the destabilization of planetary ecosystems, it means that there is an increasing possibility that contemporary social-ecological systems could shift unpredictably. Indeed, such an argument leads to the conclusion that "unlimited expansions on a finite planet can only lead to catastrophe" (Capra 2002: 146). Both

complexity theory and environmentalism argue that there are ecological limits which, once they are crossed, can destabilize biological ecosystem functions around the world to the point that it will be impossible to re-stabilize them. This recognition is significant because it demonstrates that the increased complexity and interconnectivity of contemporary globalized systems are *precisely* those processes that contribute to its instability. However, this recognition of profound interconnectivity does not explicitly acknowledge that these social-ecological relationships are *necessarily power relations*. As I argued at the beginning of this section, the very process of globalization is determined by a particular series of power relations that produce humans, nonhumans and environments as efficient contributors to the globalizing spread of capitalism. Indeed, although it is unacknowledged, the very process of unlimited expansion belies a recognition that biopolitical relations of power underlie globalizing impulses. In the following section I will examine in greater detail how relations of power contribute to, and reinforce, the geographically dispersed interconnections of contemporary globalized systems.

Complex Social-Ecological Relations are Power Relations

In the previous chapters, I argued that, although Foucault developed a notion of relational power, he did not acknowledge the power relations that occur between humans, nonhumans and environments, nor did he acknowledge nonhumans as agents. Therefore, I argued that to remedy this oversight it was necessary to incorporate more explicit theorizations of ecological interconnectedness with the *implied* radicalness of Foucault's notion of power relations. Thus, complexity theory provides the theoretical legitimation for the recognition that humans exist within ecological limits. However, complexity theory suffers from its own omissions. Although complexity theory acknowledges that systems are *both* social and ecological, it does not explicitly recognize that these systems are not only constrained by ecological limits, but by the limits of power relations as well. By accepting that processes of globalization result in the increased complexity and interconnection of our current social-ecological systems, complexity theory *implies* that systems are circumscribed by power relations without overtly acknowledging it. As I argued in the previous chapter, a radical relational agency explicitly acknowledges that actions are always constrained by limits imposed by *both* power relations and ecological constraints.

It is possible to argue that complex systems are affected by power relations simply by asserting Foucault's argument that power is a *relation*. If power is a relation, and complex systems are made up of a multiplicity of relationships, then it follows that these relationships are not devoid of power. As Foucault argued, power relations are present within *every* relationship. But, one of Foucault's

arguments was that contemporary power relations are, in fact, *characterized by their dispersal*. In this sense, the argument that contemporary social-ecological systems are embedded within relations of power is less simplistic than the mere assertion of power's omnipresence. Rather, my argument is, precisely, that power relations have reinforced the spread of complexity and interconnectivity characteristic of contemporary globalized systems. As I argued in the first chapter, Modern scientific investigations constituted environments, landscapes and other spaces as infinitely usable resources; such a construction of environments as resources underscores the legitimation for a continual increase in extracting those 'resources'. In addition to the Modern constitution of Nature as a passive resource, a more recent environmentalization of knowledge has encouraged practices of globalization because it aims to make all humans, nonhumans and environments increasingly economically productive. As resources at home are depleted, it is necessary to become more efficient at producing commodities from those resources and, often, it is necessary to search abroad for replacements. In this sense, environmentalized production is spread throughout the globe.

The processes of globalization also highlight the uneven ways in which power relations occur in a global context. In the first two chapters, I examined Foucault's description of how governmentalizing and disciplining power relations produce individuals in hierarchical relation to each other. In this sense, such a hierarchical production is necessarily played out across global relations of power. For example, consider the different ways in which different locales respond to the globalization of food supplies; while in Western nations the impact of food and farming on human health is a concern, in those nations that feel the brunt of environmental degradation, food availability and *survival* are very real concerns. Thus, "El Salvador faces the highest level of environmental degradation in the Americas. Of the natural vegetation […], 80 percent has been eliminated" and the costs of this loss are not merely environmental, for the human consequences are great; "agricultural production has been halved in the last twenty five years, and one-fifth of the population does not have enough food" (Lorentzen 1995: 57). People who live in such places are forced to become environmentally aware in ways that we, in the Western world, are not. Rather than concerning themselves with the intricacies of organic food regulation or the miles travelled by their dinner, they face the environmental consequences of our actions in the West. Thus, globalization is an effect of the increasing environmentalization of power relations as Western systems of thought are spread throughout the globe and which, necessarily, reinforce hierarchical orderings because such orderings are geo-politically useful to manage the economic productivity of the entire planet.

The argument that biopolitical production is extended throughout all corners of the globe, is exactly a description of how globalization is increasingly environmentalizing. Because environmentalizing biopolitical power relations serve not only to manage human identities, actions, bodies and materialities, but those of nonhumans and environments as well, such processes are able to bring the whole planet under economic production. Globalization can be interpreted as an environmentalizing practice because, as both complexity theory and environmental resistances argue, globalization intensifies the extraction of resources, the movement of people and other biological organisms across vast geographic distances. Furthermore, globalization can be read as an outcome of biopolitical environmentalities because the increased interconnectivity serves to reinforce the aims of governmentality to manage *all* relations of power. An environmentalization will always tend towards globalization because it is the precise aim of such practices to manage *all* forms of life and productive capacities. Thus, biopolitical power relations have reinforced the increased complexity and interconnectivity of contemporary social-ecological systems. Biopolitical and environmentalizing power relations are so effective *because* they aim to manage the identities, relationships and material realities of all humans, nonhumans and environments.

That an increasing environmentalization of power relations contributes to the processes of globalization is not something that either environmentalism or complexity theory would seem to disagree with. However, within some descriptions of complex systems, there still remains a latent assumption that ecological relations are not power relations. The reason that explicit analyses describing the effects of power on complex social-ecological systems might be absent is, perhaps, an effect of the Modern, juridical definitions of power that Foucault's relational power refutes. Consider, for example Fritjof Capra's (2002) argument that power is not a part of ecosystems:

> Although it may seem that in an ecosystem some species are more powerful than others, the concept of power is not appropriate, because nonhuman species (with the exception of some primates) do not force individuals to act in accordance with preconceived goals. There is dominance, but it is always acted out within a larger context of cooperation, even in predator-prey relationships. The manifold species in an ecosystem do not form hierarchies, but exist in networks within networks. […]. In an ecosystem, no being is excluded from the network (152).

According to Capra, power does not affect ecosystems because nonhumans do not *dominate* others in the ways that humans do. However, this interpretation of power is precisely what a Foucauldian interpretation of power relations counters. As we have discovered throughout the previous chapters, a relational power is *always* capable of being overturned and is, in fact, dispersed throughout every relationship — it creates "networks within networks".

Capra's claim that human societies are not 'networked', whereas ecosystems are, ignores the *relationality* of power. Indeed, the assumption that power is 'dominating' or oppressive is countered by Foucault's description of power *as productive*. As I have argued throughout this section, ecological relations are embedded within power relations precisely because an environmentalizing biopolitical power relation produces the relationships between humans, nonhumans and environments in particular ways. This means that contemporary power relations are not to be conceived as static — as such a notion of oppressive power suggests —but are successful at managing contemporary globalized structures *because* they are dynamic and dispersed throughout every relationship. Capra (2002) himself does tacitly acknowledge the dispersal of contemporary power relations: "The new economy consists of a global metanetwork of complex technological and human interactions, involving multiple feedback loops" (140). In this description Capra implicitly recognizes a more *relational* notion of power without explicitly acknowledging it. He acknowledges the existence of an *economy* that stretches throughout the globe and that, at the same time, attempts to manage the relationships between humans and technologies dispersed around the planet. However, he does not explicitly include other nonhumans, environments or ecosystems under the purview of these relationships. Because he does not acknowledge that power is a productive, dynamic and variable *relationship,* he argues that such a term is not appropriate to nonhuman ecosystems. In this sense, the assumption that power is merely a human characteristic reinstates a distinction between human relations of power and nonhuman ecological relations.

To make a distinction between human power relations and nonhuman ecological relations is to deny the implications of both complexity theory and a Foucauldian notion of power relations. As I have already argued, implied within Foucault's notion of power relations is an acknowledgement that such relations include humans, nonhumans and environments. If all relations are relations of power, then those including nonhumans and environments are likewise power relations. Thus, to exclude nonhumans and environments from those relationships is to tacitly reinstate a distinction between what is human and what is not. Indeed, complexity theory *does* acknowledge that humans, nonhumans and environments are radically interconnected by diverse relationships. The argument that complex systems are social *and* ecological suggests that to abstract certain kinds of relationships from within these interconnected systems is not consistent with the recognition that such systems are complex, diverse and interconnected. The argument that relations which include nonhumans *are not* relations of power is, as I have already argued, to reinstate a division between human (power) relations and nonhuman (ecological) relations. Instead, it would be beneficial to reframe these relations as *precisely*

relations that are always *both* ecological and power relations. In this sense, a notion of dispersed eco/power relations more accurately reflects the embeddedness and interconnectedness of complex social-ecological systems.

Describing the embeddedness of environmental resistances within globalizing and environmentalizing power relations does not, however, deny the possibility of changing those relations. Indeed, the embeddedness of social-ecological systems within eco/power relations is consistent with Foucault's argument that power relations can always be overturned. As I have already argued, the possibility that power relations can be overturned is essential to an understanding of a radical relational agency because such changeability is precisely how a radical relational agency is generated. Acknowledging that humans, nonhumans and environments are inextricably interconnected and, *therefore*, all embedded within ecological and power relations underscores a definition of radical relational agency. A radical relational agency is contingent upon *both* the diversity of participants within power relations *and* the inevitability that those diverse relations of power are always capable of being overturned. Without a notion of power, a notion of radical relational *agency* is likewise impossible. As I have already argued, agency exists *because* power relations are omnipresent; without acknowledging the omnipresence of power relations, complexity theory not only omits the ways in which contemporary power relations reinforce the interconnections of globalized systems, but similarly omits the potential for theorizing agency.

Once it is acknowledged that the myriad relations within complex social-ecological systems are always eco/power relations, the continued functioning of social-ecological systems is reframed as being dependent on the *interactions between diverse agents*. In this sense, the interactions and relationships between humans, nonhumans and environments become important. In this sense as well, there is an argument to be made that contemporary environmentalizing eco/power relations between humans, nonhumans and environments have increased the instability of globalized systems. As Capra (2002) argues: "The information circuits of the global economy operate at such a speed and use such a multitude of sources that they constantly react to a flurry of information, and thus the system as a whole is spinning out of control" (140). The contribution that an environmentalizing eco/power relation makes to the instability of contemporary globalized social-ecological systems is *precisely* the increasing rate at which it links diverse social-ecological systems throughout the planet. The fact that ecological and power relations *cannot* be de-linked is the precondition for global destabilization. Globalization is destabilizing because environmentalizing eco/power relations are actually unable to *manage* the profound complexity and interconnectivity that it has generated. In the following section I

will examine in greater detail the increasing instability, and hence unpredictability, of complex social-ecological systems.

The Unpredictability of Complex Social-Ecological Systems

Throughout this thesis, I have argued that a recognition of unpredictability is implicit within Foucault's thought. In the first chapter, I described how Foucault questioned the linearity of historical development by arguing that different epistemes move jerkily, and oftentimes randomly, from one to the next. Epistemic shifts emerge as an unpredictable outcome of technological innovations or discursive changes or spatial rearrangements or any number of unforeseeable historical circumstances. Furthermore, Foucault's argument that relations of power are always capable of being overturned — that it is possible to act in other ways — implies that power relations are inherently unpredictable. Indeed, as I have already argued, it is the dynamism and flexibility of contemporary eco/power relations that have contributed to the increasing unpredictability of social-ecological systems. Likewise, complexity theory argues that history is nonlinear, non-teleological and, frequently, unpredictable. A notable characteristic and consequence of the nonlinearity of complex systems, is that they are more susceptible to fluctuations; "complex systems (as opposed to the many linear non-complex systems) are potentially unstable, nothing is fixed" (Urry 2005a: 240). The importance of this recognition is that it links complexity theory to Foucault's thought *and* it contributes to an understanding of how change is possible. While Foucault did not explain the mechanisms by which historical shifts can emerge, complexity theory serves to illustrate some of the circumstances that give rise to unpredictability.

One means by which complex systems can generate unpredictable events I have already briefly addressed. The notion of *positive* feedback is one example of how complexity theory explains the means by which complex systems become more unpredictable. As I discussed earlier in this chapter, positive feedback is feedback that continues to accumulate, reinforcing a pattern of behaviour once it has already begun. The example of a 'thermostat' using positive feedback would, instead of keeping the room a steady temperature, continue to make it hotter and hotter; positive feedback can lead to destabilization. In this sense, positive feedback contributes to unpredictable nonlinear outcomes; "Nonlinear behaviour is often referred to as *positive feedback* in which internal or external changes to a system produce amplifying effects. In short, nonlinear means that small changes in system variables can have disproportionate outcomes" (Eve *et al.* cited in Jenks and Smith 2006: 4-5 emphasis mine). The notion of positive feedback helps to explain the unpredictability of complex systems, and the potential for them to shift unexpectedly, because it describes how individual behavioural patterns can

accumulate and eventually cause a system to shift unexpectedly. Thus, the amplifying effects of positive feedback mechanisms mean that simple changes within complex systems can lead to unpredictable and potentially vast outcomes.

Positive feedback loops pose a challenge to the stability of complex systems and to theorists who aim to understand them. While negative feedback is statistically modelled and rather predictable, it is often impossible to predict the accumulative patterns of positive feedback. As Steven Johnson (2001) points out, "feedback loops of urban life created the great bulk of the world's most dazzling and revered neighbourhoods — but they also have a hand in the self-perpetuating cycles of inner-city misery" (137). That positive feedback can be both beneficial *and* detrimental is consistent with the fact it is are unpredictable. Thus, any reinforcing mechanism that occurs through positive feedback can never guarantee a specific result. This unpredictability, as I have already argued, is similar to Foucault's thought because it describes nonlinear systems and recognizes that nothing is ever guaranteed. Foucault insisted that the omnipresence of power relations entails that there are constant risks *because* relations of power can always be overturned. Complexity theory corroborates this interpretation because it recognizes that there are risks *precisely because it is impossible to predict* the outcome of any action; the accumulative reinforcements of positive feedback never guarantee a beneficial outcome.

The similarities between complexity theory and Foucault's thought in terms of nonlinearity, unpredictability and the fact that nothing is ever guaranteed, serve to underscore my argument that relations of both ecology and power are inherent to complex social-ecological systems. For instance, consider these examples of unpredictable behaviour; "interactions reinforce one another and result in behaviour that is very different from the norm. The complex phenomena that arise in physical systems (like earthquakes, floods, and fires) and social ones (like stock market crashes, riots, and traffic jams) are decidedly not 'normal'" (Miller and Page 2007: 51). Interactions that reinforce such complex phenomena will necessarily include relations of power and ecological relations. Consider the examples of riots, stock market crashes and traffic jams: they are unpredictable social events, but they could also be precipitated by ecological relations (icy roads causing an accident and a traffic jam) or *reinforced* by ecological relations (drought causing crop failure and intensifying drops in the stock market). Likewise power relations can also reinforce earthquakes, floods and fires because they may be directly caused by 'social' behaviour (a fire that is purposefully lit or a flooded river that has been purposefully damned) or they may be reinforced by, for example, the processes of globalization (namely anthropogenic climate change contributing to the conditions necessary for these 'physical'

phenomena). In this sense, both ecological relations and relations of power can reinforce positive feedback loops.

The instability that characterizes complex, global and industrialized systems means that they are more inclined to shift unpredictably. Furthermore, the increasing interconnectivity of globalized complex social-ecological systems across different scales means that any change in any of the interconnected systems could precipitate unforeseen reactions. Thus, I have argued that environmentalizing and biopolitical eco/power relations contribute to the instabilities of contemporary social-ecological systems because they function to legitimize particular relationships between humans, nonhumans and environments. Because no relation of power is ever guaranteed to remain stable, it prefigures a recognition that all relationships are, to some extent, unpredictable. Indeed, because complex systems are inevitably made up of intersecting relations of power at different scales, such relationships are inevitably unpredictable. Indeed, as I have argued throughout this chapter, the increasing spread of Western environmentalizing and biopolitical eco/power relations serves to *reinforce* the unpredictability of globalized social-ecological systems that — because eco/power relations can extend across the globe — are unable to respond quickly to feedback loops or fluctuations.

Destabilized systems are labelled by complexity theory as far-from-equilibrium. A far-from-equilibrium system, precisely because it is not *at* equilibrium, is characterized by an inability to withstand the unexpected. In other words, a far-from-equilibrium system is unstable because, were something unexpected to occur, it could respond drastically and unpredictably to such an unforeseen circumstance. Moreover, such a circumstance might push an unstable system into an *alternate* stable state. Alvin Toffler (1985) points out that "according to the theory of change" that Prigogine and Stengers (1985) describe, "when fluctuations force an existing system into a far-from-equilibrium condition and threaten its structure, it approaches a critical moment or bifurcation point" (xxiii). A far-from-equilibrium system is therefore threatened by continued instability and potential fluctuations. A recognition that there is a critical moment, or bifurcation point, that can occur within complex social-ecological systems is crucial to an understanding of how complex systems shift because such a moment is *the* moment in which a complex system shifts its trajectory to a different path. The bifurcation point within complex systems represents the moment in which a system changes and transforms itself. Indeed, these bifurcation points are more likely to appear when a system is far-from-equilibrium. The recognition that destabilized systems are more vulnerable to unexpected shifts is important because it

suggests that contemporary social-ecological systems could, were certain conditions to occur, shift into an unpredictable and, altogether different, state.

The recognition that instability can give rise to alternate states within a system is also important because it underscores the possibility that *sometimes* one individual act or event can unpredictably precipitate such a shift. The opportunity for an individual element to play an unpredictable, yet determining, role in the shift of a complex system occurs because; "when a system switches from one stable state to another […], minor fluctuations may play a crucial role in deciding the outcome" (DeLanda 1997: 14). While the notion of positive feedback describes how accumulative actions can add up to a new behavioural pattern that causes a system to shift, it is also possible that a shift into an alternate state could be triggered by one random action. The possibility that individual elements within complex systems can play an inordinately large role in precipitating a shift is significant because it underscores the unpredictability of such shifts. If one event were to trigger a shift to an alternate stable state, it would, precisely be an unpredictable one. Prigogine and Stengers (1985) argue that "the amplification of a microscopic fluctuation occurring at the 'right moment' resulted in favouring one reaction path over a number of equally possible paths. Under certain circumstances, therefore, the role played by individual behaviour can be decisive" (176). The reason that it is possible for *one* individual or event to precipitate an unpredictable shift is that destabilized systems can be pushed unexpectedly and unpredictably into a new state. Thus, it is exactly when systems are destabilized that the inordinate effects of one particular action are able to precipitate a shift into an alternate state.

As environmentalists argue, contemporary globalized systems are at increasing risk of being pushed into an alternate stable state. In terms of globalized food production systems, the increasing complexity destabilizes our ability to *grow food*. Consider this example:

> In our drive for efficiency, humans are constantly developing domestic livestock breeds and food crops that maximize production of food (and commercial return). And, as we come up with bigger, faster-growing, easier-to-control species, we concentrate our efforts on just these breeds while allowing less efficient models to die out. […]. But while these fine-tuned, high-tech breeds produce a lot, they also usually require intensive management and expensive inputs, like high protein feed, medication, and climate-controlled housing. As these high-tech breeds displace the indigenous local breeds that have sustained agriculture for thousands of years, we lose our pool of species and genes that provide us with future options to make challenging circumstances. We're literally putting all our eggs in one basket — becoming totally dependent on a very narrow genetic base (Salt and Walker 2006: 142-143).

This example illustrates a key point about increasingly complex and interconnected systems; they are victims of their own efficiency. The optimization characteristic of contemporary globalized economies and governmentalizing power relations exposes this tendency to 'put all our eggs in one basket' which, necessarily, exposes such systems to the effects of destabilization. By optimizing only particular aspects of food production, there is an increased possibility that any intervention within global systems of food production could have a disproportionate effect.

If environmental resistances are aiming to mitigate the potential for contemporary social-ecological systems to shift into an alternate stable state, what should their actions be? Oftentimes, environmentalists seem to favour the very optimization and efficiency that has contributed to an over-reliance on only a few particular resources. Indeed, such resistances that aim to reduce carbon emissions by, for example, developing more efficient ways to burn fossil fuels instead contribute to the same processes of development that made globalization possible. As I have already argued in previous chapters, such resistances also contribute to an environmentalizing biopower by making each constituent within social-ecological relations, whether human, nonhuman or environmental, more efficient at being economically productive. In the following section, I will examine how contemporary environmental resistances contribute to the instability of contemporary globalized systems. Such environmentalists sometimes do not acknowledge that they are embedded within relations of power, nor do they recognize the unpredictability and heterogeneity of consequences characteristic of vastly complex social-ecological systems. In this sense, following from the discussion in this section, I will also argue that the outcome of any environmental intervention is often unpredictable.

Fossil Fuels, and Growing the Alternatives: Destabilizing Resistances

For many environmentalists, the biggest indication that relationships between humans, nonhumans and environments are dysfunctional, is human use of fossil fuels. Global use of fossil fuels has perpetrated destruction on the environment by releasing greenhouse gases into the atmosphere and contributing to global climate change. In relation to agriculture and contemporary globalized food systems, I have already mentioned that transportation of food across large geographic distances can produce emissions, that the industrialization of agriculture has led to more intensive use of arable land, and that the Green Revolution led to the prolific use of fossil fuel based fertilizers, pesticides and herbicides. Put simply, the use of fossil fuels has allowed the world the unprecedented ability to grow a large amount of food cheaply. However, the complexity and highly regulated interconnectivity that characterizes contemporary industrialized and globalized agriculture — because it is so dependent upon fossil fuel inputs — is therefore destabilized and, hence, is susceptible to any event or

circumstance that affects fossil fuels. The Green Revolution "increased the energy flow to agriculture by an average of 50 times its traditional energy input. […]. In a very real sense, we are eating fossil fuels" (Pfeiffer 2006: 7). Fossil fuels have become so entangled within the complex systems that supply our foods, that there is no distinction between fossil fuels and the food that we eat.

According to contemporary environmental resistances, our reliance on fossil fuels to produce our food is both unsustainable, because it contributes to carbon emissions, and highly susceptible to destabilization. In addition to arguments against the unsustainable use of fossil fuels, environmentalists and other activists suggest that eventually — perhaps sooner rather than later — non-renewable fossil fuels are going to be extinguished. Proponents of 'Peak Oil' argue that the unsustainable use of fossil fuels is rapidly depleting any remaining available resources and that the eventual inability to access fossil fuels (because of technological or financial limitations) will have grave consequences for industrial agriculture. In short, this argument recognizes that the interconnectivity, globalization and complexity engendered by our use of fossil fuels has made planetary systems increasingly unstable and vulnerable to unpredictable shifts. The combination of degrading the planet's climate and ecosystems, and the eventual inability to access fossil fuels, has meant a continued search for sustainable alternatives. One alternative that has been developed to replace the use of fossil fuels are the so-called *biofuels*. Biofuels, as opposed to fossil fuels, are made using renewable resources such as corn, soy, palm oil, sugars, algae, or other plants. Because they are grown in soil, rather than extracted from the earth, biofuel advocates claim that these fuels allow industrial processes to continue without the deleterious effects of greenhouse gases. However, because contemporary social-ecological systems are so complex and interconnected, such an intervention could have unforeseen consequences. Indeed, environmentalists are now suggesting that switching to biofuels could have equally disastrous results.

Biofuels, because they are derived from plant matter, necessarily require arable land on which to grow; any land that is used to grow biofuels is land that is not being used to grow edible crops. The consequences of this potential change in land use would be to leave *less* space available for meeting human calorie requirements. If biofuels were ever to replace any significant amount of fossil fuels, they would inevitably take over land that was once used to grow food. The decrease in food production due to use of land by biofuel crops not only decreases food supplies, but increases the cost of those foods that are still available; "staple foods like bread become more expensive and less grain is available for export and as food aid" (Maynard 2007: 32). The inevitable consequences of requiring limited arable land to produce both food and fuel highlights the flaws in approaching biofuels as if they

represented a simple equivalence to fossil fuels. Substituting declining fossil fuels for plant-based biofuels is not a simple equivalence because *both* fuels are highly integrated within contemporary social-ecological systems, but in different ways. By dismissing the complexity and profound interconnectedness of the world's fuel supplies, the impact that biofuels might have in generating possible positive feedback loops are overlooked. Such positive feedback could occur given the complex interlinkages between agriculture, fossil fuels and globalizing power relations.

Studies that look at the energy inputs and outputs of biofuels from a standpoint that analyses *every* step along the way, from a plant's seeds to manufacturing to transporting the processed fuels, "show that while it takes 6,597 kilocalories of nonrenewable energy to produce a litre of ethanol from corn, that same litre contains only 5,130 kilocalories of energy — a 22 per cent loss" (Anslow 2007: 34). *Because* biofuels are a product of industrial agriculture, their production requires fossil fuel inputs to irrigate land, fertilize the soil, run the factories that produce them and distribute them. Taking into account all of these fossil fuel inputs, a net loss of energy is observed. Biofuels take more energy to produce than they can provide for industrial and personal use, which demonstrates the impossibility of describing different fuels as simple equivalents. Since the inception of fossil fuel use that precipitated the Industrial Revolution, they have been the nucleus of the world economy and a globalizing force. If fossil fuels ran out, and no viable alternative were found to replace them, such an event would inevitably destabilize the vast complex systems that have developed since the Industrial Revolution. The ramifications would be inconceivably far-reaching because such an event involves removing, or altering, the inputs on which contemporary, globalized food systems rely. Without taking into account the complexities and interconnections involving industrial fuels, it is impossible to understand the possible impact that a transition from fossil fuel to alternative fuels could have on human food and agricultural systems. Therefore, environmental actions that aim for optimization or efficient use of available resources often reinforce the destabilizing effects that they intend to mitigate.

A simple approach to sustainability that involves substituting one fuel for another without sufficiently examining all systems involved, exposes the necessity of recognizing that contemporary social-ecological systems are characterized by profound complexity and interconnectivity. Making agricultural, food and manufacturing systems more efficient and sustainable could thus have the adverse and unforeseen effect of destabilizing our systems even further. Creating efficiency by using resources more effectively can actually diminish a system's ability to respond to unpredictable fluctuations. Salt and Walker (2006) argue this point emphatically:

> The systems in which we live are always shifting, always changing […]. When we aim to increase the efficiency of returns from some part of the system by trying to tightly control it, we usually do so at the cost of the system's resilience. Other parts of the system begin to change in response to this new state of affairs — a part of the system, now constant, that used to vary in concert with others. A system with little resilience is vulnerable to being shifted over a threshold into a new regime of function and structure. And, […], this new regime is frequently one that doesn't provide us with the goods and services we want (141).

In the example given of our reliance on fossil fuels and an attempt to replace those fossil fuels with biofuels, Salt and Walker's argument is borne out. As globalized social-ecological systems adapt to the use of biofuels, a whole series of other feedback loops are generated including the lack of arable land and the energy inputs used to produce the biofuels themselves. Moreover, it underscores the fact that an over-reliance on a finite resource makes increasingly complex and interconnected globalized systems more susceptible to unpredictable shifts.

The example of fossil fuels and their potential replacement with biofuels illustrates not only the unpredictability that is characteristic of nonlinear destabilized systems such as ours, it also exposes the inability of contemporary environmental resistances to account for such unpredictability. A seemingly straightforward substitution of biofuels for fossil fuels ignores the complexity and interconnectedness of contemporary systems. As such an example elucidates, the search for sustainability, efficiency and increased optimization within complex systems can have the effect of destabilizing those systems further. By concentrating on only one particular aspect of our contemporary systems, actions that improve efficiency make our systems less able to respond to fluctuations. Moreover, if a global switch to biofuels were initiated, the complexity and interconnectivity of globalized systems would necessitate a high level of environmentalizing regulations in order to enforce it. Thus, in this sense, some contemporary environmental actions not only destabilize social-ecological systems, but they would also reinforce the very environmentalizing relations of eco/power that established such unsustainable practices. Thus, the optimizations characteristic of certain contemporary environmental interventions actually highlights the contributions of environmentalism to globalizing processes.

The recognition that environmental resistances can contribute to the destabilization of contemporary social-ecological systems means that such actions, which do not account for the complexity, heterogeneity and interconnectivity characteristic of those systems, require rethinking. The environmental interventions that I have just described that simply substitute one type of fuel for another do not acknowledge the unpredictability and nonlinearity that is a feature of a radical relational agency. Because causation and change within complex systems are decidedly nonlinear, it is not

possible to predict with certainty the outcome of any one intervention. Indeed, to simply replace one

fuel with another and expect linear results is increasingly difficult the more complex and

interconnected that contemporary globalized systems become. As I have already argued in various

ways throughout this thesis, the result of any action is never guaranteed. Rather, as both Foucault and

complexity theory stress, unpredictability is a feature of complex systems *and* a precondition for any

radical relational agency. Given this unpredictability, there remains the question of what it is that

environmental resistances *can* do in response to globalized instability. In this sense, I argue that

recognizing the existence of a radical relational agency within complex systems allows environmental

actions to be rethought with an explicit acknowledgement of unpredictability, complexity and

interconnectivity. Because these qualities are the same qualities that generate a radical relational

agency, throughout the remainder of this thesis I will argue that such a notion of agency is uniquely

positioned to generate adequate responses within increasingly destabilized planetary systems.

Throughout the remainder of this chapter I will examine how *a radical relational agency* exists

as a dispersed and collective aspect of complex social-ecological systems. In this sense, a radical

relational agency can be applied not only to individual participants within power relations, but to entire

systems as well. By describing in specific detail *how* change happens within complex systems,

complexity theory provides an explanation of how a radical relational agency can generate collective

results. Complexity theory describes the *radical relationality* of how individual components within

complex systems — humans, nonhumans and environments — whose behaviour might accumulate and

collectively cause a change within any given complex system. According to complexity theory, shifts

in complex systems occur when individual behaviour accumulates and generates collective results.

Power generates a relational agency *because* it is relational and reversible; complexity theory helps to

expand this argument by describing how many diverse and heterogeneous constituents within a system

generate a kind of accumulative and *collective* radical relational agency.

Dispersed and Collective Properties of Complex Systems

Complexity theory describes how individual actions, accumulating over time, can add up to

widespread results. Complexity theory illustrates that complex systems are *self-organized* in that

system-wide behaviour emerges from *within* a system as opposed to being imposed onto a system from

without. A recognition that complex systems are self-organizing is essential to an understanding of a

radical relational agency because self-organization illustrates *how dispersed and decentralized actions*

can — without one identifiable leader — achieve large scale results. To delineate such an occurrence,

Prigogine and Stengers (1985) use the example of termites; "there seems to be no mastermind behind

the construction of the termites' nest, when interactions among individuals produce certain types of collective behaviour in some circumstances, but none of these interactions refer to any global task, being all purely local" (205). In other words, each individual behaviour takes place at a local level, but once a pattern emerges and behaviour starts accumulating, global results will occur. In this way, an episteme could shift, or a new way of growing food could take over industrialized agriculture, or fossil fuels could be replaced by another energy source, or an alternative stable state could emerge. In short, self-organization is important to an understanding of radical relational agency because it serves as an explanation of how the agential capacities of individuals, through individual and disperse actions, could nevertheless accumulatively add up to widespread changes.

Self-organization is about the *relationships* between individual elements, rather than the individual elements themselves. In other words, it is a radical relationality that recognizes the profound interconnectivity between humans, nonhumans and environments. Indeed, Jenks and Smith (2005) emphasize the ecological aspects of self-organization, arguing that:

> Self-organization, […], is at least collectively and at most ecologically organized: there is no way that *individual* particles, plants, animals, humans organize anything at all. Chance enters the picture precisely because we are now in the sphere of populations, of statistical probability that particles or individuals will occupy certain positions, have specific needs, death rates and so on. This is not a picture of randomness but of possible correlations and degrees of freedom (93).

In this sense, self-organized systems change not because individuals *possess* agency, but because agency is radical and relational. Thus, self-organization is the mechanism through which change occurs within a complex system. Once a certain kind of behaviour accumulates *without the insistence of any one individual* and accumulates across an entire system, then the system itself acquires a new characteristic. It is for this reason that the processes of globalization are inherently destabilizing — as the processes continue, the behaviour accumulates and there is a greater likelihood that the system as a whole will undergo a monumental shift.

When self-organization leads to new system wide behaviour, that new behaviour is viewed as an emergent phenomenon. This notion of 'emergence' describes the moment at which a new characteristic emerges:

> The complexity of the many linkages and feedbacks that make up a social-ecological system is such that we can never predict with certainty what the exact response will be to any intervention in the system. Complex adaptive systems have emergent behaviour; that is, the emergent behaviour of the system cannot be predicted by understanding the individual mechanics of its component parts or any pair of interactions […]. What's more, emerging results from studying

complex systems demonstrates that changes in one component can sometimes result in complete reconfigurations of the system; the system changes to a different stable state (or regime) (Salt and Walker 2006: 34-35).

The self-organization of complex systems means that such systems are adaptive — each individual component must adapt to the behaviour and each new emergence within a system. Furthermore, because complex systems are made up of many diverse agents, it is difficult to predict the form that any self-organized emergence might take.

According to Prigogine and Stengers (1985), when complex systems reach a critical bifurcation point they are confronted by a variety of possible paths. When a critical bifurcation point occurs, complex systems follow "one reaction path over a number of equally possible paths" (176). In other words, there are many possible opportunities for alternative stable states to arise within complex systems and many different paths that a complex system can follow, but through *unpredictable events*, only one option can be taken. But, because "complex systems have histories and futures, paths by which they come into being and possible directions dependent on many factors (such as energy, habitat, habit)", the unpredictability that dominates shifts in complex systems turns out not to be as random as it at first appears (Jenks and Smith 2005: 23). Constraints are imposed upon complex systems because *future* stable states are dependent upon those that came before. Indeed, such constraint is necessary because it has determined *the identity of each system and each component of a system*. Jenks and Smith (2005) argue that "Randomness is not a relationship; a randomly structured system would have no identity, nothing which energy could transform" (88). The unpredictability of complex systems is not completely random because shifts into alternate stable states are always dependent upon particular histories. As Jenks and Smith point out, total randomness is impossible because it would negate those identities — those constraints — that have been generated through historical developments.

The interaction between unpredictability and constraint indicates that changes in complex systems are unpredictable, in part, *because of* the preceding historical situations that brought these complex interactions into existence. As Jenks and Smith (2005b) describe:

> Complexity evolves, it is the outcome of interaction and mutation. […], due to the interaction of materials and chance, complexity arises out of there being a number of *different* possible outcomes or 'solutions' to the same state of affairs or 'equation'. The possible outcomes are 'non-linear'. *Complexity does not require complex beginnings*; on the contrary it demands simple origins that 'build' their own complexity through self referential structural operations (155).

Because there are always a multiplicity of possible outcomes to any one situation, there is a certain unpredictability to the ways in which self-organized emergences can occur. However, as has already

been discussed, that systems have evolved also suggests that there are constraints on possible emergences. In this sense, the relationship between unpredictability and limitation *generates* the possibilities of self-organized emergence because, in a sense, self-organization is the result of dynamic adaptations to the current conditions of a system. Indeed, complex systems are *precisely those systems that are limited* by their own self-organized emergences.

Throughout this thesis I have argued that constraint does not foreclose the possibility of agency. Indeed, the limitations in complex systems are generative of new and creative solutions because "complex, self-organizing systems are *adaptive*, in that they don't just passively respond to events the way a rock might roll around in an earthquake" (Waldrop 1992: 11). Because self-organization is a process of adaptation to the given conditions, such adaptations can produce creative responses to imposed constraints. In other words, *there are always possibilities that the situation could be otherwise*. Examining the notion of self-organized emergence helps us to understand how systems, and individual elements within a system, are interconnected to the extent that aggregated individual behaviour can create unexpected shifts or spontaneous changes that are *nonetheless not attributable to any specific agent*. Thus, agency is not only locatable within individual relationships, but is also the *sum* of the relationships between participants; it emerges through the contingent histories of a system. Self-organization has profound consequences for definitions of agency because it suggests that a radical relational agency occurs not only as a result of the relationships between individuals, but as a characteristic of *entire collectives*. Even more profound, therefore, is the implication that *the planet itself is an agent*. It is this implication that I will discuss in the following section before, in the final section, explaining how a radical relational agency is appropriate to addressing the interconnectedness, unpredictability and instability characteristic of globalized systems.

Climate Change: The Planet as an Agent

The implication that the planet is an agent is derived, in part, from James Lovelock's 'Gaia hypothesis'. According to Lovelock (1988), he "found it reasonable to call the Earth alive in the sense that it was a self-regulating and self-organizing system" (31). Thus, the Gaia hypothesis is synonymous with the view that all of the individual components of the earth — humans, nonhumans, environments, rocks, trees, soil, farms, cities, waterways, highways, computers, factories, everything! — are part of one system; the *entire earth* is seen as a self-organized complex system. The recognition that the entire earth can be viewed as a complex self-organizing and self-regulating system is important because it suggests a *radical* relationality in which every individual behaviour on the earth accumulates and contributes to the stability (or instability) of the entire planetary system. This radical relationality

— which interconnects all beings, objects and processes on the planet — underscores an interpretation of the planet as an agent because it explicitly denies the possibility that agency is only a possession of *a specific individual*. Instead, the ability to change a system occurs as a result of the accumulated actions of all agents within a system. If a radical relational agency is also generated as the *sum of all relationships* (as argued in the previous section), then just as the earth can be viewed as a complex and radically interconnected entity, the earth can be viewed as an agent.

The Gaia hypothesis argues that "Living organisms and their material environment are tightly coupled. The coupled system is a superorganism, and as it evolves there emerges a new property, the ability to self-regulate climate and chemistry" (Lovelock 1988: 213). Gaia, according to Lovelock, is the grouping of organisms and environments that make up our planetary 'superorganism' and, Gaia has the ability to regulate its own processes. In other words, Gaia describes the planet as a series of interconnected components that nonetheless aggregate into a whole — a self-organized system that generates emergent phenomena. The agential capacities of Gaia are thus not attributable to something like an internal function of the planet, but are defined as agential because the radically interconnected and radically relational components of our planetary systems accumulate emergent behaviour. Because Gaia is a complex system, it necessarily means that planet-wide shifts are possible. Moreover, as I have argued throughout this chapter, the possibility that such a shift could occur is increasing along with the increased complexity and interconnectivity that is destabilizing planetary systems. In this sense, the argument that the planet itself is an agent has consequences for contemporary environmental action.

Lovelock (1988) argues that the defining characteristic of Gaia — that organisms are profoundly connected to their environments — means that "We no longer see the word *adapt* as a passive verb but one that is also active. Organisms can, and nearly always do, change their environment as well as adapt to it" (211). This planetary agency, because it is an example of self-organization, means that many different individuals contribute to the overall adaptations of planetary systems:

> The implication is the co-evolution of life and the planet and, in particular, the active force of life in shaping the planet, not simply living on a dead surface. The contribution of life to atmospheric oxygen is well known; so also is the contribution of calcified animal remains to rocks such as limestone (Jenks and Smith 2006: 259).

In the sense that Gaia is a living superorganism, Gaia is not a kind of anthropomorphic description of earth processes, but is entirely meant as the accumulative characteristics and changes of the earth as a complex system. Like any complex self-organized system, Gaia adapts to changes made by any individual component. However, in this sense, the detrimental effects of human behaviour on planetary

ecosystems — such as climate change — can be reinterpreted in a couple of ways. On the one hand, because humans are one component of Gaia, there is a very real sense that we are actually harming *ourselves*. On the other hand, because Gaia is ignorant of any one individual component, it is possible that Gaia will shift into an alternate state that is well-suited for humans.

By pointing out that Gaia will respond to current changes in the climate is not to suggest that nothing needs to be done. Rather, as I have argued throughout this chapter, any adaptation or self-organized emergence is to some extent unpredictable, and is sure to be highly unpredictable in the case of our current destabilized systems. Indeed, Gaia's adaptations to anthropogenic climate change are unlikely to account for human needs or comfort. Lovelock (1988) argues that:

> This is an occasion when we cannot look to Gaia for help. If the present warm period is a planetary fever, we should expect that the Earth left to itself would be relaxing into its normal comfortable ice age. Such comfort may be unattainable because we have been busy removing its skin for farm land, taking away the trees that are means for recovery. […]. Gaia is more likely to shudder, then move over to a new stable state, fit for a different and more amenable biota (227).

That the earth can be conceived as a self-organized system and as an agent in its own right means that it is possible for it to shift into a new stable state. The earth's agential capacities are derived from a radical relational agency that includes the accumulative relationships of interconnected beings, objects and processes. Because humans are embedded within a larger self-organized system that includes *many more* nonhuman and environmental agents, any self-organized emergent phenomena, or shift, will not be predicated on human needs.

Recognizing that humans are *part of* Gaia rather than the *one* species with the ability to fix Gaia perhaps means forgoing anthropocentric control. As Lovelock (1988) puts it: "It takes a lot of hubris to think of ourselves as the stewards of the Earth. In practice few of us can take care even of our own bodies" (228). The hubris that Lovelock identifies — that humans can control the earth — is, in part, a result of Modern scientific investigations and Modern definitions of agency. As I have argued throughout this thesis, Modern notions of agency are contingent upon the emergence of Man within the human sciences; an emergence that inaugurated agency as a characteristic of humans (and not nonhumans) *because Man was able to 'know' and shape Nature*. However, by redefining agency as a radical relational agency it is no longer possible to view ourselves as stewards of the planet because we recognize that humans are not the only components of complex systems with agential capacities. Indeed, a radical relational agency recognizes that agency is not a characteristic of one individual in particular, but exists in the relationships between agents and when individual behaviour contributes to

widespread emergences. As Lovelock points out, shifts can be precipitated by any component within the complex systems that make up Gaia; "Many times in the Earth's history new species with some powerful capacity to change the environment have done as much and more" (145). In this sense, to attribute some special capability to humans would be, again, to reinstate a distinction between humans, nonhumans and environments.

As the notion of Gaia illustrates, there is a radical relationality that has interconnected geographically dispersed ecosystems even prior to the emergence of environmentalizing biopolitical power relations that are making those relationships more acute. The difference between Gaia and the globalizing forces of a biopolitical environmentalization is one, precisely, that can be attributed to contemporary relations of eco/power. Because the environmentalization of power relations aims to manage the productivity of all humans, nonhumans and environments, the contemporary destabilization of globalized social-ecological systems is the result of a particular set of relationships and a particular emergence. As I have argued throughout this chapter, contemporary social-ecological conditions are the result of contingent relations of eco/power. Indeed, in the context of the globalized ecological systems that I have been examining, we could interpret the shift to industrialized agriculture during the Green Revolution as a result of self-organization; such a shift can be viewed as a cumulative change in individual farming and buying decisions that add up to the emergence of an entirely new way of organizing food and farming. Likewise, the destabilization of contemporary social-ecological systems is a result of, and is reinforced by, self-organized emergences *embedded within* eco/power relations. That planetary social-ecological systems are interconnected to the extent that global self-organization is possible does not, however, negate the need for environmental action, but means that they require rethinking. In the following section I will return to the example of globalized food systems and their potential instabilities in order to examine how a radical relational agency can inform contemporary environmental resistances. This discussion is not meant as a final redefinition of environmental resistance, but serves to point the way to further discussion in the next chapter.

The Instability of Globalized Food Systems and Possible Responses

Throughout this chapter I have argued that the increasing complexity, interconnectivity and instability of contemporary globalized systems increases the possibility that a new stable state will emerge. As Lovelock argues, because of anthropogenic climate change — induced, in part, through the industrial and economic processes consistent with globalization — planetary ecosystems could shift into an alternate stable state *that is not suitable for human habitation*. In this sense, environmental resistances argue that changes should be made to contemporary globalized industrial and economic

practices in order to prevent such a shift from occurring. However, as I have argued throughout this

chapter, contemporary environmental resistances can often contribute to the very processes of

globalization that increase the complexity and instability of social-ecological systems. By arguing that

processes of globalization can continue only if they are made more efficient, optimal and sustainable,

environmental resistances can actually reinforce the instability that globalizing practices generate.

Indeed, such practices of optimization and global interconnectivity can have the effect of 'putting all

our eggs in one basket', a situation that enhances the likelihood that planetary systems could shift into

an alternate stable state. Rather than stress the optimization and efficiency that makes globalized

systems more dependent on a few resources (such as fossil fuels), an environmental resistance

informed by the characteristics of a radical relational agency would stress the complexity,

unpredictability and heterogeneity of globalized social-ecological systems. In doing so, such

resistances would not aim to generate stability, but create more flexible, dynamic and innovative

systems.

Vandana Shiva (2000) argues that "30 species provide 90 percent of world calorie intake, and

only four species-rice, maize, wheat, and soybean-provide most of the calories and proteins consumed

by the world's population through global trade" (79). This reliance on a limited number of species for

human food supplies indicates both a loss in species diversity, and a lack of diversity in human diets —

leaving both susceptible to fluctuations and instabilities that affect increasingly complex, and

increasingly homogeneous, systems. Loss of ecological diversity is one of the consequences of

industrial agriculture because the overuse of petrochemical inputs threatens the health of

interdependent species. As ecosystems become destabilized due to intensive industrialized agriculture,

the ability for a wide variety of species to be supported by less healthy soils, plants and ecosystems

leads to inevitable species loss. For example, in the UK, the population of certain birds are declining,

plant species "that thrive in arable fields […] are also under threat and with them, invertebrates that

depend upon them" (Hughes and Thomas 2006: 47). Loss of ecological diversity has repercussions

that are more widespread than the localized systems being affected directly; because complex systems

are connected across varying scales, the effects of increased homogeneity and decreased diversity are

inevitably widespread.

Salt and Walker (2006) argue that we need diversity because it "is a major source of future

options and a system's capacity to respond to change and disturbance in different ways […]. Resilient

social-ecological systems would celebrate and encourage diversity — offsetting and complementing

the existing trend toward homogenizing the world. It would encourage forms of multiple land use and

other resource use" (145-146). Diversity is integral to the continued functioning of complex social-ecological systems because it allows such systems to respond more effectively to unpredictability and fluctuations. The more diverse a system is, the better able it is to handle the sorts of changes that would otherwise cause it to shift. Because diverse systems have more options to fall back on, they have greater flexibility when responding to positive feedback and other destabilizing interventions. Because globalized, industrial food production promotes intensive forms of agriculture that prioritize the production of only a few crops, it reduces the stability of the complex systems on which it relies. Furthermore, as we have already discussed, globalization decreases the ability to respond to changes in the system; "food itself and the taste for it are products of their environment. This is exactly why globalized food makes no sense. Each ecological niche has its own unique abundance to offer. Different regions offer different sources of abundance" (Katz 2006: 138). As I have argued throughout this chapter, contemporary globalized systems are destabilized because they are increasingly interconnected across vast distances. Contemporary environmentalizing relations of eco/power, in attempting to manage economic productivity throughout the globe, have reinforced a situation in which each ecological niche is no longer able to respond effectively to perturbations within its own locale because those perturbations might have been generated by actions on the other side of the globe.

In order to respond more effectively to the instability generated by globalized social-ecological systems, I argue that contemporary environmental resistances could benefit from a reconfiguration consistent with the characteristics of a radical relational agency. A radical relational agency is generated as a result of the instability of contemporary globalized systems and its *embeddedness* within such systems. A radical relational agency, as I have already argued, is not attributable to one individual agent but exists as a result of the radical relationality and the behaviour that accumulates across diverse components of a system. An action that takes place at the local level does not remain at that level because of the complex interconnections and adaptations that characterize self-organized systems; "The perpetually open condition of world-systems has repercussions on notions of self and collectivity. Communities are henceforth at once local and global, in constant variation, always part of ever-transforming, complex systems. Being is interacting, as a complex living organism, with other organisms on the planet" (Conley 1997: 67). Indeed, a reworking of notions of self and collectivity is precisely the contribution of a radical relational agency — and an indication that contemporary environmental resistances require rethinking. This reworking of the relationship between the individual and the collective *necessitates* that each component maintains an ontological status that is not synonymous with the system as a whole because, as I argued in the previous chapter, a relationship

is not possible without something with which to relate. Thus, a radical relational agency is *both collective and individual simultaneously.*

That individual behaviour can self-organize and produce collective shifts contributes to an understanding of radical relational agency because it demonstrates precisely *how* such an agency is both collective and individual. According to an understanding of emergent properties:

> *Local* turns out to be the key term in understanding the power of swarm logic. We see emergent behaviour in systems like ant colonies when the individual agents in the system pay attention to their immediate neighbours rather than wait for orders from above. They think locally *and* act locally, but their collective action produces global behaviour (Johnson 2001: 74).

And so, the notion of collective emergence describes how a radical relational agency underscores the changes that occur within complex systems. Because individual actions can be significant within (collective) complex social-ecological systems, it thus engenders a reworking of the relationship between the individual and the collective. On the one hand, widespread change is an effect of collective properties because it is the *sum* of individual behaviour. But, on the other hand, the recognition that it is *precisely individual behaviour* that generates such shifts indicates that each individual component is not meaningless. Because individual behaviour is important in generating collective results, as I have argued above, a diversity and multiplicity of agents is also necessary to a radical relational agency; it is such diversity and multiplicity that can generate creativity, innovation and allow destabilized systems to respond effectively to possible disturbances and perturbations. As the examples above demonstrate, when diversity is limited, there is less opportunity for adaptation to unpredictable fluctuations because there are fewer possible options with which to respond.

In order for contemporary environmental resistances to respond to the current practices of globalization and environmentalizing biopower that serve to destabilize planetary social-ecological systems, I argue that a radical relational agency is more appropriate than Modern notions of an *a priori* agency that is possessed by individuals. Because a radical relational agency accounts for the agency of both individuals and collectives it can be used to underscore contemporary environmental resistances. Unlike Modern definitions of agency, a radical relational agency acknowledges the interconnectivity, unpredictability and complexity of the contemporary globalized systems in which we live. Furthermore, as I have illustrated throughout this chapter, environmental interventions which do not acknowledge such characteristics are likely to reinforce the environmentalizing processes that contribute to the destabilization of social-ecological systems. Rather, an environmental resistance consistent with a radical relational agency would acknowledge that it is precisely the characteristics of

flexibility, creativity and invention that generate such an agency, and precisely those characteristics that allow a system to respond more effectively to unpredictability and instability.

In the following chapter, I will examine, in more detail, how environmental resistances consistent with a radical relational agency can respond effectively to the destabilization of contemporary social-ecological systems. To do this I will examine the relationships between humans, nonhumans and environments not from Western culture, but from Indigenous cultures. The purpose of doing this is to investigate possible alternatives for understanding human relationships with the rest of the world. Furthermore, such examples underscore my argument that it is impossible to abstract power relations from ecological relations. Thus, Indigenous knowledges and technologies serve as a point of departure for understanding how a radical relational agency might transform contemporary environmental resistances and allow them create social-ecological systems which are more adept at responding to disturbances and fluctuations. To this end, the following chapter combines the insights of both Foucault's thought and complexity theory by acknowledging that both ecological relations and relations of power contribute to the creation of a radical relational agency.

CHAPTER FIVE

Indigenous Knowledges and a Radical Relational Agency

In the previous chapter, I argued that both Foucault's thought and complexity theory contribute to an understanding of how globalization leads to the increasing complexity, interconnectedness and unpredictability of contemporary social-ecological systems. To this end, I argued that positive feedback loops generated by both ecological relations and relations of power can reinforce the instability of globalized complex systems. Like complexity theory, contemporary environmental resistances also suggest that current globalized systems are unsustainable. However, because environmental resistances do not always recognize the unpredictability of complex systems, sometimes their actions (such as the example of optimizing resource extraction) reinforce the instability of globally interconnected systems. Because of this tendency to reinforce destabilizing systems, I argued that contemporary environmental resistances could benefit by becoming more consistent with a radical relational agency. I argued that a radical relational agency, instead of ignoring the unpredictability of complex systems, would underscore resistances that aim to generate the innovations, creativity and flexibility that allow complex social-ecological systems to respond more effectively to potential fluctuations.

As in the previous chapter, this chapter addresses the theoretical issues of a radical relational agency using a particular set of examples. This chapter examines radical relational agency, as a response to the instabilities of contemporary globalized systems, through the example of Indigenous peoples as well as their technologies and knowledges. The historical relationship between Indigenous peoples, their technologies and knowledges, and Western systems of thought demonstrates how alternate ways of conceiving the world have been ignored by contemporary globalizing processes, as well as environmental resistances. Indeed, through the practices of colonization, Western nations have spread Modern exclusionary systems of thought throughout the globe. More contemporaneously, environmentalizing practices and biopolitical management of humans, nonhumans and environments have continued to subsume Indigenous peoples and their territories into Western globalized capitalism. Throughout this chapter I will examine Indigenous peoples' relationships to environments and nonhumans in order to illustrate that non-Western systems of thought can aid in the application of a radical relational agency to contemporary environmental resistances. That environmentalism emerged in Europe and North America in response to the Industrial Revolution exposes it as a primarily Western phenomenon. But the emergence of environmentalism in Western nations should not be taken as the

ultimate expression of how to rethink human relationships to nonhumans and environments. Rather, Western environmental resistances represent one *particular* definition of activism focussed on human interactions with the environment. In this sense, the ways in which Indigenous peoples' conceive the relationships between humans, nonhumans and environments function as an example for rethinking contemporary environmental resistances.

In this chapter, in order to broaden the scope of my analysis, I also turn to the thought of Michael Hardt, Antonio Negri, Gilles Deleuze and Felix Guattari. The importance of introducing these thinkers is to expand an understanding of contemporary globalizing practices and to refine an understanding of a radical relational agency. Hardt and Negri's notion of a globalized Empire — that emerged through the spread of biopolitical power relations — serves to underscore the argument that Western systems of thought have been dispersed throughout the entire planet. Their notion of Empire is, in turn, influenced not only by Foucault's notion of biopolitics, but by Deleuze and Guattari's description of the deterritorializing flows that are characteristic of contemporary processes of globalization. I argue that the notion of deterritorialization, because it implies both the spread of relationships throughout the globe and the fragmentation of those relationships, is also indicative of the possible destabilization of globalized social-ecological systems. In order to combat the spread of biopolitical power relations and the disruption of deterritorializing flows, these thinkers argue that, because these relations of power are productive, *they actually produce* a concomitant and oppositional set of deterritorializing flows. In this sense, they argue that contemporary deterritorializing resistances against globalization can create new identities and relationships as a result of deterritorializing flows.

Hardt and Negri, in particular, argue that the deterritorializing flows of a globalized Empire have generated an oppositional and globalized Multitude. This Multitude, they suggest, functions as a dispersed and de-centralized collective resistance against contemporary globalizing power relations. Thus, in a sense, they argue that the Multitude is a kind of self-organized emergence demanding shifts in contemporary biopolitical power relations. However, though there are similarities between the Multitude and a radical relational agency, I argue that the notion a deterritorializing Multitude does not acknowledge the full implications of the profound complexity of globalized social-ecological systems. I argue that the processes of deterritorialization, and by extension the creation of a deterritorializing Multitude, do not recognize some of the key consequences of globalizing deterritorializing flows which, as I argued in the previous chapter, are destabilizing and inherently unpredictable. Furthermore, I argue that the notion of deterritorialization ignores the embeddedness of humans within complex and interconnected *ecologies*. And, in this sense, I argue that it omits the implications of a radical

unpredictability that is characteristic of complex social-ecological systems. It is for this reason that Indigenous ecological knowledges serve as an example of a radical relational agency — they provide an alternate description of how we can understand the relationships between humans, nonhumans and environments. Moreover, Indigenous ecological practices implicitly recognize that deterritorializing flows can further enhance the instability of globalized social-ecological systems.

As Foucault gathered inspiration from ancient Greek practices of the self in order to define his notion of self-fashioning, I point to Indigenous ecological knowledges as a way to gather inspiration for rethinking contemporary environmental resistances in terms of a radical relational agency. This is not to suggest that Indigenous cultures must be replicated by environmental resistances, but to demonstrate that there are other *possibilities* for thinking about the relationships between humans, nonhumans and environments than those which are contingent upon Western systems of thought. Throughout this chapter I will also use examples of power relations between Westerners and Indigenous peoples, such as those that fortified colonial expansionism and the persecution of Indigenous peoples throughout the world, that are indicative of the exclusionary practices of Modern power relations. I argue that, in order to legitimize the violent removal of Indigenous peoples from their territories, the discourses of colonization have prevented Western knowledges from accepting any alternate interpretations of the relationships between humans, nonhumans and environments. In this sense, I argue that more could be learned by facilitating communication between disparate groups. Indeed, as I argued in the previous chapter, diversity is necessary in order to develop the flexibility and creativity that is needed for systems to adapt to unpredictability and instability. Thus, I argue that the exclusionary practices of Modern systems of thought have forestalled possible lines of communication that could foster creativity, flexibility and resilience.

In order to explain how Indigenous knowledges can contribute to a radical relational agency I will begin by examining the Modern exclusionary power relations that function to deny those knowledges. I argue that the legitimization of colonization is contingent upon the same systems of thought that serve to exclude nonhumans, environments and particular humans (such as non-Westerners, women, children, non-whites) from having agential capacities. In doing so, Western systems of thought have been spread throughout the globe, first by practices of colonization and then by an environmentalizing power that aims to manage capitalist productivity in all corners of the globe. The argument that both colonization and globalization have spread Western power relations throughout the globe hinges on Hardt and Negri's argument that the wealth gained through colonial practices served as the necessary resource for contemporary processes of globalization. Thus, the

deterritorializing flows that destabilize contemporary social-ecological systems could be the same deterritorializing flows against which Indigenous peoples *themselves* resist. It is partly for this reason that, rather than a deterritorializing Multitude, I argue that practices consistent with a radical relational agency, and influenced by Indigenous ecological practices, are more suited to responding to the unpredictability characteristic of globalized systems. Because a radical relational agency exists, in part, because all relations and change within complex systems have unpredictable results, I argue that resistances consistent with such a notion of agency are adept at developing the creativity, flexibility and innovation that can underpin a response to the instability of contemporary social-ecological systems.

Colonization and Contemporary Colonial Practices

Throughout the history of colonization, Western relations of power have prevented non-Western voices from being heard. Colonization has been enforced not simply through the practices of geographic occupation and cultural assimilation, but through the very orderings imposed by Western knowledges and systems of thought. These orderings have structured the relationships between Westerners and Indigenous peoples in order to facilitate the ease of colonizing foreign territories. Indeed, the exclusionary functions of Modern systems of thought are implicated in practices of colonization. Without the reinforcing relations of power that constituted colonial knowledges, European practices of colonization would not have been able to proceed so effectively. In this sense, practices of colonization are contingent upon the systems of thought that emerged in the Modern episteme. As I have argued throughout this thesis, Modern systems of thought rest upon a series of exclusionary knowledges which prohibit nonhumans, environments and certain humans from possessing agential capacities. As this chapter will illustrate, Indigenous peoples, because they were defined *in opposition* to Western Man, were constituted as non-agential. Thus, the relationships between Indigenous peoples and Western colonizers serve as an example of how Modern systems of thought enforce practices of exclusion that *limit* who is defined as an agent. Furthermore, the constitution of Indigenous peoples as non-agential is explicitly linked to the constitution of nonhumans and environments as non-agential.

The Modern systems of thought that serve as the foundation for Western colonial practices are those that constitute Indigenous peoples as fundamentally without the agential capacities and, hence, without the right to manage their own territories and land. In order to construct Indigenous peoples as without claim to their own land, the doctrine of *terra nullius* was used to justify colonial expropriation. *Terra nullius* is the form of discursive legitimation that reinforced colonization by overtly declaring lands without legal property rights or without environmental resource development to be legally

viewed as vacant. In other words, the doctrine of *terra nullius* literally erased Indigenous peoples from existence on their lands and sanctioned the violent genocide or assimilation of those people that colonizers did encounter. This linguistic ordering could then clear the way for the material, geographic, cultural and physical removal of Indigenous inhabitants from any lands being colonized. Constructing Indigenous peoples as non-existent in their own territories essentially transformed them into non-people. This trick of discursively de-peopling colonial landscapes not only legitimated the violence that accompanied colonization, and the economic benefits that colonization precipitated, but this de-peopling also makes Indigenous peoples synonymous *with an environment* that, according to Modern systems of thought, was constituted as non-agential. *Terra nullius,* by constituting Indigenous peoples as indistinct from the environments and geographies in which they lived, effectively constituted Indigenous peoples as objects of study rather than as subjects with agency.

Colonial power relations actively silenced Indigenous voices; any knowledge or practice that contradicted Western definitions of agency, science or 'progress' was actively ignored, repressed, neglected, or stolen. *Terra nullius* effectively invalidated societal structures, millennia of technological developments and entire philosophies. The exclusion of non-Western knowledges and systems of thought is *precisely* the means by which Foucault argued Modern power relations function. As Robert Young (1995) reminds us, "discourse always involves a form of violence in the way it imposes its linguistic order on the world: knowledge has to conform to its paradigms in order to be recognized as legitimate" (2). Discursive violence amounts to real physical violence for the Indigenous peoples who live in colonized territories. By requiring that the knowledges and technologies of colonized peoples conform to Western worldviews meant that Indigenous voices were effectively silenced. While the geographic, environmental, spiritual and cultural colonization worked to obliterate the inhabitants of colonized lands, Modern power relations either rejected outright, or assimilated, Indigenous technologies and knowledges. This discursive violence has, in part, been perpetrated through Modern scientific knowledges that constitute only certain individuals — those with access to knowledge — as agential. Throughout the discussion of Foucault's thought, we discovered that his formulation power/knowledge expresses this recognition and, more importantly, acknowledges the effects that systems of thought have on real, material relationships. Thus, during the process of colonization, Western systems of thought ordered relationships between whites and non-whites in a hierarchical, binary fashion that prevented Indigenous peoples from being constituted as agents.

Although Foucault recognized the material violence inherent within Modern systems of thought, his texts have often been criticized for reinstating Eurocentric and colonial attitudes. According to

Robert Young (1995), Foucault "was curiously circumspect about the ways in which [power] has operated in the arenas of race and colonialism. His virtual silence on these issues is striking" (1). Like his neglect in explicitly examining the power relationships between humans, nonhumans and environments, Foucault did not examine the power relations and systems of thought that legitimated colonial expansionism. Foucault's silence on the issues of race and colonialism has been interpreted as an implied failure to acknowledge the racist and colonial discourses that Modern Western relations of power perpetrate. Although Foucault would not have intended to perpetuate colonial attitudes, *because* power functions through knowledge and discourse, his omissions do demonstrate a latent Eurocentric bias. But, as Young (1995) points out "the lasting paradox is that despite the absence of explicit discussions of colonialism, Foucault's work has been a central theoretical reference point for postcolonial analysis" (1). In this sense, Foucault's analysis of Modern systems of thought allows us to examine the philosophical and discursive legitimations that reinforced colonial expansionism. And, indeed, it has also served to undermine those systems of thought. As I have argued throughout this thesis, it is becoming possible to think in terms other than the binary ones prescribed by the Modern episteme. And, to be sure, Foucault's thought has contributed to this problematizing of Modern thought. Furthermore, a nonlinear account of colonial processes likewise problematizes interpretations of colonization as a straightforward, linear event because such an account reveals that unpredictability and positive feedback loops all contributed to the contingent histories of colonization.

An uncomplicated Western account of colonial expansionism narrates the discovery of an uninhabited wilderness and argues that this (discursively) unpeopled space only becomes (re)written once colonized by Europeans. But a narrative of colonial expansionism that tells this fanciful story of inevitably linear progress neglects to acknowledge that its outcome is the result of complex interactions and relationships between environments, humans, nonhumans, technologies, biology, pathologies, ecologies and any number of other contributing factors. As well as the contribution of particular power relations, colonization occurred due to a combination of contingent material and ecological relations such as: the need for new natural resources, control of shipping routes, agricultural technologies, human health, transportation technologies, geographies, and climate limitations, among others. The importance of recognizing that the practices of colonization are contingent upon both power relations and ecological relations, is to acknowledge the complexity and unpredictability inherent to the historical shifts and emergences within complex social-ecological systems. That colonization is a result of complex interactions and self-organized emergences means that it occurred, in part, unpredictably, was reinforced by positive feedback loops, and was subject to nonlinear changes. For

example, Manuel DeLanda (1997) argues that colonization could only occur because of the impact and feedback generated by plants, animals and, most importantly, diseases. Because colonization is itself a result of self-organizing and nonlinear processes within complex interconnected social-ecological systems, it meant that particular unpredictable and contingent relationships contributed to the historical practices of colonization.

Delanda's description of the complex and nonlinear processes that precipitated colonization rests on the acknowledgement that human populations are *never isolated* from the ecosystems in which we are situated. He proposes that cities and their outlying rural areas are to be thought of as ecosystems. He argues that cities are, in fact, parasitic on the outlying rural areas because such areas provide the urban inhabitants with their food and other requirements. Thus, he points out that: "First eastern Europe was transformed into a vast 'countryside' for the urban complex to its west, then American and other foreign lands were converted into resource depots to feed western European cities" (106). In this sense, colonization is the outcome of particular material relationships between an increasingly urban population in Western Europe and that population's correlative need for the increasingly vast spaces necessary on which to grow food and obtain other vital resources. This recognition, while not necessarily particular to complexity theory, does, however, acknowledge the profoundly parasitic, and hence *ecological*, relationship between the colonizers and the colonized territories. In addition to this parasitism, DeLanda argued that colonization occurred not only as a result of resource expansion, but also because "human migration is not a movement into previously empty space, it involves the invasion of other people's lands" that necessarily entails "genetic exchange" (114). In this sense, the complex social-ecological systems relevant to colonization include not only the obvious examples such as agricultural lands, increasing populations and trade routes, but examples such as pathogens, disease, genes and other factors of material and microscopic scales.

The role that disease and genetics played in the European colonization of the Americas worked as a form of positive feedback which reinforced colonizing practices, including the Modern systems of thought that legitimized colonization and the parasitic relationships between urban and rural ecosystems. DeLanda (1997) argues that while genetics and pathogens prevented earlier European attempts to colonize the Middle East, they worked in their favour during the colonization of the Americas four hundred years later. Because "Genes that provide resistance to malaria […] were rare in the north […] Crusaders from France, Germany and England were devoured from within by the particularly virulent malarial strains endemic in the Middle East" (131). Thus, practices of colonization do not always succeed because unpredictable and nonlinear outcomes — which are a

result of the complex interconnections between humans, nonhumans and environments — do not

always generate the reinforcement needed to allow such a shift to occur. The success of colonizing the

Americas was due, in part, to the spread of diseases and pathogens west across the continents that

occured subsequent to the first meetings between European explorers and the Indigenous inhabitants.

Because Indigenous peoples lacked the immunity to European diseases, the diseases decimated their

populations *even before* many cultures had ever come into contact with Europeans.

DeLanda (1997) argues that, although Europeans might have had a small advantage because

they had "horses, very primitive firearms, [and] metal armour", those advantages "would have been

quite insufficient for the task of conquering a densely inhabited territory" (133). In short, such

advantages are not enough to explain *why* the European colonization of the Americas succeeded.

Instead DeLanda points out that:

> because the majority of native inhabitants died of disease, draining the reservoirs of skills and
> know-how that sustained their culture, that meagre advantage sufficed. Culture certainly played
> a role here, but it was not the most important. Cultural materials flowed together with genes
> and biomass (not all of it human) across the Atlantic, and it was the whole complex mixture that
> triumphed (133).

Colonization might not have succeeded without the decrease in population attributed to Indigenous

peoples' susceptibility to European diseases.[7] In this sense, the success of colonization was an

unpredictable outcome that occurred as a result of multiple interconnections and positive feedback

loops that included humans, nonhumans and environments. Colonization occurred not because of *one*

determining factor, but because of an assortment of complex interactions and circumstances.

The complex interactions and circumstances that contributed to practices of colonization

therefore include ecological factors such as land available for agriculture and an amenable climate,

microscopic factors including genetics, immunity and pathogens, and cultural factors, as well as the

reinforcement provided by legitimizing Modern exclusionary power relations. By combining

Foucault's recognition of omnipresent power relations with complexity theory analyses, we are able to

read the history of colonization as functioning through a series of feedback loops that were mutually

reinforcing. Thus, Western practices of exclusion and the erasure of Indigenous peoples from their

lands reinforced ecological relations such as the parasitic interactions between cities and outlying rural

areas, and the spread of disease throughout the Americas. While the history of Western colonial

expansionism underscores the notion of *terra nullius* and emphasizes the belief that colonized lands

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[7] Indeed, DeLanda (1997) notes the failure of European attempts to colonize the Middle East as well as previous
attempts by the Norse to colonize North America (132).

were uninhabited territories, nonlinearity implies that notions of linear progress are no longer tenable because history does not follow a determined trajectory or endorse any particular belief system. If the imperialist attitudes of Western colonialism were supported by an underlying belief in progress and technological superiority, then nonlinear notions of history underscore a far more varied and heterogeneous set of interconnections and relationships that reinforced colonial expansion. A recognition of unpredictability exposes the contingency of colonial achievements upon the ecological limits, systems of thought, natural resources and pathogens discussed above; complexity theory shows us that such achievements are dependent upon a myriad of interconnected relationships and reinforcing positive feedback loops. The unpredictability of colonization suggests that if even one circumstance was different, things could have turned out completely differently.

Because processes of colonization are unpredictable, it was never a forgone conclusion that they would lead to the expansion of Western systems of thought throughout the globe. In this sense, the outcome of Western practices of colonization was never guaranteed. Furthermore, the actions of contemporary Indigenous peoples around the world attest to the fact that colonization has not erased, or even assimilated, Indigenous knowledges, practices or ways of life. Indeed, Indigenous resistances to colonization still persist.[8] More recent attempts at assimilation have not occurred as predictably as Modern systems of thought would suggest. A belief in linear and assured progress caused European colonial powers to assume that "the colonies and lower peoples will become objects of the causal process of improvement, gradually shedding their primitive customs and ways, […]. They will be assimilated into modern nations within European imperial structure or into independent modern constitutional nation states" (Tully 1995: 65). However, the history of colonization reveals that such attempts at assimilation did not occur linearly, nor did colonizers achieve their goals. Rather, Indigenous knowledges and practices still exist as a radical counterpoint to the Modern systems of thought which served to legitimate European colonization. Throughout this chapter I will argue that, because Indigenous histories, cultures and systems of thought are radically *different from* Western ones, and even implicitly recognize the existence of a radical relational agency, they serve as an opportunity to examine alternate responses to the instability of globalized social-ecological systems.

Opposing Definitions of 'The Environment'

Although the "main function of the environmental movement, [...], is to remind modern society that development inevitably binds humans and non-humans more closely together within complex socio-natural assemblages", environmentalism often remains latently attached to the "dualistic

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[8] I will discuss such Indigenous resistances later in this chapter.

presuppositions" characteristic of Modern thought (Murdoch 2006: 108). As I have argued throughout this thesis, the binary distinctions that underpin Modern systems of thought have served to legitimate exclusionary practices with often violent results. And, oftentimes, contemporary environmental resistances remain attached to such binary constructions in order to justify particular environmental interventions needed to 'protect' 'the environment'. Thus, the environmental movement does not always fulfill its stated aim of acknowledging the ecological interconnectedness of humans, nonhumans and environments. However, as I suggested in the previous section, investigating Indigenous knowledges and systems of thought serves as an opportunity to examine alternate ways of understanding how humans exist in the world. In particular, the ways in which Indigenous peoples often conceive of 'the environment' is as a participant that is integral to both their ecological and *social* systems. If contemporary environmental resistances often fall back on binary distinctions and exclusionary knowledges, then their risk of contributing to the spread of Western discourse is further increased. Rather, if nonhumans and 'the environment' are conceived as active *participants and agents*, as some Indigenous cultures constitute them, then humans become simply one constituent among many. In this sense, I will argue that Indigenous knowledges and practices have something in common with a radical relational agency.

Throughout this thesis, I have stressed that power, knowledge, materiality and ecology take part in the same processes. In the previous section, I argued that the emergence and continuation of colonial practices were dependent on a variety of complex factors including both relations of power and ecological relations. Therefore, because practices of colonization are the result of complex interconnected relationships that include humans, nonhumans and environments, I argued that spaces and geographies are not simply the bearers of social relations. I argued that geographic space and 'the environment' should be reconceived as active participants within contemporary social-ecological systems. But, there are different ways in which space and 'the environment' are constituted. Indeed, because divergent ways of conceiving the environment intersect the relationships between Western and Indigenous cultures, it underscores both the focus of colonization and environmental resistances. Both the history of colonization and contemporary environmental practices reveal that there are radical differences in how notions of space, geography, ecology and the environment are conceived. In this sense, the recognition that space and 'the environment' are constituted in different ways across different cultures is important because it highlights different ways of thinking through the relationships between humans, nonhumans and environments.

In *The Production of Space* Henri Lefebvre (1974) argued that a specific understanding of 'natural' space serves a particular function within Western culture; "nature obsesses us, [...]. Everyone wants to protect and save nature; nobody wants to stand in the way of an attempt to save its authenticity. Yet at the same time everything conspires to harm it. [...]. Even the powerful myth of nature is being transformed into a mere fiction, a negative utopia" (30-31). As I have already argued, the Modern distinction between Man and Nature reinforced the belief that Nature is eternal, passive and non-agential. In this sense, when human interference with 'natural' spaces and environments seems to threaten those spaces, human processes are necessarily constituted as imperiling the continued existence of those 'natural' landscapes and ecosystems. Thus, as I have argued throughout this thesis, there are powerful myths that underlie the constitution of 'natural' landscapes and environments as spaces which humans should be prevented from entering. Consistent with this constitution of the environment, conservation projects worldwide have sought to create National Parks and other 'wilderness' reserves that eject humans from (supposedly) 'virgin' landscapes so that they may preserve the 'pure' sanctity of 'natural' ecosystems. However, Indigenous peoples are often the inhabitants of those territories and spaces that conservationists wish to preserve, and so environmentalizing practices in such instances reinforce those colonial practices that aimed to erase Indigenous peoples from their ancestral territories.

In his book *Conservation Refugees*, Mark Dowie (2009) documents the struggles that Indigenous peoples have faced in preventing their lands from being taken over by conservation trusts or governments. He argues that many "people who have been evicted from their homelands in the interest of conservation have been people of colour. The unspoken (and rarely written) rationale for this policy is a certainty that European and American […] science-based conservationists naturally understand the tenets of conservation, while primitive aboriginals do not" (*xi*). Such conservation efforts not only reinforce the assumption that humans, nonhumans and environments should not interact in 'natural' spaces, but also reinforce the assumption that Western knowledges are inherently superior. Moreover, as I will illustrate later in this chapter, the tacit assertion that Indigenous peoples do not know how to 'protect' their own ecosystems is to deny the legitimacy of non-Western ways of interacting with the nonhumans and environments. Indeed, such acts of Western 'conservation' enact a continued colonial relationship in the guise of an environmentalizing concern with nonhuman spaces. In the name of conservation, some environmental activists — because they constitute space as non-agential — do not acknowledge the possibility that human inhabitants are simply one constituent part

of complex social-ecological systems and might, in fact, be integral to that system's continued existence.

Paradoxically, the emergence of conservationist environmentalities that evict Indigenous peoples from their ancestral lands actually opens those spaces to tourists and tourism-related infrastructure. Lefebvre (1974) argued that "commodities which were formerly abundant because they occurred 'naturally', which had no value because they were not products, have now become rare, and so acquired value. [...]. Natural space under certain socio-economic conditions, becomes a scarce commodity. Inversely, scarcity becomes spatial" (329). The increasing scarcity of 'natural' spaces means that conservation and capitalism coexist beneficially — the removal of Indigenous occupants from their territories opens up new spaces to capitalist development. The commodification of 'natural' spaces therefore continues a series of relationships that began with colonization. As resources became scarce in Europe, there was a need to search elsewhere to find those resources and, as DeLanda (1997) argues, there was "a gradual conversion of the world into a supply region to fuel European urban growth" (106). In the centuries since colonization instigated the development and urbanization of increasingly vast portions of the world, natural resources and undeveloped spaces have become *increasingly scarce*. Processes of globalization have only increased the rapid development of all regions of the globe into spaces capable of supplying Western nations with affordable food, fuels and consumer goods; processes which have inevitably contributed to the scarcity of 'natural' spaces.

Because not only natural resources, but *'natural' spaces* have become scarce, globalizing and environmentalizing capitalist processes are incorporated into every corner of the planet. Environmental acts of conservation work in the service of an environmentalizing expansion to render all corners of the globe under biopolitical management. Such practices of environmentalizing management are dependent upon the material and ecological realities of a finite planet in which scarcity is interpreted within the framework of capitalist exchange. The notion of scarcity, therefore, contributes to the increasing globalization of disparate social-ecological systems because, in reflecting the scarcity of what is produced within 'the environment', it aims to actively manage all relationships between humans, nonhumans and environments. In this sense, the removal of Indigenous peoples from their territories continues under the masked legitimation of 'protecting' the environment, rather than as outright colonial expansion. As Dowie (2009) points out, "the removal of aboriginal human beings from their homeland to create a commodified wilderness is a deliberate charade, a culturally constructed neo-Edenic narrative played out for the enchantment of weary human urbanites yearning for the open frontier that their ancestors 'discovered' then tamed, a place to absorb the sounds and

images of virgin nature" (18-19). The forced eviction of Indigenous peoples from their ancestral territories indicates that the constitution of space *as a commodity* is inherent within the discourses of conservation. Thus, as Murdoch (2006) argues, "spatial relations are also power relations" (22-23). As the example of conservation refugees attests, the ways in which 'natural' spaces have been constituted as fundamentally separate from 'human' spaces serves to reinforce the spread of globalizing capitalist relations of power.

That Indigenous cultures constitute 'the environment' and 'natural' spaces in radically different ways than Western systems of thought means that there is no inevitability to the constitution of nonhuman spaces as in need of 'protection'. Indeed, within many Indigenous worldviews no distinction is made between humans, nonhumans and environments and so, to remove any one constituent part from an ecosystem, is not consistent with many Indigenous constructions of the environment. Thus, Indigenous cultures explicitly recognize that they are not abstracted from their material environments:

> Animals, plants, and minerals are not, […], rightless resources, as is the case in Western economic assumptions. They are as it were trading partners with human beings, and are pictured as profiting, from their own point of view, from exchange with human beings. But exchange is not enough. Human beings must assume proper attitudes toward the non-human members of their polymorphous community (Callicott and Overholt 1982: 155).

Indigenous cultures often constitute nonhumans, environments and any available resources as members within a highly interconnected community. Indeed, as the above example attests, certain Indigenous cultures recognize nonhumans and environments as essential contributors to their societies, cultures and knowledges; instead of positing a distinction between humans and nonhumans, nonhumans and environments are members of an extended "polymorphous community". The separation of Indigenous peoples from their traditional territories underscores Eurocentric practices because it imposes a division between humans, nonhumans and environments that is a result of exclusionary Modern systems of thought and is, therefore not congruous with radically different ways of characterizing the relationships between humans, nonhumans and environments.

Because nonhuman and environmental participants are viewed as members of a more interrelated community, the eviction of Indigenous peoples is not merely a loss of geographic spaces, but it also underscores the loss of identity and an entire way of life. In the sense that 'the environment' and nonhuman spaces are constituted as members of a larger community that includes human cultures, the removal of Indigenous peoples from their own environments in the name of either colonization or conservation is tantamount to an attack on their radically divergent systems of thought. The continued

eviction of Indigenous peoples from their traditional territories therefore represents the inability of certain kinds of environmentalism to acknowledge alternate ways of conceiving the relationships between humans, nonhumans and environments. Moreover, as I argue throughout this chapter, the silencing of non-Western systems of thought forecloses opportunities to communicate across divergent cultures and to discover other ways in which it is possible to live in the world. For instance, because Indigenous cultures often constitute humans, nonhumans and environments as agential participants within diverse social-ecological systems, it also suggests that Indigenous knowledges share something with a radical relational agency. In this sense, I argue that such examples serve as an opportunity to learn from different cultural practices and knowledges.

I argue that Indigenous knowledges offer an opportunity to rethink contemporary environmental resistances *because* Indigenous cultures frequently view nonhumans and environments as relationally interconnected within complex social-ecological communities. The acknowledgement that all *humans are part of the ecosystems in which we live* means that viewing humans as inherently destructive of 'natural' spaces would no longer make sense. Instead, the outcome of such a worldview would be to recognize that humans are simply one part of an environment that includes a wide variety of agents. Indeed, such a view is congruous with a radical relational agency. In this sense, environmental resistances consistent with the insights gleaned from an understanding of radical relational agency would not advocate the removal of humans from ecosystems. Therefore, the eviction of Indigenous peoples from their territories does not necessarily mean that such uninhabited ecosystems are more stable. Rather, humans can actually contribute to a system's ability to creatively respond to disturbances and fluctuations. In the following section, I will examine how Indigenous knowledges and technologies can provide alternatives to Western systems of thought. In doing so, I will argue that they also provide inspiration for understanding a radical relational agency.

Traditional Ecological Knowledges

A perception that Indigenous peoples are connected to nonhumans and environments in ways that Westerners are not has initiated environmental interest in Indigenous worldviews. However, the imposition of Western environmental concepts onto Indigenous worldviews actually demonstrates a continued ethnocentric bias in the sense that it defines environmental and ecological practices according to Western concepts. Asserting that Indigenous peoples were environmentalists or ecologists:

> is neither true nor false; rather, it is non-sensical. There was not in the past nor is there today
> any 'Indians' *per se* — there were and are extremely varied and diverse groups of American

Indian people — and ecology is a highly sophisticated, quantitative, abstract, and precisely defined biological science, utterly embedded in the Western world view. More accurately stated, there is a current popular impression that American Indian cultures included as part of their practical relations with the world what may be called an 'environmental ethic' (Callicott and Overholt 1982: 153).

The interpretation that Indigenous knowledges are more ecologically sound is misguided because it poses the conclusion in terms of *Western* science and knowledges. This popular belief, instead of acknowledging Indigenous peoples' own interpretations of the relationships between humans, nonhumans and environments, imposes foreign sciences and systems of thought onto what are radically different Indigenous worldviews.

The absorption of Indigenous knowledges into Modern ecological practices and environmental resistances is indicative of how colonization has legitimized an unrecognized assimilation of Indigenous technologies by Western colonizers. Throughout, and since, colonization there has been unacknowledged borrowing of Indigenous technologies and knowledges that remains overlooked. For example, the colonization of the Americas inaugurated an improvement in the lives of European colonialists:

Today, corn is the largest grain crop by weight grown in the world, and three root vegetables developed in the Americas — potatoes, sweet potatoes, and cassava — are collectively the largest source of global calories. When you take into account an agriculture that also included coffee, cacao, tomatoes, avocado, peppers, cayenne, chillies, peanuts, cashews, tobacco, sunflower, safflower, vanilla, pineapple, papaya, blueberries, strawberries, passion fruit, pecans, butternut squash, pumpkin, zucchini, maple syrup, cranberry, tapioca (from cassava), and a whole assortment of beans, it is not difficult to concede that Amerindian farmers were the leading plant breeders in history. Europeans, who had gone chronically hungry for centuries, came to an edible landscape farmed by people who by and large were well fed (Hawken 2007: 98).

The reality of the relationships between Western and Indigenous knowledges is complex because it conceals the many contributions to knowledge that have been made by Indigenous peoples. After the colonization of the Americas, a wealth of knowledge that was unknown to Western nations was subsequently adopted. While Indigenous American food crops feed people around the globe, the Indigenous knowledges and technologies that developed these crops remain largely unacknowledged.

Although Indigenous knowledges have often been assimilated or stolen throughout the history of colonization, recent steps have been taken to acknowledge the contributions made to ecological practices by Indigenous peoples throughout the world. Indigenous technologies and knowledges have come to be collectively known in academia as 'traditional ecological knowledge'. The academic

notion of traditional ecological knowledge "came into widespread use in the 1980s, but the practice of traditional ecological knowledge is as old as ancient hunter-gatherer cultures" (Berkes 1999: 4). Traditional ecological knowledge is somewhat of a catch-all term used to describe Indigenous technologies, knowledges and relationships to the environment. Consequently, this terminology is often found to be less than ideal to describe the myriad ways in which non-Western Indigenous cultures interact with ecologies, climates and landscapes. In his book *Sacred Ecology*, Fikret Berkes (1999) argues that there is not one "universally accepted definition of traditional ecological knowledge. The term is, by necessity, ambiguous since the words *traditional* and *ecological knowledge* are themselves ambiguous" (5). Berkes recognizes the difficulty in defining traditional ecological knowledges that are unavoidably multiple, divergent and varied. Furthermore, as I have already discussed, there are inherent problems in defining Indigenous knowledges using overtly Western concepts.

After problematizing the terminology, Berkes (1999) offers a definition. He defines traditional ecological knowledge as: "*a cumulative body of knowledge, practice and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment*" (8). The notion of traditional ecological knowledge thus overtly recognizes that Indigenous knowledges are concerned with the relationship between humans, nonhumans and environments, but it also recognizes the processes of cultural transmission and the historical accumulation of social practices that are integral to these knowledges. It is important to recognize the historical and accumulative aspects of traditional ecological knowledge because they underscore the fact that these systems of thought are adaptive, flexible and not historically homogeneous. Indeed, the adaptability and flexibility of traditional ecological knowledges implies that such knowledges are effective at responding to historical emergences and unpredictability. While all systems of thought are necessarily contingent upon historical developments, the difference is that traditional ecological knowledges often build adaptability, flexibility and accumulation into their practices. As Fikret Berkes and Carl Folke (2002) point out, "there are local and traditional practices that *behave like a disturbance*" (129) within local complex systems order to generate perturbations within those systems, so that; "Instead of removing or eliminating disturbance altogether, local and traditional adaptations seem to accept perturbations as an intrinsic part of ecosystem dynamics" (145). In this sense, a recognition of adaptation and flexibility is implicit within traditional systems of thought and practices when they seek to generate system disturbances.

Indigenous knowledges and technologies are passed down through oral traditions that extend "back at least one hundred years" among some groups because "information is carried by the elders and transmitted in the form of stories and myths; conservation practices themselves are encoded in rituals" (Berkes and Folke 2002: 140-141). This method of knowledge transmission within Indigenous cultures, in which information is passed down through stories and oral traditions, demonstrates the vast differences between Western scientific ecology and traditional ecological knowledges. Although Western academic disciplines would have historically disregarded any non-Western knowledges and technologies, the recognition that traditional ecological knowledges might have insight into particular environments creates an opportunity to learn from Indigenous traditions — without simply translating those traditional ecological knowledges into Western science. In particular, the radically different historical dimensions of Indigenous knowledges provide additional insight into particular ecosystems because Indigenous peoples have been participating in relationships with nonhumans and environments in colonized geographies longer than have European settlers. Because, for example, North American "First Nations knowledge, […], predates European contact" they can provide a historical, dynamic and "multigenerational perspective on the environmental impacts of colonialism and industrial development" (Butler and Menzies 2006: 8). Their historical presence on the North American continent means that Indigenous peoples have access to knowledges which predate the environmental and ecological effects of colonization and industrialization. Indeed, their continued presence on the North American continent means that traditional ecological knowledges have information pertinent to environmentalism that activists in Western traditions do not have access to.

Fikret Berkes and Carl Folke (2002) argue that the *ways* in which Indigenous knowledges are accumulated, and the flexibility of their traditions, are important not only to the accumulation of ecological knowledges, but also to Indigenous cultures as a whole. They point out that within Indigenous North American "societies, ecological knowledge, resource management, and worldviews are inseparable" (141). Because Indigenous worldviews do not constitute humans as distinct from nonhumans and environments, the knowledges that they accumulate are not abstracted from those environments. In this sense, the accumulation of ecological knowledges does not occur in a separate realm of 'ecology', but happens throughout all cultural and social processes within Indigenous societies. In traditional ecological knowledges "all elements are viewed as interconnected and cannot be understood in isolation" (Butler and Menzies 2006: 9). Thus, ecological knowledge is encoded within the rituals and histories of Indigenous communities because, as their oral traditions also attest, such knowledge is embedded within the functioning of their daily lives. That traditional ecological

knowledge cannot be isolated from the histories, diverse relationships, wider cultural practices or even nonhuman environments, demonstrates their radical difference from Western science. It is in this sense that I argue the inability of Western systems of thought to account for such radical otherness, demonstrates its own inability to remain flexible and adaptable.

Traditional ecological knowledges, unlike Western ecology, generate information about resources, territories, animals and entire ecosystems via direct observation of human interactions with nonhumans and environments that accumulates through continued use and experimentation. Because of the intimately situated way in which traditional ecological knowledges accumulate, they are embedded within the social and *human* aspects of daily life. These knowledges are "part of the cultural capital by which societies convert natural capital — that is resources and ecological services — into human-made capital or the produced means of production" (Berkes and Folke 2002: 123). Moreover, because traditional ecological knowledges are embedded within local ecosystems, and knowledge is accumulated through historical adaptations, they acknowledge that systems can have multiple stable states. For example, Berkes (1999) describes the traditional worldviews of North American Cree as "nonlinear and multi-equilibrium. They are used to an unpredictable, ever-changing environment"(126). Because indigenous knowledges and technologies recognize the unpredictability of social-ecological systems within their traditions, rituals and decision-making processes, they are often well equipped to deal with unpredictable shifts.

Although traditional ecological knowledges are radically different from Western systems of thought, they nevertheless exhibit similarities to complexity theory. Berkes and Folke (2002) argue that their research has led them to acknowledge that "traditional practices have certain similarities and parallels to the theory of complex systems, with emphasis on nonlinear relationships, threshold effects, multiple equilibria, the existence of several stability domains, cross-scale linkages in time and space, disturbance, and surprise" (124). They discovered that traditional ecological knowledges recognize the profound interconnectivity between humans, nonhumans and environments, recognize that systems are nonlinear and unpredictable, and that systems have multiple possible stable states. Moreover, as I have argued throughout this section, traditional ecological knowledge places an emphasis on flexibility and adaptability, both in its accumulation of information and its insistence that such information cannot be abstracted from the historical contingencies of the social-ecological system in which it is generated. Traditional ecological knowledges thus recognize the profound unpredictability that is characteristic of complex social-ecological systems; an important recognition because it signals the possibility that such knowledges are applicable to an understanding of radical relational agency. In this sense, traditional

ecological knowledges contribute to an understanding of radical relational agency because they reflect the insights of complexity theory from a radically non-Western perspective.

Indigenous knowledges also intersect with a radical relational agency because, as I have already discussed, they explicitly recognize the *agency* of nonhumans and environments. Indigenous knowledges therefore can contribute to an understanding of a radical relational agency because they acknowledge not only the embeddedness of humans within ecological systems, but also that nonhumans and environments are participants and agents. Because traditional ecological knowledges historically understand the relationships between humans, nonhumans and environments as interconnected *and* agential, they express a history of those interactions that is radically different from Western histories. Throughout the previous sections, I have argued that Western systems of thought have historically excluded non-Western knowledges and technologies and, in doing so, have foreclosed opportunities to learn in radically different ways. In the following sections, I examine the notion of deterritorialization as an explanation of how contemporary social-ecological systems are destabilized *and* as a kind of response to that profound instability. In a sense, resistances that make use of deterritorializing processes have something in common with a radical relational agency because they acknowledge that radical interconnections can extend throughout the globe. However, they neglect the unpredictability that is inherent within any complex system. Therefore, I will return to a notion of traditional ecological knowledge and suggest that it might serve as inspiration for how environmental resistances can acknowledge unpredictability *and* a radical interconnectivity.

Globalization, Deterritorialization and the Instability of Global Systems

In the previous chapter, I examined the complexity and interconnectivity of contemporary globalized food systems. I argued that through the increasing complexity of these globally dispersed networks, global food systems have also become increasingly destabilized. Likewise, the entire process of globalization integrates worldwide social-ecological systems in such a way that they have become immensely interconnected. Thus, as I determined in the previous chapter, the simple act of purchasing dinner in Europe can influence social and ecological systems on the other side of the world. The increasing interconnectivity between geographically dispersed locations has meant that globalization, in the latter half of the twentieth century and into the beginning of the twenty-first, is characterized by the spread of an environmentalizing management and biopolitics throughout the world. As I have already suggested — though the terminology did not exist — globalizing processes were a necessary affect of the race between European nations to build their own vast colonial empires and extended their access of resources and labour to all of the world's continents. Indeed, as Hardt and

Negri (2000) point out, "By the end of the eighteenth century, the products of slave labour in the Americas constituted one third of the value of European commerce" (121). Through colonial practices, European nations gained access to vast resources and technologies that allowed their wealth to grow *more than was possible without colonization*; the wealth provided by colonial territories allowed European nations to disperse Western practices and systems of thought throughout the world. In this sense, the expansion of colonial empires around the world set the pace for contemporary globalization to continue with its increasingly environmentalizing practices.

Hardt and Negri (2000) argue that capitalism emerged *because of* the wealth accumulated through European colonial practices. Without the products and slave labour provided by its colonies, European capitalism would not have been able to flourish. Hardt and Negri maintain that "slave production in the Americas and the African slave trade, however, were not merely or even predominantly a transition to capitalism. They were a relatively stable support, *a pedestal of superexploitation on which European capitalism stood*" (122 emphasis mine). In other words, the emergence of capitalism would have been impossible without the vast material and financial wealth accumulated through the 'superexploitation' of colonial geographies and the Indigenous peoples who inhabited them. Globalization rests on the accumulation of resources achieved through colonial practices that, as I have previously described, are contingent upon complex factors such as Modern systems of thought, pathogens and resource scarcity. Thus, both colonization and globalization are emergent phenomena which have been reinforced through positive feedback loops that necessarily include relations of power and ecological relations. In this sense, globalization is the result of self-organized emergences that have accumulated historically and, hence, facilitated the dispersal of Western practices and systems of thought.

According to Hardt and Negri (2000), because colonial power relations were consistent with Modern exclusionary systems of thought, they functioned by constituting individuals according to binary arrangements (128). In order to spread imperialist attitudes, a dualism structured European thought which constituted Indigenous peoples as radically *Other*. As we have discussed throughout this chapter, exclusionary systems of thought have meant that Indigenous technologies and knowledges were systematically excluded, ignored, erased, assimilated or disregarded by Western institutions. Thus, Hardt and Negri point out that colonialism is "an abstract machine that produces identities and alterities, imposes binary divisions on the colonial world" that structure it according to European discourse and power relations (128). But, they also argue that if colonial discourses and power relations served to exclude those knowledges, traditions and technologies that were non-Western,

contemporary globalized power relations operate according to an altogether different logic. Indeed, as I have already argued, contemporary relations of power are characterized by an increasing environmentalization that aims to bring every corner of the globe under its management. Hardt and Negri (2000) argue that globalization, because it is characterized by global capital, organizes relations of power differently; "The global capitalist hierarchy that subordinates the formally sovereign nation-states within its order is fundamentally different from the colonialist and imperialist circuits of international domination" (134). They argue that colonial imperialism has given way to a globalized "Empire" that works to spread capitalist economics and power relations ever more efficiently around the world. Likewise, they identify *biopower* as the primary means that Empire uses to structure discourse and power relations. Because biopower *produces identities and multiplicities*, Hardt and Negri argue that contemporary power relations no longer produce binary constructions.

Again, Hardt and Negri (2000) have expanded on Foucault's thought and argue that global power relations have become entirely biopolitical. Rather than the previous disciplinary power that "fixed individuals within institutions but did not succeed in consuming them completely in the rhythm of productive practices" (24), contemporary biopower "regulates social life from its interior, following it, interpreting it, absorbing it, and rearticulating it" (23-24). Thus, Hardt and Negri argue that the disciplinary power relations that Foucault described have now been completely replaced by biopolitical systems of *production*. Furthermore, their interpretation expands Foucault's notion of biopolitics to include not only the production of physical bodies and life, but "the production of *social* life itself, in which the economic, the political, and the cultural increasingly overlap" (xiii). In this sense, whereas I have previously argued that biopolitics leads to an increased environmentalization that aims to manage the relationships between humans, nonhumans and environments, Hardt and Negri stress that biopower *also* produces identities and multiplicities — and facilitates the communication between diverse groups. Through the increasingly widespread production of social, economic, political and cultural life, contemporary globalized capitalism (or Empire as Hardt and Negri prefer), serves to create a wide variety of identities and heterogeneous relationships. Within contemporary power relations "creativity, communication, and self-organized cooperation are its primary values" (83). Biopolitics thus produces *different kinds* of biopolitical subjects than do disciplinary techniques because globalized power relations create dispersed multiplicities and a wide variety of possible identities and relationships.

Hardt and Negri (2000) argue that while colonialism created binary identities, "Empire manages hybrid identities, flexible hierarchies, and plural exchanges through modulating networks of command" (xii-xiii). Because Empire operates through the productive capabilities of biopower, it is far

more flexible than the disciplinary power relations that came before it. And, like the Foucauldian biopolitical power relations through which it functions, Empire does not have a "territorial centre of power and does not rely on fixed boundaries or barriers" (xii). This dispersed and decentralized power, however, is especially effective *because* it does not rely on territorial centres. Thus, in a sense, Hardt and Negri suggest that contemporary globalized, biopolitical power relations are actually *more successful* than the colonial power relations that preceded them. Hardt and Negri assert that Empire signifies an "end of colonialism and the declining powers of the nation are indicative of a general passage from the paradigm of modern sovereignty toward the paradigm of imperial sovereignty" (137). Because Empire destabilizes the Modern nation-state, it ushers in a transition to a globalized imperial system. Therefore, Hardt and Negri suggest that a globalized Empire achieves the complete integration of world economies and the worldwide dispersal of capitalism that began with colonialism. The importance of Hardt and Negri's argument that Empire is a continuation of the globalizing capitalist processes that began within colonization is that it likewise implies the extension of biopolitics not only within human social systems, but also the increasing environmentalizing management of nonhumans and environments. From the initial conditions of colonial expansionism that included resource limitations, Modern systems of thought and other reinforcing positive feedback, emerged a highly complex globalized system that links humans, nonhumans and environments across vast geographic spaces.

Hardt and Negri's notion of Empire is derived not only from a recognition that biopolitical power relations have succeeded in becoming dispersed throughout the globe, but it is also derived from an understanding of how deterritorializing flows serve to *destabilize* territories and identities. Deleuze and Guattari's notion of deterritorialization describes globalization because it is precisely deterritorializing flows that interconnect dispersed geographic locations and, in the process, destabilize those locations. Indeed, Deleuze and Guattari, like Hardt and Negri, suggest that deterritorializing flows have facilitated the shift from sovereign states to a globalized Empire because they radically interlink spaces and relations that have become dispersed throughout the globe. In *A Thousand Plateaus*, Deleuze and Guattari (1987) argue that contemporary globalized capitalism is anathema to the state form; "it could be said that capitalism develops an economic order that could do without the State. And in fact capitalism is not short on war cries against the State, not only in the name of the market, but by virtue of its superior deterritorialization" (501). They insist that the deterritorializing capabilities of contemporary capitalism *require* the erasure of the state form. While capitalism deterritorializes and decentralizes, it also contributes to the cultural homogeneity that characterizes the

increasing dispersal of Western systems of thought throughout the globe, and the correlative environmentalizing production of nonhumans and environments. Hardt and Negri identify these deterritorializing processes *as an Empire* and argue that they have, in fact, finally been able to establish a homogenizing order that has spread capitalist power relations throughout the globe.

In *Anti-Oedipus*, Deleuze and Guattari (1984) offer a more nuanced description of the ability for a deterritorializing capitalism to contribute, contradictorily, to global homogeneity and the widespread effects of governmentalizing power relations:

> Concerning capitalism, we maintain that it both does and does not have an exterior limit: it has an exterior limit that is schizophrenia, that is, the absolute decoding of flows, but it functions only by pushing back and exorcising this limit. And it also has, yet does not have, interior limits: it has interior limits under the specific conditions of capitalist production and circulation, that is, in capital itself, but it functions only by reproducing and widening these limits. The strength of capitalism indeed resides in the fact that its axiomatic is never saturated, that it is always capable of adding a new axiom to previous ones. Capitalism defines a field of immanence and never ceases to fully occupy this field (271).

In other words, the deterritorializing flows of capitalism enable it to constantly push towards a limit and, in the process, to continually redefine its own limits — lengthening its own reach in the process. Deterritorializing flows therefore demonstrate a flexibility in redefining their own limits. A flexibility that nevertheless brings more and more relationships and territories under the purview of capitalism and an increasingly homogeneous environmentalizing management. Thus, Deleuze and Guattari argue that deterritorializing flows are capable of continually spreading throughout the globe and, in doing so, drawing ever more global territories into the limits of capitalism.

Capitalism is effective *because* it is deterritorializing but, at the same time, it also *reterritorializes* the limits that it has just opened up through the deterritorializing processes of global interconnection and expansion. The deterritorializing effects of the processes of globalization are mitigated and limited by the reterritorializations that aim to manage and produce identities and relationships in ways that are most beneficial to global capital. In this sense, deterritorializing flows are inherently destabilizing because they are constantly seeking new limits, pushing boundaries and generating new interconnections between vastly different ecosystems. Yet, the effects of reterritorializations are such that they aim to limit any instability that such deterritorializing flows might impose upon capitalism itself. Thus, the paradoxical results of globalization are such that they amount to global homogeneity and the spread of environmentalizing, biopolitical power relations. By simultaneously reterritorializing the deterritorializations that have opened up new spaces to environmentalizing management and global capital, Western capitalist power relations assert their

presence throughout the globe. Although deterritorializing flows contribute to destabilization, capitalism nevertheless *needs* those processes in order to extend its limits and continue its Empire-expanding growth before it can close up those limits behind it.

Deterritorializing flows, because they facilitate the interconnections between diverse geographic spaces and open up new places to environmentalizing management, necessarily contribute to the processes of globalization in significant ways. Indeed, as I have argued throughout this thesis, globalization is the result of myriad self-organized interactions that, through reinforcing positive feedback loops, have resulted in emergent global phenomena. In this sense, deterritorializing flows contribute to globalization by facilitating interconnections between disparate territories and by simultaneously facilitating a homogeneity of action and practice. Globalization is characterized by "relationships that transcend the societal. Criss-crossing 'societies' are many mobile, material systems in complex interconnections with their environments, having effects time-space distantiated from where they originate, and with positive as well as negative feedback mechanisms" (Urry 2005a: 244). Deterritorializing flows contribute to these globalized relationships by generating interconnections across vast distances and spreading the effects of local interactions throughout the globe. Yet, as I have already argued, such practices of globalization — and their concomitant contribution to a global homogeneity — serve to destabilize planetary social-ecological systems because they make such systems less able to respond to unpredictable fluctuations and disturbances. Thus, deterritorializing flows not only contribute to the globalization of contemporary social-ecological systems, but, in doing so, also contribute to their destabilization.

Deleuze and Guattari's notion of deterritorialization is a means of understanding how processes of globalization destabilize contemporary social-ecological systems. As Hardt and Negri argue, the spread of a deterritorializing capitalism throughout the globe has contributed to the emergence of a contemporary globalized Empire. In this sense, because capitalism is both deterritorializing and simultaneously reterritorializing, it extends its reach throughout the planet while, at the same time, it produces radically dispersed and interconnected relationships in increasingly homogeneous ways. As we discovered in the previous chapter, complexity theory points out that when complex systems become increasingly complex and decreasingly diverse, such systems are destabilized and there is a greater possibility that the system could shift into an alternate stable state. Because deterritorializing flows at once link different parts of the globe while simultaneously weakening local territorial links, they contribute to the destabilization of global systems. The fissures created within local territories by a deterritorializing Empire thus lead to more interrelations with other geographically remote territories

and to less diversity between those territories. In this sense, a deterritorializing Empire is destabilized because it establishes brittle networks throughout the globe that, because they are lacking diversity, are unable to effectively respond to fluctuations and disturbances.

Multitude and Deterritorializing Resistances

In order to counter the deterritorializing expansion of capitalism, Hardt and Negri, as well as Deleuze and Guattari, argue that a concomitant deterritorializing resistance exists. As Deleuze and Guattari make clear, capitalism is characterized both by deterritorializing flows and its corollary ability to reterritorialize the limits that it has previously opened up. Deleuze and Guattari (1987) argue that this "is due to the deepest law of capitalism: it continually sets and then repels its own limits, but in doing so gives rise to numerous flows in all directions that escape its axiomatic" (522). Thus, capitalism works because it opens up new spaces to deterritorializing flows yet — at the same time — it also generates deterritorializing flows that are *not able* to be reterritorialized. In other words, the deterritorializing capacities of globalized capitalism always create flows which escape its limits. Because there are always deterritorializations that escape being reterritorialized by capitalism, it is the basis for Hardt and Negri's argument that there is necessarily a deterritorializing *resistance*. That there are flows which cannot be reterritorialized suggests that a resistance can be generated by those flows. As we have already discussed, contemporary capitalism is also characterized by an environmentalizing management that produces identities and relationships. In this sense, Hardt and Negri argue that there are always identities produced that escape being reterritorialized.

Fundamental to Hardt and Negri's argument for a deterritorializing resistance is that biopolitical power relations, because they necessarily produce multiple identities and relationships, also produce resistances to Empire. Expanding on Deleuze and Guattari's notion of deterritorialization, Hardt and Negri (2000) argue that such deterritorialization produces *both* capitalism and a 'Multitude' that threatens a globalized Empire. Globalized capitalism produces a "plural multitude of productive, creative subjectivities" that "are in perpetual motion and they form constellations of singularities and events that impose continual global reconfigurations on the system" (60). Empire produces a global Multitude that threatens globalized capitalism and always threatens to destabilize it *completely*. Hardt and Negri argue that, paradoxically, this "deterritorializing power of the multitude is the productive force that sustains Empire and at the same time the force that calls for and makes necessary its destruction" (61). On the one hand, a globalizing capitalism requires deterritorializing practices because it functions in the movement, flows and schisms of capital, commodities and people around the globe. On the other hand, those deterritorializing flows also generate movements, identities and

schisms that escape capitalism and, in doing so, create the conditions for resisting capitalism. In designating the surplus identities created by deterritorializing flows, 'the Multitude', Hardt and Negri are thus *giving a name* to those flows of capitalism that Deleuze and Guattari insist escape its ever-expanding boundaries.

Not only do deterritorializing flows create movements and identities that escape being reterritorialized, but they also engender "the network struggle of the multitude", which Hardt and Negri (2005) argue is the antidote to capitalism (83). In this sense, the resistance of the Multitude "takes place on biopolitical terrain — in other words, it directly produces new subjectivities and new forms of life" that serve as the basis for an emerging deterritorializing resistance (83). As a globalizing biopower works to produce individuals and populations, the Multitude is likewise produced and, hence, Hardt and Negri argue that the resistance to biopolitical power relations is, therefore, embedded within those relations. According to Hardt and Negri, the Multitude is composed of many different agents who nonetheless share goals and commonalities, and share in the struggle against globalized capitalism. They assert that this "multitude, though it remains multiple and internally different, is able to act in common and thus rule itself. Rather than a political body with one that commands and others that obey, the multitude is *living flesh* that rules itself" (100). Thus, the notion of a globalized Multitude seems to express an emergent set of relationships that are occurring collectively as the *self-organizing* behaviour of individuals accumulate into more widespread resistances. Moreover, the Multitude represents an opportunity to *actively* 'self-organize' a collective resistance to globalized capitalism. Hardt and Negri argue that there are, in fact, two Multitudes, the first of which "is *ontological* and we could not conceive our social being without it. The other is the historical multitude or, really, the not-yet multitude. This multitude has never yet existed. [...]. This second multitude is *political*, and it will require a political project to bring it into being on the basis of these emerging conditions" (221). Thus, Hardt and Negri hope to create the conditions through which a Multitude could emerge which generates the shift which could eventually topple capitalism.

An emergent Multitude is what Hardt and Negri propose as a resistance to, *and as a replacement for*, globalized capitalism. In this sense a deterritorializing Multitude is an example of an attempt to generate emergent, self-organized behaviour as a response to a deterritorializing Empire. Hardt and Negri (2005) claim that the Multitude, even as a politically motivated collective, *does not erase* the differences between individual participants. They argue that this "contradictory conceptual couple, identity and difference, is not the adequate framework for understanding the organization of the multitude. Instead we are a multiplicity of singular forms of life and *at the same time* share a common

global existence" (127). Hardt and Negri acknowledge that each individual within the Multitude still retains their own identity and ontological existence without, nevertheless, being conflated with the identity of the Multitude itself. Thus, it is in this sense that a deterritorializing Multitude is consistent with complexity theory and a radical relational agency. However, while a notion of deterritorializing Multitude accounts for the fact that change occurs as individual behaviour accumulates into widespread results, it also insinuates the direction that those changes will take. Because Hardt and Negri's notion of Multitude implicitly suggests that it is an antidote to Empire and that its emergence is beneficial, it does not account for the unpredictability inherent within contemporary globalized systems.

I have argued repeatedly throughout this thesis that, because complex social-ecological systems are inherently nonlinear, no shift is ever given — such systems can unpredictably veer off course at any time. As both Foucault and complexity theory suggest, radically interconnected relationships between many diverse agents produce change that is inherently nonlinear and so, any prediction of that future change is necessarily constrained by unpredictability. As I have already argued, globalization, as a nonlinear process, does not occur evenly and, furthermore, nor do any resistances that it generates. Thus, there is a certain optimism in employing a deterritorialized Multitude as a form of resistance because Hardt and Negri's notion of Multitude does not account for the numerous unpredictable emergences that nonlinear complex systems entail. A deterritorializing resistance therefore cannot guarantee a beneficial outcome — even the emergence of a deterritorializing Multitude does not guarantee the establishment of *better* relationships. The possibility of the Multitude generating more strife than the current forms of organization is not considered as an effect of deterritorializing resistances because, embedded within the notion of Multitude, is the assumption that such an emergence is necessarily beneficial. That it is *precisely* the increasing complexity and interconnectivity of deterritorializing globalized flows that generates the deterritorializing Multitude instead suggests that the Multitude *itself* is similarly destabilized and subject to unpredictable shifts. Thus, a deterritorializing resistance, because it generates the same complexity and interconnectivity that globalization generates, is also susceptible to unpredictable shifts.

Prigogine and Stengers (1985) argue that "the more complex a system, the more numerous are the types of fluctuations that threaten its stability" (188). The more complex a system becomes, the more susceptible it will become to positive feedback loops, which means that any fluctuation could entirely destabilize it and cause a new stable state to emerge. In this sense, Multitude does not account for the possibility that contemporary deterritorializing flows could actually cause global social-ecological systems to shift into an alternate state. An inability to account for unpredictable shifts

means a greater risk that deterritorializing resistances might exacerbate instability and precipitate such a shift. Yet, destabilizing global capitalism is *precisely* what a deterritorializing Multitude aims to do. The problem with assuming the outcome of any shift (such as the assumption that Multitude will replace capitalism with a more equitable system) is that there *is no predicting* the outcome. The assumption that deterritorializing flows will *necessarily* generate a Multitude to replace Empire is consistent only with visions of the future as increasingly complex, but because highly complex systems are susceptible to drastic and *unpredictable* shifts there is also a possibility that emergent phenomena could generate a *less complex* stable state. Paradoxically, deterritorializing resistances might ultimately lead to reterritorializations *because* complex systems that have been destabilized *will* shift into new stable states. In this sense, a deterritorializing shift into an alternate stable state could generate a correlative *re*territorialization to facilitate the transition into that new state. Thus, I argue that a notion of deterritorializing Multitude is incomplete because it does not recognize the unpredictability inherent within complex systems.

In addition to the assumption that Multitude will necessarily engender a shift to a more equitable system, there are concrete *dangers* associated with practices of deterritorialization. Just as deterritorialization can engender the creation of new identities and relations, the instability that results from such deterritorializing flows can engender adverse effects. As Smith and Jenks (2006) argue, deterritorialization can cause upset and hurt:

> where that which has been ecologically unstable is destabilized, one can expect, analogously *wounds*, not the overturning of convention, *hurt*, not liberation, *debris*, not a virgin field, *resentment*, not celebration. It may be, and certainly the West would claim, that the destabilization will become a change for the better, but the predatory aspect of the transformation is as important as its reconstructive ambitions (271).

Jenks and Smith point out that any time there is a shift within a complex system, such as those caused by deterritorialization, systems are necessarily destabilized and can produce risks for their constituent elements. As well as transforming identities and relationships, destabilization also necessitates that the breakdown of previous systems will engender the *loss* of other identities and relationships. Moreover, in complex destabilized systems such as ours, positive feedback loops can exponentially multiply such detrimental effects. Thus, deterritorializing resistances cannot be viewed as a panacea for responding to contemporary globalizing forces.

When deterritorializing flows generate the loss of identities and relationships, the harmful effects are often felt most severely by Indigenous peoples and other non-Westerners; "native peoples are increasingly facing threats to their very survival as they try to preserve traditional land ownership

and usage patterns against the onslaught of the industrialized world's insatiable demand for resources" (Gedicks 1995: 106). For Indigenous peoples, as this chapter has illustrated, deterritorializing flows have entailed their literal removal from traditional territories. Indeed, practices of colonization were fuelled by a European quest for accumulation of natural resources which — through processes of deterritorialization — have allowed these resources to come from Indigenous territories or from the global South, concentrating deterritorializing flows *away from* their territories. Furthermore, when deterritorializations flow *towards* Indigenous territories, they often serve to relocate to Indigenous territories those processes that are unacceptable to Westerners. One example details the situation of Indigenous people within my own country; on Aamjiwnaang First Nation (an Anishinaabe reserve) numerous petrochemical factories have been developed with deleterious effects. On Aamjiwnaang there have been "more than 800 spills […] in the past 20 years" the effects of which have not been sufficiently acknowledged by the Canadian government (Cormier 2007: 46). Effects such as a decline in male babies; "only one-third of the children born around the turn of the millennium were boys", are indicative of the multiplex risks of deterritorialization (48). Thus, deterritorializing flows such as these demonstrate that the disproportionate burden of such processes has not been felt by Westerners. In this instance a deterritorializing resistance might generate *more* harm.

Rather than contribute to the continued destabilization of contemporary social-ecological systems, an Indigenous resistance might aim to *re*territorialize their own land because such reterritorializations are necessary in order to combat the removal of their resources and knowledge, and to prevent their relationships and identities from being swept up in deterritorializing flows. Thus, in a sense, Indigenous resistances against evictions from their lands and the effects of globalization *do* take the form of a reterritorialization. Practices of reterritorialization, if we appreciate them without the metaphorical overtones given by Deleuze and Guattari, are also apt at reflecting the aims of some contemporary environmental resistances. Because certain environmentalists demand that humans recognize ourselves as firmly situated within material and ecological spaces, a reterritorialization is precisely what is being advocated. Reterritorializations can be viewed *literally* as processes that acknowledge the embeddedness of humans within territories and environments. Hence, reterritorializations would also generate identities and relationships because actions that assert the interconnectivity between humans, nonhumans and environments would engender ways of participating in those relationships that are divergent from contemporary Western practices. Indeed, as I have argued throughout this thesis, to acknowledge that humans are *only one type of agent among many* is a radically different assumption from those assumptions that underpin Modern notions of

agency. In this sense, the notion of an emergent Multitude neither addresses the unpredictability inherent within processes of deterritorialization, nor the potential benefits of a reterritorializing resistance.

Indigenous Ecological Practices and Reterritorialization

Indigenous ecological resistances are reterritorializing because, in resisting the continued colonial practices of eviction and attempted assimilation, they aim to situate their cultures and identities within *specific* places, histories and knowledges as an opposition to the deterritorializing flows that fracture their identities and territories. These resistances not only aim to reterritorialize traditional Indigenous ecosystems and territories, but they are also acts of cultural, social and political reterritorialization that assert their own identities and knowledges that are radically different from those imposed by contemporary globalizing processes. In this sense, retaining their own knowledges and identities allows Indigenous peoples to oppose the colonizing practices that still persist within the deterritorializing flows of contemporary globalization. The importance of recognizing Indigenous ecological resistances as acts of reterritorialization is that it exposes Western accounts of environmental resistances as one option among many. When indigenous peoples "defend their land and cultures they invariably draw upon their own spiritual traditions" and, in doing so, illustrate different methods for negotiating the relationships between humans, nonhumans and environments (Gedicks 1995: 106). Because traditional ecological knowledges are always associated with a particular, local ecosystem, they are situated in opposition to the globalizing deterritorializing flows that spread contemporary capitalist power relations throughout the world. In this sense, Indigenous ecological practices serve as an example of how it might be possible for contemporary environmental resistances to rethink their practices.

As Foucault illustrated, systems of thought are not static, they are subject to unpredictable shifts and adaptive transformations. Likewise, traditional ecological knowledges are necessarily changed by the ecological and power relations that have formed them. Caroline Butler (2006) argues that "the history of Canada precludes the existence of a system of resource use unchanged by the forces of colonialism" (117). Colonial power relations have inevitably changed the ways in which Indigenous peoples relate to ecosystems and landscapes, and so the accumulation of traditional ecological knowledges has often been interrupted or disturbed by colonizing forces. In the Canadian context, Indigenous peoples have been confronted with government regulations limiting their ability to participate in their traditions, enforced education at residential schools which removed Indigenous peoples from their communities and cultures, industrial and urban developments on their land, as well

as changes to their local environments. As with any system of knowledge, "Indigenous knowledge has not developed, and does not exist, in a vacuum" (123). While traditional ecological knowledges are often presented with an emphasis on the *traditional* that highlights the historical aspect of these knowledges, these knowledges should be seen as no less contemporary than Western sciences. To acknowledge that Indigenous knowledges have developed within specific contexts is likewise to acknowledge that they have changed throughout time. Indeed, as I have already argued, traditional ecological knowledges are characterized by flexibility and adaptability.

Traditional ecological knowledges are necessarily embedded within local and historical relations of power; "Indigenous knowledge is inextricably related to the experience of colonial domination because it is this experience that has constructed it as a separate way of knowing" and, in this sense, asserting cultural knowledge of a particular ecosystem can be seen as a form of resistance (Butler 2006: 124). The historical dichotomy between Western and non-Western knowledges still structures contemporary power relations by treating traditional ecological knowledges as inferior to Western science. Because traditional ecological knowledges are often presented as divergent from Western sciences, "Indigenous knowledge is a political act — it is a claim of Aboriginality, an assertion of land and resource rights, and a demand for management power" (119). Traditional ecological knowledges are thus asserted as a form of reterritorialization because such knowledges underscore Indigenous worldviews which interpret ecosystems and environments as fundamentally inseparable from knowledge, culture and daily life. Thus, when Indigenous peoples' claim land titles, establish political self-determination and fight for the ability to relate to environments according to their own cultural practices and knowledges instead of those imposed by colonizers, it is an act of reterritorialization.

Throughout this chapter I have argued that Indigenous knowledges and practices serve as a counterpoint both to the Modern distinction between Man and Nature, and to the increasing deterritorializing flows of contemporary globalized capitalism that attempt to bring the whole world under an environmentalizing management. Because traditional ecological knowledges are characterized by a refusal to abstract those knowledges, and the accumulation of those knowledges, from a particular ecosystem *and* because they are characterized by historical and flexible adaptation, I argued that such knowledges are radically distinct from those consistent with the spread of Western capitalism. In this sense, Indigenous ecological practices serve as a form of reterritorializing resistance that allow Indigenous peoples to assert their own identities and knowledges and, because they acknowledge that humans are radically interconnected with nonhumans and environments, they serve as a point of communication between Western environmentalism and a divergent system of thought.

Thus, I argue that contemporary environmental resistances have something to learn by examining non-Western ecological practices. For example, whereas "people of the developed world receive weak feedback signals about the consequences of their consumption", localized ecological practices, such as Indigenous ecological practices, generate tight feedback loops that are directly felt (Salt and Walker 2005: 146-147). To adapt effectively and creatively to destabilized systems, greater flexibility is possible when disturbances are known immediately and locally — as is the case with some Indigenous ecological practices. Therefore, I argue that Indigenous ecological practices can offer insight into generating flexibility and innovation when responding to contemporary instability.

One method that Indigenous ecological practices have employed to develop more flexibility within social-ecological systems is, paradoxically, to *generate* disturbances. In this sense, because such practices explicitly *accept the instability* of complex social-ecological systems by creating local disturbances, they can cause systems to become more adaptable. Berkes and Folke (2002) argue that:

> creating small scale disturbances can build social-ecological resilience, thereby increasing the adaptive capacity of a system to deal with larger-scale disturbances. Some of these local knowledge systems thus anticipate large, infrequent disturbances, recognizing their existence as a natural feature of ecosystems. Recent scientific understanding of complex adaptive systems and their management could be enriched by insights from local management systems (146).

The importance of this recognition, that communities — because they are embedded within social-ecological systems — intentionally *create* disturbances within their local social-ecological systems is that, in doing so, they generate effective responses to instability not only at the local level, but also increase the ability for systems to respond to larger, unpredictable fluctuations. Thus, such ecological practices demonstrate how flexibility might be generated through *small-scale, local* disturbances and, therefore, provide an opportunity for Western environmentalism to learn from ecological practices that do not aim towards optimization or efficient use of resources. Rather, the flexibility and adaptability generated by these purposeful disturbances indicate the importance of acknowledging that unpredictability and fluctuation are inevitable characteristics of complex social-ecological systems.

As the above example attests, human interventions within local ecosystems can actually generate flexibility, innovation and an ability to adapt effectively to fluctuations and disturbance. Thus, the intention of some environmentalists to remove humans from 'nonhuman' ecosystems is exposed not only as contingent upon certain Western constructions, but also as potentially *destabilizing*. It is never possible to erase human impact on nonhumans and environments. Indeed, human existence within nonhuman ecosystems may even be essential to their flexibility and longevity, such as when traditional ecological practices stimulate system responses and adaptability. Dowie (2009) argues that

"a closer examination of some traditional practices, such as the cultivation of selective perennials, the methodic grazing of livestock, and the deliberate setting of grass and forest fires, suggests that human interference can, if practiced wisely, enhance eco-complexity and species diversity" (Dowie 2009: 134). In this sense, the example of Indigenous ecological practices, because they recognize complexity, interconnectivity and unpredictability, can help generate creative responses and innovative adaptations to contemporary processes of globalization. The success of traditional ecological knowledges is observable because of the simple fact that "human societies can still be found in biodiverse habitats where they have been living for millennia" (Dowie 2009: 111). Within local environments, the presence of humans can generate diverse and adaptable ecosystems which reveal the role of humans in contributing to social-ecological systems that are flexible enough to respond to perturbations and disturbances. In short, an ability to create flexible social-ecological systems has meant cultural and environmental longevity for many Indigenous peoples.

That there is sometimes greater flexibility where Indigenous cultures interact with local environments does not mean that all Indigenous ecological practices produce adaptable social-ecological systems. Additionally, it is important not to romanticize non-Western knowledges or return to a view of Indigenous peoples as somehow 'closer to Nature' than Westerners; "Not all TEK [traditional ecological knowledge] is sound science, and not all Indigenous people are perfect land stewards. Only cultural romantics believe that. And even those who were good stewards in years past may cease being so due to population growth, erosion of culture, market pressures, and the misuse of destructive technologies" (Dowie 2009: 111). Local ecological knowledges, as well as being environmentally specific (based on the particulars of local ecosystems) are also culturally specific. While one local knowledge system might be adept at creating resilience, another may not. Recognizing that traditional ecological knowledges are the result of particular, historical relationships between humans, nonhumans and environments reinforces the conclusion that knowledge is always generated within the limits imposed by both ecological relations and relations of power. As I have already discussed, local and traditional ecological knowledges are embedded within specific historical, cultural and environmental contexts and, therefore, they are always the outcome of complex and unpredictable interactions. Thus, Indigenous ecological practices are necessarily as diverse as the cultures, geographies and ecosystems with which they are associated. Nevertheless, I argue that those practices which generate innovation, creativity and flexibility within social-ecological systems can serve as motivation for contemporary environmental practices.

Reterritorializing practices are important to contemporary environmental resistances because they assert the recognition that humans are always embedded within ecological systems and participate in relationships with humans and nonhumans. Such a recognition locates human cultures, societies and practices within the ecological limits of a finite planet. Thus, a reterritorializing resistance aims to situate humans, nonhumans and environments in a series of relationships that can facilitate diverse and flexible responses to increasingly complex, interconnected and unstable social-ecological systems. It is in this sense that Indigenous ecological practices serve as an example of how to rethink such relationships and demonstrate that a reterritorialization — and not just a deterritorialization — can contribute to the production of diverse identities and relationships. Because, as I have already argued, there are a multiplicity of diverse local cultures, environments and knowledges, reterritorializations that have the potential to generate diverse identities and relationships. Moreover, the assertion that humans, nonhumans and environments are radically interconnected — at least in the context of Western cultures — also represents an opportunity to develop new relationships where, previously, such relationships have been repudiated. Reterritorializations are defined as those practices that assert the embeddedness of humans within particular ecologies and eco/power relationships to the extent that they attempt to impede the loss of diversity and homogeneity that is often associated with environmentalizing management.

The alternative systems of thought presented by traditional ecological knowledges are significant not only because they strive for flexibility, but also *because they recognize that any stability is always subject to unpredictable shifts*. Because it is precisely unpredictability that a deterritorializing multitude does not account for, alternatives that promote innovation and creativity while simultaneously recognizing unpredictability are necessary. Thus, traditional ecological knowledges can aid contemporary environmental resistances to generate *resilient* social-ecological systems that are flexible and adaptable. Resilience is defined as "the capacity of a system to absorb disturbance; to undergo change and still retain essentially the same function, structure, and feedback. […], it's the capacity to undergo some change without crossing a threshold to a different system regime" (Salt and Walker 2006: 32). Resilient systems are thus not static or *unchanging* systems. Rather, they are *precisely* systems that are flexible in their response to disturbances and fluctuations.

Although Indigenous ecological practices have demonstrated how it is possible to generate resilience within complex social-ecological systems, in the following chapter I will investigate how contemporary environmental interventions might adapt their own practices to such examples. I will argue that, in order to develop resilience, flexibility and adaptability in response to the increasing

complexity, interconnectivity, unpredictability and instability of contemporary social-ecological systems, it is necessary to recognize that humans are limited by both ecological relations and relations of power. Recognizing that agents are always limited and constrained by power, knowledge and materiality, I argue that within such constraints it is nevertheless possible to facilitate communication between radically different agents in order to develop new relationships and identities. The possibility of communication between humans, nonhumans and environments is important because it is a potential source of flexibility, innovation and adaptability. In the final chapter, I will examine how innovation, creativity and experimentation — by developing new relationships and identities — can facilitate the creation of resilient systems. Because a radical relational agency is, in part, a result of the unpredictability of interactions between diverse agents, I will argue that unpredictability cannot be ignored. Rather, I will argue that the unpredictability of contemporary social-ecological systems suggests that there are both risks for the future, and the opportunity to experiment and create new relationships.

CHAPTER SIX

Generating Resilience

In the previous chapter, I examined Indigenous ecological practices as a counterpoint to Western environmental actions. Unlike the Modern distinction between Man and Nature, traditional ecological knowledges constitute humans, cultural practices, knowledges, nonhumans and environments as embedded within the same processes. In this sense, I argued that contemporary environmental resistances could learn from non-Western practices that constitute the relationships between humans, nonhumans and environments in radically different ways. In particular, I argued that contemporary environmental resistances could learn from Indigenous ecological practices because they explicitly recognize the unpredictability of social-ecological systems and generate flexibility, adaptation and innovation. In contrast to Indigenous practices which acknowledge that dynamism and fluctuation are unavoidable, I argued that Hardt and Negri's insistence on a deterritorializing Multitude does not acknowledge the profound unpredictability of complex social-ecological systems. Although such resistances are generated through a radical relational agency, because Hardt and Negri implicitly assume that an emergent Multitude will necessarily be beneficial, they fail to recognize that no resistance is ever guaranteed to succeed. The danger of failing to recognize the unpredictability inherent within any emergence or resistance is that there is always a risk that those actions could be overturned. To acknowledge such unpredictability does not mean that resistance is impossible, but that innovation, experimentation and *resilience* are required in order to generate the flexibility and adaptability necessary to respond to uncertainty.

The aim of this chapter is to explore the possibility of generating resilient social-ecological systems in the face of increasing global complexity and deterritorializing flows. A radical relational agency exists as an outcome of the omnipresence of power; all relationships are relations of power and, as such, all relationships are dynamic, unpredictable and capable of being overturned. Instead of trying to make such relationships more predictable — which is an impossibility — I argue that environmental resistances should be reframed as *practices that seek to generate resilience*. Resistance becomes resilience precisely because the result of any action or practice is never guaranteed. In this sense, a notion of resilience is important because it recognizes that there *is no such thing as one stable state*. Rather, resilience is developed, in part, *because of* a system's ability to adapt to unpredictability. In order to cultivate resilience, I argue that communication between multiple and diverse humans, nonhumans and environments is necessary because it facilitates creativity and innovation. Thus, I

argue that the recognition of disparate and multiple identities is essential to generating resilient social-ecological systems. It is in this sense also that I retain an acknowledgement of the experimentation and innovation that Foucault advocated because, as I have already suggested, such experimentation can facilitate flexibility and resilience. Because a radical relational agency is generated by the relationships, differences and unpredictability inherent within complex social-ecological systems, such a notion of agency underscores the flexible and adaptable processes that generate resilience.

This chapter also looks toward the future of our complex systems by examining the possibility of unpredictable shifts and fluctuations, *and* investigates human contributions to those possible future shifts. Complexity theory suggests that order can emerge from chaos, and given the instabilities of contemporary systems, there is a possibility that a future emergence could reinstate a new kind of order. Thus, I will also examine the continued shift away from Modern thought and the centrality of Man, to an environmentalization of knowledge. Throughout this thesis I have argued repeatedly that no system of thought and no stable state will ever maintain indefinitely. Indeed, I have suggested that through the transformation of Nature into 'the environment' and through the extension of biopolitical management of global processes, it is no longer tenable to assert a distinction between human and nonhuman. Given this continued shift in systems of thought, as well as the possibility that increasingly complex social-ecological systems could shift into an alternate stable state, I will examine potential scenarios for future emergences. These emergences are not synonymous with collective resistances that are organized according to one identifiable principle. Rather, such emergences occur locally, and only through the accumulated actions of numerous independent elements would a discernible pattern appear. The questions in this final chapter are open-ended, inherently complex and the answers to them are ultimately unknown: Where do we go from here? What comes next?

Possible Future Emergences

As I have argued throughout this thesis, contemporary globalized systems are characterized by increasing complexity, interconnectivity and instability — a situation that likewise increases the possibility that alternate stable states will emerge. Although complex, destabilized systems such as contemporary globalized systems are prone to unpredictable shifts, emergent phenomena lead systems into new *stable* states. While unpredictability is inherent to complex social-ecological systems, the very unpredictability and destabilization of those systems means that it is always possible for *new* kinds of stable systems to emerge. Indeed, as the title of their text would suggest, in *Order out of Chaos,* Prigogine and Stengers (1985) set out to describe how destabilized systems can necessitate the emergence of order. One of the main issues that their book seeks to understand is "nonequilibrium as a

source of order" (180 emphasis mine). Thus, it is through the very *dis*orderliness of complex systems a new order would emerge. And this, precisely, underscores the possibility that radically different stable states — different to those in which we currently exist — can emerge unpredictably.

It is with a recognition of emergent phenomena that I attempt to address the questions: What comes next? Where do we go from here? An acknowledgement of unpredictability is the outcome of *both* Foucault's thought and complexity theory and so, as I have already argued, it is never possible to guarantee the future success of any action. Indeed, the possibility that actions and relationships can always be overturned is the precise mechanism that generates a radical relational agency. Because a *new order can emerge from chaos*, I echo Prigogine and Stengers' argument "for qualified hope *and* caution for the future. Hope, because no order is stable or legitimate. Any order can be challenged and will change. Caution, because bifurcations may bring about unexpected and disastrous catastrophe" (Conley 1997: 73). These vast unknowns associated with future emergences thus leave room both for possibility and for risk. Such unknowns also mean that it is inherently impossible to *plan* for future emergences, but I would still like to examine the predictions of those environmental activists who suggest that *particular* emergences are imminent; their predictions serve to underscore the necessity of recognizing that any new stable state will entail both possibility and risk. There is always the *possibility* that independent and localized actions could accumulate and lead to a reorganization of the processes of globalization, yet there is no guarantee that a future stable state would be any more beneficial. It is in this sense that I approach the possibility of future emergences.

Andres R. Edwards (2005) argues that we are presently in the midst of a "sustainability revolution" which:

> draws its significance and global impact from a wide spectrum of interests with common fundamental values. Like the Industrial Revolution, the Sustainability Revolution is far-reaching and is having a profound impact, shaping everything from the places we live and work to the foods we eat and the endeavours we pursue as individuals and communities (2).

According to Edwards, this 'Sustainability Revolution' is emerging as a response to the environmental degradation that industrial processes have perpetrated throughout the world. Thus, the Sustainability Revolution is seen as an emergent corrective to the processes that are destabilizing planetary social-ecological systems. In this sense, the Sustainability Revolution is implied to be a necessary and *already emerging* response to destabilizing processes. However, the success of such a revolution is in no way guaranteed. Moreover, as I have argued throughout the previous chapters, the notion of 'sustainability' *itself* often contributes to destabilizing processes. In previous chapters I argued that 'sustainability' does not take into account the interconnectivity and unpredictability of complex social-

ecological systems. Such notions have a tendency to be geared towards an 'efficiency' and 'optimization' that allow the same relationships of extraction and commodification to continue. Yet it is precisely such capitalist relationships of efficiency and optimization that have precipitated the destabilization of planetary systems.

Actions that aim to make our contemporary systems more sustainable often "revolve around the notion that the key to sustainability lies in being more efficient with our resources" but "the more you optimize elements of a complex system of humans and nature for some specific goal, the more you diminish that system's resilience" (Salt and Walker 2006: 9). Indeed, it is *precisely* the goal of increased efficiency and optimization that has necessitated the vast complexity and interconnectivity of contemporary globalized capitalism — and, hence, those environmental resistances that generate efficiency likewise contribute to a diminished capacity for systems to respond to fluctuations and disturbance. Although the aims of this Sustainability Revolution are to mitigate anthropogenic effects on ecosystems, it may unwittingly reinforce the effect of 'putting all our eggs in one basket' by simply *increasing* the complexity and interconnections across vast geographic distances. Moreover, as I have already argued, the practice of putting into effect a widespread sustainability necessarily requires a concomitant expansion of biopolitical management. In this sense, a Sustainability Revolution would *need* the environmentalization of all life and dynamic processes to continue order in for it to be successful. In fact, Edwards explicitly links the emergence of such a revolution to the 1983 UN World Commission on Environment and Development, and subsequently describes many international, juridical and *biopolitical* attempts to generate sustainable practices (16). Thus, the Sustainability Revolution not only threatens to destabilize world social-ecological systems, but also entails the establishment of ever more systems of environmentalizing management and observation.

As one prediction of an emergent phenomenon, the possibility that there will be a 'Sustainability Revolution' serves as an example of how a shift from contemporary globalization could precipitate an alternate stable state. According to this example, the shift seems less like a drastic reorganization of current systems of thought and eco/power relations, and more like a *continuation* of the biopolitical production and deterritorializing flows that characterize contemporary social-ecological systems. Therefore, this example again demonstrates that resistances are never guaranteed and, in this particular instance, it could have disastrous consequences by increasing the spread of environmentalizing management. Like Edwards, Hawken (2007) in his text *Blessed Unrest* describes what he sees as an emerging environmentally motivated social movement. However, unlike Edwards, Hawken does not see such a movement emerging from international juridical bodies such as the UN, but as a movement

that "engages citizens' local needs. This movement's key contribution is the rejection of one big idea in order to offer in its place thousands of practical and useful ones" (18). In this sense, Hawken's description of an emergent movement is similar to Hardt and Negri's notion of a deterritorializing Multitude. Yet, as with the notion of Multitude, Hawken's notion of resistance is no more cognizant of unpredictability.

According to Hawken (2007), this movement is profoundly altering contemporary globalized systems because it is so dispersed, divergent and decentralized:

> The movement can't be joined because it is so atomized — a collection of small pieces, loosely joined. It forms, dissipates, and then regathers quickly, without central leadership, command, or control. Rather than seeking dominance, this unnamed movement strives to disperse concentrations of power. It has been capable of bringing down governments, companies, and leaders through witnessing, informing, and massing (12).

Identifying this global emergence, Hawken describes what could be a self-organized and emergent shift — taken all together these separate actions could amount to a radical shift in contemporary social-ecological systems and systems of thought. But, like Hardt and Negri's description of Multitude, Hawken's emergent movement is implied to be incontrovertibly *beneficial*. As I argued in the previous chapter, the failure of Hardt and Negri's notion of Multitude is precisely that it does not account for unpredictability. Likewise, Hawken's notion of a self-organized environmentally aware movement does not account for unpredictability because it is assumed that, were such a movement to succeed, its success would inevitably be beneficial.

A failure to recognize unpredictability is to ignore the certainty that no action or resistance is ever guaranteed to succeed. There is no guarantee that, what appears to be an emergent movement at the present time, will accumulate enough individual and local behaviour and shift contemporary social-ecological systems into an alternate stable state. Neither the emergence of a globalized Multitude nor an emergent environmental movement can guarantee their own success. Moreover, were such a shift to occur, there are likewise no guarantees that the new stable state would be more favourable than our current one. Indeed, as I argued in the previous chapter, Hardt and Negri's insistence on a deterritorializing resistance makes the outcome of any emergent behaviour generated by that resistance potentially destabilizing, not only to Empire, but to the Multitude as well. Similarly, Hawken does not account for how the increasing spread of biopolitical production could alter the perceived benefits of such an emergence. Thus, while there is the possibility that a deterritorialized Multitude is forming, or that an environmental movement is emerging in various places throughout the world, there are always unforeseen consequences that could make these possibilities either untenable or profoundly dangerous.

Because there are both possibilities and risks inherent to unpredictability, it is necessary to account for the likelihood *of both*.

Radically divergent from the possibility of a Sustainability Revolution or an emergent environmental movement, are those scenarios that predict absolute catastrophe and total collapse of contemporary social-ecological systems. Indeed, it is in response to such a possibility that many environmentalists urge the active creation of a new system, in order to change planetary social-ecological systems before those systems disintegrate completely. According to some theorists and activists, the degradation of planetary ecosystems, and the brittleness of globalized capitalism present the conditions for just such a drastic shift; "There is no question that the contradiction between the modern world's imperative towards growth and Earth's finite resources will ultimately be resolved in some way. The only question is how that will unfold" (Gallopín 2002: 363). The contradiction between ecological limits, and the deterritorializing flows that spread biopolitical management and efficient production throughout the globe, have caused some environmentalists and theorists to predict not a beneficial emergence — but the emergence of an alternate stable state that is decidedly *detrimental*. The form that such a shift could take includes dire predictions about rising sea-levels, desertification of large swathes of the planet, starvation, social unrest and the "general collapse of social, cultural, and political institutions along with the market economy" (381). Indeed, if the world's social-ecological systems were to shift into a radically alternate stable state, the likelihood is that the shift would precipitate such profoundly massive changes and it would make necessary the complete reconfiguration of nearly every feature of our present systems.

The recognition that complex social-ecological systems could collapse is important for a number of reasons. First, it shows that the beneficial emergences predicted by a Sustainability Revolution or an emergent Multitude could instead be pre-empted by — or even contribute to — collapse, destruction and further harm. Second, it acknowledges that the instability of contemporary social-ecological systems leaves them more susceptible to fluctuations and disturbances and, therefore, more prone to radical shifts. And, finally, it does makes us wonder what can be done to prevent such a scenario. Indeed, as I have already suggested, the above descriptions of emergent phenomena that *oppose* the deterritorializing processes which have generated such instability are often suggested as a means to prevent such collapse. Many environmentalists, at any rate, argue that changes must be made so that our contemporary systems can be re-stabilized. Yet, as I have already argued, there *is no such thing as an infinitely stable state*; "Ecosystems do not have a single equilibrium with homeostatic controls to remain near it. Rather, multiple equilibria commonly define functionally different states.

Normal movements of variables between states maintain structure, diversity, and resilience" (Gunderson and Holling 2002: 26). Given that contemporary social-ecological systems are increasingly unstable, that it is inherently impossible to predict when those systems might shift and that no outcome is every guaranteed, the questions remain: Where do we go from here? What comes next?

Although contemporary globalized systems are increasingly unstable, there is no system that is a correspondingly *stable* system. Given that stability is, at best, a temporary possibility, I have argued that contemporary environmental resistances must acknowledge the unpredictability inherent within complex social-ecological systems. Therefore, I argued that *because* a radical relational agency is generated from the very instability of ecological relations and relations of power, environmental actions consistent with such an understanding are uniquely able to respond to contemporary instability. In particular, I argue that to facilitate *resilient* systems is corespondent to a system's ability to *adapt to multiple possible states*. Resilient systems are flexible and adaptable. As Salt and Walker (2006) argue, "There is no such thing as an optimal state of a dynamic system. The systems in which we live are always shifting, always changing, *and in doing so maintain their resilience*" (141 emphasis mine). To develop resilience does not suggest that social-ecological systems are static, but that they are interconnected systems which must change and adapt. Throughout the remainder of this chapter I will argue that innovation and experimentation are essential to creating resilient, adaptable and flexible systems. As I have already suggested, innovation and experimentation help to generate resilience because such practices function as resources that facilitate flexibility and adaptive response. In the aims of creating opportunities for innovation and experimentation, I have also argued that the interaction between radically diverse agents can generate new relationships and identities that ultimately lead to resilience. In the following section I will examine how communication between diverse agents, whether human, nonhuman or environmental, can contribute to resilience.

Communication and Identity as Resilience

Throughout this thesis, I have discussed how Modern systems of thought constituted nonhumans and environments as non-agential — a constitution that serves as the foundation for contemporary relationships between humans, nonhumans and environments. According to Modern systems of thought, communication between humans, nonhumans and environments would be viewed as a laughable impossibility. As I argued in the first chapter, Modern systems of thought constitute nonhumans and environments as non-agential because they are seen as passive *objects* of study rather than as subjects who know. Because Modern systems of thought constituted nonhumans as objects of study, the interactions between humans, nonhumans and environments did not take the form of

communication, but that of a distinction between those who study and those who are studied — they were monologues. In other words, throughout the Modern episteme, humans endeavoured to 'communicate' with nonhumans through the intermediary of science. In this Modern sense, communication is defined as something that takes place between humans only. However, once it is acknowledged that nonhumans and environments are agents in their own right, it becomes possible to redefine communication as an action that includes *more than* just humans.

Latour (2004) argues that scientists "*make the mute world speak without being challenged, put an end to the interminable arguments through an incontestable form of authority that would stem from things themselves*" (14). He suggests that experts and scientists, in claiming to speak for objects of study, necessarily erase the agency and communicative capacities of those objects. He argues that there is a political advantage to this system of knowledge in both its expediency and its authority; by situating experts and scientists as those with absolute knowledge about things, not only is the multiplicity of possible voices silenced — but by ignoring nonhumans and environments, a false simplicity is imposed upon complexity. A shift from viewing nonhumans as passive objects of study, to active and communicative participants within social-ecological systems, means that it is no longer tenable to silence nonhumans. Prigogine and Stengers (1985) argue that, "Scientific description must be consistent with the resources available to an observer *who belongs to the world he describes* and cannot refer to some being who contemplates the physical world 'from the outside'" (217 emphasis mine). Indeed, as I have argued throughout this thesis, a radical relational agency is generated *precisely* because of the fact that humans are embedded within social-ecological systems and, therefore, belong to the world which scientists describe. By recognizing that humans are inextricably linked to nonhumans and environments, it is possible to facilitate forms of communication that include a multiplicity of agents.

According to Haraway (1991) science "require[s] that the object of knowledge be pictured as an actor and agent, not a screen or a ground or a resource, never finally as slave to the master that closes off the dialectic in his unique agency of 'objective' knowledge" (198). Just as Prigogine and Stengers argue that science and, hence, communication, take place within vastly interconnected and complex social-ecological systems, Haraway argues that all objects of study *must be conceived as agents*. Because it is possible to conceive of nonhumans and environments as agents, I argue that communication between humans, nonhumans and environments becomes possible. Latour (2004) argues that agency proliferates once we rethink the Modern designation of nonhumans as objects; "*objects and subjects can never associate with one another; humans and nonhumans can. As soon as*

we stop talking about nonhumans as objects, as soon as we allow them to enter the collective in the form of new entities with uncertain boundaries, entities that hesitate, quake, and induce perplexity, it is not hard to see that we can grant them the designation of actors" (76). Instead, by designating nonhumans and environments as *participants* within complex social-ecological systems — which is precisely the recognition of a radical relational agency — it is possible to facilitate communication between disparate agents. In this sense, communication is also a participative action that is an aspect of a radical relational agency.

A radical relational agency is generated because humans, nonhumans and environments are profoundly interconnected in both ecological relations and relations of power. In this sense, I argue that, because many different kinds of agents exist together, participating in equally diverse kinds of ecological and power relations, a kind of mutual intelligibility or communication occurs within all of these disparate relationships. Communication, in this sense, is reconceived as a kind of participatory action that takes place in all relationships between humans, nonhumans and environments. Such a notion of communication therefore acknowledges that myriad forms of mutual intelligibility are possible given the radical diversity of participants who *must* interact within complex social-ecological systems. In Chapter Two, I argued that signification should be reframed as communication because it is more in keeping with the insights of a radical relational agency. More precisely, I argued that because nonhumans and environments can no longer be constituted simply as the passive recipients of human signification, there must be a correlative recognition that acknowledges the *active participation* of nonhumans and environments in their relationships with other participants. Thus, I argue that participation within complex social-ecological systems and relations of power necessarily includes communication.

As I have already suggested, the recognition that nonhumans and environments are not passive recipients of human signification leads to a reconfiguration of the Modern scientific assumption that they are merely objects of study. In this sense, the Modern scientific practice of silencing nonhumans and environments by imposing a distinction between humans, nonhumans and environments is no longer credible. Indeed, this is precisely what Prigogine and Stengers (1985) suggest has been the outcome of complexity theory. They argue that a consequence of complexity theory has been the recognition that it is nonsensical to posit scientific investigation as an interaction between those who study and those who are studied. Rather, such investigations "have shown us that nature cannot be described 'from the outside,' as if by a spectator. Description is dialogue, communication, and this communication is subject to constraints that demonstrate we are macroscopic beings embedded in the

physical world" (300). In other words, scientific investigation always entails dialogue and communication because it is a process that occurs between *agents* rather than between an active subject and a passive object. However, as Prigogine and Stengers argue, this communication is always subject to constraints *because* we are embedded within diverse relationships with a multiplicity of other agents. Because numerous different kinds of agents are always interacting in a variety of different relationships, throughout the course of those relationships it is certain that many actions and interactions will be constrained by limits imposed by both ecological relations and relations of power.

Because limits are always imposed within communicative and participative relationships, it does not mean that communicative action or participation is impossible. Rather, as I have stressed throughout this thesis, that there are limits and constraints does not foreclose possibility or potentiality. Indeed, because relationships between diverse participants within social-ecological systems are *both* ecological relations and relations of power, it is possible to act in other ways. Because there are a variety of diverse agents and different kinds of agents within complex-social ecological systems, there are always threats and risks associated with the participative action that takes place within those systems. But, in this sense, I argue that limitation and constraint can actually generate innovation, flexibility and experimentation. That embeddedness within complex social-ecological systems necessitates the sometimes risky and sometimes beneficial interaction with many diverse kinds of different agents suggests that, through communication, it might be possible to create new identities and relationships. A willingness to communicate with different agents can generate new relationships and identities because it facilitates the kind of innovation and experimentation that engenders creative action. Thus, I argue that communication can lead to adaptability, flexibility and resilience.

In order to generate resilient complex social-ecological systems, what is required is an unambiguous attempt to communicate across differences. This is not simply a way of approaching the relationships within complex social-ecological systems, but it is implicated *because we exist within complex systems*. Because humans are embedded within increasingly interconnected and complex social-ecological systems, it necessitates that communication take place between different kinds of agents. Indeed, such communication is necessary because it allows constituents within complex systems to respond more effectively to possible fluctuations and to acknowledge the effects of positive feedback loops. As Prigogine and Stengers (1985) point out, communication is needed within complex systems in order to generate stability; there is a "stabilizing effect of communication" that could help to mitigate fluctuations within vastly complex and interconnected systems (189). Therefore, communication is a potential tool for creating resilience within increasingly complex systems. This

communication between humans, nonhumans and environments underscores the recognition that all constituents within complex social-ecological systems are acknowledged as agents. Without an acknowledgement of this radical relational agency, the communication within contemporary systems will remain monologic and one-sided. Such one-sided communication, characteristic of Modern science, cannot generate resilience because it does not acknowledge the interconnectivity and unpredictability of complex social-ecological systems. In this sense, one-sided forms of communication, or exclusionary definitions of agency, forgo the ability to respond to unpredictability and positive feedback loops and, hence, are less resilient.

Implicit in my argument that communication between disparate kinds of agents can generate innovation, creativity and experimentation is a correlative argument that the radical differences and identities between agents are *required* in order to facilitate the flexibility and adaptability that communication can engender. Indeed, as I have argued throughout this thesis, a radical relational agency is generated because there is communication *between different agents and different kinds of agents*. In order to generate new relationships, rather than *deny those disparate* agents their own identities, communication establishes the possibility of *learning* from those disparities and, in the process, developing flexible, adaptable and resilient social-ecological relationships. Throughout this thesis I have argued that it is precisely the diversity and heterogeneity of complex systems that generates resilience; "Resilient social-ecological systems would celebrate and encourage diversity — offsetting and complementing the existing trend toward homogenizing the world" (Salt and Walker 2006: 145-146). Diversity and divergences provide complex systems with the resources to *develop resilience* because, as I have argued, it is precisely when different kinds of agents interact that new relationships can be generated — and the ability to adapt to such differences is strengthened. Thus, I argue that a radical relational agency does not deny a subject's ontological status.

While the Foucauldian self-fashioning discussed in Chapter Three often "dissolves the subject", a radical relational agency acknowledges that a subject's ontological differences contribute to the resilience of complex social-ecological systems (During 1992: 82). Because a radical relational agency acknowledges the ontological status of the diverse agents that make up complex social-ecological systems, it does not, however, mean that an identity is constituted completely and is forever unchangeable. Indeed, it is because identities and relationships are constituted that a radical relational agency is generated. Instead, I argue that *diverse* identities and ontological differences are necessary because such differences generate a limit or constraint to which other agents must respond. When agents must respond in different ways to the identities and limits imposed by other agents, I argue that

the effect is similar to generating a small-scale ecological disturbance because it often requires an innovative response — the result is greater adaptability, flexibility and resilience. John Urry (2005b) points out that:

> Ecological systems are on the edge of chaos without a 'natural' tendency towards equilibrium, […]. Indeed, many ecological systems themselves depend not upon stable relationships but upon massive intrusions, of extraordinary flows of species from other parts of the globe and of fire, lightning, hurricanes, high winds, ice storms, flash floods, frosts, earthquakes and so on. The 'normal' state of nature is not one of balance and repose; the normal state of nature is to be recovering from the latest disaster (6).

That social-ecological systems are not dependent on stability, but on intrusions, means that disturbances caused when diverse agents interact, can contribute to the resilience of those systems. In this sense, interactions between diverse agents *of all types* contribute to the ecological *and social* adaptability of complex systems.

Although a Foucauldian re-fashioning sometimes advocates the effacement of current identities, it also contributes to an understanding of how *different* relationships can emerge. Because Foucault advocates creativity, innovation and experimentation, I argue that such an invitation to invent is precisely what is needed to develop flexible, adaptable and resilient social-ecological systems. Thus, it is in this sense that a Foucauldian notion of agency as re-fashioning is not entirely abandoned, because the insistence on flexibility and experimentation that Foucault argued is intrinsic to those processes are the same characteristics that generate resilience. Indeed, Foucault (1997f) argued that through practices of experimentation and innovation he wanted "to create a new *relational right* that permits all possible types of relations to exist and not be prevented, blocked, or annulled by impoverished relational institutions" (158 emphasis mine). It is this sense of experimentation and creativity that, I argue, is important to generating resilient social-ecological systems.

<u>Self-Fashioning, Creativity and Experimentation</u>

Foucault's notion of agency-as-fashioning — as a form of experimentation — is useful to understanding how resilience can develop because it stresses the importance of creativity and flexibility. Thus, I argue that Foucault's impulse to foster the creation of new relationships remains relevant. Innovation, experimentation and creativity are important because they engender different ways of existing and relating within complex social-ecological systems. An ability to develop other relationships and behaviour within complex social-ecological systems is required because it is such flexibility that makes systems more resilient. Moreover, I argue that such experimentation is necessary not only because a new and useful behaviour might emerge, but because complex systems are

inherently unpredictable. Because complex systems are unpredictable, those systems with an ability to be flexible in the face of such unpredictability will be more resilient. It is in this sense that processes of experimentation and innovation are necessary because, inherent within those processes of re-fashioning, is the recognition that no result is ever guaranteed. Indeed, this is what Foucault (1989a) himself argued; "the idea of a program of proposals is dangerous. As soon as a program is presented, it becomes a law, and there's a prohibition against inventing. [...]. The program must be wide open" (139). While Foucault explicitly recognized that programs can instigate a limit on innovation and experimentation, the other danger associated with programs is that their results *can never be guaranteed*. But, as I have argued throughout this thesis, experimentation — as an open-ended practice that recognizes that the result of any action is never guaranteed — is important because it facilitates more varied and flexible responses to unpredictability.

The argument that experimentation and adaptability are essential to complex systems underscores the need to rethink contemporary environmental resistances. Because contemporary environmental resistances are often premised on the assumption that particular goals can be achieved, they do not necessarily facilitate the flexibility and learning that allow complex systems to adapt to unpredictable shifts. Indeed, as examples throughout this thesis have shown, such resistances often facilitate stasis rather than resilience. Thus, I argue that the experimentation and invention integral to practices of re-fashioning should be applied to contemporary environmental resistances *as a whole* in order to facilitate the flexibility and resilience of global social-ecological systems. In this sense, I mean the *re-fashioning* of entire systems — not as the invocation of one stable state — but as a continual process of creating adaptable, innovative and resilient systems. In terms of contemporary globalized social-ecological systems, it is possible to adopt such characteristics; "The emphasis should be on flexible institutions and human organizations that can build adaptive capacity in synergy with ecosystem dynamics and reward systems that respond to feedback" (Yorque *et al* 2002: 435). The experimentation that I am advocating explicitly takes place within both ecological relations and relations of power. To create resilient systems would, I argue, require experimentation and innovation not only in explicitly ecological relationships, but within institutions, governments and our daily lives. Thus, I argue that contemporary environmental actions should aim to generate flexible, adaptable and resilient systems that are able to respond to fluctuations in numerous possible ways.

To facilitate the experimentation, innovation and creativity that contributes to a system's resilience, I have argued that practices of *re*territorialization can generate new interactions and relationships because they precipitate communicative practices between disparate agents within local

ecosystems. In the sense that practices of reterritorialization are *local* practices, they are important because — as participants within self-organized systems — agents must respond to *local* stimulus. Indeed, it is only by interacting with other local agents that individual behaviour accumulates into emergent phenomena. Though Richard Day (2005) is concerned particularly with anarchist practices, he explicitly argues that it is local action that facilitates experimentation and generates alternatives *within the limits of* already existing social-ecological systems. He argues that:

> Unlike revolutionary struggles, which seek totalizing effects across all aspects of the existing social order by taking state power, and unlike the politics of reform, which seeks global change on selected axes by reforming state power, these movements/networks/tactics do not seek totalizing effects on any axis at all. […]. And in doing so, they challenge the notion that the only way to achieve meaningful social change is by way of totalizing effects across an entire 'national' or 'transnational' society (45).

As Day suggests, local action can be effective at reorienting local practices without *the need for* organization at the national or global level. Because self-organized social-ecological systems generate emergent phenomena through the accumulated behaviour of many local agents, innovation and experimentation can result from the accumulation of local acts. Although deterritorializing flows may seem to generate the greatest amount of diversity and heterogeneity, I argue that localized acts of *re*territorialization, which create new relationships and interactions within any local geography or ecosystem, can generate diversity and flexibility through those local interconnections.

As the examples of how Indigenous peoples have been affected by deterritorializing flows attest, those flows often contribute to the destabilization, and increasing environmentalization, of globalized social-ecological systems. In this sense, deterritorializing resistances can have unpredictable consequences. Moreover, the insistence that deterritorializing resistances place on *global action* and a *globalized Multitude* suggests that they do not account for the profound unpredictability inherent within vastly complex and destabilized systems — such as contemporary globalize systems. Indeed, Hardt and Negri (2000) argue that "Empire can be effectively contested only on its own level of generality and by pushing the processes that it offers past their present limitations. We have to accept that challenge and learn to think globally and act globally. Globalization must be met with a counter-globalization, Empire with a counter-Empire" (206-207). In fact, Hardt and Negri explicitly argue that their notion of a deterritorializing resistance is to push those globalizing flows to their ultimate limits because "We cannot move back to any previous social form" (206). But, as I have argued throughout this thesis, the result of any action is never guaranteed and so, the outcome of any resistance is ultimately unpredictable. Although Hardt and Negri assume that the future will continue to be

increasingly complex, it is possible that the complex globalized systems in which we live, having

reached the point of regime change, may shift into an alternate stable state that is *less complex*. And, as

I have already suggested, the impetus for many environmental interventions is precisely the possibility

that contemporary social-ecological systems could *collapse*.

In the previous chapter, I examined Indigenous ecological practices as a source of inspiration as

to how resilience can be generated. However, I would like to briefly address the opportunities for

creating resilience within Western cultures. First, while they are not explicitly influenced by an

understanding of resilience, there are those who seek to join, or start, an ecovillage. Ecovillages are

local intentional communities that acknowledge the radical relationality between humans, nonhumans

and environments; they recognize that humans are embedded within, and cannot be abstracted from,

local ecosystems. Ecovillages are reterritorializing because they aim to establish human habitation as

an aspect of local ecosystems and geographies. Indeed, the establishment of ecovillages is consistent

with complexity theory; "the ecovillage model was seen as mirroring the transformation in how we

understand the world — mirrored in the findings of complexity theory and systems thinking —

emphasizing the *connections and relationships* between activities, processes and structures" (Dawson

2006: 14). Instead of a globalized deterritorializing resistance, the ecovillage model seeks to create

new relationships locally, right now, within currently existing systems. Ecovillages serve as an

example of how it might be possible to generate resilience through the forms of experimentation and

innovation that can take place at a local level.

The Transition Towns movement is also a form of localized practice that *explicitly* aims to

develop resilience. Rob Hopkins (2008), one of the co-founders of the Transition Network, argues that

within contemporary industrialized societies "everything is working against […] local resilience

building" (68). Hopkins recognizes that the increasing complexity of global social-ecological systems

sacrifice adaptability for efficiency and increasing interconnectivity between geographically disparate

locations. As such, the Transition Towns movement acknowledges that contemporary social-ecological

systems are more susceptible to fluctuations and, hence, that those systems could shift into an alternate

stable state. Indeed, in *The Transition Handbook* Hopkins (2008) suggests that "we are going to see

extraordinary change in every aspect of our lives" due to climate change, peak oil and the

destabilization of global markets (44). It was to avoid the worst effects of such change that Hopkins

developed the Transition Towns model as an initiative to make local communities (initially Kinsale in

2005 and Totnes in 2006) more resilient and adaptable when confronted with global instability. Instead

of relying on unstable globalized systems, the Transition Towns movement aims to create resilient local

economies based on available resources, environments, skills, and cultures. Transition Towns aim to generate resilience by creating a localized social-ecological system that is adaptable, flexible, innovative and creative.

Influenced by notions of resilience, Transition Towns seek to generate flexibility by actively creating diversity, by avoiding interdependence with globalized systems, and by tightening local feedback loops, so that actions can be more easily adapted (Hopkins 2008: 55-57). The importance of the Transition Towns movement is that such acts of reterritorializing resilience are explicitly developed so that particular *local* social-ecological systems are resilient *even if* globalized social-ecological systems were to collapse around it. In this sense, the Transition Town movement acknowledges the inherent instability of vastly complex and interconnected globalized systems. Yet, while the Transition Towns movement explicitly focuses on generating ecological resilience, it does not address the need for facilitating experimentation and innovation within social and cultural institutions. The failure to address experimentation, innovation and invention within social and cultural institutions means that such initiatives may fail to address the relations of power that are consonant with ecological relations. In failing to address relations of power, the Transition Towns movement may unwittingly reinforce stasis and inflexibility. Because a radical relational agency is *generated from* omnipresent power relations, to ignore the risks and possibilities that are inherent within power relations is to neglect a potential source of innovation and creativity. For local communities seeking to create resilient social-ecological systems, to recognize — like Foucault — that fashioning new relationships and identities is possible, *because both ecological relations and relations of power are omnipresent,* would be to acknowledge a source of innovation, creativity and experimentation.

As I have argued throughout this thesis, there are both possibilities and risks associated with being embedded within ecological relations and relations of power. Because we are embedded within both ecological relations and relations of power, those relations generate agency not only for humans, but also for nonhumans and environments. This proliferation of agents and agency means that there is always a limit or risk that confronts us. In this sense — there is always something to be done. A radical relational agency is generated because such relations are always capable of being overturned; a radical relational agency is generated *because* there are both risks and possibilities within ecological relations and relations of power. As I have argued, the possibility that any action can be overturned means that the outcome of any action is never guaranteed. Yet, our task is *not* to keep every option open, because it is an impossibility. There will *always* be limits — limits within power relations, ecological limits, radical otherness. Rather, our task is to be creative, innovative and flexible given the

impossibility of escaping those limits. And, in terms of self-organized, complex, multi-agential and collective actions, our task is to generate resilience — not stability, not permanence, not stasis — but adaptable, flexible and resilient systems.

<u>What comes next? Where do we go from here?</u>

Throughout this thesis I have argued that a notion of radical relational agency emerges through the combination of both Foucault's thought and the insights gleaned from complexity theory. What Foucault's thought contributes is the recognition that any definition of agency is contingent upon the systems of thought in which it emerges, an important recognition because it establishes the inseparability of power and knowledge. Furthermore, Foucault argued that any system of thought is never permanent, and so they shift throughout history. Similarly, complexity theory describes complex systems as impermanent and susceptible to unpredictable shifts. Yet, complexity theory moves beyond Foucault's thought because it explicitly describes the means by which self-organized systems shift, in part, because of the localized behaviour of individuals. Foucault's notion of a power *as a relation* leads to a notion of relational agency *because of* the fact that any relation of power can be overturned. Importantly, complexity theory adds to a *radical* relational agency because it recognizes that humans are embedded within planetary ecosystems. But, because complex social-ecological systems are becoming increasingly interconnected and globally dispersed, they are becoming increasingly destabilized and therefore more susceptible to the emergence of an alternate stable state. This inherent unpredictability, and the recognition that the outcome to any action is *never* guaranteed, has underpinned my argument that a radical relational agency is consistent — not with the aim of environmental resistances — but with attempts to generate resilient, flexible and adaptable social-ecological systems.

To end this thesis, I want to briefly examine what I consider two important and representative statements that help to define a radical relational agency — one each from Foucault and from complexity theory. Foucault (2000e) argued that:

> No one has the right to say "Revolt for me; the final liberation of men depends on it." But I am not in agreement with anyone who would say, "It is useless to revolt; it is always going to be the same thing." [...]. People do revolt; that is a fact. And that is how subjectivity (not of great men, but that of anyone) is brought into history, breathing life into it. [...]. Moreover, no one is obliged to support them. No one is obliged to find that these voices sing better than the others and speak the truth itself. It is enough that they exist (452).

The acknowledgement that *no action or form of resistance is ever guaranteed* is important because it underscores the emergence of a radical relational agency, and is the caution that such an agency

recognizes as essential. It is in this sense that a radical relational agency occurs continually. Indeed, a radical relational agency is a proliferating and omnipresent agency. But, at the same time, the very unpredictability that generates a radical relational agency is the reality that undermines any attempt at generating a static system. Thus, a radical relational agency does not generate resistances that seek to overcome this lack of guarantees, but acknowledges that unpredictability is sometimes the source of an unexpected stability.

Finally, I would like to argue that an essential insight from complexity theory is not only its recognition of unpredictability, but the insistence that this unpredictability applies not only to humans, but to nonhumans and environments as well. Throughout this thesis, I have argued that Modern systems of thought and relations of power have constituted nonhumans and environments as non-agential, passive and, hence, *static*. However, complexity theory acknowledges that humans are embedded within finite planetary ecosystems that place limits on our behaviour and subject. Jenks and Smith (2006) argue that "the awkward, fuller voice of complexity theory [is] when it engages the actual consequences of their [*sic*] being no pure social or physical phenomena, only hybrids" (266). The recognition that there are no purely social or physical phenomena has meant that agency and unpredictability are no longer viewed as merely human characteristics. Importantly, this is the point at which complexity theory also contributes to the disruption in Modern systems of thought. At the very least, it surpasses Modern notions of agency because it does not exclude nonhumans and environments from participating as communicative agents within social-ecological systems. Thus, we anticipate future shifts — whatever those shifts may be.

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