Writing as Ecology: "Patterns Which Connect" Academic Writing to Gregory Bateson's Ecological Matrix of Communication

by

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ABSTRACT

Because writing is used so pervasively as a tool of thinking/learning/inquiring, embedding composition theory and praxis within an ecological framework can contribute to the development of ecologically sustainable paradigms. To develop this framework, I explore the resemblances between Gregory Bateson's epistemological, ecological theories and writing using a method called abduction, which is a method of drawing comparisons between differing entities that Bateson advocated as a way to build insightful knowledge within and across disciplines and different ways of knowing. Extending the abductive comparison Bateson made between creative thinking and evolutionary processes, I compare writing as a tool of thinking/learning/ inquiring and biological processes and explore how both exemplify information, communication, and organizational processes of creative pattern making. I experiment with creating a holistic dialectic between traditional, expository, academic writing and autobiographical, reflective, creative, and aesthetic writing and consider how my own writing might exemplify what I am proposing. I explore how opening to deeper questioning and holding the tension of "not knowing" allows the myriad, unknown, exquisitely complex interrelationships in which an inquiry is embedded to be more fully integrated and thus lead to more ecologically wise answers and actions.

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PREFACE

Donkeys and Crocuses

The academic inquiries that one chooses to take up are always related to one's own journey through life (Chambers, et al., 2000; Phelps, 1988). Gregory Bateson, at the end of fifty years of scholarly inquiring in diverse disciplines, finally gave himself permission to reflect on and "uncover" the "donkey" he had been riding in search of the "deeper components" of life (as ctd. in Harries-Jones, 1995, p. 217-18). He realized his donkey consisted of taking up—and furthering—his father's search for "patterns which connect" the diverse, seemingly incongruous components of life into a beautiful, holistic dialectic—the web of life (Bateson, 1979, p. 8-9). The donkey is an apt metaphor: holistic patterns and relationships are stubbornly resistant to uncovery.

I began reading Bateson because it was required reading in a graduate course, but felt compelled to read further, despite the difficulty of his ideas, because he helped me uncover the same donkey of inklings and questions I have had all my life about the "patterns which connect" seemingly disparate components of life at deeper levels—whether these components be about gardening, writing, teaching, or figuring out how to relate to my fellow sentient beings on this planet. For example, as a gardener who loves the beauty of plants and who finds joy in tending them, I have laboured to create beautiful compositions in the ecosystem of my garden, struggling to attain a holistic dialectic between many stubborn, seemingly contradictory contraries, for example, between wildness and cultivation and between experimenting with creative pattern-making and adhering to pre-scripted patterns.

Similarly, as a teacher of academic writing, I have been privileged to sit individually with many hundreds of students, bearing witness to their unique struggles to negotiate the dialectical interface between multiple perspectives on any given topic and between the multiple dimensions of writing such as the personal and the public, the divergent and the convergent, the general and the particular, the known and the unknown, the creative and the conventional, to name a few. Helping students capture in writing those "aha!" moments as they uncover and glimpse the overarching "patterns which

and only once—he dug his bare hands into the brown earth and ripped out a crocus, roots and all, so that we could see the beauty of the fuzz glowing like a halo all around the flower, leaves, and stem when held up to the sky, and so that we could take it home to transplant in our garden. Sadly, its beauty quickly faded and it died before we even got home. For me, wild prairie crocuses have become an emblem of life which has beauty and resilience—but only so long as it is not severed from the web of relationships that give it life. In my journey of exploring academic writing as ecology, I have strived, above all, to seek out places where crocuses grow and tread ever so lightly as I go by.

Thank you, Bill, even though your bright mind has faded away and you can no longer understand what I am saying. You continue to struggle to find a way to live your life with resilience because you have learned, in your gut and heart, how precious and beautiful it is to be alive in the web of life.

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CHAPTER ONE

Introduction

White. A blank page or canvas.
The challenge: bring order to the whole.
Through design.
Composition.
Tension.
Balance.
Light.
And harmony.
-----Sondheim and Lapine, Sunday in the Park With George
(as ctd. in Ely, Vinz, Downing, & Anzul, 1997, p. 59)

. . .

Com ("together"): Pose ("a position, attitude; to place, set; to cause to rest; to cease"): Compose ("to form by putting put together; to free from agitation or disturbance; to calm; quiet"): Composition ("the art or practice of so combining the parts of a work of art as to produce a harmonious whole") (Skeat, 1993; Webster's, 1943)

. . .

...decomposing and composting odours penetrate my nostrils... I kneel again in the wet earth, gloved, trowel in hand. Seedlings, cuttings, rootings: how do I place them here--there--caring for them throughout the seasons, recomposing the harmonious patterns of bloom, fragrance, color, size, texture, light of seasons past? How do I midwife this tangled bit of life-web in this, my garden?

. . .

I sit down--again and again and yet again--to write this thesis not knowing exactly "what I will write," but knowing with certitude that, as I write, ideas will inscrutably emerge and dissipate, form and reform. As I begin each sentence, including this one, I do not know precisely how it will unfold, but I do know that I will reform many of them, again and again. My fingers are poised over the keyboard. I struggle, paradoxically, to find within myself a state of openness, even though I know that struggle is the antithesis of openness: How do I open? To what am I opening? Where is this what? Part of me desires this state; part of me resists. Distracting thoughts and impulses crowd in upon my intention to open. I feel my tension build up. I snack, snooze, tidy, read, fidget... anything

to avoid beginning writing. I am in this state of apprehensive anticipation because I care so deeply about the meaning and am so daunted by its infinite regress of complexity. How can I possibly find the courage to write about this, let alone write something "worthwhile"? Finally, the looming reality of deadlines presses down my tension and resistance, forcing me to bring myself to my ever so carefully designed writing place. There, I begin my "beginning to write" rituals that serve as a gateway to ease my transition from my normal everyday scattered awareness into a more receptive yet focused and searching awareness. My teacup, notes, books, music, and lighting are all just so. I say my mantra to myself: "Just begin. Just play. Jump in anywhere, it doesn't matter where or how. Jumping in is what matters. Meaning and pattern ***always*** *emerge." Sure enough, an ephemeral thought surfaces! Quick! I must capture it with the act of writing, before it dissipates. My focus has now shifted from preoccupation with my self to pursuing that particular elusive thought. I plunge in. Without quite realizing it, I have begun. Now I am poised and alert, sometimes swimming along the surface, sometimes diving into the depths. I stalk ideas, words, meanings with the bending spear of my ever-shifting intentionality. I stalk the underground caverns of memory and imagination, searching for stored information, for algorithmic patterns, for fleeting that will jump out as pertinent. I stalk the random, too, and my sense of adventure wells up, deepening my absorption. I lose track of chronological time as my sense of self merges into larger wholes, hunting for ideas to capture in the net of my writing.*

As I continue to write, my spirit rises to the adventure. I feel pressured, connected movement in my mind between the already solidified ideas floating on the surface of my mind and the forming and still unformed ideas flowing in its depths as they begin to interact with each other to create new patterns. Ideas spill, spurt, trickle out of my mind, down my fingertips and onto the keyboard. As I distill them into the digital, alpha- linear forms, into cyberspace, into the conventional forms dictated by the genre, ideas continue to ebb and flow. My focus switches back and forth, sometimes jarringly, sometimes smoothly, between this closed structuring and open flowing. Sometimes I float around recurring, familiar ideas; sometimes fixate on precision and rules and correctness; sometimes, unexpectedly, a new idea surfaces into my conscious mind with an almost

*audible "pop!" Surprise! "What I will write" and "what I have written" suddenly veers into an unexpected, new path. I shuffle and reshuffle the new and the old until a few ideas combine alchemically and...Voila!...tiny crystalline patterns begin to coagulate here and there! Eventually, I stop–not because it's complete or finished--which it never can be--but because I have reached a state of "enoughness." I click on the print icon and the end product of my writing process is produced: a lineal, nonliving string of codes that I release to be translated and evaluated by....**you**, the reader, who holds this crystallized thought object in your hands, and whose imagined responses I have interwoven into my context for writing this!*

Writing as Method of Inquiry

> *It is doubtful whether a man ever brings his faculties to bear with their full force on a subject until he writes on it.*[1]
>
> *Cicero (as ctd. in Cooper & Patton, 1993, p. 1)*

In writing, an act of composing/composting, we strive to create patterns of harmonious wholes, which always remains partial and far from perfect. Words arise, and words fade away, as we spin webs of texts that are similar, but never quite the same. Tension is the operational word in the "putting together" of a composition: it is usually anything but a harmonious process because it involves, through a process of inquiry, the struggle to place into relationship many disparate elements, a dialectical process that inevitably produces tension and conflict. By dialectic, I mean the art of "weigh[ing] contradictory ideas with a view to resolution of their contradictions" (Cooper & Patton, 1993, p. 86), and if resolution is not possible, valuing holding the tension of the

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[1] I use many epigraphs throughout this thesis, and many of them use "man" in what is often referred to as the "universal" sense. I do not feel it ethical or aesthetic to alter the words of classical or poetic works; nor can I ignore sexist language. The epigraphs enrich and exemplify a major theme of this thesis: the importance of integrating the aesthetic and the sacred in academic writing that aspires to ecological interrelatedness. Since the aesthetic and relational are often described as "feminine" qualities, the sexist language can be read as exemplifying an important dimension of this theme: the need to learn how to more accurately map ecological systems, an important aspect of which is apprehending complementary relationships between polarities such as male/female. Beyond this explication, I invite readers to read the epitaphs aesthetically and ponder how they enrich the "patterns that connect" the major themes of this thesis.

contradictions as a means to deepen one's inquiry and discriminate truth from error. Yet this dialectic struggle is exactly what brings about the complex thinking and learning involved in genuine inquiry. Tension, then, is to be embraced as that which forms the crucible of creative composing.

van Manen (1989), writing about writing from a hermeneutic, phenomenological perspective, sees writing as a potent crucible that holds together dialectical relationships for deep, reflective inquiry, so much so that he sees researching, writing, and thinking as virtually synonymous composing processes:

> Writing [is] thinking....writing is a kind of self-making or forming. To write is to measure the depth of things, as well to come to a sense of one's own depth....Writing separates us from what we know, yet it unites us more closely with what we know....Writing distances us from the lifeworld, yet it also draws us more closely to the lifeworld....Writing decontextualizes thought from practice and yet it returns thought to praxis....Writing abstracts our experience of the world, yet it also concretizes our understanding of the world....Writing objectifies thought into print and yet it subjectifies our understanding of something that truly engages us....The writing of the text *is* the research. Writing exercises the ability to see. (as ctd. in Pinar, Reynolds, Slattery, & Taubman, 2000, p. 438)

Similarly, Phelps (1988), citing Dewey, defines reflexiveness as an integration of experience and "the systematic and deliberative operations of reason to understand the world and our situation in it"; she maintains that

> in much theoretical discourse and in educational contexts writing/textuality stands metonymically for reflective activity. I have developed the concept of reflection directly from the idea of composing meanings....[T]his characterization is entirely parallel with the concept of inquiry, since organized inquiry is a praxis of reflection at its most rigorous, active, and responsible and is conducted largely through literate behaviour. (pp. 68-70)

Laurel Richardson (1994) furthers the parallel between writing and inquiry, seeing writing, in particular academic writing, as a "method of inquiry" that has the transformative potential to help us "discover new aspects of our topic and our

relationship to it" (p. 516).

The notion of writing as a method--or tool--of reflective, dialectical learning and inquiry is not new: Emig, furthering the work of Britton who drew attention to the difference between viewing writing as a method of transferring information versus writing to deepen thinking, inspired the Writing Across the Curriculum movement (Emig, 1971; Tynjala, Mason & Lonka, 2001, p. 7-8). Cognitive, process, and constructivist approaches to expository writing theory in the 1980s and 1990s also focused on writing as a means to facilitate reflective learning and inquiry, for example the theoretical work of Flower and Hayes, Applebee, Langer, Newell, Bereiter and Scardamalia, and Winograd (Tynjala et al., 2001, p. 8, 11).

Epistemic-Rhetorical Writing Theory as Precursor to Ecological Writing Theory and Praxis

Since the work of Britton and Emig, the focus has indeed shifted a long way from viewing writing as an end product to viewing it as a complex, psychological process of composing and reflecting upon meaning (p. 11). With the influence of social-constructionist theorists such as Vygotsky and Bakhtin, the focus has broadened to include the influence of social contexts on learning and writing. Bakhtin explains how all discourse is created as both the individual and the social "dialectically interpenetrate each other....[They] provide neither competing nor even alternative perspectives on meaning in discourse: rather, context and cognition operate always and only in an interpenetrating, co-constitutive relationship" (as ctd. in Kennedy, 1998, p. 288). Composition theorists often cited as maintaining this discursive framework of writing are Berlin, Bruffee, Bizzell, and Faigley, theorists who espouse what is called epistemic rhetoric (p. 288).

The study of rhetoric can be traced back 2500 years to the Sophists who "inaugurate[ed] a dialogue about the nature of language, its relationship to reality and truth, its social utility, and its educational importance that continues to our day" (p. 15). The centrality of rhetoric to human thought is pithily expressed by Burke: "*Homo sapiens* should be renamed *Homo rhetorica"* because "the study of language, culture, discourse, rhetoric, and humanity is one" (as ctd. in Coe, 1994, p. 340). In this thesis, I shall use the term rhetoric in this linguistic, discursive, social constructionist sense, but I shall broaden

its meaning to a larger, ecological sense, as alluded to in Covino's definition: "rhetoric is the *natural* practice of both animals and humans acting under the aegis of a common communicative urgency" (p. 28-29). It is social utility and communicative urgency, I believe, that engenders the intrinsic persuasive quality of rhetoric, which is what is usually inferred in the everyday, connotative use of the term.

Epistemic rhetoric, an umbrella term that has been used in composition studies for over thirty years, similarly associates rhetorical aspects of writing with social-constructionist theories of language, but with an epistemological focus, describing "rhetoric as a way of knowing" (Kennedy, 1998, p. 103). Epistemic rhetorical theories focus on interrelatedness in the making of knowledge, as can be seen in Berthoff who deems relationships as primary in this process: "meaning is the function of relationships, that is, 'making sense of the world is to see something with respect to, in terms of, in relation to something else'...It is the art of naming, opposing, and defining in order to articulate relationships" (p. 104). Similarly, Berlin reminds us that "there is never a division between experience and language, whether the experience involves the subject, the subject and other subjects, or the subject and the material world" (p. 16). The point here is that we so often need reminding about relatedness because, in our preoccupation with "naming, opposing, and defining," we focus more on separateness.

Although epistemic-rhetoric theory has been widely accepted in composition theory, and indeed, has contributed to the rise of composition studies as a legitimate discipline (p. 105), traditional--or what is often called current-traditional--approaches to teaching academic writing still predominate in many composition curriculums (p. 73-75).[2] Faigley argues that so long as we teach modernistic notions of acontextual subjectivity, objectivity, rationality and product, *along with* notions of process, we are still biased towards lineal thinking because we do not understand "process for its own

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[2] By traditional or current-traditional academic writing, I mean the familiar modes of academic essays such as the five paragraph, "objective" essay prevalent in many introductory composition textbooks, and formal, "objective" research papers prevalent in university courses. This approach emphasizes product--the surface, atomistic, unified, mechanical, linear aspects of writing. With roots going back to Aristotle's rhetorical taxonomy, these traditional modes (and their derivatives, such as cause-and-effect, process, analysis, etc.) were postulated by Campbell, Whately, and Blair in the 18th and 19th centuries, and include exposition, description, narration, and argument--commonly referred to as EDNA (Britton, Burgess.

sake but rather process [toward] a teleological development" of the end product (as ctd. in Kennedy 106).

Writing, then, has come to be widely viewed as a socially constructed, epistemic, rhetorical tool for learning, thinking and inquiring insofar as it involves writers in constructing and transforming knowledge reciprocally with their environment; is relevant to the writers' present knowledge, experiences, and beliefs; and stimulates reflection and hypothesizing (Tynjala, Mason, & Lonka, 2001).

Ecological Webs or Matrices as the Root Metaphor of Writing Theory and Praxis

A man's reach should exceed his grasp or what's a meta for?
---(an intentional misquote often quoted by Bateson, 1977, p. 246)

Barton (1994), in his book, Literacy: An Introduction to the Ecology of Written Language, proffers that the biological, ecological metaphor of the web of life is a very salient, increasingly adopted, metaphor for describing and illuminating both individual and contextual dimensions of writing and learning. The social constructionist, epistemic rhetorical perspective, now widely accepted in composition studies, is compatible with the perspective of ecological science which researches the reciprocal relationships between individual organisms and larger environmental systems. Although the increasing use of ecological and holistic concepts and terms in the field of composition and literacy theory these days is evidence of mounting interest in and receptivity to applying ecological metaphors to writing and literacy theory, few composition theorists over the last several decades have argued for the need to develop a comprehensive ecological framework for composition theory and pedagogy. One minor exception is Marilyn Cooper (1986) who wrote an article arguing for not just another contextual model of writing, but an ecological one that would "illuminate aspects of writing that we have perceived but dimly heretofore through the gaps in the cognitive process model" such as "intuition and holistic interrelatedness" (p. 367).

In this thesis, I submit that, now that the social-constructionist, epistemic rhetorical perspective has become widely accepted in composition studies and writing has been posited as an integral tool of inquiry--and learning and thinking--the field is ripe to

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Martin, McLeod, & Rosen, 1975, p. 4; Kennedy, 1998, p. 73-75).

move towards the development of an ecological framework as its root metaphor. Notwithstanding, Barton cautions, it is always important to choose metaphors--especially root metaphors–consciously and carefully because any metaphor is always embedded in larger metaphoric systems that highlight some aspects while hiding others: "[Metaphors] hang together and form a discourse. Words are situated within the structures of other words....[Metaphors] are the tips of icebergs, in that the words we use bring whole theories with them" (p 18). Lakoff and Johnson (1980) assert that metaphoric systems structure our thought processes in that we understand one thing in terms of another (p. 6, 10). The power of using an ecological metaphor lies in its extensive integrative capability: rather than refuting other established metaphoric views of literacy (such as oppression, deprivation, handicap, ignorance, or rehabilitation [Barton, 1994, p. 13]) it establishes an encompassing framework in which all views interact contextually. While any potent metaphor illuminates new connections, an ecological metaphor is not only potent but complex because it is a meta-metaphor *about* making connections and *about* wholes. We, in Western culture, find this kind of thinking challenging because we are more accustomed to thinking analytically, linearly, and objectively than we are to thinking relationally, meta contextually, and holistically. I find myself increasingly using webs as metaphors to structure how I think, whether it be about texts or gardens.

Louise Phelps (1988) reflects on this at length in her book, Composition as a Human Science: Contributions to the Self-Understanding of a Discipline, a seminal, comprehensive contribution towards a fully theorized, ecological framework of composition theory. Phelps tells the story of how, over a ten-year period, from the mid-1970s to the mid-1980s, what began as a doctoral search for an interdisciplinary framework for the rapidly emerging field of composition studies, one that would be useful as a tool to solve practical teaching problems, evolved into reflexive metatheory: "My thinking was taking a reflexive turn demanding a new logic and a new form of writing that embeds theory–'frames' it-in metatheory....I...needed a framework of frameworks, as an instrument for understanding acts of framing and the selves that enact them" (p. viii-ix).

Composition studies has historically derived its vitality from its receptiveness to

ways of knowing from assorted disciplines (Cain, 1999, p. 71), despite the fact that "criticism of methodology ... has centered on the contrast between the hermeneutical/humanities-based approach and the psychological/science approach [which] may be, in part, the result of a lack of what Basseches might term dialectical tolerance" (Kennedy, 1998, p. 32). Spigelman (2001), citing Bishop, traces how composition studies emulated the empirical social sciences model of quantitative research, yielding acontextual, cognitive research until it began to shift in the mid 1980s with the rise of qualitative research methodologies (p. 67).

Noting how members of the field of composition castigated their own inability to generate comprehensive theories and discerning the importance of fundamentals, Phelps (1988) turned to ecological theories in her search for "an interdisciplinary 'framework/field' as a tool for thinking out answers to the practical problems of composition praxis and theory" (p. 11). She based her thought on "a synthesis of knowledge from various disciplines about language, thought, social action, and the relations among them" in her search for metatheory to frame her theorizing (p. viii-ix). Further, she recognized that science must first be deconstructed and seen as rhetorical before the field of composition studies could create an epistemic, holistic, metatheoretical framework (p. 19).

As she came to see the personal and the objective as complementary rather than oppositional, she began to envisage her own writing metatheory as situated within a contextual system which included her autobiographical attempt to understand herself as teacher, writer, and theoriser and, simultaneously, as a member of a community which itself was beginning to become self-reflexive about its attempts to "composition itself" (p. x). Exploring the work of scientists, such as Ilya Prigogine, Capra, and Gregory Bateson, who have been strongly influenced by cybernetics theory, she eventually came to see composition as "prereflectively in tune with the contextualist and ecological themes" arising in differing disciplines concerned with language, thought, and epistemology as well as the mainstream culture (Phelps, 1988, p. 34-35, 4; Capra, 1996, p. 85).

As she became more conscious of the process of framing and reframing and meta

framing, ecology emerged as the most salient, organizing, meta metaphor. Rather than the term "framework," however, she preferred the term "field" because it is evocative of ecological, self-organizing, transforming life systems–of which writing as a tool of learning and inquiry is an example (p. x). Writing during a time when composition studies was becoming increasingly self-reflexive, but still strongly oriented to the practical rather than the philosophical, Phelps, furthering van Manen's description of writing as inquiry and research, comments on her ironic, ecological awareness of the tangled, recursive paradoxical loops of writing reflexively, autobiographically, and ecologically as a writer writing about writing within the field of pedagogically oriented composition studies. I quote at length because her words capture the essence of my struggles while writing this theoretical, autobiographical thesis; moreover, I have a deep personal, intellectual, and professional resonance with what she says and will wrestle with it throughout this thesis as I attempt to write philosophically, theoretically, reflexively, autobiographically, and intertextually--and ecologically--using the root metaphor of the web of life:

> Writing is always hard for most composers; writing theory is damnable hard. It is doubly hermeneutical: interpretation and self-interpretation, but where the *self* is simultaneously myself as writer, ideas as text, ourselves as disciplinary community. Worse than that, it is self not as static, autonomous entity, but...self as stream of thought interpenetrating others. How as writer do I locate myself in my text, within our collective reflections?....As a writer I at first felt lonely, adversarial, inarticulate and voiceless in a climate unfavorable to philosophical thinking. I wondered often how I dared think large thoughts or different thoughts, and if I succeeded, how I might ever be heard. Composition has not nurtured its theorist-writers; as a practice it resists theory....It pictures the theorist as the professional con man trying to impress people with pompous, impenetrable jargon. It does not believe theory is *felt* or *written*...But as long as composition does not understand its theorists as writers, it will not understand itself. In the end, I discovered that, because theory is autobiographical, if writers and field are in resonance they develop symbiotically, each dependent on the other for

> understanding and self-understanding. I have come to understand my work here as on the one hand articulating themes half-tacit, half-explicit in our disciplinary discourse, and on the other hand expressing personal identity themes. Theory as autobiography: the creation of self as [contextual] writer, thinker. (p. xi-xii)

I posit that, because social-constructionism, epistemic rhetoric, and the use of ecological metaphors have become far more widely accepted than at the time of Phelp's writing, the field of composition studies may now have sufficient symbiotic resonance with the field of ecological science and therefore may be ready to work towards the articulation and adoption of an ecological framework. Ergo, I will, in this thesis, attempt to situate myself as a writer seeking out symbiotic resonance as I write towards deeper, reflexive theoretical understanding–both of my self and my topic. But still, I face the same difficulties Phelps did: the field's emphasis on pedagogical application, the difficulty of getting entangled in infinitely regressing, tacit, reflexive, recursive, relational, ecological meta loops, and mainstream society's overall individualistic, self-interested resistance to embracing ecological frameworks (for example, Canada's response to the Kyoto protocols). I shall take on the venture, nevertheless. Why?

First and foremost, because I believe the world needs to shift towards wholehearted development and endorsement of ecological frameworks that mesh with "how life systems work."

Second, because writing is so pervasively used as a tool of learning, inquiry, and reflexive thinking at all levels of the education system and throughout society, composition theorists and practitioners are, I believe, in a germane position to influence a shift towards more ecologically sustainable writing and thinking practices, and thus help to bring about an ecologically sustainable education system–and world.

Third, as alluded to above, because I resonate autobiographically with ecological theories. I am situated as an academic writing teacher writing about academic writing in an academic context. Moreover, like Phelps I have a propensity to think and get tangled up in formidable, philosophical, reflexive, recursive "large thoughts" as a way of trying to better understand "how life works." I shall take this up autobiographically in Chapter Four; implicitly, though, *all* the abstract, complex theorizing in this thesis can be read as

grounded in autobiography–both my own and those whom I cite: "however formidably abstract, [theory] is a form of intelligibility that the theorist tries to give to personal dilemmas, deeply felt. Like all writing, theory is a way to make sense of life. For oneself, for others" (p. viii).

While Phelps does draw on concepts of cybernetic, feedback systems of life as a metaphor to form her ecological framework of writing, she relies mostly on the well known works of contextual theorists in the social sciences and humanities (for example, Bakhtin, Bruner, Burke, Dewey, Gadamer, Derrida, Ricoeur, Polanyi, and Vygotsky). In this thesis, I shall do the converse: I shall briefly cite contextual theorists in the social sciences and humanities and extensively probe how the scientific, ecological theories of Gregory Bateson, in particular, can elucidate an ecological framework of writing.

Abduction as Method of Inquiry

> *Our language is formed in turn by the pantry and the gate, by the rose and the lily, the dog and the fish and the tiger, the clouds and the stones.*
>
> *-----Robert Aitken-Roshi, Original Dwelling Place*
> *(as ctd. in Nachmanovitch, 1990, p. 95)*

What initially struck me when I began to read the convoluted writings of Gregory Bateson was the extent to which he uses the key concepts used by theorists and practitioners in the field of composition studies, words such as cause/effect, comparison/contrast, process, quality, subjectivity/objectivity, description, purpose, ideas, example, hierarchical structure, meaning, communication, logic, information, unity, coherence, questioning, patterns, connections, abstraction, aesthetics, elegance, creativity, redundancy, gaps, metaphor, language, story, learning, relationship, reflexivity, organization, and, last but not least, context. Surely, I thought, there *must* be important "patterns which connect"–to use one of Bateson's key phrases (Bateson, 1979, p. 8-9)–his use of these terms to composition theorist and practitioners' use of them. As I continued to read and came to realize the extent to which Bateson's description of his ecological science resembles the writing process as described by van Manen, Phelps, and social-constructionists, I sensed that an exploration of the significance of these resemblances would be a generative–and intriguing–topic of inquiry. I eventually came to realize that, of course, there would be resemblances: composition theorists and

practitioners and Bateson are talking about the same phenomena–communication, information, and organization in biological, mental, and cultural systems.

I began to wonder whether applying Bateson's concepts analogously to composition theory as a means to generate insightful, ecological writing theory could be a valid research methodology. As I continued to read Bateson, I discovered that he himself used and strongly advocated for the use of metaphor, analogy and homology–a method he calls abduction–as ways of building apodictic, innovative knowledge. While Huxley points out that the scientific method actually interweaves induction and deduction (as ctd. in Cooper & Patton, 1993, p. 107), the perspicacity of Bateson's theories derives from dexterously interweaving not only induction and deduction, but also abduction. Bateson formally defines abduction as a holistic, epistemologically valid method of using extended metaphor to "draw from phenomena in different fields that which is shared among them" (Bateson & Bateson,[3] 1987, p. 37). No doubt, his scholarly sojourns among disparate disciplines provided incredibly fecund terrain for Bateson to apply abduction in highly innovative ways that yielded such diverse, original, holistic theory; however, Bateson's propensity to "hopscotch" among disciplines and "follow a line of argument developed in one discipline as the basis for argument within the other" often makes his thought difficult to follow (Harries-Jones, 1995, p. 87). Other sources of his captivation with abductive thinking include: his early training in zoology which uses homology to build knowledge; his early anthropological work of comparing two radically differing tribes; and his life long passion for the "relations of counterpoint" in the poetry of T. S. Eliot and William Blake, whom he frequently quoted to illustrate his theories (p. 87).

Later, I read Rieber—a colleague of Bateson's—an anthropologist who depicts Bateson's ecological theories in a way that sounds very much like a description of writing: he "give[s] an integrated account of the capabilities of all living things to integrate information, organize and reorganize it, and communicate it outward from

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[3] Gregory partially co-wrote this book with his daughter, Mary Catherine, and she finished it after his death by compiling his incomplete drafts and weaving them together into a coherent text by means of adding her own her own interpretations of Gregory's thinking. When I use this citation, sometimes I refer to Gregory and sometimes to Mary Catherine; this is because the book indicates who authored various sections.

themselves" (1989, p. 1). Rieber affirmed my wonderings about the commonalites between composition theory and Bateson's theories with a quote from Bateson himself that explicitly relates biology to grammar through the method of abduction:

> Within Bateson's framework, the integrity of explanation across widely differing phenomena is accomplished through the identification of analogies and homologies. Thus, for example, to the putative question, How is a life on a tree similar to a noun in a sentence?, Bateson...would argue, "Both grammar and biological structure are products of communicational and organizational processes." (p. 1)

Thus, in validating abduction and showing us its importance in building apodictic knowledge, Bateson provides validation to abductively relate his theories to composition studies.

In this thesis, I shall explore how Bateson's theories, because they are concerned with the development of understanding of wholes as *communicative* orders (Harries-Jones, 1995, p. 56), are particularly amenable to applying to composition studies and thus can contribute generatively towards grounding composition studies within an eco-logical framework, and hence, towards the development of an eco-literate society.

How Do Bateson's Theories Elucidate an Ecological Framework of Writing Theory and Praxis?

Because Bateson's theories are complex, I first need to introduce his key concepts: difference, mind, Pleroma and Creatura, holism, ecology, "patterns which connect," epistemology, embodiment, and matrix. Then, in the following chapters, I will be able to show how the writing process reflects these attributes.

By redefining biology as the epistemic study of "multiple events of communication" that form "patterns which connect" (Bateson, 1979, p. 8-9), Bateson posits that all life systems demonstrate characteristics of communication, mentation, and learning (which Bateson defines as responsiveness and adaptation to context and change [1987, p. 209]). Bateson thereby embeds living systems within a dynamic, open, relational, hierarchical, recursive epistemological, biological web inclusive of the abstract and the material (1987, p. 151, 209). He prefers to use the metaphor of a *matrix* as his

root metaphor rather than a web because, etymologically, the word matrix derives from the word "womb" which connotes how smaller life systems are embedded within and develop from, and are nurtured by the interconnected forms of larger life systems. Interestingly, Jan Swearington, proposes that composition studies adopt as its root metaphor an etymologically similar metaphor of *maieutics*, which means midwifery; Socrates, she explains, used this metaphor to evoke a dialogic dialectic "in which participants help one another to give birth to new ideas in a situation of mutual trust" by interweaving "patterns that connect" differences such that each illuminates and elaborates upon the other (Phelps, 1988, p. 94).

While Bateson repeatedly reminded readers that his attempts to map the bio-epistemic (my term) matrix of life was a tentative "groping," it is arguably the most fully articulated, comprehensive holistic science to date (Berman, 1983, p. 196; Harries-Jones, 1995, p. 3). Because Bateson's biological matrix is epistemic, it is in symbiotic resonance with the "field" of composition which resounds with epistemological elements: writing as a tool for learning, thinking inquiring and reflecting is very much about "how *do* we know?" However, Bateson's theories have seldom been applied to composition studies. Coe (1975), in a rare composition article based on Bateson's theories, calls for the development of "eco-logic"; he posits that, ironically, the analytic, rationalistic, empirical, linear logic of (what I shall term) traditional science has transformed the world so much that it can no longer be adequately described or understood by its own logic and that an "eco-logic" of writing that elucidates the complex, dynamic interrelatedness of wholes is needed (p. 232).

Gregory Bateson, described as one of the twentieth century's most formative thinkers (Brockman, 1977, p. 3; Berman, 1981; p. 196; Maxwell, 1983, p. 253; Harries-Jones, 1995, preface), was a multifarious social/biological scientist renowned for seminal research and theorizing in disparate fields including cybernetics, communication, information, family systems, learning theory, zoology, genetics, ecology, evolution, ethnography, and psychiatry (Capra, 1996, p. 51-55; Rieber, 1989, p. 1). It was only after thirty years of perspicacious interdisciplinary work that he began to see underlying patterns connecting what he had previously thought were separate insights. By

ingeniously applying the systems theories of cybernetics,[4] he began to conceive of a bio-epistemic matrix as a meta description of the patterns common to all life and all studies of life. Bateson began to develop inklings that his eclectic inquiries, when considered as parts of a larger whole, sketched the outlines of a holistic, ecological science inclusive of the biological as well as cultural, the physical as well as the abstract, the prosaic as well as the poetic, and the aesthetic as well as the sacred (Harries-Jones, 1995, p. 128-29). He eventually arrived at a definition of ecology that was able to encompass the quantitative and the qualitative by making relationships primary: ecology is a "science of interrelations and interdependence between organisms and between organisms and their environments" (1987, p. 207). Bateson's inquiry is trenchant because he was so fiercely committed "not [to] asking another question each time" but rather to "making the same question bigger," (1972, p. 231). As Rieber (1989) puts it, Bateson persistently stalked "impertinent questions, that would open the door to new ways of conceptualizing phenomena. What Bateson wanted was an epistemology worthy of the term, an epistemology that would...serve as a worldview...and yet be serviceable as a vehicle for scientific inquiry" (p. 1)

Bateson was an innovative university teacher who loved teaching and was concerned about education. He believed strongly that students and teachers must learn how to think and act–and I would assert, write–in ways that are congruent with the physical processes and abstract premises by which evolution and ecology function: "our survival depends on our understanding that not only are we coupled to how we conceptualize ecological order but also to how we have embodied in our patterns of relationship our epistemological ideas of nature" (Bateson, as ctd. in Harries-Jones, 1995, p. 123). He makes a direct, critical correlation between the development of ideas--which writing facilitates--and the development of living systems:

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[4] During and after World War II, he participated in the original group of scientists that formulated cybernetics theory, leading a group that sought ways to apply it to human systems. He embraced cybernetics as a puissant theory for application to human systems, in part, because, in his 1936 anthropological book, Naven, based on his extensive study of New Guinean tribes, he developed a prototype cybernetics notion of how circular feedback systems can lead to either increased or decreased differentiation and change in human relationships. He termed this process *schismogenesis*; cybernetics scientists later termed it *positive* and *negative* feedback.

> I am reminded of and enlightened about my own mental and unconscious processes by the shapes etc. of the animals and plants....Organisms are embodied tautologies...Between forms of living things and my conscious-unconscious mind are embodiments of tautologies. They bring the forms etc. into the domain of mind...we have a hunch that if we knew about how ideas grew and differentiate, then we would know much more about how creatures grew and differentiate...And about ecosystems. (as ctd. in Harries-Jones, p. 233)

It is important to note here that Bateson's definition of embodiment–which he defines as the outcome of patterns of relationship–can refer to either physical or abstract patterns of relationship (p. 123). For example, a parable is the embodiment of an idea, or an organism is the embodiment of countless genetic injunctions. Writing, then, can be understood as a process of embodying ideas.

van Manen's description of reading/writing/thinking/inquiring/interacting, and the theories of social-constructionists and epistemic rhetoricians, are similar to notions of *intertextuality* put forth by textual theorists. The metaphors of *text* and *web* have become increasingly used as a metaphor in the social sciences and humanities. Interestingly, the etymological root of the word *text* means "to weave" (Skeat, 1993). Reading response theorist Louise Rosenblatt (1978), for example, describes the process of interacting with text as "something like an open-meshed woven curtain, a mesh of flexible strands that hold a certain relationship to one another, but whose total shape and pattern changes as any one part is pulled or loosened" (p. 76). Intriguingly, ecological biologists, such as Capra (1996) who called his book The Web of Life, use the web metaphor to describe interacting, interdependent life systems. Moreover, the global reference to the World Wide Web suggests that the metaphor of life as a web is well on its way to becoming a ubiquitous root metaphor. I shall use the metaphor of the web as the (pardon the contradictory use of metaphor here) root metaphor of my thesis.

Bateson uses the web-like, maieutic metaphor of a matrix to define not only holism but also the characteristics of mind, which he says are immanent in all living systems, whether at macro or micro levels. He defines holism as the "tendency in nature to produce from the ordered grouping of parts complex wholes with properties that are

not present in or predictable from the separate parts" (1987, p. 208). Holistic inquiry is vital: "Break the pattern which connects the items of learning and you necessarily destroy all quality," cautions Bateson (1979, p. 7). A dissected, formaldehyde-soaked frog in high-school biology comes to mind. He similarly defines mind as a holistic "aggregate of interacting parts" that are "triggered by difference" and "require circular...chains of determination" whereby "the effects of difference are to be regarded as transforms (i.e. coded versions) of events which precede them" (p. 18-19). More simply stated, he also defines mind as the embodiment of responses to "difference[s] that makes a difference" (1979, p. 290). Since the key to understanding Bateson's epistemological theory--this immanent, relational, abstract notion of mind based on difference--is difficult to comprehend, a further, more elaborate definition may be helpful:

> [Mind is] something that can receive information and can, through the self-regulation or self-correction made possible by circular trains of causation, maintain the truth of certain propositions about itself...A given mind is likely to be a component or subsystem in some larger and more complex mind, as an individual cell may be a component in an organism, or a person may be a component in a community. (Bateson & Bateson, 1987, p. 18-19, 209)

Note how closely the above descriptions of the writing process, texts and minds corresponds with Bateson's following description of a web-like, maieutic matrix as a living system that grows and forms by a process of self-differentiation, that is, by responding to difference by way of recursive feedback. In his view, texts, webs, matrices, minds, living systems, and epistemologies are similar in that they grow and maintain themselves by increasingly complex processes of differentiation. In the following quote, Bateson talks about how the assorted ideas he worked with in various fields were really part of one overall global pattern, like a growing embryo:

> A matrix, to judge from its etymology, is supposed to give birth, not receive it....The network of ideas or matrix [in my life] has been fertile, not in the sense that it has given birth to ideas separate from itself but in the sense that it has given birth to more parts of itself....[My epistemic] matrix has been a growing thing, getting more and more complex, wider and wider in its scope, and I believe more

> fertile as time has gone on....The matrix, after all, is an epistemology, and specifically it is a recursive epistemology. (Bateson, 1972, p. 191)

Bateson offers definitions of information, ideas, and perception, giving precise, inductive explanations of how living systems build up communicative worlds through hierarchically structured, embodied, increasingly differentiated mapping. Significantly, these definitions also describe the perceptual and cognitive processes at work when composing or reading text: perception, he says, is an unconscious, hierarchically structured process of mapping abstract "difference limited by a threshold" (1979, p. 29, 32, 206); information is "the smallest unit of mental process composed of coded transforms of "any difference that makes a difference" (1979, p. 246; 1987, p. 209); and ideas are "complex aggregates of such units"(1979, p. 246).

Stated more simply, selectively responding to difference at any level, whether conscious or unconscious, internal or external, physical or abstract, is the means by which physical and mental matrices, such as written text, are constructed. In effect, difference is analogous to cause and replaces cause as a fundamental premise of holistic science (M. C. Bateson, 1984, p. 186). This notion of difference, is significant, declares Harries-Jones, because it provides the social sciences with a fundamental premise powerful enough to bring about an ecological paradigm shift in the social sciences, a premise so important that he equates it with Newton's discovery of the particle (1995, p. 168).

While Newton's particle proved to be highly descriptive of the non-living, material realm, Bateson's difference is highly descriptive of the realm of living systems--whether biological or cultural--because it explains how such systems maintain themselves and change. To build accurate maps of knowledge of these systems, Bateson stresses the crucial importance of accurately distinguishing between the world of nonliving entities "where forces and impacts are the 'causes' of events" and the world of living entities "where *distinctions* are drawn and *difference* can be a cause" (1979, p. 7, original emphasis). Borrowing from Jung, he calls the realm aptly described by physical science, *Pleroma*, and the realm of living systems, which he devoted his entire life to apprehending, *Creatura*. One of the main themes of his writing is that misapplying terms and concepts used to describe Pleromic to the world of Creatura is common in the social

sciences and leads to epistemological errors; for example, the terms *energy* and *force* refer to physical forces but are commonly used to describe abstract mental processes.

Serres uses the fable, "The Wolf and the Lamb," as a metaphor to show the valorization of analytical reasoning. The wolf insists to the lamb that it deserves to be eaten because "the reason of the strongest is reason *by itself*" (Serres, 1982, p. 28. original emphasis). Throughout his writing, Bateson strives to show how the reasoning of the wolf is an epistemological error in several ways: by making explicit the rhetorical, dialectical openness inherent in *all* "maps" of knowing, be they linguistic, mathematical, visual, musical, logical, aesthetic, sacred, intuitive, or otherwise (1987, p. 11-12); by appropriate application of both Pleromic and Creatural logic (to be discussed further on); and by using as precise as possible language from what are usually considered opposing discourses:

> What is important is that, right or wrong, the epistemology shall be *explicit*. Equally explicit criticism will then be possible. So the immediate task of this book is to construct a picture of how the world is joined together in its mental aspects....What has to be investigated and described is a vast network or matrix of interlocking message material and abstract tautologies, premises, and exemplifications ....[E]very schoolboy [sic] ought to know that [lineal] logic is precisely unable to deal with recursive circuits without generating paradox and that quantities are precisely not the stuff of complex communicating systems. In other words, logic and quantity turn out to be inappropriate devices for describing organisms and their interactions and internal organization. (Bateson, 1979, p. 20-21)

Bateson, a university professor who was deeply concerned with learning and education, sought to correlate his ecological theories with his teaching methods. His ecological theories are particularly relevant to educational and composition theories because he holds that "'learning' and 'evolution' are partial formal analogues one of the other": "'ideas' are what 'survive' and are therefore the units of both evolution and learning"–and therefore, I would add, writing (as ctd. in Harries-Jones, 1995, p. 152). Volk (1995) describes Bateson's correlation between evolution and learning in a way that

strongly evokes the writing process: "both use the metapattern of variation and selection–an explosion of possibilities followed by a culling with a strong component of efficacy–to forge a trail in the possibility space of new configurations. One yields forms in the biological world; the other, forms in the psyche" (p. vii).

Patterns, which are of strong concern to writers and writing teachers, are defined by Bateson as "an aggregate whose members are arranged in such a way that they can be economically specified (or, put slightly differently, whose arrangement is highly redundant)" (Bateson & Bateson, 1987, p. 210). Metapatterns, one of Bateson's most important ecological concepts, are defined as patterns of patterns: "a metapattern is a pattern so wide-flung that it appears throughout the spectrum of reality: in clouds, rivers, and planets; in cells; organisms, and ecosystems; in art, architecture, and politics" (Volk, 1995, p. viii). It is, therefore, metapatterns that connect ecology to writing. It is these metapatterns that struck me when I first read Bateson.

Ideas, as Bateson defines them, are evolutionary metapatterns of longer or shorter duration, be they fleeting ideas that cross my mind as I struggle to get a sense of my thesis, or the neural circuits in which my ideas are embedded that have been around for many millions of years. As I write and rewrite, think and rethink, read and reread my text and my sources and my notes, I am always on high alert for "any difference that makes a difference." I quickly try to capture these "ahas!" before they disappear so that I can and weave and reweave them into my embryonic text, capturing them for "survival," gradually forming a matrix of larger and larger wholes, slowly getting more and more precise ideas about their interrelatedness, aiming towards some sort of intuitively sensed, optimal level of differentiation and wholeness. The building block, difference, begets information and ideas, which together create wholes that are, as the above definition of holism illuminates, far more than the sum of the parts. No wonder Bateson so often repeats the phrase, "difference that makes a difference," to explain his epistemology (1979, p. 8). And yet, Bateson repeatedly reminds his readers that his expansive, multifarious, perplexing epistemology can be grasped with one simple matrix metaphor that points to similarities: "the pattern which connects" (Bateson, 1979, p. 8; 1987, p. 90), emphasizing the immense importance of grasping wholes in our thinking, writing, and

CHAPTER TWO

The Qualities of Ecological Academic Writing

For skies of couple-colour as a brindled cow;
For rose-moles all in stipple upon trout that swim;
Fresh-fire coal chestnut falls;
Finches wings; landscape plotted pieced-fold, fallow, and plough
All things counter, original, spare, strange;
Whatever is fickle, freckle (who knows how?)
With swift, slow; sweet, sour; adazzle, dim;
-----Gerard Manley Hopkins, "Pied Beauty"

In this chapter I shall explore how many of the central themes of the field of composition studies are metapatterns that can be interwoven with counterpart themes in Bateson's theories, as well as others. By showing this interrelationship, I hope to weave composition studies more deeply into an ecological framework/field that will further the shift towards thinking eco-logically.

Metaphor

Picture and book remain,
An acre of green grass
For air and exercize
----W.B. Yeats (as ctd. in Bradley, [n.d.])

As discussed, abduction, as a formal method of inquiry that uses comparison of similarities to generate insight, is a form of metaphor. In fact, Bateson defines abduction very formally as a "syllogism of metaphor" (1987, p. 192). Metaphor is so integral to Bateson's epistemology that it bears closer examination. Since, he maintain, all processes of mentation in evolution, ecology, learning–and writing–develop from abstract propositions about similarities and differences and making comparisons between them, learning more precisely how metaphor operates in nature (and therefore in our learning and writing) is a necessary part of learning how to think and write ecologically (Bateson & Bateson, 1987, p. 26-30).

Metaphor is not, Bateson contends, " just pretty poetry, it is not either good or bad logic, but is in fact the logic upon which the biological world has been built, the main characteristic and organizing glue of this world of mental process" (1987, p. 30).

Metaphors are used so pervasively to structure everyday language that they are transparent to most people *unless* they are used in unusual ways; only then are they noticed and classified as creative or poetic language (Lakoff & Johnson, 1980, p. 13). Metaphoric comparisons are always partial. In everyday language, the parts used in the comparison become conventionalized; however, when unused parts of the metaphor are brought forward, when the used parts are extended, or when a novel metaphor is used, then the metaphor is considered to be aesthetic or creative (p. 13). While effective use of metaphor is the mark of any "good quality" thinking and writing, effective use of *original* metaphor is the mark of innovative, insightful thinking and writing in any genre, even traditional academic writing.

I am mostly unaware, as I am writing this, of ways in which I am using metaphor. I am, however, aware that I am *trying* to avoid using building metaphors in a way that connotes foundation, dominance, and lineal hierarchy and, instead, shift to organic, relational, dynamic, structural metaphors of weaving webs and matrices. As I write, I realize how my choice creates an ironic situation: even though I know building metaphors contradict my argument, which is to shift towards more organic thinking and writing patterns, because building metaphors are an accepted part of the dominant discourse within which I am situated, I am, by trying not to use them, choosing to risk writing less persuasively by exclusively using marginalized, organic metaphors. As an additional complexity, my own thoughts have been "structured" on the building metaphor throughout most of my life. And so I am very inconsistent. My thesis, at least partially, can be read as a record of my struggle to bootstrap my way out of the metaphors of this dominant discourse. As a further irony, the following lineal analysis of the structure of analytic and metaphoric thought is required to elucidate the understanding of the importance of metaphor, as a necessary complement to linear logic, in eco-logical academic writing. Since Bateson maintains that many of our thought processes, as well as the preverbal, biological realm, have no names, classes or subject-predicate distinctions and communicate only metaphorically (1987, p. 27), understanding more precisely how metaphor works will, in turn, make clear its relation to ecological writing patterns.

A comparison of two famous syllogisms, often referred to by philosophers, the

first based on subject-predicate relations and the second based on metaphoric relations, elucidates the difference in structure between hierarchical, lineal analytical thought and metaphoric thought. In the first syllogism, known as the "Syllogism of Barbara," the conclusion follows from a major and minor premise, wherein the predicate "will die" becomes attached to Socrates because he is deemed to be a member of the larger class named in the major premise:

> Men die;
> Socrates is a man;
> Socrates will die. (1987, p. 26)

In contrast, in the second syllogism, categories are conflated and there are no subject-predicate relations–only a verb complement in which the predicate describes or completes the subject. Thus, the precise way in which metaphoric logic can bring about creative insight and change becomes evident:

> Metaphor differs from other superordinate-subordinate relations in that the superordinate is not given a name of its own. Instead, the name of one subordinate is extended to the other and this...has the effect of calling both references to mind with their differences as well as their similarities....A metaphor lives in language so long as it causes a word to appear in improbable contexts, the word suggesting one reference, the context another. (Brown, 1995, p. 52-53)

The following syllogism of metaphor, known as the "Syllogism of Grass," I hope, will now seem less strange:

> Grass dies;
> Men die;
> Men are grass. (Bateson & Bateson, 1987, p. 26)

Simply put, there are two kinds of logic: Barbara and grass logic (Bradley, n.d.). While the preverbal realm, as stated, is capable of only grass logic, the verbal realm is capable of both. Barbara logic can also be described as simile or "as if" or "prose" language (p. 29). This type of logic, which includes induction, deduction, and generalization, is the predominant method of constructing Western knowledge, including traditional materialistic science and traditional academic writing. Bateson stresses the

importance of finding a complementary balance between the two types of logic. More conscious and informed use of grass logic helps facilitate the shift towards an ecoliterate society because it shifts our attention from "things" as separate and isolated to the relationships between them. By collapsing hierarchical categories and making parallel comparisons between disparate phenomena, grass logic facilitates relational, reflexive, holistic, creative thinking:

> The parallels evoke *differing levels of sensuousness* which, in their combination, evoke the whole in human experience....Only when put in relation with each other do the objects juxtaposed in metaphor evoke meaning. They also evoke cumulative images of pattern. Unlike the rules of logic, which order a chain of reasoning in order to assert an identity, it is through metaphor and parables that we try to communicate truth....So, too, the use of metaphor provides the opportunity for the reader to contrast a pattern in the first instance and then, reflexively, look back. In doing so, readers are able to attain a more abstract level of understanding, closer to the unconscious or uninspected premises that they hold. Metaphor puts into motion a sort of reflexive shift along a spiral of steps. (Harries-Jones, 1995, p. 95)

Interestingly, Kenneth Burke, who was a colleague of Bateson's (Lipset, 1980) uses the term *extended metaphor* to underscore how intentionally forming unlikely metaphoric comparisons disrupts our current schema and, by introducing previously unconsidered relationships, creates new meaning (Salibrici, 1999, p. 630-31). Through metaphor, then, we become aware of new "patterns which connect," thereby deepening our understanding and experiencing of the "characteristics of the network of mind of which we are parts, whose branches are immanent in us" (Bateson & Bateson, 1987, p. 17).

Obviously, a complementary balance between the two modes of logic is needed. In traditional academic writing, when too much emphasis is placed on closure, learning how to explain, report, define, analyze, categorize, compare, abstract, generalize, and conclude in a clear, precise, inductive, lineal, organized manner squeezes out personal aspects of writing as well as creative potential. Interweaving closure modes of writing with modes that emphasize the personal and creative is challenging and unfamiliar to

many academic writers still accustomed to writing according to the conventions of traditional, more closure oriented modes. Consequently, as discussed earlier, the two modes are often dichotomized, with the open modes treated as secondary or peripheral. In writing this thesis, I am experimenting with ways to attain complementarity between the two modes and am finding it difficult as I am far more comfortable in the traditional mode.

Telling Stories

> *An old Zen tale...near dusk an itinerant storyteller is passing through a village when he notices the* dojo *of a samurai. In the process of requesting lodging, he challenges the sword-master to a duel. At dawn they face off. The storyteller begins, "Long ago, in a village far away..." "Stop!" cries the sword-master bowing to his opponent. "The storyteller has won. I was transported by his words and could have been killed in an instant."*
>
> *-----(as ctd. in Sher, 1999, p. 13)*

Although *voice* has been a strongly endorsed metaphor of subjectivity, multiplicity, partiality and situatedness within composition studies, Kamler (2001) advocates a shift to the metaphor of telling stories or of narrative: while voice is construed as natural and effortless, constructing stories more readily highlights the constructedness of text and author and its deliberate, social, interpretive aspects (p. 176-77).

According to Doll, narrative thought is like grass logic in that both are oriented towards openness and the generation of new meaning (1993, p. 169). Doll, borrowing from Wolfgang Iser, a well known textual theorist, describes how the metaphoric openness of narrative continually engenders possibilities for new meaning: "A good story, a great story, enduces [sic], encourages, challenges the reader to interpret, to enter into dialogue with the text. There is in the good story just enough *indeterminacy* to entice the reader to dialogue" (p. 169). All writing, from random free writing, to a grocery list, to a haiku, to academic writing and to the most formal scientific exposition, has narrative elements. Throughout this thesis, but especially in Chapter Four, I endeavour to weave in redundant and indeterminate narrative elements that will tell a good story and enkindle inspiring dialogue (internal and external) amongst my readers.

Bateson sees story as a kind of extended metaphor characterized by temporal

events of greater or lesser degree of complexity, whereby parallel relationships are formed between the story and that which it represents: in other words, parts of stories are metaphorically compared to parts of the readers' or listeners' own stories, with endless variations on a few basic patterns (1987, p. 193). Bateson uses the notion of abduction to define stories more formally: claiming that that all "minds," whether "redwood forests" or "sea anemones," think narratively, he defines story as "little knot or complex of that species of connectedness which we call *relevance*" whereby "any A is relevant to any B if both A and B are parts or components of the same 'story'" (1979, p. 13-14). Embryological and evolutionary processes, then, are also the "stuff of stories" because there is "relevance in every step of phylogeny and among the steps" (p. 14). Relevance is always a prominent concern of readers and listeners of stories. As my readers read, I am quite sure they continually ask, "and what is the relevance of *this?*" And this is exactly what I hope my readers do as my intention is to show how this thesis is part of the same story of life, and how by drawing abductive comparisons between the parts, relevance is made apparent.

Labov (1995) distinguishes fully developed natural narrative–which includes an abstract, an orientation, a complicating action, an evaluation, a result, and a coda–from a minimal narrative which corresponds to Bateson's evolutionary definition of story stated above: it is any "sequence of two clauses which are *temporally ordered*, that is, a change in their order will result in a change in the temporal sequence of the original semantic interpretation" (ctd. in Pratt, p. 7). Storying our lives, or our academic writing, then, ranges along this narrative continuum. At a minimal level, evolution and nature can be said to be stories. Ah! And what stories they have!

An excerpt of what Bateson calls a *metalogue* , called "Why Do You Tell Stories?" alludes to the minimal, yet awe-inspiring, narrative structure immanent in nature. A metalogue is a figurative device Bateson invented and frequently interwove into his writings as a metaphor of the dialogical and metaphoric characteristics of living systems. In them, a semi-fictional father and daughter carry on a "conversation dealing with some aspect of mental process in which ideally the interaction exemplifies the subject matter" (Bateson & Bateson, 1987, p. 210). (This thesis can be described as

similar to a metalogue in that my topic and method are congruent):

> FATHER: But as for why I tell a lot of stories, there's a joke about that. There was once a man who had a computer, and he asked it, "Do you compute that you will ever be able to think like a human being?" And after assorted grindings and beepings, a slip of thesis came out of the computer that said, "That reminds me of a story..."
>
> DAUGHTER:....So what is a story really? And are there other kinds of stories, like sermons in the running brook: How about trees, do they think in stories? Or do they tell stories?
>
> FATHER:...Look, just give me that conch over there for a minute. Now, what we have here is a whole set of different stories, very beautiful stories indeed....This that you see is the product of a million steps...of successive modulation in successive generations of genotype, DNA, and all that. So that's one story....[And its spiral] shell has the narrative of its individual growth pickled within its geometric form as well as the story of its evolution....And then, you see, even though the conch has protrusions that keep it from rolling around the ocean floor, it's been worn and abraded, and so that's still another story. (1987, p. 34-35)

Interestingly, research in the area of story grammar has indicated that humans respond to and remember their life experiences in very much the same way that they respond to and remember story (Black & Siefert, 1985). Story grammarians postulate that narrative schema is the macrostructure for all human perception due to constraints imposed by the brain's processing and memory capacities (Johnson & Mandler, 1980). Bateson, of course, would point out that this explanation is acontextual. In a way that concurs with Bateson's bio-epistemic, ecological matrix, Goffman (1995) compares the structure and processes at work in human brains to universally pervasive constraints of life systems: narrative macrostructure, he claims, is innate in the cyclical structure of biological life, for example, birth, growth, and death, or spring, summer, fall, and winter (p. 31-32). He observes that life's dialogic "rhythm of crisis and relaxation," which is an embodiment of the ongoing struggle to stay intact as a self-maintaining system, is witnessed in all layers of life from the stellar to the cellular, and moreover, that this is

reflected in the narratives and roles people create in their lives in response to the ongoing process of differentiating self and other (p. 32).

Similarly, the self/other differentiation process is an integral aspect of Bateson's theories of not only story, but mind, which he describes as a creative pattern-making process whereby self-perpetuating systems at macro or micro levels are formed by recursive, self-referencing loops that form by responding to "differences that make a difference." While creative pattern-making (such as good story telling and writing) has often been attributed to the mysterious inspirations of "the Muse," Bateson employs cybernetic theory as well as the autopoetic theory of the two neuroscientists, Maturana and Varela, to explain more precisely how self-referencing loops maintain and transform autonomous living systems (Harries-Jones, 1996, p. 184-86; 95-99):

> A smoke ring is, literally and etymologically, introverted. It is endlessly turning upon itself, a torus, a doughnut spinning on the axis of the circular cylinder that is the doughnut. And this turning upon its own in-turned axis is what gives separable existence to the smoke ring. It is, after all, made of nothing but air marked with a little smoke. It is of the same substance as its "environment." But it has duration and location and a certain degree of separation by virtue of its inturned motion. In a sense, the smoke ring stands as a very primitive, oversimplified paradigm for all recursive systems that contain the beginnings of self-reference, or, shall we say, selfhood. (Bateson, 1977, p. 245)

The way in which water flows around obstacles and "meets itself," forming unpredictable loop patterns, is another metaphor of self-referencing systems that make up the endless variations of a few basic story patterns (Harries-Jones, 1995, p. 185). Interestingly, we apprehend as playful as well as fascinating the way in which smoke rings and swirling water endlessly form a never-ending variety of patterns; it seems that self-referencing systems are essentially creative pattern-makers, making ever new patterns by playfully responding to "differences that make a difference" (p. 185). Perhaps we perceive these patterns as playful and find them so fascinating because they mirror our moments of recursive playfulness, moments that most of us experience as the best moments of our lives: frolicking, clowning, creating, forgetting ourselves in joy. It is

heartening to think that these attributes contribute to human communication systems evolving into elaborate forms of making art, textualizing and story-telling–even academic writing!

Scholes, Comley, and Ulmer (1995) examine the reflexivity brought about by the recursiveness inherent in storytelling. They suggest that the macrostructure of narrative is embodied in our textualizing or storying of our ongoing life experiences: through a recursive process of abductively comparing our experiences and our textualizing of these experiences, we become more reflexive about our lives:

> Even more interesting is the way this formal structure returns into our lives, shaping our thoughts and actions. If you have ever found yourself wondering how something that was happening to you would sound in the telling...you were applying a concept from storytelling to the interpretation of your own experience, even as it was happening: because experience does not "come out"–it just goes on and on....We all use narrative structures and dramatic devices every day in our thoughts and in our actions–living out stories, playing roles, recounting events, enacting gestures and deeds. To learn more about how narrative and dramatic texts work, then, is to be a little more conscious of our own situations, a little more in control of our lives. (p. 1)

Bateson's writing is academic writing and can be said to be stories of how biological and cultural ideas develop into recursive, reflexive, oscillating, redundant, analogical, hierarchical, metaphoric structures and become maps of map of maps and so on. Academic writing is a difficult, frustrating process for many people, including myself, precisely because our thought processes are like the processes referred to in the previous sentence and not very much like what the sentence appears like on the written page, the digital, lineal end product which you, the reader, hold in your hands.

In Batesonian terms, the creativity of writing is an embodiment of a recursive and yet transformative process of selectively responding to "news of difference" (Bateson & Bateson, 1987, p. 14): "the interaction between parts of mind is triggered by difference" and "in mental process, the effects of difference are to be regarded as transforms (i.e. coded versions) of events which preceded them" (pp, 18-19). Writing is about making

transforms of transforms of transforms ad infinitum, aiming towards an optimally differentiated whole. As writers on a creative prowl persist in groping deeper into the measureless, messy, unnamed murk of unknowing, they move beyond clichéd ideas and wording by staying on the alert for "differences that make a difference: as they become more and more absorbed, they become increasingly enabled to "shake words loose from their attachments and bestow new meanings upon them" which now and then become creative "acts of poetic intuition" (Barthelme, 2001, p. 175).

Bateson defines an idea very precisely and scientifically as "the smallest unit of mental process" (1987, p. 208). To better illuminate his own abstruse, creative, academic ideas, Bateson often weaves stories into his writing, surprisingly lighthearted and playful ones, and so I shall include two of them that facilitate deeper understanding of Bateson's metaphoric story of creative ideas about ideas and maps of maps. Since I assert the importance of story telling in ecological academic writing, I must practice what I preach and tell some!

First Anecdote:

> At a certain point, [Joe] said, "Gregory, you think too much."
>
> "Thinking is my job in life," I said. Later he went off and brought back a rosebud from the garden. A beautiful and fresh bud, which he gave me, saying, "Stop thinking. Take a look at that."
>
> I held the bud and looked at it, and it was complex and beautiful. So, equating the process of evolution with the process of thought, I said, "Gee, Joe, think of all the thought that went into that!"
>
> ....I come with two sorts of questions posed by [this] story: What is the nature of the continuum or matrix of which or in which "ideas" are made? And what sorts of ideas create distraction or confusion in the operation of that matrix so that creativity is destroyed? (p. 70-71)

Second Anecdote:

> You know, I was giving a seminar one evening at Lindesfarne, Colorado, and Wendell Berry was arguing that it is possible to know the material world directly. And a bat flew into the room and was swooping around in a panic, making like

> Kant's *Ding an sich*. So I caught it with somebody's cowboy hat and put it outside. Wendell said, "Look, that bat was really in here, a piece of the real world," and I said, "yes, but look, the *idea* of the bat is still in here, swooping around representing alternative epistemologies, and the argument between me and Wendell too." (p. 32)

Note the ease and naturalness with which you, dear reader, can understand Bateson's narrative prose compared to my own Barbarian(!) academic prose.

Multiple Descriptions

> *For double the vision my eyes do see,*
> *And a double vision is always with me:*
> *With my inward eye 'tis an old man grey;*
> *With my outward a thistle across my way.*
>
> . . .
>
> *May God us keep*
> *From Single vision & Newton's sleep!*
>
> *William Blake, "Letter to Thomas Butts, November 22, 1802"*
> *(as ctd. in Harries-Jones, 1995, p. 265)*

Bateson's argument for holism is bold in its claim to affect Western society. Defining it, as mentioned earlier, in a way that suggests the creativity inherent in writing, as the "tendency in nature to produce from the ordered grouping of parts complex wholes with properties that are not present in or predictable from the separate parts" (Bateson & Bateson, 1987, p. 208), he asserts that "this new and precise meaning gives hope of a deep revision of occidental culture" (p. 180) which recognizes that multiple descriptions are essential and therefore to be cultivated and embraced. Bateson understands epistemology as holistic in that it encompasses *all* ways of knowing and experiencing: indeed, it is "the study of how particular organisms or aggregates of organisms 'know,' 'think,' and 'decide'" (p. 208); hence it can be defined as a holistic, multiple, reflexive, meta science:

> [Epistemology is] that science whose subject matter is itself. It is the name of a species of scientific study and talk. We set out to study the nature of study itself, the process of acquisition of information and its storage....It follows that epistemology is the great bridge between all branches of the world of experience–

> intellectual, emotional, observational, theoretical, verbal, and wordless. Knowledge, wisdom, art, religion, sport and science are bridged from the stance of epistemology. We stand off from all these disciplines to study them and yet stand at the center of each. (1991, p. 175-76)

The metaphor of the matrix suggests that, in the transformative unfolding and self-maintaining processes of evolution, ecology, learning–and hence, writing–formal, closure-oriented structures as well as flexible, open-ended structures are equally essential. Bateson often calls such opposite but complementary processes "double description, " arguing their primary importance because, as we are able to perceive, the unity of nature is, paradoxically, dyadic. Other eminent thinkers, such as Plato, Buber, and Bakhtin, have described this characteristic, as well. Volk (1995), who bases his entire book on exploring Bateson's notion of metapatterns in nature and culture, explains binaries as foundational to thinking because they are

> the minimal system, the simplest complexity. There is no newness without at least twoness. Binary can not only extend a thing in space but transcend it in type. One plus one can equal a new one....Binary is the most economical means to get complex wholes with nontrivial new properties. (p. 84)

Bateson's belief that "double description" (which he variously calls the "double habit of mind," "double vision," or "binocular vision") reflects a pervasive dyadic, dialogic metapattern of mind (Bateson, 1979, p. 231; Harries-Jones, 1995, p. 265; Wilder-Mott, 1981, p. 40). He originally derived this notion from the poetry of William Blake, a Romantic poet whom Bateson turned to as a source of holistic thinking. The above Blake poem was an important source of Bateson's realization of the import of the "double vision" metapattern and the need to correct the imbalances of the conscious mind by holistic interrelationship with unconscious and imaginary modes of perception, thus creating, at the interface between the two, a third, new mode of thought which Bateson calls the aesthetic (Harries-Jones, 1995, p. 264-66). I shall take up the aesthetic and the Romantic poets further on.

One analogy Bateson uses to help readers understand double description is the phenomena of binocular vision in organisms: two eyes are necessary to create depth

perception, which is of an entirely different order than monocular vision (Bateson, 1979, p. 73-74). Although our Western culture has a strong proclivity to split this integral doubleness of mind and reify one side over the other, or conversely, ignore their differences, such efforts can only lead to disharmony and disfunctionality. Both eyes working in harmony are necessary to yield binocular vision. As another example of double description, Bateson repeatedly emphasizes the contrast between "rigour" and "imagination" and the necessity of both their disjunctiveness and complementarity, stating that "rigor alone is paralytic death, but imagination alone is insanity" (p. 237). He notices this oscillation between rigour and imagination in his own thinking and writing process, commenting on how it "led me into wild hunches and, at the same time, compelled more formal thinking about these hunches"(1972, p. 75). I certainly can relate; no doubt, all writers can.

Bateson's daughter, Mary Catherine Bateson, who co-wrote the book, Angels Fear: Towards and Epistemology of the Sacred, with him, confers how ethnography enhanced his ability to think holistically about multiple dialectics. An anthropologist, like her father, she explains how anthropologists must constantly shift between disparate epistemological systems, must fully realize their interrelatedness, and must be aware of themselves as participatory description makers in order to obtain a more comprehensive description of their subject(s) (1987, p.184-86). Since this making of descriptions entails language, the study of the rhetorical constructedness of language is integral to Bateson's epistemology (p. 186).

Human language, in comparison to the communication systems of all other organisms, has the loosest correlation between "map" and "territory" (here, Bateson cites Kozybski's famous aphorism [p. 187]):

> This looseness makes possible the great flexibility of language, giving rise to such human characteristics as creativity, abstraction, imagination, humour, aesthetics, spirituality–and the view of rhetoric as an *honorable* art. Conversely, this looseness simultaneously makes possible falsification, including the view of rhetoric as a specious art. (p. 175)

Falsification is a trait Bateson claims is not possible in any other biological

communication system:

> It is therefore not surprising that great human ingenuity has gone into finding ways to discipline this riot of potentiality, ranging from the Inquisition to the invention of the lie detector, and including the development of taxonomies of logical fallacy and rhetorical devices. (p. 187).

Bateson maintains that the syntax of human language is what makes possible negation, classification, the differentiation of contexts, and the demarcation of subjects and predicates, none of which are possible in the biological world (p. 29). Especially in Western languages, he submits, the *separation* of subject and predicate leads us to think of nouns as separate *things* which *have* attributes, thus focusing our attention away from "the pattern which connects" and towards "the ends of relationship, the relata" (p. 161). Instead, it is more epistemologically accurate to say that "'things' are produced, are seen as separate from other 'things,' and are made 'real' by their internal relations and by their behavior in relationship with other things and with the speaker" (1979, p. 64). Goethe, according to Bateson, was apparently the first person to realize that, in comparing oak trees to cabbages, the "correct units of description are not leaf and stem but the relations between them" (1987, p. 27). Focusing exclusively on the "relata," which we call facts or information, however, we seldom stop and reflect that these are determined by fluctuating thresholds of "news of difference" (p. 14) which vary according to myriad values that are formed by social, physiological and individualistic factors (1979, p. 29). Since we live in a culture where we are constantly inundated with facts and information, it becomes even more challenging think holistically. Perhaps this explains why, although context and relationship, key features of holistic theories of language, have been important concepts in composition theory for several decades, in our own writings about theory and pedagogy, and in our teaching, we are still far better at describing, say, five fingers than we are at describing the four relationships between them.

It is crucial that we begin to learn *how* to map the dialectics of multiple, disjunctive, rhetorical discourses–including those of science and the humanities– not *in spite of* the disjointedness between them but *because* of them. There are two reasons for this, says Bateson. First, a wider array of descriptions increases the potential for

correspondences between "map" and "territory." Second, with a clear realization of the "necessary limits" of any kind of knowing, the gaps and dissonances become essential to augmenting ways of knowing. It then becomes possible to more accurately comprehend how to uphold boundaries between different kinds of knowing, and how to use each kind of knowing appropriately within its limitations (1987, p. 187-88). This understanding of boundaries may facilitate our navigating between multiple genres of writing so that we can learn how to use them more appropriately, effectively, and creatively.

Our propensity to structure our thinking and writing in a twofold manner brings about endless dialectics which make possible not only the wondrous, rich diversity of the world but also its destructive, imbalanced, closed pathologies (p. 175, 187). Studying pathologies in our epistemological systems, Bateson points out, is an essential part of map-making processes because pathologies make evident our mapping errors and thereby make improvement possible (p. 175). The adage, "we (should/can)learn from our mistakes" comes to mind. It is imperative, yet exceedingly difficult, that human beings learn how to think holistically on a sufficiently large scale to bring about a paradigm shift to an ecologically sustainable way of living. Accordingly, as writing teachers, one of our most important aims is to develop critical, insightful, innovative, complex, holistic thinking from which to explore differences and similarities using multiple genres of writing, in ever more complex and elegant forms of expressions and organization:

> We must bear in mind the barriers that must be maintained if the network of mind is to become richer and more complex, evolving towards something like ecological climax, a semistable system of maximum differentiation, complexity, and elegance. We look for contrasts that develop or differentiate as sophistication increases. We also look for instances of pathology as partial clues to understanding the conditions for health of the larger network, and for interface phenomena, where the participating subsystems suffer gross reduction, such as the witch and the institutionalized schizophrenic. These are easily recognized as failures of the system and, as such, challenge the individual and the system to do better... (p. 175)

Change and Structure

DIOGENES: Everything always changes: We are never the same.
ALEXANDER: (Slaps him in the face.)
DIOGENES: Why do you slap me?
ALEXANDER: I didn't slap you; if I understood correctly, I must have slapped somebody else.

(as ctd. in Keeney, 1983, p. 150)

As I contemplated the daunting task of writing this thesis, I asked my friends, colleagues and professors who have written dissertations and my two friends who are fiction writers, how they write on such a large scale. Their answer was simple: you just keep on writing and it just keeps on growing and changing until eventually you reach a place of enoughness. Like a Heraclitean river, writing never stops changing; the writer just stops, freezes the river by printing a "final" copy, and pronounces "Enough!" Writing that is judged to be of high quality is often referred to using metaphors of flow, growth, vitality, aliveness, change, transformation, and structure. Like all growing phenomena, writing grows *via* processes of change within structure. As one writes, one is aware of how the flow of thoughts never ceases and how making choices about what and how to write or not write is infinite. Because of this, structure looms importantly in one's mind while writing as it helps guide us through this ocean of ongoing flux by helping us select what is most salient.

I would like to show how this experience of dialectic between change and structure, so central to the writing process, can be interwoven with quantum physics, Taoist philosophy, Bateson's bio-epistemic theories, and reader response theory. Chinese philosophy has long recognized that the writing process particularly brings the workings of changing dialectics to consciousness; this is evident in the following excerpt from a book called Wen Fu: The Art of Writing, written by Lu Chi in 261 A.D.:

> The body of writing takes a thousand different forms, and there is no one right way to measure. Changing, changing at the flick of a hand, its various forms are difficult to capture. Words and phrases compete with one another, but the mind is still master. Caught between the unborn & the living, the writer struggles to maintain both depth and surface. (as ctd. in Nachmanovitch, 1990, p. 102)

Bateson's overarching scientific question, which was concerned with discovering

how organisms' responses to change generate new patterns at all levels of evolution via communicative organization, is congruent with the essential philosophy of the ancient Chinese book called the I Ching. (which I explore further in Chapter Four.) Pointing out that the I Ching means "The Book of Change," Capra draws an analogy between the symbolic representations of change in nature in the I Ching and a particle reaction theory in physics called the S-matrix theory which hypothesizes that it is the processes of change–rather than objects–that "give rise to all the phenomena in the world of hadrons" (Capra, 1983, p. 312). Similarly, in Taoist philosophy, the processes of change are given primacy; structure is deemed secondary because it derives from these processes (p. 312-13). Capra clarifies that the interrelationship between change and structure can be better comprehended, not as "fundamental laws," but as spontaneous consequences of systems that have inherent "tendencies for change and transformation" (p. 312).

Bateson views structure somewhat, but not exactly, the same as Capra: he views structure as secondary to temporal processes in the sense that it is our abstract description of perceived regularities in ongoing processes (Harries-Jones, 1995, p. 231). Since description is so central to the writing process, I would like to explore how Bateson uses this term in his bio-epistemic science. Citing Whitehead, Bateson defines structure as a generalized, tautological "algebra of that which is to be described...[which] is always at least one degree more abstract. Structure presumes a gathering and sorting of some of the intimate details, which can then be thrown away and summary statements offered in their place" (Bateson & Bateson, 1987, p. 152-53). Descriptions can never be entirely complete or accurate because they are "necessarily structural and, to this extent, all must falsify and simplify or generalize their referent" (p. 155). To Bateson, biological systems (of which creative inquires are part) are recursive, and recursiveness is perceived as structure: "recursiveness is close to the root of the notion of 'structure'" because "regularities are part of–contribute to–their own determination" (p. 161).

As discussed, the theories of the oft cited, seminal reader response theorists, Iser (1980) and Rosenblatt (1978), use web-like metaphors that interweave quite well with Bateson's bio-epistemic theories of structure, creative pattern-making, and communication. For example, Bateson relates his ecological theory to the creative

writer's artful use of "gaps" in descriptive, communicative structures. He explains how redundancies and gaps are the most essential ingredients in communication and how artists (and most certainly this includes writers) make creative use of both as they select salient recurring details to structure their creative pattern-making:

> Art is the cunning use of what the hearer already knows...to make the hearer fill in details....This preinstructed state of the recipient of every message is a necessary condition for all communication. This book can tell you nothing unless you know nine-tenths of it already....What can conceivably be said by DNA or hormones and growth-controlling substances is a quite incomplete coverage of the infinite detail of the events of embryology and the final anatomy and physiology of the creature....It is, of course, for this reason that plants and animals are patterned and repetitive in their shapes and responses. Redundancy is the economical way to make a limited supply of structural information cover a complex subject. (Bateson & Bateson, 1987, p. 163)

Reflexivity

> *We...write to heighten our own awareness of life...We write to taste life twice, in the moment and in retrospection...We write to be able to transcend our life, to reach beyond...to teach ourselves to speak with others, to record the journey into the labyrinth...to expand our work when we feel strangled, constricted, lonely...When I don't write I feel my world shrinking. I feel I lose my fire, my color.*
>
> *----Anais Nin, The Diary of Anais Nin, V. 5. (as ctd. in Rico, 1983, p. 11)*

As I flip-flop recursively between (re)reading and (re)writing, I get glimmers of insight, both silvery, sharp fragments and blurry gestalts, about myself, the text, and my topic. Writing them down helps them become more available for reflection and textualizing over loops of time; otherwise I am likely to forget them. Each completion of a loop of reading/writing/reflecting in which a change in understanding occurs creates a new context in which the next loop is understood. In this way, changes–and Bateson would say, evolutionary changes–accrue, rather like compound interest in a bank account. The final product is the text of this thesis which you, the reader, are reading (and perhaps rereading and reflecting and writing notes about, too). Invisible to you are

the countless iterations of reading, writing, and reflecting on many texts, my own and others.

Major reader response theorists, such as Fish (1980), Iser (1980), Rosenblatt (1978), and Beach (1998) can contribute to a Batesonian notion of reflexive writing because they have variously described, with acumen, this feedback loop between reader and aesthetic text using web-like metaphors, highly reminiscent, as discussed earlier, of Bateson's matrix. Although they do not focus on writing per se, many reader response theorists acknowledge its importance in fostering the deepening of readers' responses to text; for example, Rosenblatt (1978) says writing can help to weave the "complexity of [the] strands of awareness into a coherent structure" (p. 154). Beach (1998), too, writes about the importance of written response to aesthetic text as a means of deepening the relationship between self and text.

Using the metaphor of the web to describe the relationship between aesthetic text and reader–and here I include the writer rereading his/her text–Rosenblatt (1978) envisions the strands of the web as the "relationship" that readers have "woven among the various elements" of the text and their responses to it (p. 90). Alternatively, Iser (1980) envisions the strands of the web as the explicit text that structures the spaces, which are the implicit text; readers then fill the spaces with their projections and hypotheses, amplifying the meaning of the text: "as the 'unsaid' comes to life in the reader's imagination, the 'said' expands to take on increasing significance" (p. 111). Rosenblatt (1978) explains that, in order to comprehend aesthetic text, readers must consciously shift their attention back and forth, like a shuttle on a loom between the said and the unsaid text; the unsaid text allows them to project their experiences, hypotheses and imaginings (p. 61-62). (I invite my readers to notice whether the epigraphs, as aesthetic text, enrich their understandings of this thesis in the way that Iser and Rosenblatt describe using the web metaphor.)

Fish (1980), in a seminal reading theory article, recognized that the reader is part of a web of relationships that extends far beyond personal response. Recognizing the constraints of context in the reader/response/text relationship, he pointed out that meaning is determined by "interpretive communities" (p. 32): "The self does not exist

apart from the communal, conventional categories of thoughts that enable its operation" (p. 335). Beach (1998) shifts the personal/social web metaphor yet again, envisioning it as infinitely overlapping circles with community members experiencing themselves as the centre of their own circle or world. Community members use both imagination and conventional world knowledge to construct web-like, dialogic connections between these different actual, textual, or imaginary worlds. Emphasizing the creative, transformative potential of responding to and shifting between different worlds, readers

> initially apply certain preconceptions, often stereotypical, of a certain world or place, only to discover that these conceptions are contradicted by the particulars of a text world. In having to continually revise or reframe their conceptions, [readers] acquire perspective-taking strategies–the ability to entertain alternative conceptions of reality. (p. 3)

Further, it is in "making these comparisons between real–and text world contexts" that readers "may ultimately recognize that it is their beliefs and attitudes that guide their imaginative construction of these worlds; this may lead them to critically examine how they are imposing their beliefs and attitudes onto their construction of worlds" (p. 11).

What fascinates me is how closely Bateson's description of the cybernetic feedback loops, which are key processes of evolution, matches the above descriptions of the reader response theorists. Mapping these descriptions onto the cybernetic language of Bateson, readers respond to "differences that make a difference," and these differences become part of recursive feedback loops where the whole is fed back into the parts (Bateson, 1977, p. 245). For me, it "makes a difference" knowing that when I (re)write/read/respond, I am engaging, at some level, in the recursive, differentiating, processes of evolution that have manifested in the manifold beauty of life. For me, it "makes a difference" when I seek to apprehend the largest context possible to which my inquiry applies.

<u>"Impertinent" Questioning</u>

> *Into this universe, and* why *not knowing*
> *Nor* whence, *like Water willy-nilly flowing:*
> *And out of it, as Wind along the Waste,*
> *I know not whither, wily-nilly blowing.*

-----Edward Fitzgerald, The Rubaiyat of Omar Khayyam
(as ctd. in Bateson, 1979, p. 158)

While Bateson seeks a monistic, accurate, scientifically valid mapping of the "meta" levels of life systems, such as the aesthetic, it is antithetical to what he explicitly states in his work to infer that his metatheories attempt to devise any sort of conclusive, closed orthodoxy. Quite the opposite! His intention is to increase our awareness of the rhetorical openness and incompleteness of any epistemic maps, such as thought, language and writing, and see them, instead, as gateways to possibility, to generative, recursive cycles of deeper questioning in wider contexts (1987, p. 19). Questioning is a "tool of thought" that Bateson takes very seriously (pp. 118-20), as do writers and writing teachers everywhere. As Capra points out, questioning is central to our lives because if we change our question, we change what we experience (1983, p. 152). What and how we question, therefore, is critically important. Rieber, as mentioned, describes Bateson as believing in perennially searching for "impertinent" questions and realized the recursivity of questioning and the partiality of answers:

> The search for the impertinent question is as endless as life. For no sooner has it generated a pertinent solution, than it becomes time to push ahead and find a new impertinent question. And it is perhaps best if this new impertinent question can be put to the solution that has just been found. (Rieber, 1989, p. 7)

Bateson explains how this works recursively when developing an epistemological framework: the more precisely you can articulate a model, the more you can develop a vocabulary of relations from which questions can be generated; hence, if one's model is about penultimate interrelationships--such as a framework based on the root metaphor of the ecological matrix of life-- it will generate language and questioning accordingly (Bateson & Bateson, 1987, p. 37). This is what I am groping towards in this thesis.

For Bateson, the relationship *between* questions and answers constitutes the growthful dynamic of dialogic inquiry. Using grass logic, he metaphorically compares dialogic inquiry to the relationship between an egg and sperm. In his bio-epistemic view of embryology, the information contained in an unfertilized egg *is* a question, waiting in a state of readiness for outside information–the sperm–so that it can transform and grow

(1987, p. 37). Yet, I think the feminist perspective emphasizes the reciprocity (rather than active/passive relationship) between question/egg and answer/sperm: both the egg and the sperm actively solicit, select and structure certain elements of the other in a tightly interlocking process, triggering a process of transformation into an optimally differentiated whole. The dialogic relationship *between* the two *is* the irreducible unit; similarly, the relationship between questioning and answering *is* the irreducible unit: the recursive, transformative looping interrelationship *between* them *is* the inquiry process (Bateson, 1991, p. 179).

Dialogue, which involves questioning and answering in the Socratic sense, integrates with Bateson's bio-epistemic matrix in that it is a relational, reflexive, recursive, multi-layered, doubly descriptive, nonlineal, metaphoric, creative, contextual process of mentation (phew!). In any inquiry, dialogue–whether it be with others, one's forming text, one's thoughts, or others' texts–is the primary means by which meanings are generated, interpreted, and transformed (Gadamer, 1985, p. 331); further, both grass logic and Barbara logic play reciprocal parts in creating generative dialogue. While metaphors are "inclusive" and "help us see what we don't see," logic is "exclusive" and "helps us see more clearly that which we already see" (Doll, 1993, p. 169).

This questioning-answering embryonic unit is structured by the premises in which it is embedded; together, these constitute the context of inquiry and thus shape the "answers" that one eventually "finds." The answers, in turn, are fed back into the context of inquiry, restructuring it, and setting off another round of questioning. Harries-Jones attempts to show how Bateson (1995) conceives of this recursive cycling of dialogic questioning and answering as triggered by difference and comparison and gives rise to explanations:

> Somewhere in the pattern of questions we ask about recursive systems, Bateson suggests, questions tend to become answers–comparisons made between the pattern of questions and answers themselves yield a pattern of questioning of questioning and the transform of the pattern of comparison leads to the explanation itself. From here explanation itself becomes recursive, linking the products of our perceptions about comparisons between questions and answers to

comparison with other people's perceptions of them. (p. 232)

Gadamer (1985), whose views are compatible with Bateson's, understands questioning as a state of not knowing and maintains that its open dialectic structure is central to all experiencing. Like Bateson, he recognizes responding to difference as the trigger of communication and that we cannot have experiences without asking questions: "The recognition that an object is different and not as we first thought, obviously involves the question whether it was this or that....[But] in order to be able to ask, one must want to know, which involves knowing that one does not know" (p. 325-26). He goes on to say that asking a question that is truly a question simultaneously acknowledges a state of not knowing and at the same time limits this state within the bounds of the question. Although Gadamer does not use Bateson's metaphor of egg and sperm as reciprocal, irreducible unity, like Bateson, he uses a similar maieutic matrix metaphor to evoke the primacy of relationships. He speaks contextually and relationally of "the maieutic productivity of the Socratic dialogue, the art of using words as a midwife....What emerges...is neither mine nor yours....[It is] the art of seeing things in the unity of an aspect" (p. 331). Because the dialectic of questioning and answering is driven by knowing that one does not know and comes to a stop without this reflexive awareness, reflexivity becomes critical. Bateson, by resisting closure and insisting on groping around in what he calls his "epistemological experiments" (Harries-Jones, 1995, p. 232), which I will discuss further on, was a master at the dialectic of true questioning because he insisted on a never ending process of reflexive, maieutic unfolding of knowing and not knowing.

Writing is often difficult for people because it confronts them, from within the structure of their contexts, with their experience of the unknown, again and again. Barthelme (2001), in an article suitably entitled "Not-knowing," describes the difficulty of holding one's self in a state of unknowing, particularly at the beginning stages of writing--one that I can strongly relate to:

> Writing is a process of dealing with not-knowing, a forcing of what and how. We have all heard [writers] testify to the fact that...they are utterly baffled as to how to proceed, what should be written, and how it might be written....At best there's a

> slender intuition, not much greater than an itch. The anxiety attached to this situation is not inconsiderable....The not-knowing is not simple, because it's hedged about with prohibitions, roads that may not be taken. (p. 171)

Since prohibitions to staying present to the unknown are potent in Western culture, causing the pressure "to know" to weigh down on us heavily, both Bateson and Gadamer provide models for sustaining--and even cultivating--openness to larger, unknown wholes and questioning. Writers are continually confronting this uncomfortable state of "not-knowing. Such models are needed to help writers learn to reconceive the frustration of not knowing as a mystery to open to with a sense of adventure and curiosity, or as a quest to embrace immersion in the unknown, or as a maieutic matrix in which their creative process can develop like an embryo.

I am seeking to develop my own research question in such a way that firmly embeds it within the maieutic matrix of Bateson's ecological epistemology so that it can grow embryonically. The phrase, "the pattern which connects" easily conjures an image of web-like threads weaving back and forth between resemblances and differences, weaving them into text. I am trying to write/ inquire by weaving overlapping, crisis-crossing patterns of connection between Bateson's bio-epistemic matrix and composition theory and praxis as I explore my research question: How might gaining insight into the resemblances between Bateson's key terms and the key terms of traditional academic writing help us move towards the articulation of ecological premises in which to embed composition theory and praxis?

Epistemological Experimentation

> *HORATIO*: *O day and night, but this is wondrous strange!*
> *HAMLET*: *And therefore as a stranger give it welcome.*
> *There are more things in heaven and earth, Horatio,*
> *Than are dreamt of in your philosophy.*
>
> -----*Hamlet, Act I, Scene 5*
> *(as ctd. in Ely et al., 1997, p. 274)*

Bateson preferred to describe his widely spread inquiries as "gropings" and "epistemological experiments" (a term he borrowed from his friend and colleague, Warren McCulloch, one of the first cybernetic scientists) to emphasize the necessity of

trial and error and the incompleteness of any knowing (Harries-Jones, 1995, p. 92, 232). Much of Bateson's writing is an attempt not only to elucidate how Western society's propensity towards lineal, empirical, rationalistic, analytical, and reductive thinking is unecological, but also to experiment, through thinking and writing, with ways to bootstrap our culture into an ecologically sustainable paradigm. Capra (1996) states that epistemic experimental thinking and writing is necessary to bring about what he terms "ecoliteracy": we know we will have achieved this, he proposes, when "the principles of ecology become manifest...as principles of education, management, and politics" (p. 297). I see my entire thesis inquiry as an opportunity to engage in epistemological experimentation, experimenting with these double, stochastic processes, writing and thinking both rigorously and imaginatively–even playfully and poetically–towards the evolving of ecological academic writing and an ecoliterate society. But especially in Chapter Four, I shall conduct several epistemological experiments pursuing this intent.

The Aesthetic

It is difficult
to get the news from poems
yet men die miserably every day
For lack
of what is found there.

-----William Carlos Williams,
"Asphodel, That Greeny Flower" Journey to Love
(as ctd. in Nachmanovitch, 1990, p. 181)

Throughout his long career, Bateson, furthered his holistic, abductive thinking by embracing the aesthetic. He sensed that we can best grasp a sense of larger (largest?) wholes through a connection to the aesthetic–which I define as the pleasure we experience in responding to qualities we apprehend as beautiful–and the sacred. As for a definition of beauty, I shall simply concur with Ralph Waldo Emerson's tacit, ontological one: he explained his famous definition, "Beauty is its own excuse for being," with another circular definition, "Beauty is primary, basic, foundational, a given" (Sher, 1992, p. 114). Bateson elaborates on this tacit, ontological definition by linking it to our experiences of bio-epistemic, holistic notions of life systems. Reflecting on scientific discourse in his seminal, 1936 anthropological book, Naven, he discerns that literary

writers tacitly illuminate information about culture and phenomena overlooked in overt, formal scientific discourse; note how what he says about aesthetic writing concurs with Rosenblatt and Iser, as discussed above:

> The artist...can leave a great many of the most fundamental aspects of culture to be picked up not from his actual words, but from his emphasis. He can choose words whose very sound is more significant than their dictionary meaning and he can group and stress them so that the reader almost unconsciously receives information which is not explicit in the sentences and which the artist would find it hard–almost impossible–to express in analytic terms. (as ctd. in Lipset, 1980, p. 140)

Optimally differentiated text, mind, art, major theoretical breakthroughs, and evolutionary forms in nature–all have qualities of cohesiveness, unity, proportion, balance, economy, clarity, elegance, pleasure, and significance that together form an aesthetic sense of wholes that we experience as beautiful. Because these qualities are aesthetic, proffers Bateson, aesthetics is a "matter of primary importance, because all organisms–not just art critics and philosophers–rely on aesthetics all the time" (1987, p. 192). He felt it was very important, therefore, that a holistic, ecological science based on a bio-epistemic matrix develop formal, scientific notions of these qualities. The best place to begin, he speculated, was to compare traditional epistemological systems that were holistically oriented–such as myth, sacred traditions, perennial philosophy, and poetry–to a bio-epistemic science of wholes to uncover new clues about how wholes work. He devoted his final book, written together with his daughter, Mary Catherine, Angels Fear: Towards an Epistemology of the Sacred (1987), to exploring their relevance as examples of holistic systems. Writing as a heterodox scientist, now an old man dying of cancer, he was not uneasy about taking on discourses eschewed by most scientists as bona fide academic topics of inquiry (Harries-Jones, 1995, p. 218).

In any genre, writers and writing teachers realize the importance of aesthetic qualities and seek to attain them, at least to some degree. Robert Pirsig (1974) tells how, even at the beginning of his introductory academic writing course, all his students were able to recognize, but not yet articulate, writing that "feels right," "is pleasing," and is of

"good quality" (p. 199-203). As one of my professors once advised everyone in the class, "Only writing that is elegant merits an A+." Academic writing that is ecologically congruent consciously embraces the aesthetic because, whenever we have an aesthetic experience of something, we are sensing and forming an interrelationship with optimally differentiated wholeness.

Harries-Jones (1995) explains that "aesthetic wholes derive from recognition of the metapattern of 'the pattern which connects'" (p. 191). The meta perspective of the whole generates response to "differences that make a difference" which are then looped back into the parts: it is by this process that patterns transform (Bateson, 1977, p. 245). As I endeavour to develop and weave together my ideas in my writing inquiry matrix, I bootstrap my way from nebulous, scattered fragments into a complex, cohesive whole. As I capture an idea I think is survival-worthy, I reflexively loop it into the developing parts; and with each looping, I respond to differences that seem salient to me. The whole is changed by the part and the part is changed by the whole. Each change, or difference, triggers another loop, on and on and on, like a shifting, expanding, increasingly complex web of spirals within spirals.

Bateson maintains that the study of aesthetics was deemed irrelevant to traditional, materialistic science which focused on lineal, atomistic, reductionistic logic and disregarded the study of wholes; however, without the meta-perspective that the study of wholes yields, it becomes exceedingly difficult to bootstrap our way out of our epistemological errors; instead, we stay stuck in our pattern of splitting ideas into right/wrong dichotomies (as ctd. in Harries-Jones, 1995, p. 197). (I shall take this up the following chapter, showing how this has happened within the field of composition studies.) We are then like the proverbial fish who never discover they are swimming in water–let alone a pond, river, lake, or ocean–because they lack the capacity for "meta" thinking. Bateson believes that the more we are able to comprehend wholes, with the help of aesthetic perspectives, the more adept we will become at perceiving and resolving the ecological mayhem we have produced, and the more it will become possible to find a way to incorporate a formal study of aesthetics into holistic science: but until such time as we do, "like angels–we should fear to tread such regions...but not forever" (1987, p.

63). It is such an approach to aesthetics, then, that will lead us to the understanding necessary to repair all the rips we have made in our bio-epistemic matrix (Harries-Jones, 1995, p. 209, 211).

Bateson has given some specific clues, though, about what the attributes of an aesthetic science are and are not. An aesthetic mode of attending and experiencing is not primarily purposive and conscious, he points out, because purposiveness and consciousness are selective and therefore cannot attend to the whole (Harries-Jones, 1995, p. 51, 216). In contrast, "notions of the good and the beautiful, the activity of play and ritual, derive from purposes that have no other motivation than engagement in creative acts" (p. 50). The aesthetic stance is an invaluable way of grasping a sense of large wholes because when we are engaged in an activity solely for its own sake, we become absorbed in our experience because they are engaged in solely for their own sake; thus, a sense of the relationship of the self to the whole is felt, often with an accompanying experience of beauty, goodness, or sacredness (p. 51, 216).

While engaged in aesthetic expressions, then, the inquirer becomes so immersed in an experience of relationship between self and larger wholes that identification with what is good and beautiful precludes identification with metaphors of dominance, competition, or power (Harries-Jones, 1995, p. 211). Hence, aesthetics, viewed from this perspective, has a moral dimension; it is Bateson's hope that, through deep integration of aesthetics, we can find our way towards not only ecological but societal and spiritual balance. How utterly improbably this seems! But yet how worthy of ongoing exploration.

While academic writing can never be considered purely as an art form since it is always written with instrumental intentions, there needs to be reciprocity between the poles of aesthetics and instrumentalism: to the extent that academic writers "adore language itself" and "revel in the play of imagination" for its own sake, their writing can take on attributes of art (Nachmanovitch, 1990, p. 46). Clearly, learning how to evolve ecological academic writing is about learning how to better interweave these two modes so that the important benefits of the aesthetic stance can be gained. Academic writing may eventually become far more than weaving in samples of aesthetic writing, such as I am doing in this thesis, but what these attributes will be is only beginning to evolve. I

shall heed Bateson's warning to tread lightly, but keep on treading. First, with baby steps.

The Sacred

> *Beloved Pan and all ye other gods who haunt this place, give me beauty in the inward soul; and may the outward and inward man be one.*
>
> *-----Socrates, Phaedrus (as ctd. in Nachmanovitch, 1990, p. 180)*

Aesthetic experiences arising from responding to beauty are closely related to experiences considered sacred: both are characterized by absorption into larger wholes which can lead to a sense of reveling for its own sake and a sense of awe. Being deeply absorbed in and moved by experiences of art and nature have often been described as sacred, for example, by Emerson and Thoreau. Interestingly, ecologists saving endangered ecosystems often speak of these systems as sacred. Not surprisingly, Bateson's definition of ecology (defined earlier) and the sacred intermesh because both emphasize the web of life: while he defines ecology as "the science of interrelations and interdependence between organisms and between organisms and their environments" (1987, p. 207), he defines the sacred as the "integrated fabric of mental process that envelops all our lives" (p. 200). His chief focus in Angel's Fear (1987) is the exploration of how communicative interrelationships form ever larger, ubiquitous ecological wholes, the unity of which many people perceive as sacred:

> I am trying to investigate the communicational regularities in the biosphere, assuming that in doing so, I shall also be investigating interwoven regularities in a system so pervasive and so determinant that we may even apply the word "god" to it. The regularities we discover–including regularities and necessities of communication and logic–form a unity in which we make our home. (p. 142)

Deep ecologists go beyond physiological, quantitative analyses of ecosystems to include notions of the sacred. Deep ecologist, Arne Naess, asserts that relational, deep questioning from an ecological perspective is "the essence of deep ecology" that is inclusive of the aesthetic and sacred (Capra, 1996, p. 7-8). He believes that what he terms "shallow ecology" cannot end the rupturing of the bio-epistemic matrix because it is itself entrenched in the Cartesian splitting of mind and material, humans and nature (Capra, 1996, p. 7). But what he terms "deep ecology" senses the sacredness of the

interconnectedness of all life. This sense is ultimately spiritual in a way that resonates with world-wide perennial philosophies such as Buddhist philosophy or First Nation creation spirituality (p. 7).

Professional writers have often described the experience of absorption in writing as deep and mysterious; perhaps this can be described as the potential for "deep ecology" in writing. Take, for example, the following quotes from master writers as quoted in Sher (1999): "Make writing your practice...If you commit to it, writing will take you as deep as Zen" (Katagiri-Roshi, p. 11); and "One ought to write carefully enough so that a piece would need at least three readings before its full beauty could be apprehended" (Henry David Thoreau, p. 116).

Academic writing, regardless of the question, topic and methodology, has the capacity to involve the writer in deep, absorbing, transformative, experiences of immersion in the vastness of one's subject and its connectedness to the web of life. To the extent that it does, academic writing begins to point toward the aesthetic and the sacred and could begin to be described as a "deep ecology" of academic writing insofar as writers seek to do this with conscious intention, whether or not they make this explicit in their final text. Deep ecological academic writing, then, is dispositional rather than prescriptive. The novelist, Nabikov, poignantly describes the stance that leads to such writing, regardless of the genre:

> If only we refuse to take our world for granted, we can detect something artful lurking at the heart of life, inviting us deeper into the world, allowing us to penetrate further and further into the mystery of its creation, perhaps even promising us a new relation to everything we know. (as ctd. in Sher, 1999, p. 106)

CHAPTER THREE

Evolving Towards Ecological Dialectic in Composition Studies

Take but degree away, untune that string
And, hark, what discord follows
-----Shakespeare, Troilus and Cressida, 1.3.109-10)

Having done as much as I can, within the scope of this paper, to explicate many–certainly not all–of the key dimensions of ecological writing from within a Batesonian ecological framework, I will now look at some composition theorists in the last few decades whose work is amenable to tracing how their work has–or has not–facilitated a shift towards ecological academic writing. In particular, I will explore how an ecological stance embraces the tension between binaries, thus engendering a holistic dialectic between the objective/expository and the expressive/subjective/somatic dimensions of writing. As I have been doing all along, I will attempt to weave various theories into a Batesonian matrix.

As discussed earlier, according to Volk (1995), binaries are rudimentary to our thinking patterns because they are a means to create new, entirely different, holistic orders/levels/systems of minimal, yet stable, complexity. Because binary thinking is so pervasive in nature and culture (Volk elaborates on this in his book, giving extensive examples), we easily become stuck in binary thinking and project it inaccurately onto more complex systems (Volk, 1995, p. 91). Lynn Margulis, the eminent microbiologist who coauthored the Gaia theory with James Lovelock, gives an example of the importance of going "beyond the binary when thinking about life—from binary to multiplicity"; while traditional science has created an enduring binary classification system dividing plants and animals, she recognizes five kingdoms–"bacteria, protoctists, animals, fungi, plants." Classification systems, she says, have enduring consequences:

> According to traditional systems of classification, anything alive must be either plant or animal. But taxonomy, or placing organisms into categories, is not just an exercise of science–it promotes a frame of mind that pervades our thinking, colors our values, and affects our actions. Furthermore, that frame of mind may persist

> even when the classification system becomes obsolete. So it is with the plant/animal legacy. (as ctd. in Volk, 1995, p. 91)

Phelps (1988) prefers the term "field" for composition studies because it evokes the complex interactions of cybernetically structured life systems. This metaphor allows her to more easily structure dialectic, not as dichotomy, but as a crucible of generative creativity and meaning that unfolds as the tension of difference is sustained:

> [Field] suggests clearing a space of open ground to provide a site where different theories and practices can play against one another...not to eliminate competing approaches or views but to hold them in tension through their mutual relevance and difference. The interplay among them defines a "field" in the sense of a self-organizing system. (p. 4)

To form her ecological "field" of composition studies, Phelps also draws on Deweyan pragmatism (p. 208-11) to disrupt the hegemonic bifurcation of objective and subjective writing. By locating our experiencing and reflecting within a relational field of hermeneutic, phenomenological intersubjectivity, there can be no *wolf* (Serres' metaphor, not Phelp's) claiming an ultimate upstream position (p. 22-23).

> [Intersubjectivity is the] point of origin (rather than foundation) the situation in which human beings find themselves before philosophy or science, before the recognition of self as consciousness or world as object. [In] this state of immersion in a pregiven world ... comprehension is already at work in a world that presents itself as a field or horizon of human concerns.....The life-world is cognitive and reflective, a domain of knowledge that preempts the claims of science and philosophy to initiate the operation of reason. (p. 22-23)

Here, the congruence between Bateson's concepts of Creatura, mind, difference, and dialectic and Dewey's pragmatism is evident. Dewey "transformed the antitheses of the hegelian dialectic into the tensions of biologically rooted and socially enveloped 'problematic situation'" (White, 1983, p. 175). Both Bateson and Dewey attempt to form notions of holistic dialectic by embedding the tensions between differences within the creatural realm of bio-epistemic mental processes that form by responses to difference.

<u>Towards an Ecological Dialectic Between Expository and Expressive Writing</u>

In a dark time, the eye begins to see...
And in broad day the midnight come again!
-----Theodore Roethke (as ctd. in Rico, 1983, p. 212)

As discussed earlier, Bateson stresses how crucial differences, thresholds, interfaces, and discontinuity are to the creation, maintenance, and transformation of Creatura and Pleroma. Yet the field of tension between expository and expressivist writing, wherein lies creative potential, all too easily collapses into a dichotomized, closed system in which one side is valorized in a win/lose, right/wrong, either/or split (Elbow, 1981, p. 151; Kamler, 2001, p. 84). It is not simply fear of the loss of the valorized side that perpetuates this diametric opposition: to give up one side means paradoxically to give up the other because changing any part of the system changes the whole system (Phelps, 1988, p. 40).

Jones (1997) explains the difficulty of holding the transformative tension between the expressive and objective, scientific genres of writing by tracing how the term "expressivism," as applied to the work of Peter Elbow, split into a binary opposition over a period of a decade. Jones pinpoints the origins of the term in Kinneavy's 1969 taxonomy where it is described as part of an equilateral triangle with language-focused discourse located in the centre: expressivism, one point of an equilateral triangle, is defined as one of four equally important forms of writing, one in which a subjective focus is foregrounded whenever appropriate to context and purpose (Jones, 1997, p. 4; Kennedy, 1998, p. 93-95). Britton took up the term and, informed by Moffett's Piagetian developmental pedagogy, developed his own taxonomy (Gere, 1987, p. 22; Britton et al., 1975, p. 15). He defined expressivism as "a use of language which relies upon a reader's interest in the *writer* as well as in what he has to say" (Britton, 1975, p. 217).

Unlike Kinneavy, Britton gave expressive writing an originative, privileged position, describing it as a developmental "matrix from which two forms of mature writing," termed "transactional" and "poetic," develop (p. 83). Transactional writing is "language to 'get things done' or participate in the world's affairs: ...to inform, persuade or instruct"; in contrast, poetic writing is "writing as a verbal construct, a patterned verbalization of the writer's feelings and ideas" (p. 218). Note here that Britton only

recognizes the poetic as a verbal construct; must one surmise, then, that he believes transactional writing to be a transparent lens of what is "real' while poetic writing is "interpretive"? Emig (1971), drawing from Britton's earlier work, adopted Britton's model but changed the term "transactional" and "poetic" to "reflexive" and "extensive" because she felt that Britton's terms polarized writing into dichotomizations of either passivity or participation; she felt that her terms connotated, instead, a continuum of introverted and extroverted relationship between the writer and the field of discourse (p. 36-37). Despite their differences, Kinneavy, Britton, and Emig, recognized that, regardless of the writer's mode and purpose, all writing has at least some elements of the expressive and the intersubjective (pp. 88-91).

Early critics of expressivism, such as socially oriented epistemic rhetoricians, Faigley and Berlin, advocated a nondivisive view of epistemic rhetoric that resonates with Bateson. Notwithstanding, in 1982, Berlin stripped the term expressivism of its intersubjectivity and reduced it to an untheorized, romanticized, Dewyan side of a binary opposition, with expository modes, not surprisingly, on the privileged side (Jones, 1997, p. 8; Kennedy, 1998, p. 111). Faigley continued Berlin's trajectory: by reducing expressivism to the intrasubjective, he made possible a splitting of the expressive from the social and rhetorical; for instance, he claimed that revision of expressive writing is impossible because it ruins spontaneity (Jones, 1997, p. 6). He ignored the explicit rhetoricity and audience focus of Elbow's work, yet, incongruously, he still advocated a synthesis of the different writing modes (p. 6).

Jones (1997) alludes to Moffett's metaphor of taxonomy as "taxidermy" wherein a binary opposition becomes "like a flattened butterfly specimen kept under glass" that, invariably, elicits antimony: "as Elbow himself has protested, this label [expressivism] seems to be a 'hostilely motivated' term, designed to 'beat me over the head '" (as ctd. in Jones, p. 9). In an effort to extricate expressivism from the dissection of taxidermists, Jones calls for an eradication of the use of the term altogether and for a relabelling of Elbow as a Deweyan pragmatist (p. 9). Other composition theorists, such as Berthoff who speaks of "killer dichotomies," describe dichotomies in language that mirrors the violent effect of extreme dichotomization in the history of the human societies (as ctd. in

McLeod, 1997, p. 22). One could infinitely dichotomize and classify writing, slicing and reslicing, labeling and relabelling, like dissecting those dead, formaldehyde-soaked frogs. Although dissection is useful and necessary, we need to keep reminding ourselves that, as Pirsig (1975) said, dialectic divisions ceaselessly emerge from immanence into eminence, and back again, like grains of sand (pp. 75-77). With this in mind, I shall continue my endeavours to interweave dialectic strands within a holistic framework/field of writing.

Although for some early expressivists, such as Macrorie (1970), agency is untheorized, univocal, and acontextual (1970, p. 34, 142), in Elbow's experiential writing, a writer's sense of agency is always relational and inclusive of context such that peer response and social transformation are seen as integral components of the writing process (Jones, 1997, p. 12). Therefore, agency–and hence, expressivism–cannot be dispensed with by reducing it to a unified, solipsistic, romantic ideal (Cain, 1999, p. 70). Gradin (1995) also rejects the reduction of expressivist writing to solipsism by citing the relational, social awareness of romantics such as Goethe, Wordsworth, and Coleridge; she argues that developing agency is always relational and contextual and is therefore an essential means of social empowerment (p. 121). To further counter the solipsistic criticism of expressivism, Gere (1987) points out that, in order to know an object, the Romanticists projected themselves empathically into that object (p. 61). Relational thinking facilitates this because everything is part of the same system. The solipsistic critique is thereby sufficiently refuted for the purposes of this paper.

Freewriting, a practice popularized by expressivism, has the potential to help writers tap into the openness of Creatural communication systems, which include both the impersonal creativity of Saussure's "langue" (Pinar et al., 2000, p. 458) and personal intuition (Cain, 1999, p. 70); moreover, freewriting also has the potential to help writers become aware of dominant discursive practices (Jones, 1997, p, 12). Some composition theorists and teachers, such as Hillocks (1995), however, do not recognize this potential: Hillocks only sees freewriting as a starting point to remind the writers of what they already know or as a device to help writers find what is often referred to "authentic voice," in a simplistic, Macrorian sense (p. 223). Yet, Jones (1997) says that "as early as 1965, Elbow was theorizing and practicing a pedagogy that required students to examine

a 'single concrete particular' from 'the widest range of conflicting models, metaphors, hypotheses, conceptual schemes and disciplines'" (as ctd. in Jones, p. 12). Here, Elbow's theory and pedagogy is seen as congruent with Bateson's contextual dialectic rooted in Creatura, Phelps' open system metaphor (adopted from Prigogine) of the field of composition studies, and Burke's "perspective by incongruity" (as ctd. in Salibrici, 1999, p. 629). A far cry, indeed, from the rigid, reduced, closed binary oppositions imposed by "taxidermy."

Whereas Bateson's concepts, which derive from a wide array of fields, are exceedingly difficult to grasp, by using the simple, familiar metaphor of a game, Elbow (1981) is able to elucidate analogous views with acumen; at the same time, he makes us more aware of the rhetorical nature of mapping and helps us move beyond binary oppositions to the multiplicity and complementarity of holistic dialectic. The easy metaphor of a game allows us more readily to adopt a playful, pleasurable meta perspective of holistic dialectic (p. 151):

> One of the most important fruits of this whole investigation of the...game is the heightened realization that the Doubting Game is *only* a game–and it's *not the only* game....The power and fun of a game is in the submission to a set of rules. The pleasure of a game is in the ritualized process itself, its coherence and structure, rather than in a final goal or content. The release of energy and spirits characteristic of a game also comes from this submission to rules and structure: because one is in a rule-bound structure–because it is not real life–one can let down some of one's guard, and there is a sense of release. (p. 175)

He delineates two games: the *Doubting Game* and the *Believing Game*. The Doubting Game–science– is a "dialectic of propositions" comprised of "logic, disproving, skepticism, seeking error, separating subject from object–'self-extrication'" (p. 149). Doubtless (pardon the pun), Elbow derives the name of this game from the Cartesian method of "doubting the appearances of reliability of first impressions" (Gadamer, 1985, p. 54). On the other hand, the Believing Game–experiential, subjective ways of knowing– is the "dialectic of experience which is based on projection in order to achieve understanding of something: affirmation, metaphor, analogy, association, empathy, leaps

of faith–'self-insertion'" (Elbow, 1981, p. 149). The Romantics, clearly, were highly adept players of the Believing Game. This game corresponds to Bateson's method of abduction that builds knowledge by identifying similarities using metaphor, analogy, and association. Elbow situates these two games along a linguistic continuum: on one end is the language of dreams, where the rules are mutable, implicit, and subjective; on the other end is the language of mathematics, where the rules are fixed, explicit, collective, and deductive (p. 153). Common language resides within the tension of the field in between. Elbow–and Bateson would concur–strongly stresses the importance of learning to play both games by simply starting and making attempts until eventually, with some of Vygotsky's scaffolding (Hillocks, 1995, pp. 72-75) and lots of practice, we figure out what the rules are and get better at applying them (Elbow, 1981, p. 153). The game metaphor also suggests Dewey's pragmatism in that we begin already immersed (p. 153).

Just as Bateson points out the epistemological error of misapplying the rules of Pleroma in the realm of Creatura, Elbow realizes that because each game is good at doing different things, we need to not only learn to play each game well, but when to play each one (p. 169). With the Doubting Game, "the more you get ideas and perceptions into propositional form, the better it works"; with the Believing Game, "the more you get ideas and perception into the most fully experienced form, the better it works" (p. 169). Because the Doubting Game consists of forming generalities, "the only trustworthy thing you can do to a universal proposition, the only thing you can do which increases your knowledge about whether it is true or false, is to try to disprove it" (p. 165). An example of this method is the previous account of the dissection of expressivist writing into binary oppositions. Because the Believing Games consists of particularities, "the only trustworthy thing you can do to ... an assertion, the only thing you can do to increase your knowledge of whether such and such a meaning really *is* in the text is to try to share that perception, try to have that experience of meaning" (p. 165).

Like Phelps, Elbow makes evident the paradoxical nature of dialectic when he depicts the way in which the seeds of the opposite are immanent in each side of a polarity. One of the most sagacious, enduring expressions of this notion of holistic dialectic is the Taoist yin/yang symbol. Although he does not allude to this symbol,

Elbow explains how the Doubting Game paradoxically perpetrates solipsism when it is split from the Believing Game:

> It is very common for intellectuals and academics ... actually to use argument and dialectic to defend themselves against ever having the perception, experience, and thought of other people ... because they feel it is never genuinely legitimate to entertain a different view if they can mount a strong attack against it. (p. 182)

Conversely, Elbow describes what happens when expressivist writers fail to realize the necessity of correctly identifying and maintaining what Bateson calls "gaps," "flip-flops," "thresholds," and "interfaces" between different systems (1987, pp. 121-124). Elbow, like Bateson, realizes the error of attempting a homogenous blending of different genres. Intriguingly, the word "text"—which, as mentioned earlier, means "to weave"—provides an apt metaphor of the necessity of maintaining differences, of maintaining gaps between the differences, and interweaving them, like warp and woof (Skeat, 1993). Elbow and Bateson both stress that complementarity means that, like the warp and woof, only one game can be foregrounded at a time:

> We cannot say, "well, let's try not only to be as critical as we can, but also be a bit more believing, too." Though that's really what we want in the end, when adopted as an immediate goal it results in mere muddling: people merely doubting what's easy to doubt but never questioning what they don't want to question; and at the same time believing what's easy to believe and never risking swallowing what is alien. Each should be played in severely delimited ways. (p. 176)

Elbow echoes Bateson when he says that, because Descartes's Doubting Game always fails to completely filter out inadmissible ideas–such as affect and soma–it is essential to intentionally incorporate the entire aggregate of differing elements, rather than deny or ignore their presence (p. 186). Playing the doubting and Believing Games well means not only to acknowledge this, but to apprehend their workings as fully as possible. Only then can Socrates' dialectical *maieutics* of trust, the embodied metaphor of giving birth derived from Socrates (mentioned earlier), become possible (Phelps, 1988, p. 94). Thus, it is to the often marginalized aspects of writing, affect and soma, that I now turn, attempting to weave them into holistic dialectic.

Towards a Holistic Dialectic Between the Discursive and the Somatic

The page, which you cover slowly with the crabbed thread of your gut...
-----Annie Dillard, The Writing Life, 1989
(as ctd. in Ely et al., 1997, p. 329)

Body...is only an extended being which does not think.
-----Descartes "Sixth Meditation"
(as ctd. in Doll, 1993, p. 116)

As a college writing teacher, I have sat with hundreds of students, their bodies darkened with the negative feelings of anxiety, fear, sadness anger, confusion, fatigue, frustration, or beaming with the positive feelings of relief, gratitude, excitement, passion, concentration, pleasure, and laughter. Many students have talked to me about how writing evokes emotions that affect their bodies. Yet because the "goal" of traditional academic writing courses is the attainment of rational, objective, scientific writing, body and affect are not often the focus of discussions in writing classes. McLeod takes this up in her 1997 book, Notes on the Heart: Affective Issues in the Writing Classroom, explaining how much of composition theory has foregrounded the cognitive and/or social dimensions of writing, and while the bodily/affective dimension is not denied, it has not often been the focus of extensive inquiry (p. 5). Fleckenstein (1999) also takes this up in her extensive journal article entitled "Writing Bodies: Somatic Mind in Composition Studies." Because she is the only composition scholar I have found so far to base her theory primarily on Bateson, I shall discuss her work extensively in this section.

Elbow situates his dialectic within a holistic, systemic, maieutic matrix, and while his primary focus is the holistic, intra/intersubjective dialectics of multiple discourses, he does recognize the bodily aspect of writing– in particular, through intonation in voice (Elbow, 1995, p. 15). Similarly, Fleckenstein (1999) focuses on the interactive, transformative, yet differing relationships *between* dialectic boundaries (p. 303); however, Fleckenstein's main concern is that the somatic dimension of writing–which she sees as meaning far more than voice–is usually ignored, with deleterious effects (p. 281).

Before discussing her theory in detail, I would like to note the inevitable contradictions in her own taxonomy. Although she recognizes that the Romantics (and

expressivism is often classified as such) embrace the material and the subjective, she lumps them into a larger acontextual grouping along with the cognitivists and poststructuralists, who do not concern themselves with corporeality, and the Cartesians, who split off the corporeal (p. 282-83). This is a curious taxonomy. First, the Romantics' way of knowing was through a process of empathic projection, akin to Elbow's Believing Game (Gere, 1987, p. 61); separating the body from this process is antithetical to the experiential way of knowing. Second, because of our tendency to classify and label in binary oppositions, Fleckenstein may have ironically overlooked Gradin's work on the social concerns of the Romantics and Elbow's discussions of the bodily aspects of voice intonation in writing and its implications for social transformation. For example, Elbow, informed by Bakhtin's dialogic heteroglossia and Kristeva's semiotics, states that intonation is both somatic and cultural, whereas language is relatively less somatic and more cultural; consequently, the more we put intonation into our writing, the more space we make for powerful, conflictual, disturbing–and not necessarily "good"–writing with potential for intra/intersubjective transformation (Elbow, 1995, pp. 11-15). Taxonomy/dermy produces "curiouser and curiouser" specimens. I shall push onwards, nonetheless, labouring towards a Socratic, feminine *maieutic*, to see what sort of birth shall come of corporeal/discursive coupling.

It is also curious that, even though affect is somatic, Fleckenstein does not make it explicit in her discussion of the bodily aspect of writing; hence, I will make it explicit, albeit briefly. The body–and, hence, affect– in Western culture, has traditionally been the site of denigration, associated with the feminine and split off from the male, privileged side of the dichotomy. Traditionally, affect has been associated with femininity, irrationality, and instability and placed in diametric opposition to the intellect, which has been associated with masculinity, rationality, and reliability (McLeod, 1997, p. 5). Because, especially in the 1980's, composition theory was so strongly influenced by cognitive theories of writing, affect was usually ignored in research because it did not "fit" within the linear metaphor of the computer–a male metaphor of rational, disembodied logic–which is the basis of cognitive theory (p. 6). Vygotsky is vehement about the nullifying effects that this segregation of bodily affect has had on research:

> Such segregated thought must be viewed either as meaningless epiphenomenon incapable of changing anything in the life or conduct of a person or else as some kind of primeval force exerting an influence on personal life in an inexplicable, mysterious way. The door is closed on the issue of the causation and origin of our thoughts, since deterministic analysis would require clarification of the motive forces that direct thought into this or that channel. By the same token, the old approach precludes any fruitful study of the reverse process, the influence of thought on affect and volition. (as ctd. in McLeod, 1997, p. 7)

Here, Vygotsky confronts us with the inadequacies of the Cartesian mind/body split and the need for holistic dialectic, such as Bateson's, that can encompass the material and nonmaterial without creating hegemonic dichotomization.

McLeod defines *affect* as an umbrella term that encompasses all the bodily aspects of our experience and ways of knowing, including "emotions, attitudes, beliefs, moods, conation (motivation) [and] intuition" (p. 9). I find it intriguing that she situates intuition under the bodily umbrella, especially since it is usually split off to some unfathomable, disembodied realm. And now, having woven this umbrella definition of affect into the definition of somatic writing, I turn back to Fleckenstein.

Fleckenstein's description of somatic writing meshes with Elbow's Believing Game, but also interweaves a dialectic informed by feminism and critical theory between discourse and the immersed, somatic realm of preverbal, Creatural, abductive ways of knowing as postulated by Bateson. Fleckenstein begins by recounting how Berlin, recognizing the importance of including materiality in discourse in order to establish a ground within which social change could manifest, turned to Derrida's deconstruction (p. 283). She points out, however, what happens when bodies and agency are rendered as infinitely regressing, fictive, disembodied, discursive texts; Fleckenstein leads us to a very important point as many theorists and practitioners, both within and beyond the field of composition studies, have acquired the habit of reducing just about everything to disembodied "text" or "discourse":

> Written and rewritten by discursive codes, pain and death and meaning are merely texts, possessing no persuasive presence, substance, or immediacy. Without

> bodies...no resistance or systemic transformation can be effected because codes remain either textual signs, pointing only to themselves, preventing us from recognizing their internal inconsistencies, or traps, or both. Erase our bodies and we merely dance to music we cannot hear. (p. 284)

The transformative goals of social epistemic composition theory will be possible, then, only if they are "flesh[ed] out" by including what Fleckenstein calls *somatic mind*; this is defined as "a permeable materiality in which mind and body resolve into a single entity which is (re)formed by the constantly shifting boundaries of discursive *and* corporeal intertextualities (p. 286). Hindman (2001) writes about the tensions and contradictions of reflexive somatic writing and the social dimension of writing creates a crucible for learning :

> [Somatic] writing has helped me see that it is in the gaps of the contradictory positions and emotions where I can learn the most. That is, it is in the interplay of my attempts to mediate those contradictions that I can best become aware of those sometimes invisible ideologies that discipline me and those social institutions which construct me. It is in recognizing the essential[ist] tensions among those ideologies, in authorizing multiple positions and multiple gestures that I discover and recover agency and meaning. (p. 106)

Fleckenstein adopts several of Bateson's key terms to theorize somatic writing. She uses Bateson's terms of Creatura and Pleroma to show that when we write somatically we realize that we are immersed in and emerge from Creatura that, in turn, is immersed in and emerges from Pleroma (p. 295). Fleckenstein equates discursive codes with Bateson's "as if" or Barbara logic to demonstrate, as discussed earlier, that problems can arise in the categories that this form of logic creates because they can give us the false impression of separateness and "facticity" (p. 290). She equates corporeal codes to Bateson's "is" or grass logic of preverbal, metaphoric, biological relationships (p. 291). I believe, however, that Fleckenstein misrepresents Bateson when she says that moments of fusion between these two logics make possible aesthetic experience and intense, pleasurable, creative absorption that Bateson calls sacred and that Csikszentmihalyi calls "flow" (1997, p. 110). Throughout his work, Bateson insists on differences–never fusion;

more precisely, abductively comparing and interweaving these two logics creates a new, more complex order of experience and understanding. Fleckenstein also misunderstands Bateson's use of the term "embodied" in that she uses it as a synonym for the somatic. As explained earlier, Bateson's definition of embodiment was more expansive, including the physical and abstract, and meaning something like "application": for example, while a physical body is the embodiment of genetic codes, parables are the embodiment of moral codes. Therefore, whenever she uses the term embodiment, I have been substituting the terms somatic, bodily, or corporeal.

It is important to state that writing somatically does not necessarily *appear* any different than conventional forms of writing, although it *may* precipitate innovation: "writing somatically cannot be reduced to a list of discursive features or defined solely by an agenda of genre-crossing. The product of a process is not the process. The crucial qualities of writing somatically are not formal but (dis)positional" (Fleckenstein, 1999, p. 295). More significantly, writing somatically is a process that is committed to both immersion and emergence, to both grass logic and Barbara logic (p. 295).

Like Elbow, Fleckenstein demonstrates how nonholistic dialectic inevitably leads to paradox: "even though traditional academic writing endeavors to displace the physicality of the writer from the writing, somatic mind is always present; the paradoxical result is that the academy embodies disembodiment" (p. 299): "the more a discipline (or a writer) believes and writes in a moveable or detachable writing scene, the more firmly it clings to a parallel belief in a movable or detachable embodiment" (p. 300). The Taoists expressed the reciprocity between polarities very well: "in order to contract a thing, one should surely expand it first. / In order to weaken, one will surely strengthen first" (as ctd. in Capra, 1983, p. 127). Following are three examples of paradoxical embodied disembodiment in academic writing.

First, David Bartholomae (1995), in order to illustrate the rhetoricity of text and subjectivity, advocates splitting off the persona from the physicality of the writer. Second, Linda Brodkey (1987) in a feminist deconstruction, argues that privileged positions in the Academy emanate from the quintessential image of the solitary–usually male–academic writer writing in some sort of garret, but, ironically, in her argument,

bodies writing in places are displaced by disembodied ideas. Third, although Kenneth Burke's dramatistic pentad is a contextual model of writing, it "perceives[s] the context in which a piece of writing is done as unique, unconnected with other situations....Thus, though the grammar allows one to assign labels to important aspects of a situation, it does not enable one to explain how the situation is causally related to other situations" (Cooper, 1986, pp. 367-68).

With the recognition by composition theorists that "we exist as somatic minds; we need to write, teach, and live within that realization, "somatic writing is beginning to emerge from its marginalized location in academic writing, thus giving rise to endorsement of more personal and creative use of traditional genres". (Fleckenstein, 1999, p. 303). Still, what happens in composition classrooms (for example, at the college where I have taught) is a "split and valorize" dichotomizing whereby the first part of the term focuses on personal writing, such as narratives, and then the focus shifts to the more important "objective" forms of writing, culminating in the research paper, the importance of which is ascertained by the fact that it usually comprises a lion's share of the final grade. Even though more time might be given these days to personal writing, such a curricular approach inevitably reinforces the binary split between the two genres (Kamler, 2001, p. 84). We have a ways to go in both composition theory and curriculum development before the personal, the experiential, the affective, the somatic, the aesthetic, and the spiritual, are not seen as antagonistic or supplementary, but complementary ways of knowing, thinking and writing. We need a cogent epistemological framework/field, such as that begun by Bateson, one that can sustain the interweaving of the divergent threads of holistic dialectic. We must keep asking recursive cycles of ever deeper questions until we do.

CHAPTER FOUR

Autobiographical Epistemological Experiments

Yet why not say what happened?
Pray for the grace of accuracy
Vermeer gave to the sun's illumination
stealing like the tide across a map
to his girl solid with yearning.
-----Robert Lowell Day by Day, "Epilogue"

Just as Bateson calls his own inquiries "epistemological experiments" in order to emphasize the partiality and exploratory nature of his research, I will, too (Harries-Jones, 1995, p. 92, 232). In my epistemological experiments of this chapter, I will interweave three differing aesthetic, autobiographical methods–metaphoric memoir, poetry, and two differing holistic, creative questioning heuristics drawn from outside dominant Western discourses–with expository text as a means to explore the following personal question "Why do I resonate so deeply with the life work of Gregory Bateson?" My epistemological experiments are also a further means to explore my major research question articulated in my introduction. Juxtaposing these differing genres and methods allows me to use the method of abduction, thereby creating the multiple descriptions that deepen insight into my question(s). But before I turn to these experiments, I wish to briefly describe the theories that will serve to make my autobiographical probing meaningful in the academic context in which I am writing.

Autobiographical Research

One's written inquiry is always embedded in the story of one's life; therefore, it is important to become aware of *how* one's inquiry relates to one's personal life, whether or not one makes this explicit in the final, written text. Autobiographical writing, of the sort that attempts to deepen one's understanding and awareness of the relationship between one's self and one's inquiry using a variety of methods and genres, becomes an integral part of writing as method of inquiry. Chambers et al. (2000) describe how autobiographical writing, using a variety of methods, becomes a method of inquiry and research insofar as it can reveal to the inquirer some of the reciprocal interrelationships

and contexts of which they and their topic are part:

> Autobiographical writing becomes a method of inquiry through attentive contemplation, reflection and rumination; through literary expression and rendering of experience; and through sustained questioning of, and wondering about, those experiences. As deeply and honestly as the writer/narrator/teacher investigates the self–its life, history, and imaginings and how those are rendered textually–autobiography becomes research. As life is lived and imagined in relation to others, autobiography becomes an inquiry of the self-in-relation. Through autobiographical research, the writer attends to kin...as well as her kinship with the geo-landscape of her place/home, the imaginary landscape of her cultural world, the language which infuses her telling, and the institutions/nations within which she lives her life. (Chambers et al., 2000, p. 2)

The above passage is highly congruent with Bateson's perspective. First, Bateson asserts throughout his work that the "self-in-relation" *is* the irreducible unit and that we need to get better at thinking and talking and acting in ways that make this evident. Second, the word "kinship" reminds me of spiritual traditions of indigenous peoples wherein humans, plants, animals, minerals, stars, and all of creation, *are* metaphorically brother and sister, mother and father, aunts, uncles and cousins, one to the other. Third, using landscape as a trope to explore one's connections to larger contexts, by contrasting one's "geo" and "imaginary" landscapes, strikes a deep, autobiographical chord in me; hence, this will be my first epistemological experiment.

When Laurel Richardson (1994), discussing the central role of autobiography in writing as method of inquiry, declares that "the deepened understanding of a Self deepens a text" (1994, p. 524) she means more than increased knowledge of self and topic; she also means that exploration of one's relationship to one's topic makes apparent the complex intra and interpersonal constructedness and fictionality of both, such that issues of author/ity (my term) become evident to the writer (p. 523). Acknowledgment of the narrator of the text inevitably brings up standard literary questions: who is telling the story? from what perspective? for what purpose? how reliable *is* the narrator? Since these questions are just as critical for expository as for literary writing, the connectedness

between these two modes becomes apparent (Chambers, 1999).

Grumet (1981) proffers that an important outcome of heightened awareness of one's own role in constructing "texts" of self and topic–one that coincides with the heart of Bateson's epistemology–is that as writers/inquirers develop a greater sense of agency, they begin to see their potential as creative pattern-makers within the larger contexts of their lives (p. 144). Mary Catherine Bateson (1984), in her autobiography/biography about growing up as the daughter of Margaret Mead and Gregory Bateson, explains that the reason she wrote her book was that she believes communicating our insights into our intra and interrelationships between individual lives and the larger world makes a "difference" because "multiple small spheres of personal experience both echo and enable events shared more widely, expressions of moment in a world in which we now recognize that no microcosm is completely separate, no tide pool, no forest, no family, no nation." (1984, p. 16).

Stories of Bateson's Life: Riding on a Donkey

When I began reading Bateson's writing, I did so because I was drawn to the questions he asked. He articulates and probes questions that I have been wondering about, often at an intuitive level, ever since I was a child, in a manner that resonates with my own ways of thinking. Of course, in no way am I claiming to have his genius! I am no scientist, nor does my life story match his. Nevertheless, I resonate with Bateson's thinking in several ways. I have always had the habit of deepening my insight into my questions by drawing unlikely analogies and framing them in ever larger, open-ended questions about "how life really works." I have always sought metaphor and aesthetic qualities to enrichen meaning. I have always grappled with polarities, sometimes resisting one side of a dichotomy, and sometimes resisting those who cannot apprehend the essential mutual reciprocity between the two sides. I identify, too, with Bateson's propensity for opening to different perspectives: Rieber (1989) describes him as an "intellectual nomad" who could never settle within any one field or theory for any longer than it allowed him to further his exploration of questions about "how life really works" (p. 2). Similarly, this question has always been at the forefront of my mind as I dip into sundry theories, intrigued by new understanding that can open up by juxtaposing

dissonant perspectives, and searching for underlying commonalities.

But the key writers about Bateson–and this includes Bateson's own writing about himself–make it difficult for the diligent reader of Bateson not to become gradually drawn into his life story. The reason for this is that each of the key writers (M. C. Bateson, 1984; Berman, 1981; Harries-Jones, 1995; Lipset, 1980; and others), including Bateson himself, persistently interweaves the development of his theories with the development of his life story, making explicit the relationship between the two. It seems that, to make comprehensible Bateson's jumping from field to field, from theory to theory, telling the stories of how and why becomes indispensable. I know that my own understanding of Bateson's highly abstract theories have been changed and deepened, again and again, by situating them and resituating them within the stories of his life as I read about them from multiple perspectives: as told by Gregory himself, by his daughter, his biographer, his archivist, his former students, and his colleagues from disparate disciplines over a half century span.

In Mary Catherine's autobiography/biography, aptly called Through a Daughter's Eyes (1984), I am told these stories more fully, more intimately, seen through eyes colored by the emotions of a child whose father left her and lived far away, and, when he engaged with her, did so as her intellectual mentor. As an adult, she became his colleague, working with him closely on several key projects, coauthoring two out of his three books. And so she tells stories about Gregory as an intellectual companion from the perspective of a loved and esteemed daughter.

From Lipset (1980), I hear stories from the perspective of a student who spent a year with him as his student, participating in a unique, multi-disciplinary university course traveling throughout Asia and Africa. Later, as an anthropological researcher drawn to Bateson, he asked Bateson to be the subject of his academic, biographical-ethnographical study. Over a period of several years, he observed him, interviewed him, interacted with him personally, interviewed dozens of people who knew him in various capacities, and examined countless written documents (1980, Preface). Bateson agreed to all this, taking it all with his wry sense of humour, even reading Lipset's manuscripts. All in all, Lipset's methodology makes his book rather unique in the genre of biographies;

certainly, as a narrator, it serves to make his construction of Bateson seem very reliable.

Harries-Jones (1995), whose rigorous renderings of Bateson's theories I have relied upon throughout this paper, attempts to explicate more fully the science of Bateson's theories by drawing on not only the biographical material of Mary Catherine Bateson and Lipset, but on the exhaustive work of Donaldson, Bateson's former student and archivist, who spent years pouring over Bateson's unpublished work as his dissertation project. To further explicate the science of Bateson's work, Harries-Jones also elaborates on the work of other current scientists, comparing and contrasting their theories with Bateson's. Yet despite all this scientific focus, Harries-Jones relies on a narrative framework/field, illuminating Bateson's science by interweaving it with the stories of Bateson's life.

Because Bateson habitually writes in first person, weaving in narrative, even in the midst of his most abstruse theorizing, his personal voice is always strong and clear and distinctive. It seems that, like those who wrote about him, he, too felt that telling stories that showed how his ideas developed, how they are related to other ideas and contexts, why they are important to him, and how his writing exemplifies his theories, elucidated what he was trying to communicate. Perhaps the prime example of this exemplification is his metalogues. These written dialogues between a semi-fictitious father and daughter grew out of conversations he had with Mary Catherine on camping trips while she was a child: "Teach me something, Daddy!" she would ask her brilliant father, who loved teaching and was always happy to comply (Rieber, 1980, p. 199). Intriguingly, Bateson designed these metalogues so that the "structure of the conversation as a whole is also relevant to the same subject" (Bateson, 1972, p. 1). The topic of conversation, its process and form, like poetry, and like communicative life systems, can be read at different levels: at one level, they are about the topic, and at another level they exemplify Bateson's communication theory (Harries-Jones, 1995, p. 2-3).

As an intellectual nomad, his life story reads like an intellectual adventure, but a brief curriculum vitae shows it was hardly of the armchair sort. But before I launch into a list of Bateson's scientific achievements and a brief chronicling of his life story, first, a caveat: that it be read as Bateson viewed them. While a chronicle of Bateson's

achievements and life story is impressive, what is far more important is that his life embodies his epistemology, the heart of which is asking "impertinent" questions as a means of attaining "pertinent" answers, which then lead to more "impertinent" questions, ad infinitum (Rieber, 1989, p. 1). It is this open, playful, recursive "impertinent" questioning that I will try to embody in my autobiographical inquiry, soon to follow. As Rieber (1989) puts it,

> essential to Bateson's outlook was a sense that even fresh ideas rapidly tend to become stale, especially when they become shibboleths. It was necessary for [Bateson] to keep playing with ideas, to keep juxtaposing them in new combinations, if one wanted to continue to make sense....[T]he search for the impertinent question is as endless as life. For no sooner has it generated a pertinent solution, than it becomes time to push ahead and find a new impertinent question. And it is perhaps best if this new impertinent question can be put to the solution that has just been found. (p. 7)

And now, to be read in this context, the synopsis drawn from the above-mentioned biographical sources:

His childhood, which can be envisioned as the quintessential British, Edwardian, upper-middle class, naturalist childhood depicted in many movies and books, was spent collecting and studying plants and animals in the nearby woods with his older brothers. With an infamous naturalist father—who later became famous—he grew up immersed in a rarified atmosphere of natural science, rich with impertinent questioning–especially about the significance of form and pattern in evolution. Frequent visitors to the family home included great thinkers of the day, such as their neighbours, Alfred North Whitehead. His father was the heterodox Cambridge professor of biology, William Bateson, scorned by scientists of his day because he was an atheist at a time when flouting Christian beliefs resulted in ostracism, and because he questioned Darwinism at a time when it had become dogma. Eventually, however, William became famous as a key founder of the science of genetics by rediscovering the work of Gregory Mendel (after whom he named his third son, Gregory) and recognizing its significance. William valued aesthetics so highly that he placed art and artists on a pedestal, unattainable unless

graced with enigmatic genius. So extreme was his split between the aesthetic and the "everyday"—a category in which he placed science—that it drove his second son, Martin, who dared to aspire to be an actor and poet, to suicide. The resonance between Gregory's life-long inquiry and his childhood rings loud and clear. Questions about form, pattern variation, and interrelatedness of whole life systems and his quest for an epistemology of the whole by interrelating the theories of cybernetic science, aesthetics and non-religious notions of the sacred–all echo back to his father.

Gregory Bateson was married to the famous anthropologist, Margaret Mead for about a decade; together they did extensive, original fieldwork with headhunter societies in New Guinea and the Balinese, pioneering ethnographic film and photographic methods. He became a controversial, innovative professor at many top universities, more popular with students than faculty. He loved teaching and young people, and was deeply concerned about education; he served time as a Regent at the University of California and taught popular courses attended by hundreds of undergraduates. In his courses, which covered topics such as Aesthetic Process and the Epistemology of Molecules, he would ask students to analyze a poem by Rilke and then go find a leaf which had a pattern similar to the poem" (Lipset, 1980, p. 281). Like his father–and his mentors William Blake and Samuel Butler–his heterodox theories were scorned by many established scientists of his day, and like his father, in his latter years, he received emulation, something he always felt uncomfortable with: "It is...rather strange and improbable that ideas which my father was groping for should have become almost fashionable. And it feels very strange for me, accustomed to be a voice crying in the wilderness, to find myself more famous than infamous" (p. 281).

Creator or contributor to several of the twentieth century's brightest theories, highlights of his seminal studies, in chronological order from the 1920s to the late 1970s, include: (1920s) pattern variation in partridge feathers; botanical studies in the Galapagos; (1930's) fieldwork studies of differing patterns of stability and change in New Guinea head hunter and Balinese societies that resulted in contextual learning theories and that prefigured cybernetic theory; (1940s) operating an underground radio station during World War II in southeast Asia that subverted Japanese propaganda messages;

formation of cybernetic theory and its application to biological and societal systems; (1950s-60s) formation of family systems theory, including the double bind theory of the etiology of schizophrenia and alcoholism; further development of contextual theories of learning by studying play, problem-solving, and communication in dolphins, octopus and otters; and (1970s) formation of bio-epistemic, cybernetic theories of mind in whole life systems such as society, evolution and ecology.

Only in his seventies did he come to realize that, in all his disparate intellectual and life sojourns, he was really concerned with the same key questions which furthered the questions his father had devoted his life to probing. The year before he died, he was invited back to England, where he had seldom returned since he left as a young man, to speak on an unusual topic: "What lecture would you give if it were your last?" Ironically, it did turn out to be one of his last lectures. In his lecture notes, as follows, it is evident that he self-reflexively interjects his autobiography into his epistemological matrix, exemplifying how each seeming fragment is always part of the same whole. Perhaps because he realized his life was nearly over, he gave himself permission to articulate a scientific discourse on notions of the whole as sacred (Harries-Jones, 1995, p. 216). And here (again flouting academic conventions against long block quotes) I shall let Bateson's voice speak for itself; my own paraphrasing would obliterate its essence. Here, Bateson reminds me of the allegory of Christian in John Bunyan's Pilgrim's Progress who comes to see that what he sought on his journeying far from home is that which he had at home all along:

> Looking at all that with eyes changed by anthropology and...dolphins and schizophrenia, I can see that I never traveled far from where I started. What is form, pattern, purpose, organization and so on...? These were my questions when I started and still are my questions....You know one went off into the hills to find a donkey and at the age of seventy one discovered one had been riding on one for sixty years. I think what one did was in some way to give oneself permission to discover that one is riding on the donkey. That giving oneself permission is very close to...things like art and things like poetry and rhythmic prayer...They are *uncoveries* of that which one knew before. Then sacredness has something to do

with this covering and uncovering deeper components. (as ctd. in Harries-Jones, 1995, p. 217-18)

The committed reader of Bateson comes to know and therefore care about him as a person, and so cannot help but be drawn in and be moved by the story of his death, especially since he wrote about the necessity of death in life systems. Mary Catherine writes a detailed story of his slow slide into death while writing his last book with her, and of the family's funeral rites that celebrated his life (1984, p. 218-19). The interweaving of Bateson's theories of how living systems live and die and the story of his own death became unexpectedly significant to me, not only intellectually but in my heart when my sister died suddenly a few months ago. His personal story and his theories, interwoven with my own story and theorizing, for me, form a double, double description, rendering holistic meaning far more than the sum of any of the parts. Death stories, then, have profoundly shaped my writing of this thesis in ways far beyond my conscious intentions. Within this context, then, the story of Bateson's death becomes important to tell. It is this story that gave me the perspective of heart and mind to accept as sacred, peaceful, and loving the tasks of tending my sister's body, planning a last celebration, standing vigil, and throwing the last flower from the garden onto her coffin as she was gently lowered into the earth.

On his last day, as his breaths faded, Mary Catherine brought him a wild flower, an emblem of the patterns of nature he loved. As the wild flower faded, she read to him from the Book of Job, a sacred book he loved, of the unfathomable wonders of nature. After preparing his body and standing vigil for three days, they took it to the crematorium, loaded it onto the oven rack, and blanketed it with wild flowers. On top, they placed a crab which they had caught in the ocean the night before: the crab captured the essence of Bateson's commitment to and love of teaching about patterns which connect all life. Often, as part of his introductory lesson to students, whether they were psychiatry residents or art students, Bateson would bring a crab shell to class and tell his students to imagine they were aliens who had never seen crabs. He would then challenge them to demonstrate how they could come to the conclusion that the crab was once alive. He guided them deductively from the notion of symmetry, form, relationship, and growth

to an understanding of the nonquantitative metapattern of "patterns which connect" (Bateson, 1979, p. 6-13). To his children, the crab symbolized far more: cherished memories of their father as their loving teacher and mentor who taught them life lessons with crab shells embellished with recitations from William Blake about the "'fearful symmetries' of mind and nature" (M.C. Bateson, 1984, p. 219). Gregory—like my own grandmother—was of the generation who could quote poetry at length to augment any occasion. After pushing the crematorium button, Bateson's family then walked outside and stood in the meadow, "watching the line of smoke rising to the sky" (p. 219).

Mary Catherine, when finishing writing Angel's Fear after his death, chose an epigraph that signifies Bateson's transformative, recursive vision of all life systems, including his own, into ever more elegant and differentiated, unexpected forms:

> *Full fathom five thy father lies;*
> *Of his bones are coral made:*
> *Those are pearls that were his eyes:*
> *Nothing of him that doth fade,*
> *But doth suffer a sea-change*
> *Into something rich and strange.*
> —*Shakespeare, The Tempest*

(Re)Reading/Writing/Responding/Reflecting Aesthetically, Metaphorically, and Autobiographically

As I read and read the interwoven theories and life and death stories of and by Bateson, written from multiple perspectives, I began to realize that, while I was intellectually intrigued with the rigour and perspicacity of his intellect as well as the stories of his life, my resonance with him was, at another level, far more ineffable, less like a theme of a story and more like its tone or atmosphere or mood or color. It is this that I will attempt to explore in the following epistemological experiment--my autobiographical research--to deepen my understanding of my self-in-relation to my inquiry question(s).

I write the following section of my thesis in such a way that readers (which includes myself reading and rereading my own text as I write and rewrite it) can engage both aesthetically and efferently with my text. I know that my readers will shift their attention continually between the two stances, cognizant of the academic context within

which they are reading it, asking themselves with an efferent focus of attention: *How do I (the reader) gain further insight into ecological academic writing, by Sharon's metaphoric, autobiographical, aesthetic and efferent explorations of her questions: why do I resonate so deeply with the life work of Gregory Bateson?* and *what are the patterns that connect academic writing to Bateson's bio-epistemic theories?*

It is with a feeling of vulnerability that I offer my aesthetically written, metaphoric story to be scrutinized in multiple ways. I invite you, the reader, to note your oscillating stream of responses to my story, which are beyond my intentions. I invite you to read it, too, for enjoyment–as respite from the heavy slogging of my convoluted theorizing.

Epistemological Experiment #1: My Double Vision Story, or, How Does My Contrary Garden Grow?

> *The text, in its mass, is comparable to a sky, at once flat and smooth, deep, without edges and without landmarks; [the reader is] like the soothsayer drawing on it with the tip of his staff an imaginary rectangle wherein to consult, according to certain principles, the flight of birds...to observe therein the migration of meanings, the outcropping of codes, the passage of citations.*
>
> *Roland Barthes*
> *(as ctd. in Covino, 1994, p. 31)*

My third child was nearly due when I moved to Victoria from the prairies and searched for a new house. We (my family and I) toured one prospective house. Reasonable price. Sound structure. Aesthetic appeal. Sufficient space. Close to schools, work, recreational areas, and shopping. A glimpse of the back yard. Visions of the toil of transforming the tangle of blackberry, cottonwood, thistle, cleavers, ivy, laurel, diseased fruit trees, morning glory, all framed by sagging fences, while caring for two young children and a newborn. Instant rejection. But garden plants are more easily changeable than the structure of the house and neighbourhood, and so we moved in.

The house, built near the top of a hill, had a walk-out basement and a deck overlooking a huge, gently sloping yard. Right away, we had the huge cottonwood trees chopped down, not wanting the white, fluffy, cotton covered seeds that would blanket the garden like snow drifts every spring. We had had enough of cotton snow and real snow in

June in Alberta! To our surprise, chopping down the trees unveiled a sweeping view of the country that we could now see from the kitchen window and deck. A giant, branchy sky curtain had been opened, revealing the far-off, white-domed observatory that gleamed like a jewel upon Mount Newton, crowning my far-reaching view. As I stirred, chopped, wiped, mashed, mixed, and washed, at whim, I could lift my gaze from the toast crumbs, chicken soup, and applesauce, and let my imagination flow up the peninsula, through the aperture of the telescope probing the sky, and out into the fields of the universe seeded with flaming galaxies, black holes, and–who knows? Through my mind's eye, at whim, I could observe the observers (astronomers) observing the universe. Whatever were the telescopes focusing on tonight, I would wonder? Our closest neighbours, Venus and the moon, or millions of light years ago? How did the observers, sitting in their chairs in front of computer screens and keyboards (like I am now, writing this), choose what to select out and how to interpret the endless stream of information pouring through the aperture? How was this one, puny, white-domed eye into the sky linked to all the others around the round rotating earth, in a spiraling, map-making venture that can be traced back through the ages?

Whenever I gazed at the observatory through the aperture of my kitchen window or deck, the tangle disarray of my garden lurked on the periphery of my vision. I would sometimes peer down into the garden below, but I seldom ventured down the steps, and never attempted any gardening beyond sporadic snipping and sniffing when beckoned outside by the golden mornings and long twilights of spring. Why bother beginning anything more challenging when invigilating a crawling baby who loves to snack on worms encrusted with dirt and run off helter skelter? Nap time for babies was rejuvenation time for me–not a prudent time to try and tame nature's fecundity.

Besides lack of time, coming from the prairies with scant gardening experience, I was ignorant of west coast, year-round gardening and knew few of the myriad plants that proliferate here. Lilacs, peonies, wild roses, brown-eyed susan, prairie crocus–these were the resilient plants I knew. I would drive around my new city, marveling at the baroque, burgeoning beauty of the trees, shrubs, and flowers. And yet, so many of these west coast plants had filled my imagination ever since I could read, and even before that, as my

mother read to me. In the bucolic landscapes of the canonical children's literature, which had shaped the landscapes of my imagination, the characters–hedgehogs and fairies and the like–gathered moss-lined baskets of apples, pears, and hazelnuts in autumn, made wreaths of primroses and daffodils in spring, and picked tiny bouquets of snowdrops in winter.

Even before I was old enough to read, I would seek the peace and solitude of imaginative worlds. I would climb up to my attic bedroom, lie on my worn, green chenille bedspread in summer, or under heavy, scratchy army blankets in winter, and under the dim light of the ceiling light fixture in my attic bedroom, I would reach for another black, hard-covered volume, part of an old, early twentieth century set of British books from my grandmother's childhood, called The Books of Knowledge (source unknown). Flipping past entries on topics as seen through the lens of the then mighty British Empire, I cared only for the fairytales and for the illustrations which were finely wrought, colored plates by the art-nouveau artist, Arthur Rackham. I have tended, ever since, to interleave these sublime landscapes onto my everyday seeing of the landscapes I dwelt in or traveled through. Perhaps this tendency grew because, never in any of my childhood readings did I encounter any literary landscapes that matched the landscape where I grew up–that of southern Saskatchewan, the flattest place on earth–where you can see where land meets sky from forty miles away. Perhaps, too, I rendered the emptiness of the prairie land and sky as a canvas, primed for painting.

In the landscape of southern Saskatchewan, although trees were rather small and of limited variety–mostly crab apple, rowan, elm, Manitoba maple, and, of course, cottonwood poplar, they jutted into the sky. Fields were horizontal and rectilinear, intersecting a domed sky. Spring flowers meant a shopping trip to the corner story to buy daffodils and my grandmother quoting Wordsworth's entire poem about them as she arranged them in the bottle-green, bubbled-glass vase. She was one of the last generations of school children who had been required to memorize dozens of poems and could recite them throughout their lives, enriching any occasion. Even now, whenever I see daffodils, whether at the supermarket or growing in the ditch, I see her face, hear her voice, and feel her emotion as she recites Wordsworth's poem. And Wordsworth's waving daffodils still

superimpose on the daffodils I behold with my everyday eyes in my West Coast landscape.

But my step-dad knew where magical, spring, prairie flowers could be found! He would drive (yes, drive) us out of the city and across prairie fields, bypassing rotting snow, looking for buffalo wallows. These are shallow beds the buffalo had long ago stomped out with their hooves to escape the worst of the winter storms. Down into the shallow wallow–which was hardly down at all–all rounded and smoothed by immense shaggy buffalo bodies, we would peer, my sisters, mother and step-dad and I. It took some moments for our eyes to adjust from the enormity of the sky to be able to see the tiny, wild prairie crocuses, pale mauve and fuzzy, nudging up through the soggy yellow straw and crusty old snow clumps. We would pick one and hold it up to the sky to see its soft-as-eiderdown fuzz outlining its form as a numinous halo. Our lovely crocuses always shriveled before we got them home. We had tried, once, to transplant some into our garden so that we could enjoy spring flowers at home, but torn from their wild, harsh home, they could not hold on to life.

The first summer flowers meant my birthday was coming. I remember sitting alone on the front steps of my house one June morning after my sisters had gone to school–I was still too young for school–with the wild roses and lilacs blooming on either side of me. Breathing their scent, I looked up into the sky, a lilac-blue mirror, and it was a moment of such simple purity that it still stands unmatched in my memory as an emblem of harmony and beauty.

I remember, too, as a young child, leaving the city on weekend summer mornings, heading out for a day at the lake, driving down highways that sliced through rectilinear fields of grain, bisecting the circle where the sky dome circumscribed the land. I would keep my eyes focused at the point on the horizon where the road meets the sky, waiting patiently for the moment when a blue mistiness of distant hills would appear. I would watch intently, waiting for this mistiness to swell into the verdant landscapes of my imagination. The mirage would swell and swell until there came a point when it would fade away and the bare yellow hills would appear. But hills in southern Saskatchewan meant having to first go down into a valley before you could go up. It was the

Qu'Appelle Valley. "Who calls? Who calls?" We would call out our litany, having once been told the meaning of the name. Down into the crack in the earth we would plunge. We would brace ourselves and sing out "Weeeee!" as the car tipped over the edge of the prairie, careening downward, faster and faster, ever on the verge of careening through the guard rail and sailing into space. Or that's how it seemed to my sisters and me, with our prairie eyes and a prairie sense of the vast emptiness of landscape, a perfect canvas upon which to paint our imaginings.

What I remember is the search for the lush verdant landscapes of my imagination as we searched for a picnic spot. Where could we find a bluff of cottonwood, wolf willow, and wild rose to shelter from the hot, colorless sky dome, a refuge to return to after scrambles up the hills and forays through the bush down to the still water, opaque and opal green with algae? What I remember is the heat pouring down, as we climbed the hills, and the continuous cackle of grasshoppers and the sticky crunch as you stepped on them. I remember grabbing onto tufts of spiky-sharp, yellow grasses to stop me from sliding down the gravelly slope.

I see now through different eyes whenever I return. Now I see the tender blue of the thistle flower acceding to soft thistledown and pink rose petals acceding to life-sustaining, wrinkly red rosehips, Now I see the grand story told in the glacial scratch on a pebble and the dance of sunlight and shadow on the bare bones of land flattened by an ancient glacial lake. Now I see how the wind plays upon the pale grasses, improvising a swishing, hissing euphony. When I inhale, I smell the sweetest fragrance on earth–cottonwood sap down by the water, down where the red-winged blackbirds sing.

Just as I had to learn how to see beauty in the prairie, in both subtle minutiae and titanic drama, I had to learn how to dwell in verdant landscapes. First, I had to grow new eyes and a new sense of space that could see and dwell in actual and imaginative landscapes simultaneously. And it didn't come easily. It didn't come after my first trip to verdant landscapes–only after many. I remember my first trip through the Rockies at the age of thirteen. Driving for the first time past countless waterfalls spilling down rocky cliffs into ferny, mossy banks–of the sort I had only read about and imagined–I felt claustrophobia, not wonder. What a strain it was to crane my neck to see the sky, blocked

by mountains and trees. The constant ups and downs and twists in the road made me dizzy and queasy and plugged up my ears. Both my everyday and imaginary vision were blocked.

Yet the vault of the prairie sky dome, without the safe enclosure of a car or a house, or protection by surrounding buildings or the large body of a grown-up, was terrifying. I remember going for walks with my sisters on summer nights across prairie fields to better see the Milky Way or the Aurora Borealis. Coyotes yipped and crooned at cattle off in the distance, with nothing but air between us. I imagined them crouching, watching us with golden night-eyes, on the rim of the horizon. My body jutted up into the black void. I had nowhere to run, nowhere to hide. I felt as though eyes were watching me–God, aliens, coyotes could pluck me at any moment. Or I could fall forever into the airless, frozen silence of space.

As I continued to explore my new West Coast city, I began a quest to learn about the myriad West Coast plants. How I yearned for one of those, and those, and those plants in my garden. What was it called? How much? How does it like to grow? Where would I put it? I wondered all these things from the safe distance of my car, which seemed prudent, given my scant resources of knowledge, time, energy, and money–and my fear of falling forever in the abyss of the unknown.

Until one day. On a hot, blue-sky September afternoon, I was invited over to visit the home of a fellow kindergarten mom. She and I had been chatting while walking to and fro from school every day to drop off and pick up kids. I followed her down the lane along the black-green yew hedge that formed an impenetrable ten foot wall around the perimeter of her garden, through the gated archway, painted buttercup yellow, and into her garden. And what a garden it was. Our three-year olds climbed over rock outcroppings where alpine plants rooted into crevices. They scampered down pathways through flowers, fading, but still beautiful as the summer waned. The sunlight reflected the faded color palette of echinops, euphorbia and echinacea; lavandula, lychnis and ligularia; scabiosa, stachys, salvia and sedum; achillea and artemisia. The flowers tangled and crept, spilled and poked, leaning into each other, punctuated by an enormous clump of yucca. This resplendent, chaotic composition was neatly framed by a curving border of

stones hauled in, she told me, a bucketful at a time, from nearby beaches. Under the shade of an oak tree, hydrangeas shouldering elephantine burgundy pom-poms, framed leafy shade plants: hosta and hemerocallis, astilbe and alchemilla, fuchsia and fern, dicentra and digitalis. In the sunny centre of the lawn was a gazebo entwined with wisteria–breathtaking in spring, I was sure–and the last of the season's climbing roses, coral streaked with yellow.

Of course, at the time, I didn't know the names of these plants. But I write this now, gazing through the eyes of memory, a memory informed by books of gardening brimming with the knowledge and experience of other gardeners gleaned through the generations, enthralled with tales of choreographing the life dances of plants. Now I know gardeners create this choreographed dance by becoming utterly absorbed in the garden as countless questions zoom like hummingbirds: questions about the dance between color, texture, size, light, soil, seasonality, longevity, critters... But I'm getting ahead of my story.

As I gazed at the garden through my then uneducated eyes, I was unable to name the plants or analyze what made the garden so beautiful, but this did not lessen my experience of beauty and wonder at the whole. "Could you come to my house and tell me how to make *my* garden beautiful?" I asked my friend. If this Mom with little kids could transform her garden into a place of beauty, well, maybe I could, too. Just maybe. With some help. Well, she did come, but amid the distractions of toddlers, rushed for time, it was hard to find more than a moment to consult with her about my neglected, tangle of a garden. As she walked out the door on the way to squeeze in an errand before picking up her son at school, I squeezed in a question: "What should I do? Her response stays with me still. "You just start," she said, "You move one plant and, if you don't like it, you move it somewhere else. You just play. You keep playing with the plants until you're happy." Well, if it was that simple, I figured I could do that.

And so, the very next day, after dropping my middle child at kindergarten, I dared myself into the garden, with my two-year old, repeating the words, "you just start; you just play" like a mantra. Now that he was old enough to not be inclined to eat dirt and the little critters that live in it, I said to him, "Look, sweetie, here's a bucket and shovel. See

what critters you can find." So long as he was happily digging, I could, and did, "just start and keep playing." Time ceased, and abruptly, it was time to rush to school to pick up my older two kids, and my two-year old was still happily absorbed in collecting dirt critters. Before I even knew it, I had already been drawn into a brand new world, a beautiful, serene world of ever expanding and complexifying relationships between plants, sun, earth, critters, and me. My troubles faded away, every one of them, whenever I entered this world. And although I didn't know it, my son had begun his lifelong love for pre-mammalian life forms—and especially fish: with each day that he spends by a lake or river or on the ocean, absorbed in contemplation and reciprocal interaction, his love, experience, and knowledge about the world of fish unfolds unendingly.

Winter descended and I withdrew my body from the garden, but not my mind. Soon I was going to the library, returning home to curl up near a fire, teacup in hand, pouring through books of knowledge, gardening knowledge, richly illustrated with verdant dream garden landscapes bedecked with arrays of perfect looking plants. By spring, I had learned enough to draw a design for my garden and write a long, informed list of plants the books said would thrive in my garden and, together, would compose a lovely, balanced design. Perhaps, now that I had some book knowledge and was willing to devote time and sweat, I *could* transform my weedy jungle into my dream garden! But no. To my frustration, despite my knowledge, my toil, and my vision, my garden never came close to resembling those portrayed in the gardening books, which I disparagingly compared to those airbrushed photographs of female bodies. One day, when a friend complemented me on my garden, I snarled, unable to accept her complement: unable to sustain the tension between these airbrushed images and the communities of weeds, blackberries, aphids, rust, and mildew that persisted making my garden their home. I was becoming resentful and cynical, feeling the sting of my "failures" in direct proportion to my struggles to "overcome" them. "Hmmm, she said, "There's something deep underlying your rejection of my compliment worth reflecting on."

But then, to my bafflement, other visitors, too, began to say, "Sharon, what a lovely garden you have!" What! My garden? Beautiful? I needed the eyes of "outsiders" to help me step outside my torn vision; only then could I see it as a whole and begin to

see beauty. After working with the cycling of plants through several seasons of bloom and decay, after learning to see my garden from both the inside and the outside, in fits and starts, I learned how to tolerate, to hold, to work more graciously at the interface between my vision and the actual fecund life cycling within the arbitrary margins I had framed and named *my garden*. I learned gradually that the discrepancies between my actual and envisioned garden were not only tolerable, they were important and to be appreciated: it was at the interface where I could learn and therefore develop possibilities for creativity and transformation. I learned how to search for patterns that link the actual when viewing from the perspective of the ideal, and visa versa. I learned, too, that this double vision, when interacting harmoniously, engenders transformation other than what I ever could have anticipated: it really does take on a life of its own, as is so often said, and becomes something else altogether: a new order, a metapattern of patterns that connect.

But learning to love blackberries, with their cable-wire roots and flesh-ripping stems hop scotching obliviously through, under, over, and between any boundary I attempted to superimpose on them, took an outside pair of prairie eyes from a far off distance. To my friend visiting from Saskatchewan, their winey flavour was food of the gods: ambrosia. Of the many gifts she bought for her family while she was here, a basket of blackberries picked en route to the airport was deemed her most precious. Now blackberries penetrate and pierce me doubly: their thorns may pierce my flesh and their shoots may penetrate my garden perimeters, but their juice penetrates my mouth and pierces my tongue. Now, "the meanest flower that blows" entices, "thoughts too deep for tears" (Wordsworth, as ctd. in Kroeber, 1994, p. 43).

The landscapes of my childhood, the landscaping of my first garden and my escaping/landscaping in the world of imagination have been potent, enduring metaphors for my life. Reflecting on them over the years has helped me learn how to better understand how to superimpose and integrate the many "patterns that connect" divergent imaginary, conceptual, affective, ideological, aesthetic, sacred, and physical landscapes. To come full circle, back to the question that my metaphoric autobiographical story attempts to probe: *why do I resonate so deeply with the epistemology of Gregory*

Bateson? Something to do with the immensity and barrenness of the prairies allowed my imagination to roam, unimpeded. Something about the habit of double vision, of metaphorically superimposing dissimilar landscapes, one upon the other, looking for "patterns that connect," them as a way of deepening, differentiating and complexifying meaning. Something about the extreme contrasts between prairie and ethereal, verdant landscapes of canonical literary worlds instilled in me a propensity to interweave–and yet not blur boundaries between–polarities, seeking out multiple perspectives and searching for overarching patterns. Something about zooming back and forth from spaciousness to minutiae, searching for moments rich with meaning and beauty as a way of learning. Something about gardening and becoming enraptured with following threads of connection which lead to more and more spinning of self-perpetuating tangles.

In Bateson's work, I find the wonder of life surprisingly juxtaposed with rigorous scientific inquiry of great scope and multiplicity of perspectives. As he reaches towards an incisive, but always opening, articulation of a holistic science, with an expansive view inclusive of the aesthetic and the sacred, the physical and the qualitative, he puts words to inchoate feelings that have been shaping the landscapes, gardens and stories of my life, both real and imaginary, since before I can remember. And so ends my story of how I learned to not only tolerate but also savour my deeply rooted proclivity towards multiple visions, pattern-connecting and "impertinent" questioning, like fine blackberry wine.

Introduction to Epistemological Experiments #2 and #3

Since the dynamic interrelationship between questioning and answering is so integral to Bateson's epistemology, and thus to my own inquiry, I shall conduct two further epistemological experiments using two heuristic systems of questioning from two differing perennial holistic philosophies that espouse holistic, nonreligious world views. This will provide me with the means to explicate, abductively compare, metaphorically and aesthetically experiment with, and exemplify through my writing, the main theme of Bateson's final book Angel's Fear (1987), which is the role of the aesthetic and sacred in holistic science. It is primarily in this book, written with the awareness of the immanence of his own death, that Bateson asserts the necessity of sketching the bare outlines of the role of the aesthetic and sacred in a holistic science by way of examining examples of

holistic systems long established in human cultures. He also argues in this book that a materialistic science perpetuates belief in the mystical by splitting off whatever cannot be explained materially into the supernatural. He maintains that a holistic science based on a communicative, biologically based epistemology makes such a split unnecessary when both mind, as he defines it, and material are included in explanation of living systems.

Ergo, I shall risk exploring territory where academic writers have "feared to tread" to both explicate and exemplify the way in which Bateson's epistemology can further the formation of an ecological framework/field for academic writing. I have chosen two questioning heuristics that draw from the perennial philosophies of Taoism and the Kabala, namely the I Ching and "The Tree of Life," because Bateson, throughout his work, acknowledges parallels between his holistic, scientific epistemology and those of Eastern philosophies.

Epistemological Experiment # 2: Exploring the *I Ching*

The I Ching is a book of wisdom whose purpose is to help inquirers better apprehend how interrelated patterns in which they are embedded change so that they can make choices that are more harmonious with the ongoing, changing dance of these patterns. Richard Wilhelm, a sinologist, explains that the I Ching is the outcome of five thousand years of recorded scholarly studies based on a holistic worldview (Capra, 1983, p. 121). With prehistoric roots going all the way back to the preliterate Siberian tribes, early versions of the I Ching consisted of recordings of astute observations of the correspondences between the ever changing, cyclical, transformative patterns of nature and patterns of human affairs (Wing, 2001, p. 8). Wilhelm explains that the I Ching has been considered highly influential, great literature by the Chinese throughout their history:

> [It is] unquestionably one of the most important books in the world's literature.... [I]t has occupied the attention of the most eminent scholars of China down to the present day. Nearly all that is greatest and most significant in the three thousand years of Chinese cultural history has either taken its inspiration from this book, or has exerted an influence on the interpretation of its text. (as ctd. in Capra, 1983, p. 121)

Written poetically and metaphorically, in a style that has elements of the expository as well as the aesthetic, it is intended to be read in both ways. Specifically, it offers inquirers insight into commonly recurring patterns of changes in human lives by metaphorically comparing the Barbara and grass logic of human affairs to the grass logic of patterns of change in nature. The depth of insight obtained by inquirers is dependent on the extent to which the patterns of change correspond with patterns in inquirers' lives, and further, on the extent to which inquirers reflect on the metaphoric comparison of these patterns to those at work in their current life situation. As explicated above by reader response theorists, like any well-wrought work of literature, the archetypal patterns of the I Ching are bare outlines whose gaps allow myriad interpretations: readers/inquirers can play Elbow's Believing Game, suspending disbelief, and fill in the gaps with empathic projections of their own life stories and imaginings. The patterns serve as crucibles that bring congruent subconscious thought patterns to consciousness long enough so that they can be reflected upon–and perhaps harmoniously transformed by showing the inquirerer how to interact more effectively with larger contextual patterns in which the inquirer is embedded. Certainly, the process of writing about one's insights gained from the I Ching forms another crucible that furthers the potential for reflection and transformation. That's what I will try to show in this experiment.

As an epistemological experiment, then, I put my above stated question to the I Ching: "Why do I resonate with the work of Gregory Bateson?" The introduction to the I Ching has two stipulations for asking questions: a receptive state of mind and a genuine desire to change following the patterns of nature. Confident that I fulfill these stipulations, I go ahead and jump into the game. I shake three pennies six times. Games embody the stochastic nature of life processes: within limits, a process of selection is applied to the random. Each shake of the pennies gets mapped onto a binary code: the various combinations of heads/tails are coded as either a solid or broken line, symbolizing, respectively, either more enduring or more quickly changing patterns. This binary code symbolizes the ongoing oscillation between polarities prevalent in nature. I draw six broken or solid lines from the bottom up, forming what is called a hexagram. Three heads or three tails are coded as "changing" lines, and I get two of these. This

means I will be required to read the texts associated with two different hexagrams, one for the patterns in the present, one for the immanent change into a new pattern. I am now ready to compare the randomly selected patterns to my life story, selecting out whatever I deem to be salient.

Before I go on to explore my two hexagrams, it is important to reiterate that I see no mysticism in the I Ching. Rather, what I see is that some sort of ritual is needed to ease inquirers into a receptive, inquiring state of mind; it really does not matter whether this ritual consists of stirring tea leaves or gazing at clouds or tossing pennies. Writers' rituals for getting ready to compose have been well documented, for example, in The Paris Reviews. To shift from a prosaic, busy state of mind to a receptive, ready-to-compose state, what amounts to ritualistic prewriting behaviour such as sharpening pencils, making tea, listening to Bach's cello suite, and so on, seems to be necessary (Goldberg 1986; Sher, 1999). A Buddhist teacher, Shunryu Suzuki-Roshi, affirms the importance of these rituals, but with a slight, yet critical, difference: "these forms are not the means of obtaining the right state of mind. To take this posture is itself to have the right state of mind" (as ctd. in Sher, 1999, p. 21). For example, *as* I recited my gardening mantra, "just start; keep playing" I *became* absorbed in the present moment, and time ceased.

Inquirers, artists–and writers–need limits in order to compose, but they need flexible, open limits that facilitate the creation of new patterns. Think of the severe limitations of a haiku: think of the unique insight of each one; and then think of and the awe it brings about. Such patterns allow for randomness as well as selectivity, thus exemplifying the stochasticity of evolutionary processes in which patterns form when "a sequence of events combines a random component with a selective process so that certain outcomes of the random are allowed to endure" (Bateson & Bateson, 1987, p. 211). Bateson defines epistemology as "the study of the *necessary limits* [italics mine] and other characteristics of the processes of knowing, thinking, and deciding" in all "organisms or aggregates of organisms" (208). The archetypal patterns of the I Ching effectively exemplify the role of limits, pattern formation, and the stochastic processes of nature as well as writing and inquiring.

Back to my question, then. My first hexagram is called "Danger" and consists of a pattern of lines symbolizing water, or "k'an," one below the other. In this configuration, the two solid lines symbolize strength, even though they are surrounded by four yielding, broken lines. I read the seven paragraphs that map this nature symbolism onto human affairs and resonate with the following text:

> Frequent encounters with *DANGER* are a part of life. Beyond making you inwardly strong, familiarity with *DANGER*, like the near brush of death, can instill in you a profound awareness of...the mysterious nature of the cosmos. Such heightened awareness can bring new meaning, determination, and richness into your life. (#29)

As I vacillate between curling up within the comfort of conservative, closed and comfortable niches and intrepid scouting beyond conventional boundaries, frustrations arise, urging me into the ambivalence of the "beyond," infusing me with new meaning and a rush of vitality. I offer my aesthetic, metaphoric response and invite my readers to notice their own responses as they interpret my poem within the onion-layered contexts of this thesis:

I am an idea weaver, a text spider, Ariadne
Assiduously composing
My quivering, winding web of de-sign-ification
Questioning the attainability of tethering
With qualms, vaulting into arcane voids.
My crystal liquid lines unfurl opaquely

Evanescing, now and again mooring
And congealing into viscose lacework
Ceaselessly entwining and untwining–brightened–
By rare glints from the whimsical recondite.

My "Danger" hexagram, according to the rules of the game that circumscribe my random coin toss, are forecasted to immanently change into a hexagram called "Prospering" or "Peace." Sounds good to me! This hexagram consists of two symbols, earth above, represented by three broken lines, and heaven below, represented by three solid lines. In this patriarchal tradition, the earth symbolizes feminine passivity and the heavens symbolize masculine strength and action. With the feminine juxtaposed above

the masculine, creativity is deemed to be optimal as feminine pliancy lends harmonious balance and sagacious discernment to robust deeds. Alternatively, in some versions of the I Ching, the solid lines represent the dormant passivity of winter, while the broken lines represent the generative forces of spring, which is the quintessential time of harmonious change and new beginnings in life cycles (Capra, 1983, p. 308). I read the seven paragraphs that transform this nature symbolism into human affairs and resonate with the following words:

> The time resembles the exciting beginning of spring, when the cosmic forces are in inspired harmony. There presently exist the ideal conditions for new awakenings, healthy growth, and progressive plans. It is a totally co-operative environmental setting that leads to the flowering and *PROSPERING* of what is now aroused. When spring comes to any situation...[a person] separates, regulates, controls, and limits the rich beginnings so as to shape the future and organize his [or her] life. It is possible now for strong and good ideas to advance the situation while reforming the inferior and degenerating elements of the past.... Because of the correct and harmonious nature of the cosmic forces present, it is an excellent time for making useful laws and developing systems of order. (#11)

How aptly this expresses my vision and struggles with this thesis and my gardening! Spring, my favourite season: How I love the fresh, greenness of new beginnings! I ditto my previous invitation to my reader as they read my response:

> *Gashing ground again in a surge of springing*
> *I cut-out clog, collapse, crumble,*
> *Conceiving arrays of balanced beauty.*
> *Brooding with circumspection*
> *I begin, again–my contingent sowing.*
>
> *Harvest's breath prickles my neck,*
> *Riding me reckless round loops*
> *Til exigent inscriptions sprout*
> *Willy-nilly from unfurling furrow lines–*
> *Another feral-leafy crop.*

Epistemological Experiment #3: Exploring *The Tree of Life*

> *Not I, but the wind that blows through me!*

A fine wind is blowing the new direction of Time.
If only I let it bear me, carry me, if only it carry me!
If only I am sensitive, subtle, oh, delicate, a winged gift!
If only, most lovely of all, I yield myself and am borrowed
By the fine, fine wind that takes its course through the chaos of the world
Like a fine, an exquisite chisel, a wedge-blade inserted;
If only I am keen and hard like the sheer tip of a wedge
Driven by invisible blows,
The rock will split, we shall come at the wonder, we shall find the Hesperides.

Oh, for the wonder that bubbles into my soul,
I would be a good fountain, a good well-head,
Would blur no whisper, spoil no expression.

What is the knocking?
What is the knocking at the door in the night?
It is somebody wants to do us harm.

No, no, it is the three strange angels.
Admit them, admit them.

-----D. H. Lawrence, "Song of a Man Who Has Come Through"
Complete Poems (as ctd. in Nachmanovitch, 1990, p. 156)

So far, in my autobiographical inquiry, I have been using landscape and nature metaphors to explore my autobiographical question "Why do I resonate with Bateson?" I have been experimenting with integrating the metaphoric, personal, and aesthetic realms with traditional academic writing and linking this aggregate to Bateson's theories. I shall now broaden this question to ask: *what is my creative vision for this thesis?* Or more specifically: *How can I experiment with patterns that connect across different boundaries of scientific rigour and creative imagination and, with rigour and creative imagination, follow threads that richly interweave writing within a bioepistemic matrix and thus engender holistic academic writing?* To answer, I have sought guidance, as I write this thesis, from a heuristic for creative inquiry called "The Tree of Life," designed by Olivia Lee. I shall explicate this heuristic, as I have done above for the I Ching, but I shall not be able to write my personal aesthetic response for each aspect because my whole paper can be read as my response; therefore, any attempt to do so would be overly reductionistic. I invite my readers, then, as they read through the following explication of this heuristic, to keep this in mind.

The name, "the Tree of Life," was chosen because of its allusion to creation

stories from sacred traditions, stories of how phenomena become manifested (Lee, personal communication[5]). Olivia Lee developed this heuristic from years of her own personal experience with the creative process as well as guiding others in creative inquiry, and from her synthesis of the Kabala, a Jewish book written during the Dark and Middle Ages that amalgamates Greek, Islamic, and Egyptian mystical traditions. She has also drawn from Jungian alchemical notions about embodiment, which are concerned with *how* abstract ideas manifest. Lee's heuristic serves as a relational, holistic map for creative inquirers that augments their potential to capture, reflect upon, and embody the fleeting, subtle, dynamic–and often dichotomous–facets of the creative process. It is particularly suited to abductive comparision to Bateson's bio-epistemic theories of life systems in regard to creativity, relational and contextual thinking, embodiment, questioning, and the sacred.

Comparing Lee's heuristic and Bateson's theories enhances my engagement with the creative aspects of my own inquiry. It will also help me better understand Bateson's bio-epistemic notions of creative processes because it exemplifies these processes so well. In Bateson's view, creative thinking is of such paramount importance in evolution that, in Mind and Nature, he maintains that his overarching purpose of writing the book is to study the abductive "parallelism between creative thinking and that vast mental process called *biological evolution"* (1979, p. 185, original emphasis). Because Lee's heuristic emphasizes holistic relationships rather than things as separate objects, it readily lends itself to abductive comparison to Bateson' epistemology which asserts that while "language depends on *nouns*, which seems to refer to *things*...biological communication concerns pattern and relationship" (1987, p. 188).

de Bono (1988) points out a hegemonic dichotomy between vertical, or inductive and deductive reasoning, and lateral, or creative thinking; he argues for a reconceptualization of the two as complementary and for the need to teach lateral

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[5] My interpretations of Olivia Lee's "Tree of life" heuristic are based on three personal communications: a tape recording of a graduate course lecture, March 25, 1998; handouts and notes from a graduate course lecture, October 12, 2000; and a telephone conversation, August 19, 2002. She will soon publish a book on the "The Tree of Life." She has drawn on the published works of Jung and of the Kabala tradition to develop her heuristic.

thinking skills in the education system (p. 47). Describing the mind as a highly efficient "self-organizing" pattern-making system, he posits that it is difficult for the mind to restructure patterns because of the extent to which "patterns control attention" (p. 10). Vertical thinking is effective for developing patterns and utilizing them selectively and sequentially to reach a solution (p. 43, 46); in contrast, lateral thinking is effective when what is needed is "provocation and disruption in order to allow the mind to restructure patterns" (p. 46). The two are complementary in that "lateral thinking enhances the effectiveness of vertical thinking by offering it more to select from [and] vertical thinking multiplies the effectiveness of lateral thinking by making good use of the ideas generated" (p. 47). Bateson, as discussed earlier, recognized the importance of the complementarity between rigour and imagination in his writing and thinking process. Lee's heuristic is inclusive of both lateral, creative thinking and vertical, rigorous thinking; moreover, it recognizes the appropriateness of each at different stages of the creative process.

Lee has demarcated ten stages of creativity, but instead of stages she prefers to call them *spheres* and *intelligences*, defining these terms in ways that are congruent with Bateson's theory that temporal processes and events are embodiments of abstractions, such as "difference." In like manner, Lee uses the word *sphere* to propose that each stage is far more than an abstract principle; rather, each one is an temporal experience to enter into and allow to change us. She articulates a different question for each sphere because questions help the inquirer open more deeply to the different experience of each sphere. She frames each question as a "how can I..." question to further embody the creative notion represented in each sphere in a temporal process requiring action on the part of the creative inquirer.

Before I begin, a note about my paraphrasing and quoting of Lee's language. Although Lee uses language to evoke the mystery of our relationship and participation in unknown large wholes (no matter how much we know, we will never run short of mystery!) I have omitted those words that could be construed as mystical, instead using language that emphasizes Bateson's aim of grounding our participation in and awareness of these wholes in a bio-epistemic matrix. Lee uses the word "life" in a way that is

congruent with Bateson's abduction between creative thinking and evolution and our sacred experience of relatedness to larger wholes in which we are embedded. It is this meaning that I intend wherever I use this word.

Sphere one: How can I allow myself to open and move into relationship with the larger wholes of life?

> *Writing is a long process of introspection; it is a voyage towards the darkest caverns of consciousness, a long slow meditation. I write feeling my way into silence.*
>
> *Isabelle Allende (as ctd. in Ely et al., 1997, p. 13)*

To begin any creative endeavour, says Lee, we must first take ample time to allow ourselves to establish a sense of readiness to receive, a sense of openness to and connection with the ever larger wholes of our inquiries. Lee claims that, when we do take this time, whatever we create is imbued with the "vitality of Life." Although this can be easily dismissed for sounding mystical, writers everywhere exhort themselves–or their editors or teachers exhort them–to make their writing "come alive" and be "vital" in such a way that can never be completely explained by reductive analysis. You, my reader, are depending on me to make my writing "come alive"--at least enough to not only keep you from falling asleep while reading this, but also as a means to evaluate me.

Bateson, as discussed earlier, abductively compares questioning to the egg that has matured into a state of readiness to invite sperm in and metamorph into something utterly different: an embryo. The stories of conception, gestation, birth, and death are mirrored in ever larger, interactive contexts; as mentioned, even stars have a life cycle of germination, metamorphosis, and death. Writers engaged in creative inquiry often report experiences of absorption into wholes greater than themselves. As has often been described, when in this state, the writer seems to become "the work's way of getting itself written, a sort of lightning rod for an accumulation of atmospheric disturbances" (Barthelme, 2001, p. 177). Bateson believes that absorption in creative experiences that foster absorption for their own sake engenders a sense of harmony, beauty, and relatedness between the self and larger wholes and gives rise to a sense of the aesthetic, and sacred (Harries-Jones, 1995, p. 51, 216). Creative inquirers often report their experience of these moments of absorption, however ephemeral and elusive, as exciting,

pleasurable, beautiful—even magical—often using words that allude to the "vitality of life." Lee, like Bateson, conveys the experience of opening to "larger wholes" as sacred.

Sphere two: How can I wake up and become more conscious of my connection to larger wholes in which my inquiry is embedded?

You suspect this could be yours
with a little contrivance.

Only death to contrivance
Will avail you.

Something "good" or "bad"
Always comes out of you,
It is agony to be still;
The spool turns

When mind pulls the thread.
When the kettle boils
Fire is revealed,
When the millstone turns
The river shows its power.

Put the lid on the kettle
And be filled
With the boiling of love.

-----Rumi, "The Mathnavi"
(as ctd. in Nachmanovitch, 1990, p. 142-43)

Because our limited attention span is usually devoted to the immediate particulars of our situations, we are often unaware of our connections to larger contexts. Although we can, when we make the effort to think about them, apprehend our more immediate larger contexts, the larger they are, the more difficulty we have apprehending them. Nonetheless, both Bateson, using ecological language, and Lee, using somewhat more mystical language, point towards the same idea: that we are always an integral, more or less influential, part of all "patterns which connect"–even the largest ones–just as much as they are part of us.

Because of this interconnectivity, what we do not know is at least as important as what we know. Although Lee sometimes uses mystical words such as "life force," "mystery" and the "dark shadow of knowledge," and Bateson uses the language of evolution and cybernetics, both emphasize the importance of making a sustained effort to

reflect upon one's connection to larger unknown wholes–even though it remains more or less unknown–as a vital part of opening one's self to tending the creative process as it unfolds. We will always know far less than what we know: we will never be without mystery. Both Bateson and Lee would agree that short-circuiting this stage inevitably short-circuits creativity, leading to fragmented, short-sighted results lacking in "vitality." Bateson's life long inquiry is a remarkable example of the first two spheres: by tolerating the ambiguities and tensions of "not knowing" and continuing to connect to larger wholes–a process he called "groping," he augmented his indeterminate questioning until notions of a bio-epistemic epistemology began to emerge.

Sphere three: How can I become responsive to what my questioning returns to me?

In this sphere, Lee describes how a recursive coupling process, which some esoteric traditions call the Law of Continual Return or the Law of Attraction, is at work in creative inquiry. Bateson would attribute this law to the way in which mental and biological patterns are formed, change, and interconnect through the processes of stochasticism and recursiveness. To the extent that the question asked resonates with the inquirer's deeper patterns of intentions and desires and these resonate with the patterns of larger and sacred wholes, and to the extent that the inquirer/creator persists in being open and present, he or she cultivates a capacity to attend to and select out "answers"–or, to use Bateson's metaphor, sperm, or his key phrase "differences which make a difference"–from the ocean of random, subtle, fleeting images, sensations, thoughts that he/she is constantly immersed in. So long as the inquirer persists and stays open, then, this law states that new ideas and patterns inevitably come: there is always an "aha!"–a moment of conception–ranging anywhere from delicate nuance to stunning thunderbolt. Writing, is especially effective in helping us cultivate this process of selecting out "ahas!" and capturing them for a longer life span.

Sphere four: "What is my personal story, issue or theme that is being touched and called forward by" my creative inquiry? [6]

[6] I use quotes for the names of spheres five to ten because I am quoting directly from Lee's handout. In the first four spheres, I paraphrased in order to avoid the use of mystical language.

Thus, great with child to speak, and helpless in my throes,
Biting my truant pen, beating myself for spite:
"Fool," said my Muse to me, "look in thy heart, and write!"

Sir Philip Sidney, Astrophel and Stella
(as ctd. in McLeod, 1997, epigraph)

Lee construes the first three spheres of the creative process as a triangle of unity which is spiritual insofar as it is about connecting to the largest conceivable wholes that extend far beyond our individual selves. She maintains that this triangle is excluded from most formal descriptions of the creative process. The second three spheres, spheres four to six, form a second triangle that focuses on how creative inquiry affects the inquirer at a personal level. If we keep opening to "patterns which connect," Lee explains, we begin to become aware of how our personal story enters into our creative process. Holding ourselves open to our personal conflicts brewing inside us eventually brings us to a place where our personal story can be birthed into what we are trying to create, infusing it with an authenticity, harmony, and unity that is otherwise absent. Like Sphere One, Sphere Four is about the subtle art of taking time and allowing ourselves to really feel and become curious about how our personal story relates to our inquiry. (This is what I did in Epistemological Experiment #1.) Simple allowing and taking time, says Lee, is an experience often bypassed in our fast-paced, progress/product/goal-oriented, culture; simplicity has become rare.

Sphere five: "What is the challenge, opposition, drama or trial that (4) must face to achieve wholeness and expression?"

Words strain,
Crack and sometimes break, under the burden,
Under the tension, slip, slide, perish,
Decay with imprecision, will not stay in place,
Will not stay still. Shrieking voices
Scolding, mocking, or merely chattering,
always assail them.

T. S. Eliot "Burnt Norton" Four Quqrtets
(as ctd. in Nachmanovitch, 1990, p. 81)

No sooner than we allow our story to be drawn forward, but a personal conflict, usually in the form of polarities, emerges that must be somehow resolved before we can

continue our creative endeavour. (My garden story, for example, expresses my struggles with the polarities of actual and imaginative vision.) Because of feelings of frustration, lack of confidence, prohibitions about self-expression, fear of irrelevance, or fear of vulnerability, it is at this point when we often feel like short-circuiting our inquiry to something easier, procrastinating, diverting, sabotaging, or else giving up entirely. The countless unfinished creative projects-- including theses, dissertations, and novels--are a testament to the magnitude of our conflicts in this sphere. Many artists have described this sphere as the dark night of the soul. Whether or not we allow these conflicts to be brought forward, they "leak" into our writing whether we intend this or not; however, our creative inquiries lose authenticity, richness, and vitality when we abort our experiences in this sphere by denying the personal conflicts that are inevitably embedded in our questions. Because our inquiry reflects our personal story more than we often know, these personal conflicts are rich sites for mining insight into the most meaningful patterns at work in our lives as well as our inquiries. I endeavoured to work through this sphere in my first epistemological experiment, in hopes that it would lead me to the following spheres.

Sphere six: "How can I transform (4) and (5) into a new, more harmonious vision or experience that is respectful of both sides" of polarities?"

To persist through this difficult sphere, we need to find the courage to hold the tension of opposites in our creative endeavour, and Lee maintains that we can do this by finding ways to keep making our creative process sacred. In sphere six, we spiral back to the first triangle of spheres and keep connecting with a sense of sacredness to help us transform our oppositions by persisting in holding the tension. This enables their manifestation into a harmonious, unified, unique creative vision, which is the answer to our inquiry. Here, the recursive nature of the creative process is apparent as the inquirer loops back to the first triangle of spheres as a means to transform the second triangle of spheres. We can reconceive the holding of the tension of our polarities, not as a fight between adversaries but, rather, as the simple but powerful nurturing of maiuietics–like a pregnant mother simply allowing and holding the nurturing of a new and other life growing deep inside the dark of her body, waiting with acceptance for the disruptive,

painful contractions that are beyond her self and that are a necessary part of transformative change.

Sphere seven: "How can I allow this new vision to show itself through me?"

My belly is as wine which hath no vent;
it is ready to burst like new bottles.
I will speak, that I may be refreshed;
I will open my lips and answer.

-----Job 32:19.
(as ctd. in Nachmanovitch, 1990, p. 158)

Once our creative vision has gestated, a third triangle of spheres begins. In the seventh, eighth, and ninth spheres, the focus shifts to mental activity, towards questions of how to express one's creative vision. While spheres one to six, the first two triangles of spheres, focus on the inner worlds, because spheres seven to ten focus on how to embody our vision in the world, mental activity becomes appropriate. In schools, says Lee, we are usually taught to begin the creative process here. In the seventh sphere, we question whether we will allow ourselves to express our creative endeavour–as well as how and to whom–and this brings up questions about whether it is worth communicating to others. To the extent that we are moved or changed by our vision–which depends on how deeply we have moved through the first six spheres—we will be moved to allow it to come forward for expression. Lee believes that, insofar as we have experienced a unique interconnection with larger wholes as represented in spheres one to six, we come to feel our deeply felt visions are worth expressing to others because they are unique patterns that "make a difference."

Bateson sees the significance of multiple perspectives in life systems: diversity arises inevitably in cultures and evolution by different responding to and transforming of "news of difference." Epistemologically, abduction is his preferred method of gaining new insight because it "provide[s] that diversity of method through which science might attend to the diversity in ecological order" (Harries-Jones, 1995, p. 13). When we believe that expressing our unique creative and personal vision makes a "difference," we tend to seek ways to become more reflexive, intentional, and creative pattern-makers and become more aware of how our unique pattern-making endeavours become differences

that make a difference–no matter how subtle or short-lived. (Yet, as I write this, I am envisioning copies of my thesis gathering dust on shelves.)

Sphere eight: "How can I provide the form which will take this vision where it needs to go?"

Trying to use new words, and every attempt
Is a wholly new start, and a different kind of failure
Because one has only learnt to get the better of words
For the thing one no longer has to say, or the way in which
One is no longer disposed to say it. And so each venture
Is a new beginning, a raid on the inarticulate
With shabby equipment always deteriorating
In the general mess of imprecision of feeling,
Undisciplined squads of emotion. And what there is to conquer
By strength and submission, has already been discovered
Once or twice, or several times, by men whom one cannot hope
To emulate–but there is no competition–
There is only the fight to recover what has been lost
And found and lost again and again; and now, under conditions
That seem unpropitious. But perhaps neither gain nor loss.
For us, there is only the trying. The rest is not our business.

-----T. S. Eliot, "East Coker" Four Quartets
(as ctd. in Wilder-Mott, 1981, p. 42)

Whereas sphere seven focuses on content, sphere eight focuses on choosing the most compatible form, one that best meshes with the content and the context of our vision. The relationships between form, content, and context are of great importance to Bateson, and he writes extensively, as discussed earlier, about how structure is our mapping of recurring patterns. Any creative expression, such as an art object or text, is an abstracted, outlined description of the most salient, recurring patterns of the creator's process, which is a reflexive process of choosing images, shapes, words, and feelings from the flux that best match and deepen the initial inquiry question. Lee's question that "structures" this sphere can therefore be understood to be a significant challenge for the creative inquirer: how can we create a structure that *best* describes, or more precisely, outlines our creative vision, despite its inevitable omissions and distortions, so that it can be best apprehended by others?

Sphere nine: How can I best embody 1-8?

every word is at home,
Taking its place to support the others,
An easy commerce of the old and the new,
The common word exact without vulgarity,
The formal word precise but not pedantic,
The complete consort dancing together.

T. S. Eliot, "Little Gidding" The Four Quartets
(as ctd. in Barnet, 1985, p. 50)

In writing, sphere nine corresponds to the revision and editing stages: details that detract from the essential message are thrown out in a process that Lee calls *distillation*. Here, Lee emphasizes that the more the tension of *all* the diversities and polarities experienced in spheres one through eight can be held, the more they can be embodied into a coherent, cogent, creative expression. Although editing and revising require convergent thinking skills, it is important to continue to stay open; otherwise, the *all* cannot be held, and we can miss out on subtle, fleeting thoughts, images, sensations, and feelings that just might transform our work into something that others will experience as "alive," "moving," "potent," and "powerful"–to use common descriptors of creative work considered excellent. Lee attributes such qualities to embodiment of the creator's engagement in the first eight spheres.

Embodiment, to Bateson, as explained earlier, means the manifestations of organizational and systemic patterns of ideas after they "grow, transform themselves, and become differentiated" (Harries-Jones, 1995, p. 234). Bateson explains embodiment in way that resonates with Lee's holistic notion of "distillation" of spheres one to eight: it is the outcome of recursive interrelationships of patterns, at and between all levels, between parts and wholes.

Throughout this epistemological experiment, I have been drawing abductive parallels between Lee's heuristic on creativity and Bateson's mental theories to better understand the writing process as an embodiment of the creative, communicative, and systemic biosphere in which we are immersed and are co-evolvers. Whenever we look for parallels between our own specific creative process and other wholes, both larger and smaller, physical or mental, we are engaging in embodied, recursive, abductive, holistic thinking of the sort advocated by both Lee and Bateson. To make this clearer, I shall re-

quote an excerpt from Bateson that I used to introduce this epistemological experiment, only this time I shall include the words immediately before and after the excerpt:

> And because we are embarked on a...study of the parallelism between creative thinking and that vast mental process called *biological evolution*, it is worthwhile to ask in every instance: Is *this* way of looking at [this particular] phenomena somehow represented or paralleled within the organizational system of the phenomena themselves? (1979, p. 185)

In academic writing, and other methods of inquiry, it is critical that we persist in getting better at discovering ways of looking and describing that are more, rather than less, congruent with the ecosystems and realizing how we are always connected to whatever we are attempting to apprehend. By continually linking our inquiry to metaphors of the whole, such as the aesthetic and the sacred, we continually "bring to our attention how the various subsystems in the whole interleave and persist" (Harries-Jones, 1995, p. 234). Persistence is incredibly important, declare Bateson: "we must find good methods to engage our current understanding of persistence. For persistence, survival itself, is evidence of healthy relationship" (p. 234). Lee's heuristic continually brings us back to persistence in relating to larger, aesthetic and sacred wholes–to opening, receiving, holding tensions, allowing, waiting, and distilling.

Sphere ten: "How can I best manifest...the process and offer its gift to the world?"

At last, we can let go of what we have created. This letting go stage is essential. It allows us to finally step outside of our creative process so that a new perspective can be attained: that of looking at the whole from the outside. It is the ability to step outside a system that enables the reflexivity that, in turn, makes possible further transformation (Harries-Jones, 1995, p. 250-51). One potent way to step outside one's creative process is to adopt a playful attitude towards it. Bateson, through studying play in otters, postulated that play requires giving a paradoxical metamessage, a signal about how *not* to classify a common signal, for example, "Don't believe this [bite]. It is unreal, we are friends" (Lipset, 1980, p. 192). He maintains that play enables a metaperspective that engenders adaptive flexibility in interpreting and responding to codes, rules, relationships, and contexts:

My personal interest in the abstract problem of play is a desire to know about those processes whereby organisms pull themselves up by their bootstraps. And they do it, as far as I can see, by loosening up on the rules of communication–the onionskin structures within which they are operating. They play with these structures or rules and thereby move forward to new rules, new philosophies, etc." (as ctd. in Lipsett, 1980, p. 193)

And here is my aesthetic response to working through the ten spheres:

Exhaling I let go–
And step back:
I hold up my hands
(Re)Framing
With my thumbs and forefingers
Peering through, this way, that way.
Aha! Wait!....
Look again...there...
Do you see?
And back into the frame I jump
Again

CHAPTER FIVE

Re-visioning My Tangled Garden: So What? What Now?

Finishing the hat,
How you have to finish the hat,
How you watch the rest of the world
From a window
While you finish the hat.

Studying the hat,
Entering the world of the hat,
Reaching through the world of the hat
Like a window,
Back to this one from that.
-----Sondheim and Lapine, Sunday in the Park with George
(as ctd. in Ely et al., 1997, p. 157)

My intention in this concluding chapter is to address the "so what?" and "what now?" that readers expect–and deserve–in conclusions. I shall do this in the usual way by pointing to the significance of my thesis in some of the larger contexts in which it is embedded: first, I shall point to examples of recent research in diverse disciplines that attempt to create ecological frameworks that can be abductively compared to Bateson's bio-epistemic framework; and second, I shall suggest ways these ideas might be used heuristically to design curricular frameworks in which embody ecological academic writing and inquiring can be embodied. But before I do that, it is integral to the main theme of this thesis to reflect on the tensions and ambivalence inherent in drawing conclusions from one's written inquiry. The metaphor of the spiral elucidates the creativity this tension makes possible–and that I aspire to in this conclusion.

Spirals as Metaphor of Openness and Closure

Citing chaos theorist, Briggs, Oberg (2001) describes how spirals are formed in nature and how they exemplify the open, yet structured, creativity inherent in holistic dialectic: when opposites interact, such as the open fluidity of water flowing between hard, static rocks, ever-changing, fluid spiral patterns compose, decompose and recompose (p. 4). With the spiral metaphor, the role of Bateson's "necessary limits" in developing knowledge can be apprehended vividly (Bateson & Bateson, 1987, p. 208):

the limitations imposed by the rocks in the river paradoxically are the agents that bring about innovative patterns; in other words, they form the context.

Many endings are structured by spiraling back to the beginning because this helps give readers a sense of a harmonious whole. Directly comparing the beginning and the ending enables readers to reflect upon differences that have made a difference in their journey with the writer around the spiral. In Bunyan's Pilgrim's Progress, Christian, in the end, comes full circle, back to the home he left. But he is a changed person as a result of his journey around the circle, and sees his home through different eyes. And so I have spiraled back to my introduction—to the beginning song of George Seurat, the pointillist painter, as he begins to paint the daunting blank canvas—and have begun my conclusion with his song about finishing his composition. Both songs echo Bateson's notions of the rigorous, the imaginative, the aesthetic, the creative, the sacred, the epistemic framing, and abduction. Bateson composed by drawing "patterns which connect" scattered bits of knowledge to create pictures of the largest wholes that humans can conceive of. Similarly, Seurat strived to re-vision conventional ways of seeing wholes by painting tiny, separate dots: he repeatedly stepped up close, zooming in on minutiae, and then stepped back, utterly absorbed, shifting attention between dots and larger wholes, striving for harmonious interweaving between them. Seurat's method echoes my own process of writing this composition: viewing the rest of my life through the window of this composition in order to better understand life, I have repeatedly spiraled round and round from the tiny dots on my computer screen, from hundreds of scattered notes, out to the largest concepts I am grappling with. My understanding has grown maieutically with each turn around the spiral. But, in the end, I am only certain about one thing: the impossibility of completion.

George Eliot perceives astutely that endings are "never concluded, only negotiated" (as ctd. in Ely, et al, 1997, p. 302); Kermode cynically concludes that "endings, then, are faked" (as ctd. in Neel, 1988, p. 20); and George Meredith, more lyrically cautions, "Ah, what a dusty answer gets the soul / When hot for certainties in this our life ("Modern Love"; source unknown). Together, Eliot, Kermode, and Meredith articulate my tension and ambivalence about "negotiating" a conclusion that is not

"faked" or "dusty," with the pressures of the rest of my life–and deadlines–looming. After all I have said about Bateson's emphasis on staying open to "impertinent" questioning, how, then, do I satisfactorily conclude when readers expect–and deserve–some sense of closure? How do I do this when, paradoxically, the need to stay open and hold the tension of not knowing *is* my conclusion?

Bateson adjures those in the social sciences to keep their inquiries open and draw on aesthetic experiences in order to better apprehend the larger wholes in which our inquiries are embedded. Throughout his writing, Bateson points out the negative consequences brought about by the social sciences as a result of rushing into reductionism, control, closure, and action. For example, he describes how, despite his vociferous objections, therapists rushed to quantify and operationalize his double bind theory and "apply" it to schizophrenics and their families, resulting in unintended harm (Harries-Jones, 1995, pp. 25-28). The anxiety that arises from "not knowing," he explains, too often leads us to a desire for more control; we can better avoid unintended, injurious consequences if we can sustain the tension of "not knowing":

> Our studies could be inspired by [a] more ancient, but today less honored, motive: a curiosity about the world of which we are a part. The rewards of...[this] are not power but beauty....It is a strange fact that every great scientific advance–not the least of the advances which Newton achieved–has been elegant. (as ctd. in Lipset, 1980, p. 231)

Bateson (1979) describes how we lose a sense of the aesthetic, contextuality and connectedness–both conscious and unconscious–whenever we rush from generative theory towards pragmatic action of the "cookbook" sort:

> As you go towards action, what you in fact do is lose understanding gained from the interlocking of the various things that have been said, the extra value that those things had by virtue of being said in the same conversation with each other...As you précis, as you make policy and things, you obscure the vast darkness of the subject, and you obscure the very real elegance and significance of the interlocking plexus. (p. 267)

Bateson defines *wisdom* as "a sense or recognition of the fact of circuitry" and

calls us to take responsibility for developing techniques and methods that are "wise" about how they are contextually constrained by and coupled to larger, more encompassing feedback loops of ecosystems (1972, p. 146). He defines *consciousness* as "short arcs" of these larger loops (p. 146); he defines the unconscious as a higher order mental system of feedback loops which need to stay unconscious whenever they "can do [their] work faster and better that way" (Rieber, 1989, p. 4). The role of art is essential, therefore, because of its holistic perspective: artists search for "patterns that connect" all the loops--and dots (Bateson, 1972, p. 464; Keeney, 1983, p. 139).

Keeney (1983), another student of Bateson's, writes on an ethics of family therapy based on aesthetics that pertains to all ecosystems. He points out that it is critical to realize that knowledge of family ecosystems (and other ecosystems, too) does not in itself lead to "wisdom." The path to "wisdom" comes into our purview only when we see and experience ourselves as participants in larger ecosystems; these experiences give rise to attitudes of respect, curiosity, wonder and humility (Keeney, 1983, p. 190). A biologically based, participatory, reflexive, recursive, relational, aesthetic epistemology thus becomes the basis for acting responsibly and ethically: "we need to look beyond the gestalt of objectivity and subjectivity....[T]he alternative is *ethics*.....[in which] we recognize the necessary connection of the observer with the observed, which leads to examining *how* the observer participates in the observed" (p. 80). An ethics of aesthetics takes responsibility to ensure that our strategies and techniques are coupled to other feedback loops in the ecosystems in such a way that they enhance, not harm (p. 189).

I am keenly aware that, in this thesis, I have been exploring a "vast darkness" of unknowns, and that I have said far more than what I can ever be conscious of. I am also aware that, through writing this thesis, I have been getting a little better at holding the unsettling unknown in order to allow creative and aesthetic patterning to emerge maieutically, even though I can only sometimes track this process at a conscious level. I am even learning to enjoy and trust it as I have come to experience it as a generative crucible for holistic, creative dialectic. I believe that this is what Bateson attempts to do in his own writing as he "gropes," tells stories, and jumps among seemingly scattered topics, and that the sometimes creative and unconventional, sometimes abstruse and

seemingly contradictory style of his writing (and my writing??) shows this.

Harries-Jones (1995), using the spiral metaphor, submits that Bateson's writing is difficult to understand because he attempts to write and think holistically by matching form with content: "he experiments in his texts with non-linear forms of argument and in this manner matches the form of communication with the knowledge he is trying to convey. Living form spirals, and so Bateson's text spirals–in its own metaphor for living form" (p. 81). In this thesis, because my method, abduction, is congruent with my topic, my text can be read as an experiment of writing holistically about holistic writing.

That Bateson's own writing and epistemology is fraught with inconsistencies and falls far short of what he aspired to is evident in the following excerpt of a poem he wrote after completing Mind and Nature, just before he died:

> So there it is in words
> Precise
> And if you read between the lines
> You will find nothing there
> For that is the discipline I ask
> Not more, not less
> Not the world as it is
> Nor ought to be–
> Only the precision
> The skeleton of truth… (Bateson & Bateson, 1987, p. 5-6)

Mary Catherine places this poem in the introduction to Angel's Fear, which she wrote posthumously, and discusses its perplexing contradictions at length. She herself reads much between the lines of her father's writing, finding much that is evocative, suggesting that his less rigorous writing was a means of "groping" towards a rigorous, formal outline of "the functioning framework of life" (p. 6-7). While it would seem, then, that he valorized formalism or a representational notion of absolute "truth," she interprets this poem as consistent with his ongoing efforts to resolve the dichotomy between empirical scientists—who criticized him for straying beyond permissible boundaries of scientific discourse—and mystics and philosophers--who criticized him for tampering with traditional definitions of their key terms (p. 7). She suggests that the "skeleton of truth" refers to the larger contexts, or feedback loops, which are inclusive of the interacting, complementary parts we perceive as dualisms. "The skeleton of truth" also refers to the

magnitude of endeavouring to draw outlines–skeletons–that are "precise" because they are congruent descriptions of nature's feedback loops. Keeney's (1983) interpretation of Bateson emphasizes that this is what Bateson continually seeks.

Crystallization as Metaphor of Writing/Inquiring

> *What I tell you three times is true.*
>
> *Lewis Carroll, The Hunting of the Snark (as ctd. in Bateson, 1979, p. 70)*

A Buddhist story called "The Jewel of Indra" offers a compelling, exquisite metaphor for "an aesthetic understanding of ecology" and for the reflexivity and interconnectedness of the matrix of life: the god, Indra, has woven an infinite net and, at the "eye" of each knot, he has placed a sparkling crystal; whichever crystal one peers into, one sees each and every other crystal, each of which reflects every other crystal, and so on into infinity (Cook, as ctd. in Keeney, 1983, p. 139).

Oberg (2001), drawing on chaos theory, offers the metaphor of crystals to elucidate how new patterns are created from a holistic dialectic between vertical, rigorous, convergent thinking and lateral, creative, divergent thinking: rather than "impos[ing] a pattern of beginning with general concepts," we have to consciously hold the unsettling tension of "not knowing" and, at the same time, "pay close attention," and when we do this, a pattern eventually crystallizes that is "dynamic, balanced, and transformative" (p. 2, 5, 6). And I would add, beautiful, too.

The crystal metaphor, with its vivid imagery, also germanely illuminates the reflexivity of writing/inquiring. Laurel Richardson, in the Handbook of Qualitative Research (1994), argues that qualitative research needs to move beyond the method of triangulation to that of crystallization. (There are more than three ways to look at phenomena, after all.) The crystal metaphor is so befitting, she says, because it makes clear (pardon the pun) how meanings and texts is always partial, indeterminate, multiple and dependent on perspective (Ely et al., 1997, p. 35) and yet are also reflexive wholes, like the eyes in Indra's net:

> [A crystal] combines a symmetry and substance with an infinite variety of shapes, substances, transmutations, multidimensionalities, and angles of

> approach....Crystals are prisms that reflect externalities and refract within themselves, creating different colors, patterns, arrays, casting off in different directions. (p. 35)

While I have been using the notion of reflection to mean conscious contemplation, the reflective quality of the crystal metaphor also brings forward the intertextuality of any composition. Throughout my composing, I have attempted to foreground intertextuality as an integral aspect of holistic dialectic and ecological academic writing. One way I have done this is by intentionally weaving in direct quotes instead of paraphrasing them in my "own words," even though paraphrasing is considered more acceptable because it keeps the voice, interpretation, and originality of the writer. The frequent interweaving of direct quotes highlights the multiple, interacting voices of other texts that contribute to my own text. For example, most of the epigraphs I used have been cited by authors who have read these works in yet other sources, and so on, like the "eyes" of Indra's net. A significant part of my method of creating text in this inquiry has been one of reading authors who themselves cite other authors, ad infinitum. Each of the texts I draw on is its own "eye" that I disrupt and refract into my own text and use to create my own "eye." (Here, the recursivity of spirals and the reflexivity of crystals aptly illustrates how texts are formed.) My strategy has been to keep following whatever I am curious about, whatever compels me, and see where it leads me, and keep on opening to deeper questioning. As I read, I pay close attention, responding to "ahas!" I quickly write down these differences that I perceive as making a difference. This way, it becomes possible for me to reflect further upon these insights at some point in the future and to consider whether I want to weave them into my growing text. My text has developed maieutically by the dynamic interplay between my ideas and others' ideas, between parts and wholes, similarities and differences, which has led to many bifurcations (to use a term from chaos theory) through several stages. Eventually, it began to take on "a life of its own" as it developed more and more attributes of a self-maintaining, self-transforming, holistic ecosystem. I consider this text to still be in the beginning stages of this process.

Spiraling Back to Romance to Spiral Forward

Although my focus has been ecological academic writing throughout this thesis,

my deep concern for the ecological welfare of the earth is obviously what compelled me to write/inquire about this topic. Now, I shall broaden my focus, as I promised to do at the beginning of this chapter,, and focus on the larger context in which my topic of inquiry is embedded. A common notion about conclusions is that they should linearly progress to some sort of teleological "end" that is made explicit in the thesis statement. To continue my method of creating "perspective by incongruity," before I spiral ahead to discuss recent ecological work that "advances" my topic, I shall disrupt this notion of linear progress by spiraling back two hundred years to the British Romantic poets' reflections on the dawning of industrialized society. Bateson's intuitions about the importance of aesthetics, the sacred, the imagination, and double description were very much inspired by the romantic poets, especially by the work of William Blake, about whom he was passionate throughout his life (as mentioned earlier). Taking a recursive loop backwards is always a "wise" way of re-visioning the future: Romantic poetry is a rich source of insight into an ethics based on aesthetics.

Romance has often had a bad "rep" in the modernist and post-modernist eras (Kroeber, 1994); nevertheless, I have never been able to let go my romantic imagination that was shaped in my childhood. The extensive interweaving of poetry and self-reflexive, aesthetic writing into my thesis has not been for mere decorative purposes. Trusting that my earlier explication of the value of the aesthetic and poetic in academic writing is adequate, I will now explore how the Romantic, poetic perspective can contribute to the ecological framework that I have heretofore submitted. While I have relied heavily on the scientific perspective to explicate my thesis (because science is considered more authoritative and, therefore, more convincing), I have given short shift to literary studies–even though both have been robust sources of theories in composition studies (something Phelps points out–as discussed at the outset). I wish to redress this imbalance now.

Kroeber, in Ecological Literary Criticism: Romantic Imagining and the Biology of Mind(1994), interweaves literary studies with current biological and ecological theories in order to re-vision British Romantic poetry from an ecological perspective. Resonating with Bateson's conviction about the importance of aesthetics, he calls for literary studies

to become far more intricately involved in and take responsibility for societal and ecological transformation. Earlier, I discussed Gradin, a composition theorist who provides evidence for the social involvement of the Romantics; Kroeber, however, takes this evidence much farther. Drawing on current biological theories of mind, he maintains that the Romantics created a "proto-ecological" framework which is worth a second look because they "anticipated...attitudes and conceptions that only in our century have been given either a solid scientific basis, or whose psychic grounding has only recently been persuasively analyzed....[They] sometimes direct our attention to essential principles" (p. 19). The Romantics realized that our perceptions of nature are culturally constructed and that our evaluation of our perceptions is predicated upon our ability to ascertain their congruence with life systems (p. 9).

Just as the Romantics were groping towards understanding the unprecedented, bewilderingly rapid transformation of the world by scientific technology and were seeking a holistic vision of humans and nature, today, we have spiraled around to a time when we need such a vision to help us learn how to take responsibility for our impact on the planet and transform into an ecoliterate culture. Perhaps now, at this critical time, Kroeber asserts, we can find crucial, holistic insights in the Romantics' aesthetic, inconclusive, contradictory, double vision that "compelled [them] to examine with intensified self-consciousness how they responded both to what nature makes of us and to what we make of it–and what we *might* make of it and it of us"; moreover, they can help us understand the profound importance of the imagination, of the sacred, and of the aesthetic feelings of aliveness that comes with a sense of connectedness with larger wholes (p. 43). Further, Kroeber claims that the Romantics have important commonalities with scientists: both are "less concerned than modern [literary] critics with the self-delusive qualities of language and with philosophizing about covert ideological biases" (p. 98); both are more concerned with "how we understand the nature of the physical world–out of which all cultures, all languages, and all ideologies are constructed" (p. 98). But while scientists have sought to understand nature through empirical reasoning, the Romantics sought this through the aesthetic. Bateson, uses double description, drawing on the vision of both science and the Romantics, to map more accurately the "skeletons

of truth."

Kroeber (1994) advocates for an ecological literary criticism that, like the Romantics and Bateson, uses double description to probe how the imaginative, the aesthetic and the poetic can help us better understand the subtleties of the reciprocal relationships between culture and nature, and how this can lead to practical application and, thus, more richly webbed interrelationships between humanistic and scientific perspectives. Similarly, composition studies, because it draws from both cognitive science and literary studies, is well situated to develop an insightful an ecological framework of writing through double description. In this thesis, therefore, I have attempted to use double descriptions of science and aesthetics to lay the groundwork for the designing of curricular frameworks in which academic writing is an integral component. Such curricular frameworks would take responsibility for contributing towards the development of ecoliteracy, which in turn, will help us attain an ecologically sustainable global society.

I now spiral forward to two intriguing, current, ecological, scientific notions—biomimicry and metapatterns—that further Bateson's bio-epistemic ecological matrix and that I believe have heuristic potential for designing curricular frameworks that can embody ecological academic writing and inquiring.

Biomimicry as Ecological Curricular Framework for Writing

The metaphor of the crystal is reflected in a newly forming ecological science called biomimicry. This term profoundly, yet simply, captures the essence of Bateson's main theme: our need to develop diverse models, cultures, technologies, aesthetics, spirituality, ethics, and so on, that are congruent with how ecosystems work:

> [We have a] a responsibility–individually and collectively–to a dream...about what sort of a thing man [sic] is that he [sic] may know and act on living systems–and what sort of things such systems are that they may be known. The answers to that forked riddle must be woven from mathematics and natural history and aesthetics and also the joy of life and loving–all of these contribute to shape that dream. (1987, p. 182)

If I could reduce this entire thesis to one sentence, it would be this: ecological

academic writing and ecoliterate societies will develop by means of biomimicry. Janine Benyus, in a book called Biomimicry: Innovation Inspired by Nature(1997), is the scientist who coined this term and who is currently seeking to develop and apply biomimicry as a framework to bring about ecological transformation in all dimensions of culture that is aesthetic, ethical and pragmatic. While Bateson sometimes has the exhortative and admonishing tone of a prophet crying in the wilderness (as exemplified in the previous quote), Benyan is refreshingly hopeful about recent business, political, agricultural, technological, and educational developments that can be described as fitting within a biomimetic framework—even if the developers have not used this nomenclature. She does believe in the need to formally define biomimicry as a new science in which humans intentionally and explicitly learn how to mimic nature as our "model," our "measure," and our "mentor" in order to bring about creative, pragmatic, scientific, ecologically sustainable, ethical–and, yes, beautiful–innovations in these areas (foreword, n. p.). Such innovations are not only sustainable but ethical and beautiful because, when we mimic nature's designs and processes, what nature has learned "after 3.8 billion years of evolution...[about] what works, what is appropriate, and what lasts" becomes our context for development; rather than exploiting nature, we always ask "what we can learn from it," looking to nature to mentor us, with full realization of how limited our knowledge is and always will be (foreword, n. p.).

Benyus believes we need to name biomimicry as a new science because, although she discovered many people enthusiastic about the notion and many scientists working upon projects implicitly based on this concept, formally naming it and developing it as a science will facilitate its wide-spread adoption by our culture: "biomimicry has the earmarks of a successful meme, that is, an idea that will spread like an adaptive gene throughout our culture" (p. 4). Believing optimistically that the time is ripe for this to happen *because* we have reached our limits and *because* evolutionary and cultural creativity is dependent on dissonance, she is a wonderful example of an ecological scientist who believes that transformation into an ecoliterate society will come about by way of "perspective by incongruity":

The new sciences of chaos and complexity tell us that a system that is far from

> stable is a system ripe for change. Evolution itself is believed to have occurred in fits and starts, plateauing for millions of years and then leaping to a whole new level of creativity after crisis. Reaching our limits then...may be an opportunity for us to leap to a new phase of coping in which we adapt to the Earth rather than the other way around. (p. 5)

Both Bateson and Benyus insist that, first, by keeping as our primary ethic open questioning about how we can build knowledge that is congruent with life systems, second, by ceasing the forcing of life systems to conform to our ideologies, and third, by being cognizant that what we know about life systems is always infinitesimal compared to what we don't know, new scientific developments will be ethical, aesthetic, and ecologically sustainable. First, however, we will have to give up our androcentric beliefs that we are the pinnacle of evolution. Benyus cites Mark Twain, who joked, "claiming we are superior to the rest of creation is like saying that the Eiffel Tower was built so that the scrap of paint at the top would have somewhere to sit" (p. 8)! Bateson would describe this statement as the result of the epistemological error of teleological thinking.

Benyus discusses how Cooper and Allenby (1994) abductively compare their model of the three phases of succession in ecologically sustainable plant systems to human systems (pp. 248-53). Cooper and Allenby list the attributes of Stage One and Stage Three plants, stating that the present stage of development of the human species is comparable to Stage One, opportunist plants; these are the short-lived plants that grow exponentially whenever an opening occurs in an ecological niche, for example, fireweed after a forest fire. Stage Two plants are the shrubs and perennials, and Stage Three plants are forests of long-lived trees, such as redwoods. Cooper and Allenby maintain that, as humans, the Stage One strategy is no longer efficacious as a survival strategy, and hence, we need to shift into Stage Two and evolve towards Stage Three in which plants are complex, long-lived, "live in elaborate synergy with the species around them, and put their energy into optimizing these relationships" (p. 250).

Benyus invites readers to read this chart as our "blueprint for our future survival" and apply it to other disciplines, such as ethical business practices (p. 253). I submit that Cooper and Allenby's model is easily comparable to the discipline of writing because it is

descriptive of the developmental stages and types of writing, and that, therefore, it may have heuristic possibilities for designing curricular models that embody ecological academic writing. Metaphorically, Stage One writing, which Benyus calls the *Developing Stages* of ecosystems, has the following attributes: linear with low levels of "information (feedback loops)"; short, simple, unstable, and rapidly growing life cycles; quantity is a prime value in reproduction; rapidly forming relationships with low levels of "symbiosis (cooperative relationships)"; low levels of pattern diversity; and low levels of recycling (p. 252-53). In contrast, Stage Three, which she calls the M*ature Stages*, is writing that has the following attributes: weblike, complex, slowly developed long term, stable relationships and life cycles; quality as a prime value in reproduction; complex and diverse patterns; highly developed "symbiosis (cooperative relationships)"; "high information (feedback loops)"; and optimization rather than maximization (p. 252-53). The Developing Stage is analogous to neophyte writers and to the generative phases of writing. Suffice it to say that ecological academic writing uses this stage appropriately and aims to develop towards the mature stages. (Of course, I have been trying to evolve towards.) I turn now to the work of curricular theorist, Jeff Bloom (2003), who offers further ideas about how biomimicry can contribute to the development of curriculum frameworks in which ecological academic writing may be embodied.

Metapatterns as Ecological Curricular Framework for Writing

Bloom (2003) bases his notions of an ecological curricular framework on Volk's (1995) detailed, beautifully rendered development of Bateson's notion of metapatterns. Metapatterns, as discussed earlier, are the patterns of patterns of relationships that recur extensively in the bio-epistemic matrix. Examples explored in this thesis are the pervasive patterns in the I Ching. Examples explored by Volk (1995) are visual patterns that occur in space, time, and mind, including spheres, tubes, layers, borders, binaries, centers, arrows, breaks, cycles, and calendars. The terms *archetype, root metaphors, recursion*, *abduction*, *biomimicry*, *metapatterns*, and *skeletons of truth* all refer to the most prevalent repeating patterns in nature and thinking. Bloom (2003) believes these metapatterns are powerful precisely *because* of their prevalence and can therefore compel us to move beyond both the specialized, factual, content-driven, atomistic, modernist

curriculums and fragmented, intrasubjective, postmodernistic theories, in which context and relationships are only minimally developed (Stage One), to curriculum with complex, highly interconnected, holistic patterns of connection and high levels of awareness of embeddedness in context (Stage Three). Bloom uses Volk's metapatterns as heuristics to help evolve Stage Three curricular frameworks (my use of this term). Using metapatterns to design curricular frameworks, suggests Bloom, can help us "identify more specific aspects of the ontological and epistemological patterns of learning. In other words, metapatterns provide a way of understanding broadly interconnected concepts across disciplines and aspects of human experience" (p. 7). He is not claiming that teachers and theorists have not worked towards attaining this; rather, he is saying that we need to draw on compelling root metaphors and metapatterns to help us take our notions of relationships and contextuality to Stage Three.

Volk himself offers a wonderful example of interdisciplinary curriculum that uses metapatterns to structure academic writing/inquiring. A geoscientist who teaches at New York State University, he uses metapatterns as the structure of his curriculum in his teaching of a graduate course in Liberal Studies, called "Patterns in Space and Time," an undergraduate freshman honors seminar in "Form and Function in Nature, Mind, and Culture," and in courses on environmental and earth sciences (Volk, "NYU"). Students from all disciplines use his book, Metapatterns Across Space, Time, and Mind (1995), go on field trips to explore metapatterns, and the discuss, research, and write on topics of their own choosing (Volk, personal communication). Intriguingly, Gabriel Rico, author of the well-known book Writing the Natural Way (1983), referred to by many composition teachers, has recently published a new edition (2000) of this book using metapatterns (personal communication). Volk, in his email to me, said that he was very excited to discover that, separately, both he and Rico had been working on heuristic applications of metapatterns. Rico asked him to write the Foreword to her book. I look forward to reading the book and seeing how she applies metapatterns to the teaching of the creative aspects of writing.

In an ecologically structured curriculum, says Bloom (2003), regardless of the inquiry, discipline, genre, or stage of development, the fundamental ecological principle

is learning how to more consciously question and probe how these are embedded within the larger interconnected webs of life. To the extent that writers are able to take up this question, their writing could perhaps be viewed as situated within a continuum of ecological writing ranging from Stage One to Stage Three. We must also remember that holistic inquiring, and experiencing—and writing—the further it is taken, the more attributes of the aesthetic and the sacred are integrated. Insofar as ecological academic writing is about trying to create texts that interweave with and elucidate the communicative, epistemological fabric of life, glimpses of the aesthetic and the sacred let us know we are getting closer. For example, in an "objective" research paper, on conservation of salmon (a common topic in the introductory academic writing courses at the College where I work), an exploration of rivers using the metapatterns of tubes, waves, spirals, or circles could help bring forward the marvelous, life-filled richness of the "patterns which connect" writers' factual knowledge to their personal and aesthetic responses in their composing process and to larger contexts (whether or not they include them in their written text) in such a way—a way advocated by reader response theorists–that it helps bring "life" to their expository texts. Sher (1999) evokes this beautifully:

> Sealed in the spawning silver salmon are all the projections, associations, illusions, fantasies, memories, stories, dreams that we have ever concocted around rivers and salmon season and eating salmon and who we were with while we were eating salmon....It is as difficult to distinguish between a river and a ripple in the river as it is between a salmon and our soul infusing it with life. (p. 110)

In sum, academic writing could be considered ecological to the extent that it facilitates the development of ecologically sustainable epistemologies, technologies, and cultures by cultivating:

- accurate understanding of fundamental premises underlying life patterns and processes;
- the mimicking of nature through ecologically congruent epistemologies, paradigms, metaphors, descriptions, models, explanations, and answers (because as Benyus points out, nature knows what works, what is appropriate, what lasts);
- awareness that change, diversity, and contextual compatibility are necessary for

the maintaining and transforming of stable, viable, complex ecosystems;

- awareness of how one's self is related to one's inquiry and is embedded in larger contexts; and
- an ethics of aesthetics and deep questioning as a well-spring of humility, curiosity, respect, wonder, creativity, and learning that leads to ever deeper apprehension and experiencing of patterns that connect wholes and thus to wise ecological action.

Many great thinkers besides Bateson have contributed much towards creating a momentum that has yet to culminate in the development of a holistic framework/field in many disciplines, including the field of Composition Studies. Bateson's genius may have been in his ability to perceive the underlying "patterns which connect" the flood of knowledge that emerged in the nineteenth and twentieth centuries. Many insightful, holistic thinkers (a few of whom I have discussed in this thesis) are continuing his endeavours in generative ways. With the help of such thinkers, we *are* beginning to learn how, through the stochastic processes of trial and error and creative experimentation, to weave the multiple strands of rigour and imagination, science, aesthetics, and the sacred into flexible, open-ended, texts or, as Bateson prefers to call them, maps or matrices, that mimic nature. As in any trial and error experiment, some ideas are more successful and therefore more enduring than others. How the maps Bateson created will endure or be altered in light of future holistic understanding remains to be seen. As for my own small contribution, I will consider my thesis idea to have been successful if it is perceived as "making a difference," no matter how small, in our groping towards mapping out an ecological curricular framework in which ecological academic writing can be embodied (Bateson, 1972).

Ending

To "end," I offer an exquisite example of scholarly, ecological, academic writing by Mary Catherine Bateson which fully embodies the elements listed above: she writes scientifically and aesthetically about biological processes and holistic epistemology in a way that could just as easily be a description of evolution, learning, or art as it could the writing process. Ironically, the metaphoric congruence between the content and modes of

writing creates a holistic perspective by incongruity, leading us to ask simultaneously: How are these things different? and How are they related? In responding to the first question, novel categories are created; in responding to the second, contexts must be shifted. Evident in Mary Catherine Bateson's holistic writing is her reflexively awareness of how learning and writing are analogous to evolution and ecology, mind, and the aesthetic. As her father so often reminded her, holistic inquiry necessarily has an aesthetic quality because, "break the pattern which connects the items of learning and you necessarily destroy all quality," (Bateson, 1979, p. 7):

> A work of art is the outcome of mental process, like the conch or the crab or the human body. The thought that enters into its creation generally involves multiple cycles of self-correction, repeated testing and listening, correcting and editing. Sometimes we may see the results of calibration in the swift curve drawn by the practiced hand of the Zen master, as sure as the hawk stooping to its prey after eons of evolution. On the one hand, there is the text that has been polished and honed, "tuned and tuned and tuned again," and on the other, a pot thrown with certainty and confidence by an illiterate potter held and informed by centuries of tradition. (1987, p. 199).

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