THE MEANING OF ENVIRONMENTAL ETHICS IN J. G. BENNETT'S THE DRAMATIC UNIVERSE

By

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A THESIS PRESENTED TO THE GRADUATE SCHOOL
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The work of J. G. Bennett provides a cosmic paradigm within which to situate the contemporary discussion of environmental ethics. It is necessary to note the call for such a paradigm in the context of writers who share a deep concern about our environmental problems. It is also important to define precisely what these writers mean by the word "environment" as it is presented in their respective work. The word "ethics" implies some sort of valuing process, which is essential to understand in any environmental discussion. Finally, the practical implications of assigning value to the environment require tangible commitment and effort on several levels. The delineation of these four ideas (the calls for a new paradigm of environmental thought, the definitions of the "environment", the definitions of "values", and the practical implications of assigning value to the environment) form the substance of this thesis. In addition, the twin themes of evolution and ecology provide an integrating element to the work as a whole. The various insights into evolution that each writer highlights lead to a visionary synthesis of

the entire human evolutionary process as visualized by Mr. Bennett. The emerging field of ecology emphasizes context and relationship as complementary components to the individuating efforts that characterize evolution, whether as individuals or as species. One insight pervades this thesis, gathering increasing validity as the vision of each writer is discussed. This insight involves the inseparability of the evolution of the individual and the species. Mr. Bennett takes this idea one step further by postulating that our evolution as a species cannot be separated from the evolution of the biosphere. Quite naturally, a deeper exploration of Mr. Bennett's conviction leads far beyond the scope of this thesis, opening the discussion of environmental ethics to the function of our biosphere in the solar system and the cosmos.

CHAPTER 1
INTRODUCTION

In essence, this is a master's thesis that asks a question: what is the meaning of the phrase "environmental ethics" in John G. Bennett's The Dramatic Universe (1956, 1961, 1966a, 1966b)? The answer to this question is limited by the methodology of the thesis. To open a door into the complex thought of Bennett, it has been necessary to approach his ideas within the context of a discussion—environmental ethics. The sources consulted in this discussion include Niles Eldredge (1998), Richard Leakey and Roger Lewin (1995), E. O. Wilson (1992), James Lovelock (1988), Ian Barbour (1990, 1993), Teilhard de Chardin (1964), Thomas Berry (1988) and Ken Wilber (1998, 2000). Each of these writers represents a type of insight into our environmental problems, framing their work according to their respective professional inclinations. As this thesis took shape, these sources fell into a continuum, forming the basic outline of the thesis.

The work of Eldredge (1998), Leakey and Lewin, (1995) and Wilson (1992) comprises what could be called "hard" science: carefully planned research and discovery that is based on strict empirical data. Although all of them stray from these data to expand the scope of their work, they remain, nonetheless, the most literal and grounded. Lovelock (1988), Barbour (1990, 1993), Teilhard, (1964) and Berry (1988) naturally fell into another group whose work expresses the fruit of a dialogue between science and some form of religious thought. Lovelock's (1988) Earth Mother yearning tempers his scientific outlook to produce his Gaia hypothesis. Barbour (1990) provides an enormous body of information about the dialogue between science and religion, with especially

useful insights about environmental ethics (1993). Teilhard's work (1964) resonates with a strong scientific base that has taken intuitive wings to postulate about our evolutionary possibilities in relation to the environment.

Thomas Berry (1988) expresses a soulful longing for a new environmental story that shifts our awareness into a sustainable symbiosis with the living world. He has a strong sense of history and a clear vision for the changes that must guide our future as a species. Ken Wilber (1998, 2000) writes with a commitment to integrate his sources into a compact synthesis that organizes all human knowledge. His work is inspiring and useful to those who have not already covered this ground in their own research. He provides a natural segue between the other writers and the work of J. G. Bennett (1956, 1961, 1966a, 1966b). Bennett was a flawed human being with substantial intellectual powers. His life work was a four-volume outline of all human knowledge called The Dramatic Universe. This is a massive body of work, difficult to work one's way into and virtually impossible to grasp in its entirety. Nonetheless, certain strands can be extracted from The Dramatic Universe for specific purposes of research. The strands that have proved most useful in this thesis refer to the three domains of Bennett's cosmos: the domain of fact (all existence); the domain of value (a miraculous 'hidden' dimension); and the domain of harmony (which unites fact and value).

This thesis has been organized around these three domains. Chapter 2 responds to the call for a new paradigm of thought about our environment, citing examples from each writer to substantiate the validity of this thesis. Chapter 3 explains how each of the authors looks at the environment as an existing reality. It explores the richness of possible ways of defining the word "environment" with many levels of meaning

emerging to show that the word can be understood in many ways. Chapter 4 analyses the word "values", especially in relation to the environment: hence, environmental ethics. Value tends to be implicit (as in the reason one writes a book) and explicit (stated clearly in the work itself). Both of these aspects of value are considered viable expressions of each author's insights. Chapter 5 corresponds to Bennett's domain of harmony, where the domain of facts (the environment) meets the domain of value (environmental ethics). Its purpose is to discuss practical ways to heal our environment. These "ways" fell into three broad categories: tangible immediate action (pick up trash, plant trees); educational action (study, research, teach, write); and mystical action (reflect on the entire situation, formulate intent).

An unexpected unifying element arose in the process of writing: the awareness of two primary factors that each author considers fundamental. The first of these factors was the idea of evolution. Remarkably, this notion is rather new in human history; its uses vary from materialistic to spiritual. Each writer speaks about evolution as one of the central ideas in his work. The second of these factors was the idea of ecology. It is conceded that we are moving into a new age and that we must begin to think very differently about ourselves as individuals and as a species. The tone of this new age is clearly ecological. Again, definitions vary, but the overwhelming agreement is that we must learn to listen to and to cooperate with the natural world. The importance of our species is relative to our understanding of the needs of the species that surround us. We are being called to recognize interdependence, vulnerability, and compassion as universal truths that will enable us to survive yet another century.

The work of J. G. Bennett (1956, 1961, 1966a, 1966b) provided the backdrop for the entire thesis. In a sense, everything was molded around his ideas. In another sense, his ideas were condensed and simplified to fit into an introductory work such as this. The difficulty with Bennett is in knowing where to begin to express his thought, to tell his story. It is also challenging to discover errors in his work that represent sheer ignorance. Nonetheless, a study of Bennett can be highly rewarding in many ways because of the scope of his intent and the scale of his interests. He thought in cosmic parameters and dedicated his life to communicating a cosmic vision. His ideas about the biosphere initially prompted research that was intended to be included in this thesis. This proved to be impossible because far too much information would have been needed to clarify his terms. What remains is a beginning effort to show that Bennett did have useful ideas that can help us to solve our environmental crisis.

CHAPTER 2
THE CALL FOR A NEW PARADIGM OF ENVIRONMENTAL THOUGHT

Introduction

Does the topic of environmental ethics have a place in the daily lives of ordinary people? Does it matter if the air we breathe and the water we drink become more polluted? Is there a connection between the quality of food we eat and the increasing incidence of cancer? Is environmental ethics a religious issue—something that is of ultimate concern, affecting us in our choices of right and wrong? Does it matter what kind of world we leave for our children and grandchildren to inherit? Can any one of us honestly admit that our only interest in the environment is the raw materials we extract from it? Of course not: to some extent, every human being must feel appreciation for the beauty and grandeur of the natural world. In truth, most of us are minimally aware that we are absolutely dependent on nature for everything we have as living beings. We are inseparable from the natural world of our environment. It is as impossible to survive without the environment, as it is to live without food or water or air. We are as much the children of our natural environment as we are children of our biological parents; we owe the environment a debt with every breath we take, with every drop of water we use, with every bite of food we eat.

The purpose of this chapter is to demonstrate that a collective voice is emerging that is calling for a new relationship between humanity and the environment. This collective voice includes disciplined empirical scientists, lovers of nature, religious thinkers and dedicated philosophers. These writers come from different backgrounds and

tell their stories in different ways. And yet, a common theme is shared by all of them: we must pay more attention to our relationship with the environment. Remarkably, the tone of their stories resonates to a shared feeling of reverence for nature. Does a clearly marked dividing line exist between science and religion? The sources cited in this thesis apparently do not believe in the conventional assumptions by which we often separate scientific and religious thought. In fact, the scientists often sound like preachers, passionately urging us to change our behavior toward the environment—or suffer the consequences. The religious thinkers and the philosophers insist that our evolution as individuals, and as a species, is intimately related to our relationship with the natural world. All of these writers stress that we must begin to think of ourselves as one community with the world that surrounds us. We are all one big family.

If we care about the quality of our air, our water, and our food, we share the concerns of the writers upon whose work this thesis is based. These concerns challenge our notions of science and religion, requiring us to re-think their meanings. Is God separate from the natural world? Are other species of animals and plants here only for our exploitation, and no more? Are we obligated to give anything back to the environment if we take something out of it? Should we be held responsible for our destruction of nature? Can we improve our relationship with the environment by assuming a role of stewardship toward it? Are human beings the only species that matters, with all other forms of life simply here to serve our purposes? These are critical questions and the resounding response from all of these writers is unanimous and affirmative: we must begin to think about more than our own species. We must change our relationship with the environment. At present, in so many ways, we treat the

environment like a slave to be exploited mercilessly until it dies. This must change. We must begin to see the environment as an equal, worthy of respect and dignity. We must begin to be religious about our relationship with the environment, even from the perspective of scientists.

This chapter has been divided into three sections, with several writers grouped in each. The "hard" scientists include Eldredge (1998), Leakey and Lewin (1995), and Wilson (1992). All of them research and write about life and evolution within strict empirical parameters, telling their stories of what they are seeing about the relationship of our species to the rest of life on this planet. The rational holists include Lovelock (1988), Barbour (1990, 1993), and Teilhard (1964). Their primary interest is to initiate a dialogue about the way our species thinks about this planet and the place of our species in it. This dialogue challenges the separation of science and religion, exploring common ground and delineating differences. The trans-rational holists include Berry (1988), Wilber, (1998, 2000) and J. G. Bennett (1956, 1961, 1966a, 1966b). All three of these writers share a deep interest in science and fully respect its methods and its findings. They also believe science has its place and should not usurp the intangible discoveries upon which religious convictions are based. These three final writers could be called scientists of the spirit. They share the scientific passion for organization of ideas, but they all refuse to accept the empirical limitations of the scientific method, which they believe to be superficial when applied outside of its proper boundaries.

The method of this chapter is to focus specifically on each author's call for a new paradigm of thought in our relationship to the environment. This call will challenge the boundaries of strict empirical science. As these boundaries become more porous, or

expand, each writer will contribute a religious element to the discussion. A new sense of what it means to be scientific and religious will emerge, with an increasing awareness that we cannot continue to separate science and religion as we have in the past. The call for a new paradigm of environmental thought is really an invocation to change the way we look at the world. The changes that these writers call for include a shift from an obsession with evolution toward an awareness of the principles of ecology. They call for more and better dialogue between scientists and theologians in order to clarify the respective positions and responsibilities of their disciplines. They also call for an integration of the scientific method and religious practice in which both can benefit from each. The single goal of these writers is to guide the reader to see that we live as one species in a great flow of life from which we can no longer isolate ourselves. We must embrace the totality of existence both as scientific thinkers and as religious beings.

The Hard Scientists: Eldredge, Leakey, Lewin and Wilson

The issue of increasing loss of biological diversity (biodiversity) of species on this planet is of profound concern to life scientists such as Eldredge (1998), who are capable of seeing the human species without identifying with it. Eldredge (1998) feels that we ought to be concerned about the fact that we have affected our planet more powerfully than any other species. The human competitive edge in the dynamic balance of nature began to emerge in a dominant manner with the invention of agriculture about 10,000 years ago.[1] This placed human beings outside of local ecosystems[2] and triggered the population explosion, which is the root cause of the biodiversity crisis.[3] The message of Eldredge's book, Life In The Balance: Humanity and The Biodiversity Crisis (1998) is simple: we must see that the loss of biodiversity signals destruction of our environment and, ultimately, our species. The logical progression of Eldredge's thought (1998) is

easily reconstructed. "To live off our own cultivars (the agricultural revolution), we must disassemble original ecosystems",[4] thereby destroying biodiversity. These local ecosystems, like species, are parts of larger-scale systems with the biosphere as the total global ecosystem.[5] The cumulative destruction of local ecosystems is eroding the integrity of the entire biosphere with the inevitable loss of environmental stability, ultimately threatening the existence of our species.

What Eldredge (1998) is calling for is respect for the importance of biodiversity, which must begin with an acknowledgment of the primary role of local ecosystems in the biosphere. This will require scientists (especially biologists) to recognize that the evolutionary process is not merely a struggle among species—it includes an awareness of ecosystems. A local ecosystem is much more than the organisms that compose it: it is flowing energy itself, including inorganic components. The ecosystem is a place where energy flows constantly from one living component to another. These living components include, but are not limited to, local populations of species.[6] The heart of the evolutionary process lies squarely inside local ecosystems, with natural selection recording the winners and losers.[7] Plants are truly the heart and soul of terrestrial ecosystems[8] because they define and control so much life through the process of photosynthesis.[9] The negative side of human population growth has been our isolation from local ecosystems. The massive impact of this isolation on a global scale may have terrible consequences for coming generations. Eldredge (1998) wants us to understand how the enormity of this impact is a direct and cumulative effect of the destruction of our local ecosystems.[10]

Richard Leakey and Roger Lewin (1995) challenge anthropocentric notions in The Sixth Extinction. They emphasize that Homo sapiens is but one species in the flow of

life.[11] They question the belief that human beings occupy the pinnacle of the evolutionary process, because this assumes that the evolutionary qualities that we value are superior to the rest of nature.[12] Leakey and Lewin (1995) believe that we are in the midst of a seismic shift in thinking about the nature of the world we live in—an intellectual revolution.[13] They insist that we are facing a crisis of our own making and if we fail to negotiate it with vision we will lay a curse of unimaginable magnitude on future generations.[14] Both authors urge us to see ourselves and the earth's biota as an interactive whole that we can no longer afford to exploit with impunity.[15] Leakey and Lewin (1995) ask us to reflect upon two perspectives. The first perspective is our miniscule place as a species in the great flow of life. The second perspective is our absolute dependence upon the other aspects of our environment: the earth systems in their entirety and the other species that provide us with ecosystem services that are truly of inestimable value.

E. O. Wilson (1992) is a widely quoted socio-biologist with a special interest in ant populations. His book, The Diversity of Life (1992) resonates with the work of Eldredge (1998), and Leakey and Lewin (1995) in their mutual concern for the loss of biodiversity. While posing as a strict scientist, he writes with deep ethical convictions about right and wrong. His primary concern is our lack of perspective about the future. He wants us to begin to think much further ahead, with a time scale longer than we are accustomed to apply.[16] This makes sense: if we continue to think only about what we can take from our environment, we will never wake up to the fact that we are destroying species every hour of every day. Significantly, Wilson (1992) believes that we must begin to evaluate right and wrong outside of the box of specific professional interests. The evidence for this is

the rapidity with which we are changing the environment around us. He asserts that we must find a way to preserve the health of our species and the environment, and that this new paradigm must be an enduring one. Oddly, he equates this call for a new paradigm with the preservation of the freedom of our species and with the emergence of the human spirit itself.[17] For Wilson (1992), the profession of biology seems to include an ethical and spiritual dimension as well as a scientific one.

These "hard" scientists all share a conviction that the loss of biodiversity is a dangerous omen that could ultimately lead to the extinction of our species. Eldredge (1998) sees hope in the recognition of the importance of plants in local ecosystems, with a special emphasis upon populations of species in the perpetual movements of ecological dynamics. Leakey and Lewin (1995) invoke new insights from evolutionary biology and ecology to stress the importance of historical contingency in the evolution of species and ecosystems. They urge us to begin thinking more holistically about these processes, with increasing awareness of global factors. Wilson (1992) appeals to the need for a radically new ethical platform from which to dialogue about environmental problems. He sees an entirely new discipline emerging to address issues that are far beyond the parameters of any single discipline.[18] These scientists share a deep concern for the environment and call for an entirely new way of thinking about the problems of the loss of biodiversity and environmental degradation. This new way of thinking signifies a profound shift in the way empirical science looks at the world. This shift is moving toward the recognition of ecological relationships as populations of species, not merely single species, and as the spatial context of those relationships, which ultimately includes the biosphere, the planet and the solar system.

The Rational Holists: Lovelock, Barbour and Teilhard

In his introduction to Lovelock's The Ages of Gaia (1988), Lewis Thomas states that we are in a new world, alive with information, in which everything is becoming more accessible and bewildering: there is not just more to be learned, there is everything to be learned.[19] Lovelock (1988) admits that his book stretches the limits of modern scientific credibility[20] and that he wrote it as a form of entertainment for himself and his readers.[21] He expresses a concern for the "tribalism" that isolates scientific disciplines[22] and visualizes an alternative way of thinking about our environmental problems. This alternative corresponds to the physiological approach to medicine, which diagnoses a patient as a holistic assembly of systems. Lovelock (1988) proposes the creation of a new science called planetary physiology—a general practice for diagnosis and treatment of planetary ailments[23]—which could serve as a developmental guide as research discloses new and more integrated patterns of information.[24] This new scientific discipline would answer the call for a new paradigm of environmental thought among those who yearn for a more holistic approach to the study of our environment and its problems.

It is important to note that Lovelock (1988) deeply respects the scientific method and deplores those who overlook the crucial role of scientific analysis in its processes.[25] He wants to be listened to as a trained scientist whose particular insight can guide us to looking at our environment in a new way. Lovelock (1988) calls the planetary intelligence Gaia, whose unconscious function is to keep our planet fit for life.[26] Gaia is not a synonym for the biosphere (that part of the terrestrial earth where living things normally exist), nor is Gaia the biota (the collection of all living individual organisms).[27] Lovelock (1988) has placed himself in an odd position, although he might be the ideal

spokesperson for his vision. As a scientist, he calls attention to the scientific community, albeit with a somewhat skeptical reception. As a visionary, he attracts the interest of holistic thinkers who share his intuition of an integrated planetary intelligence. Yet Lovelock's (1988) vision is slightly vague, as if he himself is not exactly sure of his premises. In essence, he simply states that Gaia differs from the living crop of earth as you and I differ from our population of living cells.[28]

Ian Barbour (1990, 1993) is deeply concerned about our relationship as a species to the environment, as his careful and extensive research reveals. His call for a new paradigm of thought about this relationship rests upon a studied dialogue between various voices that represent science, religion and a process philosophy that attempts to combine these two major fields. It is implicit in his work that he believes dialogue between science and religion is important. Barbour (1990, 1993) explicitly states that these two major categories of human thought speak unrelated languages because they have totally different functions; that neither should be judged by the standards of the other.[29] He affirms that both disciplines make claims about realities beyond the human world, which is nonetheless one and the same world.[30] Therefore, Barbour (1990, 1993) calls for a search for a unified worldview that will provide us with a coherent interpretation of all human experience. In other words, he wants to formulate common ground for discussing the widely differing perspectives of science and religion through the unifying capabilities of language.

Barbour's (1990, 1993) difficulty lies in his methodology. He tries to incorporate far too many viewpoints into his dialogues. The reader remains unconvinced about his purposes: is he attempting some sort of linguistic experiment? Is he compiling a

catalogue about various ways of discussing science and religion? Is he surreptitiously promoting Whitehead's process philosophy, which assumes increasing importance as the lengthy narrative progresses? It is difficult to locate Barbour's (1990, 1993) own thought in his book, although a few original observations occasionally appear in the brief summaries that are scattered throughout the book. Moreover, the book as a whole lacks an overriding organizational principle. He calls for philosophical categories to unify science and religion[31], hoping to find a comprehensive metaphysics[32] that never emerges in the book. Yet Barbour's (1990, 1993) intentions are sincere and he does successfully raise many points about the similarities and differences between science and religion. He warns us that our search for a new paradigm of environmental thought must not distort either science or religion in the attempt to encompass the full reality of human experience. We must always remember that the rich diversity of human experience can never be forced into a neat intellectual system.[33]

Teilhard de Chardin (1964) was a religious thinker with a scientific bent who intuited many ideas about the human evolutionary process, both for individuals and for the species at large. His influence is wide and his ideas have been adapted by many futuristic thinkers who share his concern with the outcome of our present conflicts in the form of wars and environmental destruction. He was an optimist who believed that these problematic elements are evolutionary speed bumps on our way to a profound and unimaginably wonderful spiritual unity "in the bosom of a tranquil ocean, of which each drop will be conscious of being itself"[34] He foresaw an increasing attraction to "a theoretical system, a rule of action, a religion and a presentiment [which] denotes the effective physical fulfillment of all living beings".[35] He acknowledged that "a profound

need for unity pervades the world"[36] and that "an effort has been made to formulate and crystallize, in a series of abstract propositions" some semblance of what this unity could be, presumably in his own work.[37] The evolutionary movement toward unity on ever higher levels of realization pervades The Future of Man (1964) like a mystical bird rising through the heavens in ever-increasing spirals.

Teilhard (1964) recapitulates a recurring theme in his book concerning the human possibility of interiorization, unique among all created beings, through which humanity imposes a moral order upon itself and "mysticizes" itself.[38] In general agreement with evolutionary biologists, Teilhard (1964) affirms that we learn to organize ourselves in ever more complex patterns—physically, psychologically and spiritually.[39] Teilhard's (1964) entire essay is a call for a new paradigm of thought. The relationship of his thought to environmental issues is direct because he is concerned with the process of unification—individually, as a species and as a planet. Teilhard (1964) was convinced that everything, especially the human species, is evolving in the awareness of "another dimension in which variation and growth are still possible".[40] It is in this interior dimension that we reorganize ourselves on all levels to accommodate the impending changes that will be required to bring Teilhard's (1964) vision of unity into being on our earth. His contribution to the call for a new paradigm of environmental thought is the specific invocation of the interior aspect of the human experience that can be opened by introspection and reflection.

The Trans-Rational Holists: Berry, Wilber and Bennett

Thomas Berry (1988) prefers to visualize the journey of human life through the concept of "the story". His thorough Christian theological training was not sufficient to answer his concerns about the larger problems that humanity is confronted with,

especially our destruction of the environment. He laments that our story has changed: we no longer know its meaning or how to benefit from its guidance.[41] It is Berry's (1988) conviction that a new historical vision is emerging to guide us on our way to a more creative future. As he sees it, the primary issue is changing the structure and function of human society—not the fall of civilization or the need to extricate humans from the controlling forces of the material world.[42] Berry (1988) claims that we need an awareness of the deeper meaning of the relationship between the human community and the earth process.[43] He believes that we are presently experiencing a change of unprecedented magnitude in the history of humanity that is not simply another historical change or cultural modification, but of a geological, biological and psychological order of magnitude.[44]

Berry's (1988) "new story" depends upon our human identity with the entire cosmic process.[45] He is convinced that the move from an anthropocentric sense of reality to a biocentric norm is essential[46] if we are to awaken to the ecological age as the only viable form of the millennial ideal.[47] Berry (1988) is deeply involved in his visualization of a new paradigm. His repeated calls for radical transformation of what it means to be human in an age of environmental crisis cement his position as a spokesperson for a new environmentalism. Like Barbour (1990, 1993), Berry (1988) also believes that we need to formulate a new language[48] to express our deepest concerns about the industrial forces that continue to ruin the landscape. Yet the impression that lingers from reading Berry (1988) is a confused mixture of romantic idealism and quiet outrage. Of course he appreciates the natural world with a deep and abiding affection, but who among us who makes the effort to read his work does not share this affection? His insights into the

historical forces that have caused environmental destruction are valuable, but what does he propose we do with the information? All in all, the new language that Berry (1988) calls for is still unformulated, at least within his own work. Overall, his work is a true and honest call for a new paradigm of environmental thought that reads more like lyric poetry than a new cosmology.

Wilber's book, The Marriage of Sense and Soul (1998) is a response to the call for a new paradigm of thought in the integration of science and religion. By way of explanation within the context of an integrated metaphor, Wilber's (1998, 2000) work can be spoken of as a process of opening our eyes to see what evolution has wrought through the ages of our collective transformations. In line with his overall outline, Wilber states that we have a problem: we are only seeing partially due to various historical factors whose clarification, reconciliation and integration is the purpose of his book. In a nutshell, the story of history from an anthropocentric perspective can be visualized as a process of learning to see. As Wilber (1998, 2000) describes it, we are learning to open our eyes to some form of light and to differentiate various realms of perception. In its broadest parameters, this light can be described as the tangible light of the sensory realm, the rational light of the mental realm and the spiritual radiance of the realm of unqualified transcendent unity. The struggles of Western history represent a continuing struggle of learning to see from these three radically different perspectives.

Wilber's book (1998) begins by stating that we have a problem. Science and religion have bifurcated our collective perception of reality, generating a schizophrenic mindset that is calling for integration in the form of our contemporary problems. These problems take the primary forms of war, environmental degradation and overpopulation

with its attendant poverty and disease. Our collective mindset has created "a violent schism…in the internal organs of today's global culture".[49] The core of this schism is essentially a polarized collective mentality that has taken two extreme psychological positions: science and religion. It is Wilber's (1998) contention that the "marriage" of these two vast disciplines can reconcile the major problems that plague our world by restoring religion's sense of value, meaning and purpose to the cold facts of the logical realm of science. He follows a simple line of logic in this courtship. Wilber (1998, 2000) suggests that we extract the benefits of the scientific method from empirical analysis and apply that method to test the validity of religious assumptions.

The call for a new paradigm of environmental thought in Wilber's essay (1998) is reflected in his description of the "problem" of empirical science. Generally speaking, we have been conditioned to believe that the material realm of sensory perception is the only "real" world. The subjective aspects of our experience have been ignored by design by Western culture, leaving us in the dark about matters of the mind and spirit.[50] Our mental and spiritual eyes have been progressively sealed shut as "scientific materialism became the dominant official philosophy of the modern West".[51] While acknowledging the valid contributions of each realm of knowing to the total body of human knowledge, Wilber (1998, 2000) labors to create a total synthesis of these ways of knowing. The new paradigm of environmental thought that he proposes begins with the perceptual possibilities of each of us. Wilber (1998, 2000) guides us to look at the environment as a physical reality, as a psychological construct that mirrors our own mental condition and as a spiritual presence that cannot be reduced to material exploitation.

John G. Bennett (1956, 1961, 1966a, 1966b) was acutely aware of the intellectual constraints of modern Western thought. He describes in detail the unfortunate consequences of anthropocentric thought, scientific materialism and the dualistic Indo-European language base. Bennett believed that we are passing out of the Megalanthropic epoch which has been characterized by an exaggerated significance of man's powers of cognition and action, including a quest for the absolute, the final, the universal, the ideal and the perfect.[52] He also predicted that we are passing out of the epoch of separateness; and entering a period when our chief concern will be to see how we can live together on this planet as a single human society.[53] In terms of the call for a new paradigm of environmental thought, Bennett addressed the question deeply and envisioned what can only be described as a cosmic response. This response to our environmental problems speaks to our human condition with an urgent call for us to change the way we look at the world and ourselves. The Dramatic Universe shares Teilhard's (1964) hope for an evolutionary unification, but Bennett also warns about the other side of the story—the possibility of self-destruction.

Bennett (1956, 1961, 1966a, 1966b) realized that we live in a world of hazard: "no account of man and his world would be worth much that did not give full weight to the reality of uncertainty, and show the way beyond it".[54] He cultivated a profound respect for the progress of modern science, while remaining deeply concerned about the social and cultural consequences of the scientific worldview. Quoting Heinemann, Bennett includes scientists in his indictment of those who subscribe to the monomorphic fallacy—the assumption that there is only one kind of truth—when, in reality, fact and truth are polymorphic.[55] He believed that the continuing influence of the language of scientific

materialism has created confusion due to the inadequacy of our modes of thought: we continue to think in terms of atomic concepts linked by logical implications and empirical laws.[56] This linguistic habit produces a psychological division into "things" and their "behavior" which destroys a mental structure that must be built up again by a mental process.[57] Bennett asks the reader to consider that our confidence in the scientific method is based upon the unexpressed conviction that organized structure holds together the diverse complexity of phenomena, connecting all parts to the whole, to each other and to the scientist himself.[58]

As a result of our conditioning by the concepts of science, Bennett (1956, 1961, 1966a, 1966b) believed that we continue to think and to speak analytically, and atomistically, but that we act structurally—that is, in terms of wholeness.[59] The significance of this distinction is central to the message Bennett intends to communicate, which rests upon discerning the difference between two primary modes of perceiving the world. In his opinion, we must learn to perceive the world not only by the automatic and analytic processes of knowing, but also by the synthetic and creative processes of understanding.[60] This key distinction provides a primary foundation upon which his call for a new paradigm of thought is constructed. In terms of our relationship as a species to the environment, Bennett suggests that the central problem of environmental exploitation is the ease with which we relegate the biosphere to an external collection of things, overlooking the life processes that cannot be reduced so easily to objects. In simpler terms, we have been conditioned to perceive analytically, without feeling the qualities that enable us to value the natural world as more than commodities.

Finally, Bennett (1956, 1961, 1966a, 1966b) was convinced that "the essentially dyadic character of Indo-European languages with their subject-predicate construction reflects the dualistic nature of man at the present stage of evolution".[61] He is calling for a radical re-evaluation of our place as a species in the universe, which includes a profound re-awakening to the possibilities of direct perception. Like the other writers cited in this thesis, Bennett agreed that we must learn to see our species as one of many on this planet. He also was convinced that humanity has tremendous spiritual potential that can only be awakened by conscious self-transformatory work. A major step in this awakening process is learning to recognize the debilitating influences of religious anthropocentrism and scientific materialism, especially as sources of linguistic confusion. The apparent simplicity of the two primary modes of human perception—knowing and understanding—can mask deeply significant differences in our capacities for realizing our human potential. The following chapters of this thesis will deconstruct the difference in perceptual worlds that emerge from knowing without understanding—and vice versa. The final chapter will discuss the harmony of knowing about the environment as fact and understanding the value of qualities that emerge in synchronicity with perceptions of the environment. The domain of harmony is Bennett's response to the call for a new paradigm of environmental thought.

Summary

The "hard" scientists express their dismay at the indifference of the world to their scientific discoveries regarding the significance of the loss of biodiversity. They ask humanity to consider the statistical evidence that predicts our demise as a species if we continue to destroy the environment. The writers cited in this thesis call for the recognition of ecological principles that will require us to acknowledge all species as our

family in one environmental home. Lovelock (1988) wants us to visualize a presiding intelligence that integrates and harmonizes all planetary processes. Barbour (1990, 1993) believes that we can benefit by discussing the similarities, and differences, of science and religion. Teilhard (1964) shares his visualization of an evolutionary unity that will come eventually, dependent entirely upon our capacity to reflect upon our human condition. The twin themes of evolution and ecology weave through their narratives like the double strand of a DNA spiral, integrating their individual and collective stories.

Berry (1988) calls for a new environmental story that will restore some of the ancient mythic dignity to our lives. He blends tribal wisdom with the scientific method, cemented by powerful theological convictions. Although he repeatedly calls for a new cosmology within which to place his vision, his approach to formulating a cosmic perspective remains elementary. Wilber (1998, 2000) has a clear methodology in his attempt to integrate science and religion. His work from beginning to end is an endlessly repeated tape-loop that calls for the unification of these two major modes of human thought. His work can be useful for beginners who need a vocabulary for discussing such a synthesis. He diagnoses various approaches to holistic thought with candid foresight, calling for agreement on what we are doing with the environment before we try to heal it. Bennett (1956, 1961, 1966a, 1966b) wore many hats in his life's work. He was a businessman, philosopher, mathematician, writer, teacher and historian. The Dramatic Universe (1956, 1961, 1966a, 1966b) was his major effort, accompanied by about 25 books of commentary on his thought, most of them practical applications of his ideas. Some of his ideas appear to be superficial in hindsight and his observations about the human species were pessimistic. He formulated a vision of the human condition that

surpasses the parameters of both science and religion by embracing both simultaneously. The remainder of this thesis will explore the application of his ideas to environmental ethics.

Notes

1. Eldredge, *Life In The Balance,* vii.
2. Ibid., viii.
3. Ibid., x.
4. Ibid., 145.
5. Ibid., 56.
6. Ibid., 55.
7. Ibid., 57.
8. Ibid., 108.
9. Ibid., 107.
10. Ibid., 151.
11. Leakey and Lewin, *The Sixth Extinction*, 6.
12. Ibid., 78.
13. Ibid., 67.
14. Ibid., 90.
15. Ibid., 109.
16. Ibid., 312;
17. Ibid., 351.
18. Ibid., 312.
19. Lovelock, *The Ages of Gaia*, 2.
20. Ibid., 3.
21. Ibid., 14.
22. Ibid., 112.
23. Ibid., 155.
24. Ibid., 141.
25. Ibid., 265.
26. Ibid., 263.
27. Ibid., 19.
28. Ibid., 97.
29. Barbour, *Religion In An Age of Science*, 13.
30. Ibid., 16.
31. Ibid., 27.
32. Ibid., 28.
33. Ibid., 30.
34. Teilhard De Chardin, *The Future of Man*, 307-308.
35. Ibid., 21.
36. Ibid., 23.
37. Ibid., 190.
38. Ibid., 212.
39. Ibid., 234.
40. Ibid., 16.
41. Berry, *The Dream Of The Earth*, xi, introduction by Brian Swimme.
42. Ibid., xii-xiii.
43. Ibid., 10.
44. Ibid., 11.
45. Ibid., 17.

46. Ibid., 30.
47. Ibid., 33.
48. Ibid., 42.
49. Ibid., Wilber, *A Marriage of Sense and Soul*, 4.
50. Ibid., 7.
51. Ibid., 10.
52. Bennett, *The Dramatic Universe,* Volume I, 18. Hereafter in this thesis, the volume numbers of Bennett's work will simply be listed as I, II, III, or IV.
53. Ibid., 5.
54. Ibid., III, 64.
55. Ibid., 78.
56. Ibid., 173.
57. Ibid., 205.
58. Ibid., 163.
59. Ibid., 166.
60. Ibid., 179.
61. Ibid., 23.

CHAPTER 3
EXPLORING THE MEANING OF THE WORD 'ENVIRONMENT'

Introduction

According to Webster, the word 'environment' means "all the physical, social, and cultural factors and conditions influencing the existence or development of an organism or assemblage of organisms".[1] The Earth Science Glossary states that "the environment is the sum of all external conditions affecting the life, development and survival of an organism".[2] The PAE glossary (Plants, Animals and The Environment) is more inclusive in its definition: "the environment is the circumstances or conditions that surround an organism or group of organisms as well as the complex of social or cultural conditions that affect an individual or community".[3] The European Union defines it this way: "environment is the combination of elements whose complex interrelationships make up the settings, the surroundings and the conditions of life of the individual and of society, as they are or as they are felt".[4] The Environmental Protection Agency defines environment as "the complex of physical, chemical and biotic factors (as climate, soil and living things) that act upon an organism or an ecological community and ultimately determine its form and survival; the circumstance, objects, and conditions that surround each of us".[5] All of these definitions emphasize the surrounding circumstances—the total community of influences—that affect living organisms, including human beings.

The writers mentioned in chapter one all agree that the environment is supremely important. Most of them consider the environment to be limited to this planet, equating it to the biosphere. The "hard" scientists focus primarily upon the story of evolution, with

increasing attention to insights from the science of ecology. Their shared concern is the implications of the loss of biodiversity for our species and our environment. The rational holists see the environment as the primary focus of a reasoning dialogue that must occur if we are to survive. The trans-rational holists universalize the environment, framing it within a cosmic context. This is an intuitive process in the work of Teilhard (1964) and Berry (1988). Wilber (1998, 2000) approaches the universalizing process rationally, with a trans-rational goal of integrating all rational perspectives. Bennett (1956, 1961, 1966a, 1966b) addresses the environmental crisis as a spiritual challenge of perception that confronts our belief systems and our institutions. He is asking us to prepare to examine our experience carefully in order to reflect upon it with accuracy and intelligence.

The themes of evolution and ecology weave their way through the work of these writers, providing an organizational principle as well as a powerful synthesis. The linear Western idea of evolution as a progressive improvement of the species, which leads to an ultimate positive goal, is being challenged by a non-linear transformational view. The challenges to the traditional evolutionary views parallel the emergence of ecology as a new way of looking at the environment and its problems. The evolutionary view is species oriented, with empirical science generally ignoring the context in which species live. The non-linear view of evolution studies the transformations within a given context, less obsessed with a specific goal than with harmony of process. The concept of the ideal is giving way to a deep interest in spatial nesting and living contexts. Bennett (1956, 1961, 1966a, 1966b) intuited this shift from evolution with its absolutes toward ecology with its relativities: a new age with new priorities is upon us.

The following discussions review each author's fundamental message within the topic of environmental concern, briefly explaining how each perceives the environment. The complementary narratives of evolution and ecology provide a backdrop for explaining our place as a species in the great flow of life. A particular element of each writer's viewpoint has been highlighted by way of introduction. These elements will reveal deeply unifying commonalities between the views of empirical science, of rational programs of synthesis and of more universal modes of holistic thought. Bennett (1956, 1961, 1966a, 1966b) is not easily accessible, nor is his work capable of being simplified to a few diagrammatic principles. The meaning of the word "biosphere" in The Dramatic Universe requires significant explanatory material regarding what he calls "the domain of facts". Any discussion of the environment in relation to his work must begin with his natural philosophy—the first volume of The Dramatic Universe (1956). The method of this chapter will be to demonstrate how certain elements from each source coincide with Bennett's ideas about what the environment is and how it functions.

Niles Eldredge: Environment as an Ecological Theatre of Evolutionary Process

When Eldredge (1998) uses the word "environment" (in Life In The Balance), he is clearly referring to the biosphere, the terrestrial home of our planet's myriad life-forms, including human beings. The singular point of Eldredge's (1998) message is always leading to one poignant theme: the tragic consequences of human domination of the environment via the "success" of the agricultural revolution and contemporary overpopulation. This theme is elaborated as an evolutionary tale by which human intelligence has been increasingly culturally contrived since we inhabited the margins of woodlands and savannahs. It was there that we originally learned to hunt, to ward off predators, to find and make shelter and to build fires for warmth, protection and food

preparation.[6] Evolutionary biology is changing its mind about the relationship of environment to species. Once it was believed that species simply followed environmental changes in order to survive.[7] Science is now exploring the extent to which plant and animal species actually contribute to the creation of the environment.

It is now conceded that ecological systems are never closed or isolated. The edges of ecosystems are inherently fuzzy because local ecosystems are dynamic, connected by energy flowing across blurred boundaries, irrevocably linking them with their neighbors.[8] The science of ecology studies ecosystems as parts of larger-scale systems that are linked in a smaller-within-larger fashion, with the biosphere as the global ecosystem.[9] Thus evolutionary and ecological systems are like opposite sides of the same coin, fundamentally different, yet linked by processes.[10] Biodiversity also has two sides: all species are linked in a complex hierarchical network of evolutionary kinship. Each species has its own unique dynamic for survival, yet all are mutually related and interdependent. Eldredge (1998) insists that the heart of the evolutionary process lies squarely inside local ecosystems in the daily struggle for survival.[11] In essence, evolution is inseparable from ecology: both are dependent upon each other. What Eldredge (1998) stresses is that our small local ecosystems are inextricably linked to the global ecosystem, or biosphere. As we destroy these local ecosystems, we also progressively destroy our own chances for survival as a species. Evolution is not about the dominance of a single species; it concerns multiple species and their contexts. The global ecosystem changes to adapt to the influence of species, including human beings. As it adapts to us, we are also forced to adapt to it—modifying it to suit current conditions.[12] Eldredge (1998) is

concerned that we may be exhausting our capacity to adapt to the environment we are destroying.

Leakey and Lewin: Environment as the Stage of Endlessly Changing Life

It is difficult to conceive of a time or a worldview in which the idea of evolution was ignored in favor of the belief in a divine design behind all of creation. Darwin clearly tipped the scales in favor of a naturalistic perspective: the struggle for existence within and among species through natural selection, which accorded well with the prevailing Western ethos of success through effort.[13] Darwin visualized a natural world in which organism were at war with each other.[14] He looked to external influences as shapers of the world[15] and vigorously denied mass extinctions.[16] All three of these notions about evolution are now considered primitive and naïve, clearly indicating that the same biological record can be interpreted in so many ways.[17] Evolutionary biology and ecology are now investigating the importance of relationships among species as an essential condition for survival. The idea of adaptation to external influences is being reconsidered in terms of larger patterns of historical contingency. And the once ridiculed idea of mass extinctions is presently believed to accurately reflect geological history.

Ecology can be defined as the interaction of species in communities.[18] Leakey and Lewin (1995) assert that the true nature of the world is revealed by the relationships among species in present and former communities.[19] This idea is dramatically opposed to Darwin's idea of competition among species, with the dominance of winners over losers. Darwin's idea that external influences determine the evolution of a species is countered by the ecological tenet that there are an infinite range of potential patterns regarding the assemblage, behavior and characteristics of an ecological community.[20] A primary goal of the science of ecology is to detect these patterns and to explain the causal processes

that underlie them. A strong correlation seems to exist between biological patterning and the physical patterns that shape the material environment of a place,[21] which may lend some credence to Darwin, albeit from another direction. Ecologists generally agree that erratic behavior in the internal dynamics of an ecosystem (chaos) can be a positive force that promotes biodiversity.[22] The complex and transformatory dynamics that flow within ecosystems are as important as external influences.[23] This demonstrates that the inner cannot be separated from the outer, even in biology.

Evolutionary biology and ecology are changing the way we study the environment. The trend is moving from linear perspectives to more holistic investigation. Environmental stability is much more a matter of interaction among species than of superior qualities within a single species.[24] This insight implies that habitat destruction has far greater implications than the loss of a few species: it fragments the context of speciation itself with repercussions throughout adjoining ecosystems. Leakey and Lewin (1995) suggest that dynamic change is the hallmark of nature and the cause of biodiversity.[25] As the human species endangers other species by direct exploitation (such as hunting), by biological havoc (such as introducing alien species) and by habitat destruction,[26] we also endanger ourselves. Since neither species nor the ecosystems they inhabit are infinitely resilient to external insult,[27] the human species may actually become an agent of mass extinction. Our relationship to the environment needs to change or we will pay for it. We can no longer afford to play the role of dominant conquerors of other life. We can learn to live in cooperation with other species, studying the dynamics of whole systems, which includes the science of ecology.

E. O. Wilson: Environment as the Biological Theatre of Evolutionary Diversity

Wilson's (1992) quoting of Evelyn Hutchinson reveals a great deal about his definition of the environment and of life itself: the environment is the theatre and evolution is the editor of the play who has no vision and purpose.[28] Wilson (1992) equates the environment with the planetary biosphere. He has a special interest in the genetics of evolution and he is fully aware that ecology is the least understood of the environmental sciences.[29] Wilson (1992) sees that evolution progresses by differentiation and complexity of life-forms through precision of environmental control.[30] Biodiversity increases as a species gains command over the environment.[31] The logic of Wilson's (1992) effort is simple: as we destroy our environment, we also destroy species as well as the context of their evolutionary journey. We destroy the future. Since each species is relatively unique to a habitat, the loss of that habitat means that an environmental niche has been removed along with the species that adapted to it.

Wilson (1992) notes that the tendency of Homo sapiens to destroy the environment is not recent; he bemoans the overkill, habitat destruction and introduction of exotics (plants, animals and their diseases) that have ruined many ancient landscapes.[32] Wilson's (1992) vision is passionately refreshing and peculiarly myopic. On one hand, he champions the protection of biodiversity as the lifeline for survival of our species. On the other hand, he insists that evolution is like a slow blind groping with no innate direction. His book is solidly rooted in empirical biological science. Interestingly, it transforms into a practical handbook for environmental restoration, far overstepping the boundaries of reductionist biology. Wilson's (1992) definition of the environment must be understood from several perspectives: as a biologist, as an environmentalist and as a humanist philosopher. The obvious purpose of his book is to introduce a program for

resolving our environmental problems in the coming century. Although he claims to define the environment as a biologist, he really defines it a well-grounded pragmatic environmental healer.

James Lovelock: Environment as the Planetary Intelligence Called Gaia

Lovelock's (1988) vision of the environment in The Ages of Gaia is simultaneously modern and ancient. He acknowledges scientific knowledge and adheres, as a working theorist, to its dictums. But his insights about the planetary environment are a revolutionary composite of contemporary planetary systems theory and Earth Mother intuitions. This composite he calls Gaia—which is not a synonym for the biosphere, nor is it the sum of all living beings (the biota).[33] Lovelock's (1988) contention is that physicists, biologists, ecologists and evolutionary theorists have got it all backwards: evolution concerns Gaia, not organisms or the environment taken separately.[34] He repeatedly asserts that Gaia includes all living things and their environment,[35] reminding us to be aware of the awesome extent to which earth's environment is always perfect and comfortable for life.[36] He shares the insight from evolutionary biology that the adaptation of organisms to their environment also changes the environment.[37] He lauds the work of Eugene Odum who was one of the few early ecologists who took a physiological view of ecosystems.[38]

It is this physiological view of the planetary environment that Lovelock (1988) intends to communicate when he insists that the evolution of rocks, air and biota are inseparable.[39] He elaborates upon this theme of a unified planetary intelligence by claiming that there is no clear distinction between living and nonliving matter, merely a hierarchy of intensity.[40] He calls for an entirely new way of viewing our planetary environment, invoking the controversial work of past theorists who have contributed to a

systems science of the earth, which Lovelock (1988) calls geophysiology.[41] Lovelock (1988) states that he has drawn general conclusions from solid facts of observation, although his conclusions remain impossible to verify because the entity he postulates could never be verified by objective observation. He thinks like a scientist who firmly believes that the cornerstone of the scientific method is the belief that nature is objective.[42]

And yet, in light of his scientific conviction, it is as impossible to prove the existence of Gaia as it is to prove the existence of a personal human identity. We can point to a body or a planet as evidence of a higher intelligence, but we cannot prove anything beyond what is tangible, from a scientific standpoint. Lovelock's (1988) contribution to any discussion of the environment is a haunting theoretical possibility of diagnosing the planet as an integrated collection of unified systems. These systems tend to function as harmoniously as possible to maintain a condition of reasonable homeostasis, replicated in similar functions within the human organism.[43] Lovelock (1988) has two unique capacities relative to our relationship with the environment. The first capacity is his ability to think in grand constructs such as Gaia. The second capacity is his scientific dedication that requires him to try to communicate to a scientific community. His work raises more questions than it answers. These questions deserve consideration within a larger context that is capable of evaluating solar and cosmic influences upon our planetary environment. Some of these influences will be discussed in the environmental views of Teilhard (1964), Berry (1988), Wilber (1998, 2000) and Bennett (1956, 1961, 1966a, 1966b).

Ian Barbour: Environment as the Subject of Healing Dialogue

In Religion In An Age of Science, Barbour (1990) conscientiously sifts through the basic tenets that underlie the fields of science and religion with the intent of clarifying precisely what they do and do not share in common. His strategy is simple: he states a position, and then voices opposing opinions with an eye to summarizing points of agreement and disagreement. Barbour's (1990) power lies in his ability to synthesize enormous quantities of data within the range of a coherent discussion. His weakness is a lack of direction that substitutes breadth for simplicity. Often the bulk of material presented dilutes the potency of his primary concern, which is to explain the contemporary polarization of human knowledge (science and religion) and its detrimental effects on the environment. Barbour (1990) gives the impression of a scholarly intellectual crusader who is burdened by the weight of his own resources. His ultimate goal of generating discussion about the all-important dichotomization of science and religion in the West is eventually achieved.

Barbour (1990) notes that the tendency to reduce all sciences to the laws of physics and chemistry is called epistemological reductionism.[44] Barbour (1990) critiques the work of E. O. Wilson as representative of the position of scientific materialism because of Wilson's expressed conviction that all human behavior can be explained by biological origins and genetic structure.[45] In short, Barbour (1990) reviews the essential assumptions of science and religion with the express purpose of opening a fruitful dialogue between the two disciplines. This process leads naturally to the profound discoveries of 20th century science which have undermined the basic assumptions of Newtonian physics[46] and revealed such insights that, in quantum physics, the observer is always a participant.[47] Barbour (1990) criticizes the tendency to take scientific concepts

as exhaustive descriptions of the real world as indications of the fallacy of misplaced concreteness.[48]

As Barbour (1990) clarifies the constraints by which traditional science has represented the environment, he inevitably re-defines key terms in light of higher principles and deeper understanding. In response to Wilson's ideas of evolution, Barbour (1990) affirms that information is transmitted through memory, language and tradition as well as genes.[49] He also asserts that the pace of evolution increases as higher complexity is achieved because the past is built into the present and shapes the future.[50] He draws on the work of Ilya Prigogine to clarify that disorder leads to order at a higher level, with new laws and new types of complexity governing the behavior of structures.[51] Barbour (1990) wants the reader to see that the traditional scientific assumptions of a century ago have been seriously undermined by modern research. This idea is important because the belief systems of science still tend to play a significant role in our educational processes, which shape the way we look at the environment.

Barbour (1990) discusses theological contributions to our environmental views as sources of a view of the natural order that is ecological, interdependent and multileveled.[52] Throughout his work Barbour (1990) reminds us that we are human beings with historical patterns reflecting social and political agendas toward the environment. Industry sees the environment primarily as a source of raw materials; private ownership capitalism sees the environment as a source of commercial profit.[53] Since the time of Darwin's theory of evolution, an increasing recognition of the relationship of organism to environment has created the science of ecology, which recognizes the interdependence, diversity and vulnerability of biological species.[54]

Barbour (1990) summarizes the four primary concepts of ecology as the ecosystem concept, the sense of finite limits, ecological stability and the awareness of long time spans.[55] Barbour's (1990) work reviews various environmental perspectives of religion and science with a special emphasis upon the varying meanings of evolution. Finally, the important new contributions of ecology are given special attention in his work because of their sensitivity to the unheard voices that need to be recognized in any environmental discussion.

Teilhard de Chardin: Environment Deepening Spiritual Integration

Teilhard's (1964) interest in the environment is intimately connected to his evolutionary vision of the human species as an integral functioning part of our planet. Teilhard's (1964) interest in science is personal and theoretical, closely linked to his aforementioned conviction that we must and will evolve as a species, regardless of the cost. This evolutionary process of humanity and our planetary environment is conceived of as "a progressive animation of the concrete by the power of thought, of matter by spirit".[56] According to Teilhard (1964), this evolutionary animation occurs in three distinct stages: aggregation, unification and reflective interiorization. The history of aggregration began with ancient hunting groups which gradually began to cluster into small agricultural settlements about 15,000 years ago, giving rise to the earliest civilized empires about 8000 years ago.[57] With human society came modes of communication, development of language, history, agricultural technology and industry,[58] all of which aggregate material or psychological energies. Teilhard (1964) is optimistic in his predicted unifications of the human intellect (a coherent system of knowledge through science) and of human society as a thinking whole.[59] In addition, he also envisions a sort of planetary economic integration occurring through the development of an existing

circulatory and nutritional system of mankind as a whole[60] (an economic integration of the earth's energies).[61]

Teilhard's (1964) vision of the higher stages of evolution rests upon the key word "reflection", by which conscious human beings begin to introspect and to reflect upon their own existence in relation to the rest of humanity, the planet and the universe. According to Teilhard (1964), branches of our species reflect by turning inwards and intertwining to form a sort of uni-conscious super-organism.[62] This is a dynamically spiritual process which is presently developing our planetary noosphere; this noosphere can only function by the release of more spiritual energy with ever higher potential.[63] The coordinated efforts of all who are working reflectively on themselves brings humanity to the second evolutionary stage of life which is applied "in the bosom of the noosphere".[64] This is what Teilhard (1964) refers to as the planetisation of mankind: the formation of an organico-social super-complex which can only occur in the case of reflective, personalized elements.[65] In this way, Teilhard (1964) asserts, mankind is coming gradually to form around this earthly matrix a single, major organic unity which is hyper-complex, hyper-centrated and hyper-conscious.[66] In Teilhard's (1964) view, the first stage of evolution involved the elaboration of lower organisms up to man by the combination of the planet's elemental sources of energy.[67] At present, the earth is evolving toward a state in which mankind is becoming an adult.[68] It is Teilhard's (1964) conviction that "we shall not be able to survive except by developing and embracing the earth".[69]

The recurring theme of The Future of Man (1964) regarding the meaning of the word "environment" is evolutionary: humanity is absolutely dependent upon this earthly

environment for all of our existential needs—and reflective introspection is required to realize this. In the process of deepening our capacity for spiritual reflection, we will naturally mature in our understanding of what is required in our relationship with the planet. Teilhard (1964) defined the biosphere as "the actual layer of vitalized substance enveloping the earth";[70] his concept of the noosphere is not to be visualized as separate from or above the biosphere, but as complementary to it, functioning in synchronicity with it. Teilhard (1964) explains that, in the noosphere, heredity is transmitted by the environment. For example, the stages of growth from birth to death inevitably pass through hereditary anatomical and physiological changes[71] according to phylogenetic patterns. Teilhard (1964) is clearly holistic in his unyielding insistence that our evolution as a species is absolutely inseparable from the evolution of the planet. Like Berry (1988), he also touches occasionally upon an even vaster context for us to consider, when he discusses the meaning of faith. He stresses that faith is a universal elemental quality which forms the environment of union:[72] faith is not a formula. Such occasional references to a cosmic environment bring a larger perspective to his work by providing a universal context, challenging us, as readers, "to consummate the universe in ourselves".[73]

Thomas Berry: Environment as an Evolving Cosmic Intelligence

Brian Swimme introduces the optimistic futuristic thought of Berry (1988) by claiming that the fundamental truth of contemporary science is that the universe is a developing reality and that the evolution of the earth in the universe is ongoing.[74] Berry (1988) perpetually re-affirms the need for a radical change from our present activities of exploitative anthropocentrism to participatory biocentrism[75] in relation to our environment. He evokes a tone of a deeply empathetic romantic visionary who respects

scientific knowledge while severely challenging the validity of notions of progress that tend to follow in its wake. He is particularly concerned with the apparent entrancement we have with technology, which, he believes, has kept the human mind in its narrowest confines since the Paleolithic Age.[76] Berry (1988) is acutely aware of the historical context of the scientific method and the rise of industrialism. The 16th and 17th century thinkers who saw "a vision of a better order in earthly affairs through scientific control over the functioning of the natural world"[77] apparently failed to anticipate the destructive consequences of their ideas. The essays in The Dream of The Earth (1988) represent the intuitive insights of a deeply theistic universal thinker who intends to set the psychological foundations in our scientific age for a new spiritual appreciation by the human species for our environmental home.

Berry's (1988) argument rests upon a perpetual re-statement of our species' need to be more sensitive to the environment. The unique voice that he represents is a combination of perspectives that could be summarized in three categories: ancient wisdom, contemporary scientific knowledge and futuristic intuitive insights. Berry (1988) tends to invoke the wisdom of ancient peoples with a misty-eyed sentimentality which "calls civilization back to the authentic [which is] our only hope of renewal".[78] Berry's (1988) sense of the history of the relationship of Homo sapiens to our environment captures the long story of the passing millennia—the story of a good marriage gone very bad with an emerging vision of how we need to change our thinking to make things right again. The first episode in this grand narrative is perhaps not as idealistic as Berry (1988) would like to think it is, but even minimal knowledge of indigenous peoples confirms evidence of a working symbiosis between the tribe and its

natural home—a sustainable relationship of sorts. For Berry (1988), the important thing is recollecting this mythic vision in order to restore a sustainable context for the survival and continuation of the evolution of life-forms.[79]

Berry's (1988) obsession is a penetrating concern with the historical forces that are ruining the environment—and how to respond to those forces intelligently. This aspect of Berry's "story" (1988) indicts both science (as the progenitor of industry and technology) as well as religion (which seldom gets to its functional role within the creative intentions of the universe).[80] Berry (1988) laments the "entire effort of industrial society to transform the natural world into total subservience".[81] He is also profoundly aware of the evolutionary efforts of the West, with its collective goals of Enlightenment, democracy, a classless society and a capitalist age of peace and plenty sustained by an industrial underworld.[82] What intrigues Berry (1988) is that the tremendous irony of history with its devastating consequences and worldwide scale[83] continues to be enacted "in a kind of intoxication with our power for devastation".[84] "We are changing the earth on a scale of millions of evolutionary years".[85] We control energy on a magnitude of scale far greater than ever before,[86] while closing down the life system of the planet.[87] Berry's (1988) response to this intoxication with the power of industrial technology and its destruction is an ecological vision—the only context consistent with evolutionary processes in light of the pre-industrial florescence.[88] This emerging vision that Berry (1988) promotes with such dedication is his telling of the necessary "new story" in order to generate "a more adequate elaboration of the mythic phase of the ecological process".[89]

For Berry (1988), the ecological story that is now being formulated, in so many formats, must include a mythic component which is capable of integrating the latest scientific discoveries with the ancient belief that the earth itself is a living organism.[90] This new "ecological coding"[91] requires, according to Berry (1988), a threefold change of scale in how we perceive the human species in relation to the environment. The first perceptual shift will require us to begin to act in unity as a species to establish a functional relationship with the earth process.[92] Berry (1988) considers this change to be possible while our species continues to function within the constructs of the micro-phase good. This "good" is still centered on the competitive way of life and the self-aggrandizement of the individual. This "good" presently characterizes our planetary nation-state configuration (and a community of nations) that guarantees the right to pursue these purposes.[93] The second necessary change of scale is clearly ecological, recognizing the interdependence of all living and nonliving systems.[94] Berry (1988) states that "we have a single destiny with the larger community of earthly life"[95] and that "there is an economics of the human species and of the earth as a functional community".[96] Berry's (1988) third required change of perceptual scale is a macro-phase awareness of our species and our planet as a single organic reality[97] which must find its place in the larger pattern of the universal context.[98]

Thomas Berry's (1988) perception of the environment is poignant with awareness of the great irony of modern history that has ceaselessly promoted ideas of human progress at the expense of other species and especially of our mutual ecological context. He is deeply sympathetic with the perilous position of indigenous peoples and their reasonably sustainable lifestyles which are deteriorating rapidly, like endangered species,

with "generally irreversible consequences".[99] Berry (1988) believes it is necessary to tell a new mythic story about the environment in ecological or relational terms in order to generate "a new pattern of historical interpretation".[100] This pattern projects a deepening awareness of the human species in relation to itself as a potentially unified whole that functions within the parameters of more highly evolved versions of existing institutions. But Berry (1988) calls for an even deeper communion with the planet itself "to restore a sense of the earth as the matrix of the human".[101] Finally, Berry (1988) insists that our species must begin to consider our place in the universe itself, as a dominant species on a planet that "we should give over to our children".[102] Berry (1988) believes that our greatest single need is a more integral story; a story that is in harmony with the numinous and consciousness dimensions of the emerging universe".[103]

Ken Wilber: Environment as the Spiritual Ground of Total Integration

Wilber (1998) wrote The Marriage of Sense and Soul in order to address "a violent schism in the internal organs of today's global culture"[104] in which "scientific materialism has become the dominant official philosophy of the modern West".[105] Wilber's (1998) purpose in this book is to reconcile the apparent differences between science and religion by reconstructing their most fundamental premises in the context of a healing dialogue. This dialogue is constructed in a strategically simple fashion: Wilber (1998) states the basic positions of science and religion with a minimal historical background, evaluating their strengths and weaknesses with one underlying intention—to find a common ground of agreement within which a "marriage" of minds can take place. This "marriage-agreement" must satisfy the niggling concerns of each party—science and religion—without imposing unfair constraints or unacceptable convictions upon either member of the pair. Although sophisticated readers of philosophy might find Wilber

(1998) overstated and repetitious in his contentions, the overall tone of Wilber's (1998, 2000) work is sincere and he provides a needed vocabulary for less informed readers who wish to understand the primary intellectual conflict of our contemporary Western world.

The scientific perspective is essential to understand our modern relationship to the environment: we produce and consume in a world structured by scientific technology. What Wilber (1998) wants us to see is what science means and how it can greatly serve us in a society that will never let it go; he also clarifies what went wrong with the idea of science that has produced the industrial nightmare of our environmental holocaust. Wilber (1998) has separated the essential strands of meaning in science and religion and, from this platform, has constructed a quadrant diagram with two faces and four aspects. The faces are simply the division of the world into objective and subjective spheres, the primary concerns of science and religion, respectively. The aspects are the individual and collective perspectives of each sphere. This diagram represents the sum total of Wilber's (1998, 2000) data search for a means of integrating all knowledge. It can also serve as a useful model for explaining his findings about the physical environment and our relationship, as a species, to it.

Wilber (1998, 2000) describes in labyrinthine detail the collective evolutionary transitions by which the West moved from a shared cultural understanding of the great chain of being to scientism—the dominant official worldview of modernism. Scientism has a problem: it pronounced the subjective spheres of culture and religion as worthless,[106] asserting its supposed superiority with absolute arrogance. The strength of science is that it is grounded in evidence that can be reproduced by the application of a given injunction, paradigm or exemplar.[107] Science can construct experiments about the

objective world which repeatedly produce evidence of the existence of laws which govern natural phenomena. These discoveries can be applied practically to create technology and industry that can make life much easier for us. The problem is that the West became so intoxicated with the materialistic advantages of the scientific worldview that it failed to notice the malicious implications of scientism's insistence that "there is no reality save that revealed by science and no truth except that which science delivers".[108]

Wilber's (1998) contention is that we can take the scientific method into our studies of culture and religion (the subjective spheres) and apply equally rigorous standards to our subjective convictions in order to verify for ourselves the truths they claim to reveal. The importance of this type of thought to our understanding of the environment in Wilber's (1998, 2000) work is that we need both scientific and religious perspectives if we are to see the environment in its totality. Therefore, Wilber (1998) calls for an upgraded version of science that transcends the limitations of narrow empiricism. This higher science could be postulated upon three modes of inquiry, three eyes of knowing,[109] which could be said to correspond to three basic ways of looking at reality, including the environment. The first way of seeing is through the gross physical eyes of narrow empirical science that seeks to see patterns in the natural world. The second way of seeing is through the rational or subtle eyes of reason and culture into the realms of mind and soul. The third way of seeing is through the eye of contemplation into the transcendent realm of spirit.[110]

Wilber's (1998) analogy opens up an entirely new vista by which we can look at the environment. It fully accepts the contributions of modern science without being limited by its premises. His work clarifies the problem of scientific materialism's

dominance in our modern thinking processes while showing a way to open our minds into a truly holistic consideration of our environmental problems. His systematic efforts to integrate hundreds of psychological constructs into one diagram may at first appear reductionist, but the overall effect is to demonstrate that our environmental problems are rooted in fragmented belief systems. When we understand the debilitating limitations and necessary virtues of those belief systems we can begin to see the cosmic forces that have created and continue to nourish our biosphere. For Wilber (1998), the environment can be investigated indefinitely by modern science while retaining its subtle psychological qualities and its spiritual integrity. From Wilber's (1998) unifying perspective, continuing holistic study of the environment gives us everything to gain while steadily and intentionally providing a way to minimize our losses due to causes he eloquently clarifies.

Wilber (1998) also conveys a warning to supposedly holistic thinkers who privilege ecosystem studies, web-of-life theories or process philosophy to the exclusion of truly holistic ways of seeing. Wilber's (1998) point is that the study of ecology and all forms of process patterns can take place entirely within the monological empirical worldview of scientism. This worldview merely looks at the environment through the senses or their extensions without ever being required to penetrate its surfaces, to dialogue[111] with the life forms that populate the natural world. He explains that the worldview of science, almost from the beginning, has been a systems holistic view[112]—which is not complete. The significant contribution of Wilber's (1998) work to "the science and religion game" is his insistence that we must learn to respect all possible perspectives (for example, about the environment) while searching for an overall integrative model within which to

place them. The study of ecology as a scientific discipline must not be separated from the more holistic efforts of rational thought (cultural influences) and spiritual contemplation. Any such isolated investigation is doomed to suffer the same withering fate as empirical science in its isolated flatland. In the flatland world "all interiors are reduced to exteriors, all subjects to objects, all depth to surfaces, all quality to quantity, levels of significance to levels of size and value to veneer".[113] Wilber (1998) plainly states that we must look at the environment with equal respect for all ways of seeing, acknowledging all forms of knowledge, if we are to see it truly and to respond to its needs with real intelligence.

An Introduction to J. G. Bennett: The Twin Strands of Evolution and Ecology

The theme of evolution is fundamental to Bennett's work in The Dramatic Universe (1956, 1961, 1966a, 1966b). He disagrees with Hutchinson and Wilson's conviction that evolution is blind, utterly lacking direction or purpose.[114] In fact, the entire premise underlying Bennett's effort is an attempt to sketch the ultimate outlines of our destiny as a species in the biosphere. As Bennett saw it, evolution is a deeply religious matter. He believed that the evolutionary process is being guided by higher intelligences that can only communicate with us when we listen to them[115]—a big factor in the arising of religious history. He was confident that the body can evolve towards the mind and the mind can evolve towards some inconceivable intelligence.[116] Moreover, in light of his overarching system of thought, he defined evolution as the ascent of existence towards spirituality, while involution is the corresponding descent of essence into actuality.[117] As if echoing Eldredge's (1998) repeated insistence that all of the small ecosystems of the planet are inextricably linked to one total ecosystem called the biosphere, Bennett affirms that "we are now at a stage when humanity is becoming

conscious of its own wholeness (one-world-awareness), but not yet of its role in the biosphere".[118]

The views of evolutionary biology correspond remarkably closely to Bennett's own ideas about the historical role of hazard and contingency. The concept of drama in The Dramatic Universe (1956, 1961, 1966a, 1966b) refers to the possibility of failing to fulfill our destiny, which is the definitive hazard to existing without purpose or direction (characterized by our materialistic epoch).[119] Bennett shares Lovelock's (1988) awe for the degree to which "the physico-chemical conditions on earth are so exactly attuned to the needs of life".[120] Bennett does not limit his vision to Lovelock's (1988) parameters, however, which are thoroughly based in science but lack Bennett's (1956, 1961, 1966a, 1966b) cosmic perspective. Bennett criticizes, like Barbour (1990, 1993), the fallacy of misplaced concreteness by which narrow empirical science attempts to reduce our knowledge of the natural world to its own descriptions: a culturally ingrained habit that Bennett's work intended to change. Barbour's (1990, 1993) synthesis of ecological principles provide a fine terrestrial introduction to Bennett's "cosmic ecology" in which everything exists to maintain the existence of some other whole[121] in time spans that are vast beyond the power of imagination to visualize.

Teilhard (1964) intuits many deep truths about our evolutionary process with hopeful but vague speculation. Bennett's (1956, 1961, 1966a, 1966b) more organized effort complements much of Teilhard's (1964) work. Both agree that humanity must organize itself as an integral functioning unit before we can realize our unity with the biosphere. Berry's (1988) impending sense of a new historical epoch accords well with Bennett's vision, as does their mutual passion for telling "a new story" that integrates all

human knowledge. Both Berry (1988) and Bennett communicate incisive insights into the influence of historical forces that have given rise to our environmental problems. Bennett (1956, 1961, 1966a, 1966b) takes a more systematic approach in his descriptions of the historical process, preferring an almost esoteric and mathematical formulation of his terms, in contrast to Berry's (1988) more romantic-poet theological insights. Wilber's (1998, 2000) fine synthesis of scientific and religious thought parallels elements of Bennett's (1956, 1961, 1966a, 1966b) work, although Wilber (1998, 2000) has not yet delineated a definitive methodology for applying his ideas, preferring to point to prevalent practices of spiritual traditions. Bennett (1956, 1961, 1966a, 1966b) actually does formulate a specific process by which we may begin to penetrate the superficial appearances of things in order *to learn to see for ourselves* (author's italics). This process embodies the tangible experiential components of practical and applied religion that bring dynamism and promise to Bennett's work. The terms that will be introduced in this thesis to explain Bennett's work will provide the necessary platform from which to apply the process of *learning to see for ourselves* to solve our environmental problems.

J. G. Bennett: The Cosmic Environment of the Domain of Facts

Bennett (1956, 1961, 1966a, 1966b) believed that all human experience could be represented within the parameters of three cosmic domains of fact, value and harmony.[122] The organization of this thesis parallels these domains. The present chapter discusses the meaning of the word "environment", corresponding to Bennett's domain of fact. Chapter 4 explores the meaning of the word "values", corresponding to Bennett's (1956, 1961, 1966a, 1966b) domain of values. Chapter 5 examines practical applications of environmental values, corresponding to Bennett's domain of harmony. The difference between Bennett's "environment" and the work of the previous writers is in scale:

Bennett intentionally postulated a cosmic environment that embraces everything science will ever discover and considerably more. It is the purpose of this chapter to sketch the outlines of his environment in his own terms, which he called the domain of facts.

The domain of facts includes all of the "goings-on" or natural functions in the universe, which Bennett (1956, 1961, 1966a, 1966b) classified into three worlds: the hyponomic material world, the autonomic world of life and the hypernomic world of cosmic entities.[123] Bennett stated that our experience of these factual worlds is homogeneous (because all fact is one)[124] but not monomorphous (because existence is stratified into levels).[125] Bennett defined knowledge as the subjective process by which we attribute order to the functions of the natural world.[126] Therefore, natural philosophy encompasses all of the pursuits of empirical science in its detailed studies in search of factual truth throughout the entire cosmic environment. The domain of fact is simply the totality of what is[127]—the entire process of the universe governed by law. In brief, knowledge is the province of natural philosophy whose work is the ordering of function of whatever exists in the cosmic domain of facts.

Bennett (1956, 1961, 1966a, 1966b) shared our contemporary concern about environmental destruction and visualized our relationship as a species to the biosphere as the key to our evolutionary destiny. He was appalled by the incredible lack of responsibility among our species for the effects of our activities on the environment.[128] Although this is beginning to change, he predicted that it would probably be thousands of years before we are able to act with one mind, as a species, to fulfill our evolutionary function toward the biosphere. Bennett respected "hard" science, although he saw far beyond its truncated vision. Like Lovelock (1988), Bennett was aware of the early

discussions about geophysiology and the biosphere.[129] He sympathized with Teilhard's (1964) views of evolution, although Bennett disparaged contradictions within Teilhard's (1964) work as a whole.

Bennett (1956, 1961, 1966a, 1966b) believed that the human species is in its childhood,[130] acting like a spoiled child that takes from the environment without giving back. We soil our planetary home with no consideration for generations to come. Clearly, this situation must change. Bennett visualized the foundation of this change as an educational process which he outlined in The Dramatic Universe (1956, 1961, 1966a, 1966b). He believed that our confusion as a species is due to the inadequacy of our modes of thought.[131] His environmental views were irrevocably cosmic, simply because he refused to ignore the fact that we live in an organized universe. He could not confine his mind to the planetary realm alone, nor could he remain content to accept the conventional divisions of the natural sciences. As a philosophical thinker, he sought a natural philosophy that was all encompassing. And yet, he was a deeply religious man who felt compelled to anchor his beliefs in daily practices that reflected his deepest convictions and most profound intuitions.

Bennett's (1956, 1961, 1966a, 1966b) work has stupendous implications for our environmental crisis, although much work needs to be done to bring this aspect of his ideas into focus. It would be useful to elucidate each of Bennett's three cosmic domains—of fact, value and harmony—in relation to the biosphere. A religious duty falls on the shoulders of everyone who wakes up to our responsibility to coming generations, which is sufficient to generate a sense of stewardship for the environment. For Bennett, this problem of human responsibility assumed cosmic proportions. His

massive response was a body of work that is difficult to penetrate and almost impossible to assimilate in its entirety. Relative to this chapter on the meaning of the word "environment", Bennett would have insisted that even if we could classify all of the natural forms, functions and interrelationships of the biosphere, we still would not be able to account for the impulse that drives us to find meaning and purpose in existence.[132] This is where the "hard" scientists contradict themselves—by asserting that values exist in the natural world, even though they can never locate them by any application of empirical science.

Summary

The environment is that which surrounds us as living beings and supports us in every way, on all levels—physically, culturally, and spiritually. The "hard" scientists tend to limit their knowledge to the sensory recognition of empirical patterns. The more open-minded thinkers look to both science and religion for an explanation of environmental influences, which gradually opens a universal perspective and an awareness of cosmic factors. The trans-rational holists search for a totally integrating paradigm by which to answer for all human knowledge. Such a paradigm points to a clear need for consistent terms in order to produce a coherent system of thought. All forms of human knowledge have real truths to contribute in the quest for a unified cosmology. It is difficult to ignore the fact that we are facing a crisis of environmental destruction—if we pay attention to the quality of the food we eat, the water we drink and the air we breathe. It is also difficult to ignore the fact that we live in a universe, not just on a planet. We live in a cosmic context that is governed by universal laws that shape our environment and our lives.

The work of J. G. Bennett (1956, 1961, 1966a, 1966b) is highly flawed. He held opinions that were incredibly superficial and his life was far from perfect. In many respects he was an ordinary man with huge intellectual ambitions. He was also a religious man who lived by his own standards and followed his own lights. The Dramatic Universe (1956, 1961, 1966a, 1966b) is difficult to read and extremely difficult to understand as a unified work. It could be better described as a collection of fragments that is left for the reader to assemble. But these fragments reach considerably deeper into the cosmic structure than the work of any of the writers whose work has been reviewed in this chapter. Bennett's work truly answers the call for a new paradigm of thought as visualized by the "hard" scientists, especially Wilson. The Dramatic Universe provides a fully organized response to the mystic yearnings of Teilhard (1964) and Berry (1988) for a cosmology that reveals the numinous dimensions of the universe as well as the scientific perspective. Bennett's work exceeds the sincere organizational efforts of Wilber (1998, 2000), simply because Bennett embraced a wider range in time, space and dimension. Unlike all of the other writers mentioned here, Bennett alone isolates value to a hidden and miraculous dimension completely beyond the natural world. The purpose of the next chapter is to explore how each of these writers defines the word "values", especially in relation to the environment.

Notes

1. From Webster online.
2. http://www.eoascientific.com/earth_science_glossary/e.html.
3. http://www.mhhe.com/sciencemath/forestryenvir/pae/glossary.html#e.
4. http://oaspub.epa.gov/trs/trs_proc_qry.alphabet?p_term_nm=E.
5. Ibid.
6. Eldredge, Life In The Balance: Humanity and The Biodiversity Crisis, 29.
7. Ibid., 63.
8. Ibid., 56.
9. Ibid.

10. Ibid., 57.
11. Ibid.
12. Ibid., 61.
13. Leakey and Lewin, *The Sixth Extinction*, 17.
14. Ibid., 34.
15. Ibid., 28.
16. Ibid., 40.
17. Ibid., 68.
18. Ibid., 39.
19. Ibid., 6.
20. Ibid., 152.
21. Ibid., 150.
22. Ibid., 159.
23. Ibid., 158.
24. Ibid., 166.
25. Ibid., 197.
26. Ibid., 234.
27. Ibid., 250.
28. Ibid., 163.
29. Wilson, The Diversity of Life, 93.
30. Ibid., 187.
31. Ibid.
32. Ibid., 253.
33. Lovelock, The Ages of Gaia, 19.
34. Ibid.
35. Ibid., 39-40.
36. Ibid., 8.
37. Ibid., 33.
38. Ibid., 30.
39. Ibid., 34.
40. Ibid., 40.
41. Ibid., 155.
42. Ibid., 215.
43. Ibid., 18.
44. Barbour, Religion In An Age of Science, 4.
45. Ibid., 7.
46. Ibid., 95-96.
47. Ibid., 100.
48. Ibid., 229.
49. Ibid., 193.
50. Ibid., 214.
51. Ibid., 213.
52. Ibid., 26.
53. Barbour, Ethics In An Age of Technology, 58.
54. Ibid., 59.
55. Ibid., 60.

56. Teilhard de Chardin, The Future of Man, 18.
57. Ibid., 175.
58. Ibid., 30.
59. Ibid., 69.
60. Ibid., 161.
61. Ibid., 69.
62. Ibid., 150.
63. Ibid., 172.
64. Ibid., 176.
65. Ibid., 115.
66. Ibid.
67. Ibid., 176.
68. Ibid., 19.
69. Ibid., 280.
70. Ibid., 157.
71. Ibid.
72. Ibid., 192.
73. Ibid., 226.
74. Thomas Berry, The Dream of The Earth, viii.
75. Ibid., 169.
76. Ibid., 37.
77. Ibid., xii.
78. Ibid., 4.
79. Ibid., 30.
80. Ibid., 25.
81. Ibid., 31.
82. Ibid., 29.
83. Ibid.
84. Ibid., 7.
85. Ibid., 11-12.
86. Ibid., 29.
87. Ibid., 38.
88. Ibid., 31.
89. Ibid., 32.
90. Ibid., 18.
91. Ibid., 121.
92. Ibid., 43.
93. Ibid., 43-44.
94. Ibid., 41-42.
95. Ibid., 43.
96. Ibid., 74.
97. Ibid., 18.
98. Ibid., 44.
99. Ibid., 29.
100. Ibid., 161.
101. Ibid., 121.

102. Ibid., 12.
103. Ibid., 120.
104. Ken Wilber, The Marriage of Sense and Soul, 4.
105. Ibid., 10.
106. Ibid., 13.
107. Ibid., 30.
108. Ibid., 56.
109. Ibid., 20.
110. Ibid., 7.
111. Ibid., 36-37.
112. Ibid., 57.
113. Ibid., 61.
114. Bennett, The Dramatic Universe, III, 234.
115. Ibid.
116. Ibid., III, 124.
117. Ibid., II, 27.
118. Ibid., III, 284.
119. Ibid., II, 29.
120. Ibid., I, 431.
121. Ibid., III, 285.
122. Ibid., II, 32.
123. Ibid., I, 62.
124. Ibid., II, 17.
125. Ibid.
126. Ibid.
127. Ibid., I, 117.
128. Ibid., III, 284.
129. Ibid., I, 420.
130. Ibid., III, 285.
131. Ibid., III, 8.
132. Ibid., II, 20.

CHAPTER 4
THE MEANING OF ENVIRONMENTAL VALUES

Introduction

The word "value" is rooted in the idea of worth.[1] The idea of worth can be expanded to include usefulness, desirability or quality—of a thing or a situation.[2] The concept of value is often closely linked to the word "ethics", which refers to principles of morality and the consequences of right and wrong conduct.[3] This chapter will follow the procedure of reviewing each author's perspective on values, with particular attention to three distinct meanings of the word "value" in their works: utilitarian, aesthetic and holistic. The overriding value of evolutionary progress will provide an additional integrating thematic element to the chapter, with an awareness of the increasing call for ecological knowledge and understanding. All of the work will focus specifically upon the meaning of values in relation to the environment. This chapter will conclude by explaining the intersection of Bennett's (1956, 1961, 1966a, 1966b) ideas of value in the context of the work that preceded it.

Eldredge and the Need for Realistic Environmental Values

Eldredge (1998) conveniently itemizes the importance of biodiversity in terms of the values already listed in the introduction: utilitarian, aesthetic and ecosystem services (holistic).[4] His book is a prolonged explanation of why we should care about the loss of species—the erosion of biodiversity. It is appropriate that he calls for placing realistic values on all resources, including ecosystems and the species that inhabit them.[5] Although he is short on details about how to accomplish this valuation, his book

represents a sincere effort to contextualize his concern that we seem to be oblivious to the inevitable consequences of environmental degradation. For Eldredge (1998), the entire issue of environmental ethics boils down to one simple observation: the living world is more valuable alive than dead.[6] His book is a poignant reminder that death of a species is final. Eldredge (1998) asks the reader to appreciate the significance of biodiversity on all levels of human need as a necessary preliminary step to formulating methods for realistically assessing the value of the environment that we exploit so thoughtlessly.

Leakey and Lewin and the Supreme Value of Environmental Biodiversity

Like Eldredge (1998), Leakey and Lewin (1995) reiterate the primary triad of environmental values: utilitarian (food, medicine, raw materials), aesthetic (human psychic benefits) and holistic (global systems that maintain the physical environment).[7] Virtually everything these writers discuss rotates around the supreme value of the diversity of life. They attribute all types of loss of value—economic, aesthetic and holistic—to loss of biodiversity: "where value can be identified, loss of diversity represents loss of that value".[8] It is the conviction of these writers that biodiversity nurtures the human psyche or spirit:[9] we risk eroding the human soul if we allow erosion of the richness of the world of nature.[10] Moreover, a heavy emphasis is placed upon the need to distance ourselves in space and time if we are truly to see the larger reality[11] of our environmental context. We need to understand the source and extent of diversity and the place of humanity in that diversity.[12] Leakey and Lewin (1995) see an intimate connection between biodiversity and the fate of all species over the great flow of geological time. In simplest terms, these two scientific writers consider biodiversity to be the fundamental value: the true and absolute currency. Our wealth as a species is directly related to our respect for the diversity of the natural environment. As it is, if we

continue to waste this wealth we will not only impoverish future generations, we may destroy all possibility for life.

E. O. Wilson and the Redemptive Value of Environmental Biodiversity

Wilson's (1992) redeeming virtue is awareness of long time spans. He shares the sense that biodiversity "is the key to the maintenance of the world as we know it".[13] Wilson (1992) eloquently explains the magic of long evolutionary processes: "every kind of organism has reached this moment in time by threading one needle after another, throwing up brilliant artifices to survive and reproduce against nearly impossible odds".[14] Much of Wilson's (1992) effort in The Diversity of Life is focused upon explaining the esoteric details of natural selection—"the wellspring of biological diversity".[15] Like Eldredge (1998), and Leakey and Lewin (1995), Wilson (1992) believes that "every scrap of biological diversity is priceless".[16] For Wilson (1992), biodiversity is the treasure of the entire evolutionary process, "our most valuable but least appreciated resource".[17] According to Wilson (1992), the future of our species can be redeemed from an almost certain demise by consciously awakening to the value of biodiversity on all three levels: utilitarian, aesthetic and holistic.

The utilitarian benefits of biodiversity inform a significant portion of Wilson's (1992) essay. He invokes historical precedent by reminding us that, in all cultures, taxonomic classification means survival; in China, the beginning of wisdom is calling things by their right names.[18] Wilson (1992) promotes the "hard" scientist's passion for accumulating empirical knowledge, referring to all living species as genetic libraries.[19] He supports extensive research to gather as much information as possible about the biology and life cycles of large numbers of species in order to create principles and

methods for protecting ecosystems from human onslaught.[20] Wilson (1992) advocates creating biological wealth by surveying the economic potential of ecosystems; by assessing the potential commodity value of species; by assigning recreational value to wild habitats; and by allocating future value to act as a protective mechanism for ecosystems that might be endangered.[21] All of this possible valuation hinges upon deep respect for the diversity of species and the ecosystems that they inhabit. Of course, the obvious utilitarian benefits of potential foods, medicines and fibers are mentioned in passing, although Wilson (1992) does not excessively labor this point—preferring to place biodiversity in a larger context.

The aesthetic benefits of biodiversity do not pass unnoticed in Wilson's (1992) work, although questions can be raised as to how a "hard" scientist like himself defines his terms. Nonetheless, he is a dedicated advocate of intrinsic value in ecosystems, which should be treasured no less than "historical episodes, classic books, works of art".[22] In characteristically idiosyncratic fashion, Wilson (1992) explains that, from a biologist's point of view, elaborate displays of beauty in nature are merely reproductive isolating mechanisms that arise from error.[23] What Wilson (1992) wants to do is to communicate the urgency of becoming aware of what ecosystems are, of what they do and of how they affect our lives. His theory is that "increasing familiarity will save ecosystems because bioeconomic and aesthetic values will grow as each constituent species is examined".[24] Wilson's (1992) many hours of fieldwork have obviously left an indelible impression upon his heart. It is difficult to read his work without an increasing sense of affection for the environment and for the values that he claims to perceive in the natural world. Wilson (1992) refers to this affection as biophilia—the connections that

humans subconsciously seek with the rest of life.[25] How strange that a strict empirical scientist would write with such affection about the natural world, ardently advocating aesthetic values that lie completely outside the realm of the natural sciences!

The holistic benefits of biodiversity in ecosystems also receive full credit in Wilson's (1992) survey. Apparently, Wilson (1992) considers it absolutely appropriate to segue into a philosophical mode as he moves from a perfectly legitimate description of ecosystem services to an ethic of environmental stewardship. Of course, he reminds us, biodiversity provides fresh air, enriches our soil and optimizes our bodily functions (ecosystem services).[26] Wilson (1992) also extols the value of reflection: "stewardship of the environment is a domain on the near side of metaphysics where all reflective persons can find common ground".[27] In other words, this strict scientist is asking his readers to engage in the spiritual act of reflection in order to understand the consequences of loss of biodiversity. This role-stretching seems appropriate relative to the message that Wilson (1992) intends to communicate. It is best to summarize this message in his own words: "What is morality but the command of conscience seasoned by a rational examination of consequences? What is a fundamental precept but one that serves all generations?".[28]

Wilson (1992) the philosopher was probably born by contemplating the millions of years it has taken to produce the "most wonderful mystery of life: so much diversity from so little matter".[29] He knows his scientific facts and he has every right to contemplate the future, although his lack of reading in philosophy and religion is evident. Nonetheless, what he lacks in intellectual sophistication is more than compensated for by sincerity of intent. Wilson (1992) is aware of the limitations of scientific thought, especially regarding consequences in future time: we have no future concept to match

our concepts of the past. "What is urgently needed is knowledge and a practical ethic based on a time scale longer than we are accustomed to apply. An ideal ethic is a set of rules invented to address problems so complex or stretching so far into the future as to place their solution beyond ordinary discourse".[30] The central message in Wilson's (1992) book is that we must begin to think about how we can protect the ancient treasures of living biodiversity in order to allow many future generations to have the opportunity to appreciate the richness and complexity of life.

Lovelock and the Value of Scientific Curiosity in Knowing the Environment

Although it is difficult for any human being to look at the world non-anthropocentrically, all of the writers in this thesis are calling for at least one small pause in our rush to indulge our natural human tendencies. For Eldredge (1998), this pause took the form of reminding us that the life of the entire human species is but one blip on the great screen of planetary life in the vast spans of geological time. For Leakey and Lewin (1995), the pause that refreshes is taking a moment to consider the greater spatial and temporal contexts that have given rise to biodiversity. For Wilson (1992), the moment of reflection creates an impulse to look far into the future to see which species will survive our hour of slaughter. The work of Lovelock (1988) asks us to pause once again, this time to reflect upon the total system of all planetary systems, which he calls Gaia. Uncharacteristically for a scientist, Lovelock (1988) cherishes and promotes the singular value of loving curiosity—the source of his intuitions and the platform for Ages of Gaia.

Lovelock (1988) is a modern enigma. He is a scientist who makes a living by inventing, which leaves spare time to explore his personal interests, which are also scientific. He is stuck in his identity as a scientist and tries to free himself by thinking

outside the normative box of his peers. He loves the natural world and embraces the longing to know new things, in his staid format. He experiences deep intuitive insights that he translates into a scientific contexts that are accessible to a wide reading public. He defines good science as the process of getting to know the natural world via curiosity and deep love; creativity knows intuitively but it may take years to prove what one knows.[31] Lovelock (1988) applauds the amazing ability of life to move upstream against the flow of time, evolving to ever-greater complexity, characterized by ubiquitous improbability.[32] As a partial victim of the limitations of secular thought, Lovelock (1988) looks to the ancient past as a time when the belief in a living earth and a living cosmos were the same thing: heaven and earth were close and part of the same body.[33]

Lovelock (1988) is asking the reader to value the virtue of loving curiosity about the natural world, in a scientific fashion. He wants us to open our eyes to see connections among all of the earth systems that are not yet acknowledged by the conventions of modern science. In basic terms, he wants us to see holistically, without all of the trappings of the modern holistic movements. He is radically aware that most environmental movements are anthropocentric: concerned first with the health of people.[34] Somewhat cynically, Lovelock (1988) questions the compulsion of biologists to devise classification systems but never to read the books or to question their meaning.[35] Lovelock (1988) considers fundamentalist theology to be otiose when it states that God exists, but he extols the psychological depth of immediate and unreasoned assurance within us, of which the reasoned argument is the surface exhibition.[36] It is from this internal platform of deep affection and loving curiosity that Lovelock (1988) shapes an environmental ethic that values Gaia as the largest of the earth's living systems.

Barbour and the Value of Rational Dialogue About Environmental Problems

Ultimately, every polarity finds its harmonizing principle and every argument finds its moderator. Barbour (1990, 1993) values the rational process of listening to both sides of a story and then clearly stating their similarities and differences. If he has a weakness, it is in bulk. He prefers the encyclopedic to the simple and he is not a poet. His attempt to reconcile science and religion is much needed, as is his more amorphous effort to discuss technology and ethics. Barbour (1990, 1993) is intensely focused on utilitarian values. His interest in aesthetic values is secondary and his treatment of holistic values is crisply erudite in essence but peripheral and indirect in the final analysis. Yet his work is singular and important to anyone interested in environmental ethics. His definition of value is worth mentioning: a value is something we view with favor, believe is beneficial and act to promote; a value resembles a preference or a desire.[37] Relative to the environment, this section will briefly address Barbour's (1990, 1993) ideas about utilitarian values, aesthetic values and holistic values.

Barbour (1990, 1993) uses the word "instrumentalism" to describe the trend of scientific theories and religious beliefs to create constructs that are useful for specific human purposes.[38] The scientific manifestation of instrumentalism is expressed primarily in technologies that magnify our power to control the environment, for better or worse. Religious beliefs can tend to take the form of work ethics that promise beneficial consequences for laboring to dominate the natural world, directly or indirectly. All of this falls under the category of utilitarian values—useful for human purposes. Barbour (1990, 1993) emphasizes that our view of nature will influence the way we treat nature and our view of human nature will affect our understanding of human responsibility.[39] The utilitarian perspective on our relationship to the environment tends to value the

pragmatic and tangible interests that accord well with the empirical values of the physical sciences. Religious traditions are being called upon to accept the validity of scientific discoveries and writers such as Barbour (1990, 1993) assert that there should be a continuous demand that our concepts and beliefs be closely related to our experience.[40]

Barbour (1990, 1993) explores the meaning of utilitarian environmental values as applied both individually and socially. He asserts that the most significant of these individual values are access to food, health care, and meaningful work. On a social level, these values take the form of social justice, participatory freedom, and personal fulfillment.[41] He praises Maslow's "hierarchy of needs" paradigm for its great sensitivity to the multiple dimensions of human experience.[42] Barbour (1990, 1993) summarizes the pragmatic grounds for three environmental values: resource sustainability, environmental protection, and respect for all forms of life.[43] Our problems regarding the utilitarian environmental values stem from mechanistic science, dualistic philosophy, industrial technology, and capitalist economics.[44] The science of ecology provides empirical standards by which these destructive environmental values can be transformed into sustainable contexts. These four ecological standards (or concepts) include the ecosystem as a unit of research, finite limits, ecological stability and long time spans.[45] All of these concepts will be touched upon throughout this thesis as the temporal concepts of evolution are placed into the context of the spatial concepts of ecology.

Barbour's (1990, 1993) sense of aesthetic values is also related to the concept of ecology. Quoting Callicott, Barbour (1990, 1993) agrees that ecology changes our values by changing our concepts of the world, revealing new relationships that stir our ancient centers of moral feeling.[46] It is deeply significant that the principles of ecology can

function on an empirical level of strict science as well as on an aesthetic level of meaning and beauty. Barbour (1990, 1993) has a unique ability to capture great sweeps of knowledge in a few phrases. He affirms that such intangible values as respect for nonhuman nature and for the value of the human individual depend upon our understanding of ultimate reality.[47] Finally, any discussion of aesthetic values should include a brief mention of the meaning of rational thought. What does it mean to be rational? On one hand, it could imply that we are all participant observers who are inextricably part of an interactive system. The form of the questions we ask—for example, about environmental values—determines the kind of answers we receive.[48] On the other hand, rationality could be what the scientific method brings to the personal judgments that tend to inform our religious perspectives.[49] The acts of speaking, thinking, and writing require some degree of rationality in order to make us understood by others. As such, communication of any kind has a utilitarian aspect as well as an aesthetic quality. Barbour's (1990, 1993) work insists that it is essential that we learn to express our reasons for the values that inform our interactions with the environment, and that these reasons can have both utilitarian and aesthetic components.

The holistic values in Barbour's (1990, 1993) work emphasize the criteria of coherence and comprehensiveness, which have parallel applications in both science and religion.[50] Quoting Holmes Rolston, Barbour (1990, 1993) affirms that scientific theories interpret and correlate data just as religious beliefs interpret and correlate experience.[51] While science is interested in correlation of causes, religion's primary goal is reformation of the person as a way of life, not just as an intellectual system.[52] We must never forget that religious questions are of ultimate concern, since the meaning of our existence is at

stake: religion asks about the final objects of a person's devotion and loyalty.[53] When revelation is involved, it is recognized by its ability to illuminate present experience.[54] Here we have a conundrum. How is it that the religious traditions of the world have fallen so far from a sense of environmental stewardship? Why do traditional or conventional religious norms appear to neglect our responsibility to protect the environment from the exploitative values that threaten our existence as a species? Are the majority of prototypical religious believers so deeply focused upon some heavenly pie in the sky that our relationship with the humble earth is considered irrelevant? How can the obvious spiritual, psychological and economic power of the religious people of the world be so pathetically indifferent to our planet's environmental problems?

Barbour's (1990, 1993) work is an attempt to initiate a dialogue between scientific thinkers and religious believers. The central point in his discussion of holistic environmental values is an insistence that a unifying vision of reality must be consistent with scientific discoveries and an understanding of human potentialities. Barbour (1990, 1993) shares the passionate indignity of Lynn White Jr. when he calls for a new religion or a need to rethink our old one if we are to get out of the ecological crisis.[55] Echoing John Passmore, Barbour (1990, 1993) affirms that we do not need a new environmental ethic at all; we simply need to learn to adhere to a perfectly familiar ethic that is not fueled by shortsighted greed.[56] Barbour (1990, 1993) reminds us that the history of ethics is simply an extension of the boundaries of the community from tribe to nation to all.[57] This leads us to the ideas of holistic ethics in which the welfare of the ecosystem is of supreme value, recognizing that integrity, stability and beauty are holistic concepts.[58] And yet, Barbour (1990, 1993) forces himself to ask if these holistic concepts are truly

real or if they are an example of what some call the naturalistic fallacy of trying to derive "ought" from "is"?[59] This is a powerfully introspective question that will be considered in the sections that follow.

Teilhard de Chardin and the Awakening to Spiritual Value in the Environment

The utilitarian perspective on environmental values is the least of Teilhard's (1964) interests in The Future of Man, although it is definitely present as an element in his vision. With keen insight, Teilhard (1964) suggests that our hunger for material well-being is really hunger for higher being.[60] This is a revolutionary challenge to our Western addiction to "keeping up with the Joneses". The implications of this insight point to Teilhard's (1964) central message: we need to learn to introspect if we are to evolve, as individuals and as a species. He speaks of a twofold sense that is emerging in the human species—historical duration and collectivity—that have re-ordered the entire field of our experience.[61] His belief in the power of introspection suggests a movement toward "ever-tightening compression compelling ever more Reflection". [62] Teilhard (1964) accuses each of us of the vice of egocentricity, a self-imposed isolation that prohibits our escape from the self to share the point of view even of those we love best.[63] This isolating tendency certainly also applies to our blindness, as a species, to the other inhabitants of the biosphere. Teilhard (1964) is asking us to become conscious of our power over the environment and to establish principles by which we can value our biological nature and our social organization[64] in light of the value of the task that the future inevitably calls us to fulfill.[65]

The aesthetic perspective on environmental values is central to Teilhard's (1964) vision. This perspective has three primary components: the progressive flowering of the individual, the assumption that the world has meaning, and the endless universalizing of

all values. Teilhard's (1964) respect for individual human potentiality is supreme. He speaks of the function of personalization that increases variety of choice and wealth of spontaneity in a harmonized flowering of individual values.[66] Teilhard (1964) also defends the implicit right of each individual to cling to the truth of personal perception and experience: "for no reason and under no circumstances must the forces of collectivity compel the individual to deform or to falsify himself, to lie to himself".[67] Teilhard (1964) believes that "the world has a meaning and is taking us somewhere",[68] although this meaning appears to emerge from the process of "forging human multiplicity into a whole".[69] The meaning of value hinges upon Teilhard's (1964) intuitions of universal unification, the "general and irreversible readjustment of the values of existence to a new spiritual dimension".[70] In Teilhard's (1964) eyes, values are made real in the process of growing to fulfill individual and collective potential in ever-increasing spirals of universalization.

The holistic perspective on environmental values is the ground and goal of Teilhard's (1964) work. He states that the soul has only one summit and one foundation[71] and that a profound need for unity pervades the world.[72] Teilhard (1964) insists that our increasing ability to situate ourselves in space and time will require us to become conscious of our responsibility in relation to the universe.[73] He believes that we are ennobled by serving the work that is proceeding in the universe[74] and that we have the power to look into the future and assess the value of things.[75] In a phrase, we have a symbiotic relationship with our environment, whether that environment is the biosphere or the entire universe itself. We must awaken to our responsibilities as a species and learn to value the role of stewardship for the world in which we live. We must allow our

faith in the world process to inspire us to take dynamic spiritual action[76] that serves the outer environment while simultaneously mysticising ourselves by inner transformation that becomes ardor for life.[77] Teilhard (1964) envisions a complete synchronicity of evolution that gathers all individuals, all societies and all species into a loving and total spiritual embrace.

Thomas Berry and the Value of the Environmental Story

The thought of Thomas Berry (1988) is fully informed by an intelligent response to the ubiquitous exploitations that are despoiling our living environment. In the vernacular, he is definitely on top of the game of environmental ethics, formulating sophisticated variations of a new story for our new age. This story has one plot line with countless sub-narratives: we must begin to see ourselves as a single species among many on this planet who can no longer afford to visualize ourselves in isolation from the natural world on any level. Berry (1988) tells his story from many perspectives, according to the need of the hour. In one sense, Berry (1988) sees himself as an interpreter of ancient patterns in a new historical context.[78] In another mode, Berry (1988) laments the psychic condition of modern humanity with our mechanistic fixations[79]and our aggressive anthropocentrism. Berry (1988) urges us to recognize the whole complex of the life community in our legal processes, our economic structures, our educational systems and our moral agreements.[80] In short, Berry (1988) functions as an intellectual gadfly who challenges the unprecedented pathology that is embedded in our cultures, our religions, and our languages: in our entire value system.[81] He is critical of the values that govern our pragmatic use of the environment, our academic understanding of environmental issues, and our aesthetic appreciation of the natural world.[82] Berry (1988) longs for

humanity to wake up to his intuition of an ancient and truly human intimacy with the world around us.[83]

Quite naturally, Berry (1988) is intensely critical of utilitarian environmental values because of their inherently destructive consequences. He draws a clear line between the utilitarian values of the secular scientific community with its emphasis upon creative energies and the religious community's fixation upon redemptive energies.[84] Berry (1988) reflects that environmental values must now be determined by human sensitivity in response to the creative urgencies of a developing world.[85] He believes that our present era is experiencing the most complete reversal of values since the Neolithic period. Berry (1988) suggests that the religious revelatory experience and the values of classical humanism on which our civilization was founded are being challenged.[86] The story that Berry (1988) is telling relative to modern utilitarian values—that continue to exploit the environment without regard for consequences—is really an appeal for rationality. Berry (1988) wants us to begin to think differently about the earth. He invokes ancient wisdom traditions and cites the examples of indigenous peoples with their sustainable lifestyles in symbiotic relationship to the natural world. Berry (1988) is calling for a return to the story of simple aesthetic values and holistic understanding of the place of humanity in creation.

Berry's (1988) grasp of aesthetic values is connected to his ideas about the literary value of the story of the universe and our human role in it.[87] Our understanding of this story requires us to be sensitive enough to understand and to respond to the psychic energies that are embedded deep in the very structure of reality.[88]Berry (1988) asks us to reassess our human situation concerning the basic values that give meaning to life.[89]The

aesthetic values that Berry (1988) invokes are linked to an appreciation of the natural world. He asks us to investigate where values are and how they are determined and transmitted—noting that once we lived in a religious world where nature was thought to be an image of a greater spiritual dimension.[90]Berry (1988) asserts that we need a new way of understanding values in all human affairs, occupations, professions, and activities that derive their meaning from enhancing this emerging world of subjective intercommunion.[91] Berry (1988) is asking us to recognize the need for a new story of the world that transcends the limitations of both science and religion. Once this need is known, he believes that a structure of knowledge can be established within this story.[92]

The sense of holistic values pervades Berry's (1988) work like a shining sun in a clear blue sky. His native faith in the goodness of creation guides his narrative and shapes his vision. He refers to an awareness of mutual presence of communion as the basis of value.[93] Berry (1988) reminds us that earlier societies conveniently perceived the world as having divine, natural and human[94] aspects that were interrelated and inseparable. He recollects the Christian vision of Thomas Aquinas, in which the supremely beautiful value is considered to be the integration and harmony of the total cosmic order.[95] Berry (1988) believes that a change has begun in our relationship as a species to the environment, which has an outer aspect and an inner aspect. The outer change is the initial stages of a movement from exploitative anthropocentrism to participatory biocentrism.[96] The inner change is the beginnings of appreciating the reality and value of the intersubjective numinous aspect of the entire cosmic order.[97] This suggests that as we learn to look within ourselves—as individuals—we apparently also spontaneously initiate a corresponding outer response in our collective behavior. If

Berry's (1988) intuitions are correct, our respect for the inner spiritual light also illuminates our collective understanding of a more holistic relationship to our planetary environment.

Ken Wilber and the Value of Integrating All Environmental Perspectives

In the world of Wilber (1998, 2000), everything revolves around his interest in integrating all human knowledge into the simplest imaginable format—a quadrant diagram. Within the context of his integrative diagram, the utilitarian aspect of our relationship with the environment problematically takes the form of exploitation of natural resources. This destructive tendency must be transformed consciously into a sustainable relationship in which we fully provide the means for replacing whatever it is we need to use from our environmental resources. Wilber's (1998, 2000) particular contribution to this discussion lies in his overriding need to examine the psychological causes of our collective insensitivities and what we must do to retrofit our intentions into a more healing mode. In essence, Wilber (1998, 2000) attributes environmental exploitation to what he calls a flatland view of reality in which only surfaces are considered important:[98] the prevailing mentality of scientific materialism. What this worldview lacks is a respect for the interior depths of life—what Wilber refers to as consciousness[99]of the forms that constitute the life of our environment. Therefore, Wilber (1998, 2000) attempts to restore the depth to the flatland worldview by explaining how we can become conscious of our individual and collective superficiality toward the environment.

In the work of Wilber (1998, 2000), this awakening to consciousness is an exercise in the aesthetics of the reasoning process. He reminds us that the word "reason" simply means to ask "what are your reasons"?; "why are you doing this"?[100]As we learn to

explore our interior being—our consciousness—we begin to realize a quality that is universal in character and highly integrative because valid reasons make sense and hold true universally. Reasonable truth is not forced or coerced or ideologically imposed but is freely open to any who wish to look into its reasons.[101]In terms of the environment, Wilber (1998, 2000) asks not only how destruction comes about but why: what are the underlying explanations that justify destructive actions? Wilber (1998, 2000) invites us to contemplate the environment from the crossroads where outer and inner intersect, affirming that there is a difference between the vertical organismic and the horizontal ecosystemic organization of reality.[102]This is a crucial insight because the study of ecology must not be limited to the investigation of surface patterns only, which is the interest of the empirical sciences. Wilber (1998, 2000) is asking us to consider the subjective cultural meanings that accompany the study of ecosystems, as well as their cosmic components that can only be realized in deep personal interior spaces of contemplation.

But what are the dynamics of this awakening to the cosmic aspects of ecology, of our relationship to the environment? Wilber (1998, 2000) responds by explaining the meaning of vision-logic as the totality of all possible rational perspectives seen in a single view as an integral whole.[103]In terms of the environment, vision-logic is that capacity to look at every rational explanation for environmental exploitation and to judge how they all fit together—unifying incompatible contradictions, negating partial truths but preserving the positive contributions of each reasonable fact.[104]This integrating process can apply to every conceivable relationship between humanity and the environment. Wilber's (1998, 2000) primary interest is to move us past the shallow perceptions of the

environment that have characterized modern thought. His work opens a door into the subjective dimensions of the human mind and spirit. This requires more than the superficial observational stance of traditional science that remains content to measure, to map, and to classify the environment in a monologue of intellectual labels. Wilber (1998, 2000) encourages us to value the possibility of a deeper relationship with the environment by initiating a dialogue with its inhabitants that will allow us to resonate with their interior depth, thereby awakening the depth within ourselves.[105]

The Cosmic Environment of J. G. Bennett: The Domain of Values

The remainder of this chapter will explain some of the basic terms that must be grasped in order to understand the meaning of the word "value" in Bennett's (1956, 1961, 1966a, 1966b) cosmic environment. The first of these terms is the concept of the three great domains that form the basis of Bennett's work (fact, value, harmony). Bennett's thought was also deeply invested in the relevance of immediate experience to the application of his ideas. Any discussion of Bennett's work must perpetually describe the interactions between the domains of fact and value as a kind of an endless work in progress. The idea of assent is central to the apprehension of value, from which the concept of quality (inherent in value) cannot be separated. Finally, the abstruse meaning of the word "essence" cannot be ignored in any discussions of the domain of value. For purposes of simplicity, each of these terms will be highlighted to assist the flow of comprehension. The goal at all times in this discussion of Bennett's system of ideas is to explain his terms without introducing excessive information which is beyond the scope of this project.

The Concept of the Domains

Bennett (1956, 1961, 1966a, 1966b) defines the domains as those parts of reality between which continuous transformations are excluded.[106] The key to this definition is the word "continuous". Bennett is saying that ultimate reality has three domains that are somehow separate (no continuous transformations), but can in special circumstances be conjoined. Bennett explains that these three domains constitute the existing universe in its relationship to the essence[107] (to be defined later in this section). It is the unique task of the domain of harmony to reconcile the domains of fact and value.[108]When fact and value are reconciled they lose their distinctive character in order to become "a new reality".[109] This introduces the notion of harmony: the universal quality by which the abstract develops into the concrete and in which the meaning and purpose of all existence is contained.[110] Bennett's division of the universe into three domains is fundamental to his metaphysics and to his religious convictions. He believed that human knowledge in its totality assumes that life plays a fundamental role in the universe and is the link between the world of material processes and the world of cosmic purposes. In consequence, our role as humans should be to reconcile the material and spiritual realms.[111]

Bennett (1956, 1961, 1966a, 1966b) employs the concept of the three domains to describe the possibilities of this reconciling process. Relative to our relationship with the environment, the domains can be looked at in three ways. As a domain of fact, the environment simply exists under natural law with no inherent value: the classic stance of empirical science and its exploitative mentality. As a domain of value, the environment may be perceived as a space that allows for the emergence of value qualities that do not exist in the natural world but spontaneously occur in conjunction with it. As a domain of

harmony, the environment can provide us with an opportunity to assent to values, such as beauty, which can motivate us to take action to protect that value if we are willing. Although Bennett's methodology for describing the three domains may initially appear somewhat awkward, his ultimate goal is to open our eyes to the cosmic implications of every detail of our lives, including our relationship with the natural world of our planetary environment.

The Relevance of Immediate Experience

Bennett (1956, 1961, 1966a, 1966b) was a practical man, in spite of his prodigious intellectual efforts. All of his work was geared toward practical applications of the principles that he believed would save the world and the human species from self-destruction. Primary to this conviction was his belief in the importance of immediate experience, the testing-ground of the validity of his ideas. Integral to our discussion is Bennett's explanation that experience has a two-fold dynamism: actualization as fact and realization as value.[112] Bennett insists that values do not "exist" (in the natural world) but emerge in and through existence as a quality that is itself an integral part of experience, becoming temporal as they emerge.[113]He chastises everyone who assumes that values exist in any part of the natural world: "owing to lack of sensitivity and a failure to directly interrogate experience, we fail to see that all values are miraculous".[114]What he is asking us to do is to carefully pay attention to our immediate experience in order to clarify for ourselves exactly what values are and where they come from. Bennett asserts that when attention is directed to phenomena in immediate experience, we can always discover values in them while recognizing the inadequacy of reconciling values with the laws of fact[115] (the natural world). In other words, values do not quite fit the world of our immediate experience *until we do something to help them fit—to create harmony*

(author's italics). The precise character of these interactions between the domains of fact and value needs to be dissected in detail if we are to see our environmental problems in Bennett's cosmic light.

The Interactions Between the Domains of Fact and Value

Bennett (1956, 1961, 1966a, 1966b) stresses that value is generated in and through fact, but the two are always distinguishable.[116] Further, he states that values must emerge spontaneously from the natural order in which they are securely anchored.[117] Yet he also cautions us to beware of the naturalistic fallacy[118] of factualizing values, assuming that because values are inseparable from nature that they are of the natural world. Bennett explains that values can only be realized by means of facts,[119] yet they cannot be represented in any construct of the world of facts—which requires us to seek for them beyond the limits of space and time.[120] In a strange inversion of thought, Bennett points to a total and ultimate value that gives significance to all partial values, which requires all of existence for its expression.[121] This implies that the entire existing universe has come into existence as a vehicle for the expression of the values that we might perceive in our relationship with the natural world. From this perspective, our environment exists to serve a cosmic purpose by which we might be able to awaken to the possibility of perceiving qualities that imbue our hearts with a sense of values. At the same time, Bennett insists that the domains of fact and value are truly separate, and that the gap between them can only be bridged by a special act of attention, which he calls assent.

The Act of Assent to Value

Bennett (1956, 1961, 1966a, 1966b) is extremely formal with the smallest of definitions because it is important to him to clarify his meanings. One example of this is the surgical precision by which he explains the meaning of the word "assent" in relation

to the recognition of values. Bennett defines "assent" as the act by which bare awareness of value is converted into a positive relationship with it.[122] He describes the methodology by which we assent to value as empathetic discrimination.[123] Since this act of assent is a key functional indicator of Bennett's religious intention in The Dramatic Universe, it is worth the effort to deconstruct this act from several perspectives. The first perspective is the bare awareness of value itself: something draws our attention to itself out of all possible fields of attention in the world of facts. We notice something special, peculiarly so, although we have not yet entered into a relationship with it. According to Bennett, the moment that we decide to accept the thing that has drawn our attention as worthy of serious attention (we attend with a nominal commitment to know it better), we initiate a positive and personal relationship with it: this is the act of assent to value the thing that has captured our attention.

In more formal terms, he refers to this act as empathetic discrimination: we discriminate among many things to pay careful attention to one. This heightened act of attention elevates us to a state of empathy in which we align our perceptions and feelings with what we are attending to. In this special state we pay attention as closely and carefully to the thing as if it were a part of ourselves: we are in a state of empathy. It is in this condition that we are sensitive to quality. Bennett (1956, 1961, 1966a, 1966b) could not express it more clearly: in the apprehension of value we assent to a quality.[124] In actuality, Bennett defines values as the qualities inherent in everything,[125]He even equates value quality with the total interest we all have in knowing ourselves and the world as well as possible.[126]In terms of our relationship as a species to the environment, we must learn to be open to the possibility of perceiving quality in the natural world.

When we perceive such a quality, we can empathize with the world that it awakens within us: the domain of values. This domain is immanent throughout nature, yet transcends it. In order to grasp this larger context of Bennett's (1956, 1961, 1966a, 1966b) thought, it is necessary to introduce the word "essence": the pattern of all the qualities that give meaning and purpose to all experience.[127]

Definitions of The Essence

Bennett (1956, 1961, 1966a, 1966b) uses the word "essence" very carefully, yet its meaning can only be revealed by explaining it within some of the many contexts in which it appears in The Dramatic Universe. In one sense, the essence can be defined as the power to hold together a particular and unique pattern of possibilities without any requirement to be actualized in the domain of facts or realized in the domain of harmony.[128]In another sense, the essence refers to the possibility of "being real":[129] it endows every whole or entity with a possible reality, the fulfillment of which is not guaranteed.[130]From yet another point of view, Bennett defines essence as that which does not exist but can assent to value: the bearer of value.[131]Another phrasing describes essence as the non-material qualities that are the sources of value.[132]The general sense of the word "essence", as Bennett uses it, refers to the source of possible values that can fulfill us, that can make us more "real", but that do not necessarily exist. We bring values from their source in the essence by the act of assenting to quality, which is semi-dynamic, but lacks the power to act upon the value to make it real: to realize it. This act of realization forms the final chapter of this thesis.

Summary

The environment can be valued for utilitarian reasons, for aesthetic reasons, and for holistic reasons. The evolutionary process is valued for its capacity to integrate ever-

higher units of complexity that manifest in increasingly diverse biological forms. The field of ecology is valued for its respectful investigation of the dynamism and subtlety of spatial contexts that constitute, in their entirety, our total living environment. Niles Eldredge (1998) argues eloquently for the need to place tangible human values upon all natural resources, including ecosystems and the species that inhabit them. Leakey and Lewin (1995) explain that biological diversity is our greatest resource and should be accorded the supreme value in relation to all human concerns. E. O. Wilson (1992) reminds us that biodiversity is vitally necessary for utilitarian, aesthetic, and holistic reasons. Peculiar for a scientist, he implies that our redemption, as a species, from the waste of our modern environmental holocaust, is possible through reflecting that we must awaken our consciences to assume a role of environmental stewardship. Lovelock (1988) asks us simply to value the most fundamental of all ecosystems—the earth itself in its entirety—that he calls Gaia.

Ian Barbour (1990, 1993) values the possibilities of rational dialogue about our environmental problems. He does not value brevity or originality, although his work provides significant insights into the possibilities of transforming both scientific and religious thought to heal our environment. Teilhard (1964) values the deep spiritual potential of the evolutionary process as well as the planetary and cosmic environments that provide the space and ground for our anticipated growth toward unity. Thomas Berry (1988) values the narrative—the story well told. His work emanates the highest value of all: unconditional love for the natural world on all levels—as a source of life necessities, as a place of unlimited beauty, and as a total functioning unit which is beyond our capacity to comprehend. Wilber (1998, 2000) values the integrating power of

rationality as a necessary prelude to deepening our relationship with the physical environment and to opening our beings to the inner cosmic environment. Bennett (1956, 1961, 1966a, 1966b) values the immediacy of the cosmic environment and the intellectual possibilities of penetrating through the superficial surfaces of perceptions into the deep interior of the spiritual environment, here and now.

Bennett (1956, 1961, 1966a, 1966b) insists that we must learn to look at the total environment of immediate experience in a strategic fashion if we are to find value in our lives and to make those values real. Therefore, he divides the cosmic environment into three domains of fact, value, and harmony. The physical environment of existing things (including life) is the domain of fact: cosmic in extent, devoid of values and functioning like a machine under the power of law. The domain of values is miraculous, perfectly coincident with the natural world, but sourced in a transcendent dimension completely beyond all creation. The domain of harmony reconciles the existing domain of fact with the transcendent domain of values by introducing a third principle that is common to both domains, yet uniquely new and definitively real. In all cases, Bennett requires us to investigate our own experience to test his ideas in a practical fashion, day by day.

The interactions between the domains of fact and value must be explored with profound subtlety of attention in order to see exactly how Bennett's (1956, 1961, 1966a, 1966b) ideas apply to our daily lives in relation to the environment. The beginning of these interactions is learning to assent to value by noticing a particular quality in the environment and entering into a positive relationship with it. When we pay very close attention to our recognition of values, we may be able to awaken to the sources of value in what Bennett calls the essence. Although the word "essence" can be defined in many

ways, even in the work of Bennett, it can be understood holistically to mean the pattern of all our possibilities, for which the entire cosmic environment of the universe was created. This does not mean that the universe was created as a resource for human exploitation. It means that everything that exists was created as an expression of a cosmic value that is truly incomprehensible. Our proper response to the miracle of existence is to make precious the qualities we find in it and to find ways to ground these qualities in daily life. This act of making qualities real in the tangible world of our lives will be explored in the next, and final, chapter.

Notes

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7. Leakey and Lewin, The Sixth Extinction, 126.
8. Ibid., 247.
9. Ibid., 2.
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25. Ibid., 350.
26. Ibid., 347.
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30. Ibid., 312.
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32. Ibid., 23.
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35. Ibid., 20.
36. Ibid., 207.
37. Barbour, Ethics In An Age of Technology, 26.
38. Barbour, Religion In An Age of Science, 16.
39. Ibid., xv.
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42. Ibid., 42.
43. Ibid., 57.
44. Ibid., 58.
45. Ibid., 60.
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49. Ibid., 65.
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56. Ibid., 57.
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61. Ibid., 186.
62. Ibid., 275.
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65. Ibid., 202.
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71. Ibid., 192.
72. Ibid., 23.
73. Ibid., 16.
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77. Ibid., 205.
78. Berry, The Dream of The Earth, 27.
79. Ibid., 16.
80. Ibid., 21.
81. Ibid., 10.
82. Ibid., 13.
83. Ibid., 13.
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92. Ibid.
93. Ibid., 106.
94. Ibid., 25.
95. Ibid., 129.
96. Ibid., 169.
97. Ibid., 135.
98. Wilber, Sex, Ecology and Spirituality, 133.
99. Ibid., 117.
100. Ibid., 180.
101. Ibid.
102. Ibid., 73.
103. Ibid., 190.
104. Ibid., 191.
105. Ibid., 133.
106. Bennett, The Dramatic Universe, II, 32.
107. Ibid.
108. Ibid.
109. Ibid., III, 17.
110. Ibid., II, x.
111. Ibid., II, 15.
112. Ibid., II, 18.
113. Ibid., II, 24.
114. Ibid., II, 32.
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118. Ibid., II, 22.
119. Ibid., II, 29.
120. Ibid., II, 30.

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123. Ibid., II, 23.
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CHAPTER 5
THE HARMONY OF FACT AND VALUE IN THE ENVIRONMENT

Introduction

The purpose of Chapter 2 was to demonstrate that a call exists among the writers cited in this thesis for a new paradigm of thought in the relationship of humanity to the environment. Chapter 3 explored the meaning of the word "environment" and Chapter 4 investigated the meaning of the word "values", with particular emphasis upon how these writers understand environmental values. The intention of this chapter is to show how these authorities in their respected fields visualize resolving our environmental problems. From a religious perspective, this chapter reviews the practical application of environmental ethics to specific issues. For some, this application is immediate, tangible, and grounded in physical action that produces results that can be measured and evaluated. For others, this healing response is oriented to education, formulating knowledge for future generations to harvest and to renew. And for still others, the practical tasks of environmental ethics take the form of spiritual action, engaging the parameters of a dialogue between God and humanity, or spirit and life, while producing small but deeply meaningful fruits of wisdom.

It is a simple but remarkable fact that all of these writers share a passionate conviction that evolution is real and central to all life processes. Perhaps it is even more astonishing that all of them share an emerging awareness that the context of evolution is also important—and will become even more so in the future. The study of this context on every level is what is called ecology; the study of the relationships that support and

connect all evolutionary processes. The method of this chapter will be to allow the twin strands of evolution and ecology to frame the background of the discussion. This chapter will also consider the work of each writer in terms of the three types of practical action that can be taken to heal the environment: tangible, educational and mystical. In the case of some writers, the tangible is all that seems to matter; for others, the mystical looms large in the background, overshadowing all mundane concerns. What matters is that each writer contributes a unique perspective to the single idea that our values must ultimately take the form of some kind of healing response to save the environment from the malicious handiwork of our species.

Niles Eldredge and the Power of Political Action to Protect the Environment

The main fact that propels Eldredge's (1998) Life In The Balance is the awareness that human beings have reproduced very successfully since the agricultural revolution, with direct and indirect consequences. The direct consequence is overpopulation; the indirect consequence is rampant exploitation of the natural world. Therefore, the bulk of Eldredge's (1998) effort is to formulate specific, tangible models of action for stabilizing human population and for safeguarding the richness of the natural world instead of plundering it.[1] Interestingly, his ideas for population control focus upon the economic empowerment of women. He believes that the education of underprivileged women should take the form of learning how to take an active role in economic affairs outside the home—which automatically dampens birth rates.[2] It should be stressed that the education Eldredge (1998) supports in this case is highly proactive, placing women directly into the workplace of their communities as active agents who learn by participating in local economic affairs.

Most of Eldredge's (1998) interest focuses upon the plight of indigenous peoples who destroy the natural world that surrounds them in order to survive. He stresses that we must strike a balance between human economy and ecosystems—that it is ridiculous to tell starving people not to clear land for food.[3]Eldredge (1998) believes that it is possible to enable local people to assume active ownership of the living resources around them,[4] thereby expanding the context of sustainability to include human life as a significant environmental variable.[5] Like a true pragmatist, Eldredge (1998) has a political agenda that he calls the politics of biodiversity. In its simplest outlines, he calls for implementing initiatives, assessing ecosystems, developing conservative policies that reflect the true economic value of the living world, and meeting the economic needs of existing populations.[6] His outlook is pragmatic and his solutions are immediate and practical. He believes that political action can protect the environment by empowering those who are locked into patterns of excessive reproduction and environmental exploitation in order to secure minimal subsistence: the disenfranchised of the earth.

Leakey and Lewin and the Importance of Safeguarding the Environment

The Sixth Extinction (1995) is somewhat vacuous when it comes to specific and tangible suggestions for resolving the biodiversity crisis. This is because the authors intend to make their point indirectly, leaving it up to the reader to take the next step. They prefer to recommend defensive action that shifts the responsibility for environmental destruction to the exploiters "who should prove that plant and animal species are not useful before having the right to destroy them".[7] Although this may appear a bit naïve at first, the logic may be sound. If we reverse the legal tables on exploitation, we may or may not eliminate a lot of red tape by requiring proof that is difficult to provide, contrary to our present dilemma in which we try to prove the value of

ecosystems in a socio-economic context of gross materialism. Leakey and Lewin (1995) suggest that we make an effort to see wildlife in economic terms in order to move toward a sustainability paradigm,[8] raising the question of how this might best be done. The best way to describe the application of their exaltation of biodiversity to the real world of environmental action is through pro-active protection. These two writers (1995) are fact-based scientific visionaries who foresee an impending environmental crisis that we are bringing upon ourselves.[9] Their deepest wish is to protect future generations from unimaginable suffering by shifting our collective identity to an environmental context: a more biocentric perspective.

E. O. Wilson and the Practice of Environmental Redemption

The Diversity of Life (1992) concludes with Wilson's call for a new scientific discipline (biodiversity studies) that will integrate biology, anthropology, economics, agriculture, government and law.[10] The ultimate purpose of Wilson's (1992) book is to enunciate a program for creating a sustainable relationship between humanity and the biosphere. His first step toward this end is to reclassify environmental problems[11]to reflect the true value of evolutionary diversity and ecological interdependence. Wilson (1992) itemizes five specific tasks for achieving the singular goal of sustainability, each of which contributes to the overriding purpose of saving and using in perpetuity as much of the earth's diversity as possible.[12]The first of these tasks requires surveying the world's flora and fauna. This could be most efficiently accomplished, according to Wilson (1992), by detailed mapping of the structure of ecosystems with GIS (geographic information systems) technology that would compile layers of data about topography, vegetation, soils, hydrology and species distribution.[13]The second task—creating biological wealth—involves bioeconomic analysis that assigns economic value to species

(as commodities), to wild habitats (as recreation areas), and to ecosystems (as future investments). Wilson (1992) believes that the key to creating this wealth is to use the legal system to delay despoliation of ecosystems, to use science to analyze the ecosystems, and to use educational techniques to familiarize the public with ecosystems (hopefully magnifying affection for the natural world).[14]

The third of Wilson's (1992) tasks for realizing global sustainability is to promote sustainable development. This would limit population growth and help the rural poor of the world to live on the land, meeting all of their needs without destroying biodiversity.[15] The fourth vital task of sustainability is to save what remains of the world's biodiversity by preserving natural ecosystems.[16]Wilson (1992) visualizes a skillful blend of scientific research (to enhance development), capital investment (to create sustainable markets), and governmental controls (to balance economic growth with conservation). He cites the Endangered Species Act of 1973 as a prototypical example of this preservation process, with increased attention to the concept of locating and protecting hotspots of potential biological extinctions.[17]Finally, Wilson's (1992) fifth sustainability task is to restore the wildlands of the biosphere. He considers this 21st century to be the era of restoration in ecology.[18]Wilson's (1992) redemptive vision is a well-considered effort to bring the facts of environmental decay into conjunction with realistic (although high-minded) proposals for enduring sustainability.

James Lovelock and the Gaia Hypothesis as a Unifying Environmental Vision

Lovelock (1988) simply wants the scientific community to wake up and notice the whole planet. The Ages of Gaia is first a warning about the consequences of ignoring what our species is doing to our planet, our home. Lovelock (1988) considers bad farming to be the primary culprit of destruction,[19] with modern forestry practices[20] and

the burning of fossil fuels[21] as powerful villains in the drama as well. He presents scientific evidence to rally support for his intuition that a unifying intelligence (although just awakening) is maintaining the climate on this planet at a temperature that is ideal for life, a condition he calls homeostasis.[22]Lovelock (1988) insists that evolution on this planet is a total phenomenon, including rocks, air and biota[23] as indivisible components that are inseparable from an integrated planetary ecosystem. Therefore, according to Lovelock (1988), we need a new profession that investigates this total planetary system, just as we have the profession of physiology to examine the general state of human health: integrating all of the sub-professions in the field of medicine.[24]

Lovelock (1988) has a vision that will never be accepted fully by the scientific community in his lifetime, but he feels compelled to share what he intuits with the people he believes need to hear it. Nonetheless, his little book and the crude outline of his amorphous epiphany begin to bridge the huge gap between the worldviews of ancient and modern peoples, between the sacred and secular worldviews. Lovelock's (1988) intuitive sense is grounded in scientific facts, although these facts lack an integrating homology to guide his thought and to shape his vision. His choice of Western physiology as the model for a total planetary system is unfortunate because Western science lacks both a heart and a soul, relying upon strict empirical data for its prognoses. Lovelock (1988) has a fine intuitive mind and a truly majestic insight but his intellectual conditioning cripples him. Unfortunately, his work will be defined by the limitations of his intellectual context rather than by the sincerity of his intent.

Ian Barbour and the Rational Evaluation of Environmental Perspectives

Barbour (1990, 1993) brings various perspectives to the discussion of environmental ethics and practical modes for harmonizing fact and value. His intention

is to integrate the dialogues of philosophy, theology, science, ethics and technology. Barbour's (1990, 1993) stated goals are justice, peace and environmental preservation; he stresses that justice is a precondition of peace.[25]His specific recommendations for environmental preservation include protecting species and ecosystems, reducing pollution and sustaining natural resources.[26]He emphasizes the importance of renewable resources: solar, hydroelectric, biomass (such as corn and sugar cane for ethanol) and agroforestry.[27] Barbour (1990, 1993) clarifies the important difference between the hard and soft paths of energy consumption: fossil fuels and nuclear energy versus conservation and renewable sources.[28]He indicates that there are three major groups to be considered in all applications of environmental values: the individual, the society, and the environment.[29] Barbour (1990, 1993) offers an array of practical suggestions for applying values to the environment: the way of tangible immediate action. He also addresses issues of education, evidenced by his lectures that take the form of the two volumes from which these quotes are drawn.

A great deal of his writing is an attempt to proselytize the process philosophy of Whitehead, whose categories apparently satisfy Barbour's (1990, 1993) need for a theology that respects the natural world. Barbour (1990, 1993) is particularly concerned with ideas of freedom, which he defines in two primary ways. The first is social, involving the opportunity to participate in the decisions that affect one's life.[30]The second definition of freedom is evolutionary—the idea that freedom increases with complexity and organization.[31]Although he feels the need to speak primarily to social concerns, some of Barbour's (1990, 1993) interest is theological but definitely not mystical. He appears to be interested in ideas of God primarily as a vehicle for Whitehead's process thought.

Barbour's (1990, 1993) practical vision is thorough yet fragmented, lacking a harmonious integration of the many components of his wide interests. Ultimately, this breadth proves to be a liability, losing in clarity what he hopes to gain by massive, but scattered, effort. Yet his method does provide a solid foundation for future work in the continuing dialogue between science and religion. Many gems are scattered in his lectures that will guide much environmental healing.

Teilhard de Chardin and the Embrace of the Mystical Environment

Teilhard (1964) speaks of the objective problem of attributing structure to the world,[32] presumably by the free minds that reflect, penetrate, and systematically arrange ideas.[33]His ideas tend to be very abstract, pointing ever upward on the great evolutionary spiral. He links the law of recurrence to the growth in consciousness as a function of increased complexity.[34]Teilhard (1964) visualizes this evolutionary process as a vital urge to grasp all things, to transcend the self,[35] and to grow in stature and strength so as to be able to give more of oneself and to clasp in a tighter embrace.[36]He believes that we must develop the sense of ourselves as a species[37]and that we shall not be able to survive except by developing and embracing the earth.[38]His vision is optimistic, wrapped in a choiceless sense of impending glory that cannot ignore the tragic possibility of self-destruction. But it is the mystic vision that penetrates the practical aspect of Teilhard's (1964) work. He refers to the necessity of adding all human knowledge to an immortal centre of love[39]and of the ultimate individual fulfillment by conscious union with a Supreme Being.[40]His idea of the "point omega", which constantly emanates radiations perceptible to mystics[41] has been widely borrowed.

Teilhard (1964) refers to the heart as the supreme point of coalescence and as the sphere of feeling with its powers of unification.[42]He encourages us to love one another,

recognizing in the heart of each the same God who is being born.[43]For Teilhard (1964), the law of life is attuning to a mystic vision here and now, allowing every aspect of it to govern one's life and thought. For him, this is the practical action of the ultimate mystery of consummating the universe in ourselves.[44]His work expresses the mystical embrace that dissolves the sense of separation and guides us to deeper identities in a collective evolutionary process. Relative to the environment, this futuristic mystical vision entices the mystic within each of us to embrace all that lives with familial affection. This mystical gesture provides an intentional context from which appropriate environmental action will spontaneously flow—a powerful contribution toward the healing that must take place in our ecological age.

Thomas Berry and the New Ecological Cultural Coding of the Environment

Although much of Berry's (1988) interest is educational, he also provides specific, tangible suggestions for healing the earth. These ideas include evolving alternative programs to remedy our current dysfunctional industrial patterns in food and energy production, housing, architecture, sanitation, health, and forestry. The rule of thumb for these programs is that smaller scale produces higher quality.[45] He also believes that it is important to change our bookkeeping from a fictional context to the reality of cost to the environment.[46] Berry (1988) advocates changing the educational process to honor the earth itself as primary physician, lawgiver, scientist, technologist, artist, educator and revealer of the divine.[47] He repeatedly laments the absence of a functional cosmology,[48] calling for the creation of the spiritual context of the ecological age—the next great cultural coding.[49]

It is intriguing to read Berry's (1988) work as a form of lyric poetry which is sentimental, but solidly grounded in real healing wisdom. This wisdom can easily be

overlooked in the beauty of Berry's (1988) syntax, an unfortunate but definite possibility for those who are inclined to more scholarly works. Without question, Berry (1988) has his diagnostic fingers on the pulse of our age in all of its historical grandeur. He realizes that "the ecological age reveals the governing principles that have controlled the entire evolutionary process".[50] Berry (1988) is certain that "our human destiny is integral with the destiny of the earth".[51]He reaches far ahead of most contemporary environmental discussions, probing far into the future of our species with uncanny insight. Berry (1988) is also a frustrated visionary, uncertain about how to organize his cosmic awareness, grasping in vain for a systematic exposition of his ideas. Clearly, he appears to be almost entirely untutored in the realm of esoteric spiritual literature, where systematics of the sort he appears to crave linger in vain for recognition.

Ken Wilber and Ubiquitous Context as the Environment of Evolution

Wilber (1998, 2000) is a dedicated holistic thinker with a keen mind for evolutionary transitions. Like Eliade, he has a tendency to over-elaborate his ideas, often leading to a suspicion that he is trying to overwhelm an opponent in argument. His classic (to date) is Sex, Ecology and Spirituality, in which he attempts to integrate science and religion because he believes that "a coherent and unified worldview is now possible".[52] This worldview is a perpetually evolving set of perspectives that each individual can attain to by a process of studious contemplation, with no apparent upper limit of integrated autonomy. The work of Wilber (1998, 2000) clarifies four primary evolutionary factors: the need for rationality, fluidity of context, integration through envelopment, and the supreme significance of the omega point. Relative to the perspective of our situation as a human species who are causing significant environmental problems, Wilber (1998, 2000) proposes tangible (though generic)

possible solutions for integrating our species and for harmonizing our relationship with the natural world. But his primary goal is educational, endlessly laboring to formulate simplifying insights with specific concrete examples to illustrate his plethora of significant points. Oddly, his mystical epiphanies seem borrowed, although perhaps he chooses this tactic because of a prevailing interest in appealing to a popular audience. Wilber's (1998, 2000) work truly is an ever-expanding handbook for spiritual awakening. Wilber's (1998, 2000) special interest is to clarify the need for rationality in the evolutionary journey, eschewing sentimentality, and challenging superficial claims to spirituality. He explains that the quest of rationality is a non-coercive outlook that is planetary and universal.[53]It is understandable that rationality can disrupt the social glue because of this world-centric perspective.[54]Wilber (1998, 2000) emphasizes the enduring importance of rationality in all human affairs because it is the only psychological structure that will tolerate structures other than itself.[55]At each stage of rational development, the self becomes less egocentric, embracing more "others" as worthy of equal respect.[56]But Wilber (1998, 2000) is careful to emphasize that rationality is not the end point of psychological growth: learning to look within at rationality results in going beyond rationality.[57]His practical advice for the environment is simple: we must learn to act rationally, as a species, to protect the global commons.[58]The key point here is that we must begin to set aside personal and collective attitudes that allow us to continue to exploit the environment and to begin to piece together cause and effect relative to our destructive tendencies. Wilber (1998, 2000) foresees an increasingly free exchange of rationality structures in our time, particularly in the realms of science and computer

information transmission,[59]which he believes will accelerate the necessary planetary awakening.

The idea of the context is central to Wilber's (1998, 2000) thought, as the space in which all identity occurs. According to Wilber (1998, 2000), an integrated and autonomous person lives in contexts of linguistic structures that exist in contexts of pre-linguistic worldviews that are embedded in contexts of networks of social practices that are fulfilled in contexts of Spirit.[60] These contexts can be understood as impinging external forces that are superceded by the evolutionary process to become co-operating internal forces.[61]As we evolve we learn to adapt harmoniously to forces—that once dominated and controlled us with demands—which come to be perceived as enriching opportunities. Wilber (1998, 2000) also emphasizes that we are inescapably involved in relational exchange with the macrocosm at all levels at all times,[62] which is the ultimate context of all of our activities. But most important in Wilber's (1998, 2000) work is the embeddedness of the individual in a cultural context. Quoting Habermas, Wilber (1998, 2000) asserts that the same structures of consciousness can be found in the individual self and its cultural setting: we are creatures of culture.[63]Our collective embeddedness also extends to the natural world. As we rise to the level of accepting the relativity of perspectives, we begin to understand fluidity of context, both within ourselves and in the environment. This is a fundamental tenet of ecology: changes in one aspect of nature may lead to a whole system of changes in the balance between other aspects of nature,[64] the natural context of our lives.

Wilber (1998, 2000) also describes in great detail the idea of development as envelopment, in which we discover that all previous or prior creations in the evolutionary

process are components of our own being.[65]He again quotes Habermas, relating how the concept of the homology demonstrates parallels between the development of individuals and the species that are enfolded within us as part of our own compound individuality. He refers to this as the past interiors which live on in the depth of our own beings that enrich or destroy us depending on our capacity to embrace and transcend them.[66]It is intriguing that the higher worlds of possibilities are invisible to us, beyond our comprehension, until we are able to embrace and envelop them, inviting other worlds to actually become this world.[67]This is the central process by which the scientific viewpoint is replaced with a spiritual orientation, touching the basic structures of the empirical view of nature while simultaneously robbing them of their exclusive worldview.[68]

We can embrace the knowledge of science without being limited by it. As Wilber (1998, 2000) explains so well, we carry the structures of the past within us, with the possibility of moving upward to embrace ever higher and more inclusive perspectives of nature, of culture, and of ourselves as individuals. What once may have seemed alien can be accepted as another aspect of ourselves, another possibility of expression, for better or worse. We do not have to accept anyone's limited point of view of the environment, although we can acknowledge it is possible to entertain limited possibilities and then to move on when we are ready. In terms of our relationship with the environment, we can begin to rationally investigate why destruction is happening, to accept our role as causal agents (of destruction or healing), to change our behaviors with the new information we have acquired, and to share our healing insights with the rest of our species who may not have awakened to this process yet.

Finally, Teilhard's concept of the omega point is central to Wilber's (1998, 2000) thought: "all omega points are maintained to be the purpose of history and evolution itself".[69] He points out that omega point theorists are always pointing to ways beyond our present perception.[70] In one sense, the omega point is the unitive structure that has the potential to integrate the physiosphere, the biosphere, and the noosphere[71] (or the body, emotions and mind). But this integration depends upon the concrete action that each of us takes: as always, we have to make the future that is given to us.[72]The vulnerable biosphere needs to be protected from our aggressive onslaughts; we have the knowledge and the capacity to engage these protections, but the mental agreement within our species is not yet at the level of integration required to make the necessary changes. In other words, the healing potential of the noosphere is not yet developed for our species. Wilber (1998, 2000) believes that this can be accomplished, however, by introspective work on ourselves. "The revolution as always will come from within and be embedded in the without by the inner work that each of us individually can do".[73]

Wilber's (1998, 2000) ideas of evolution follow this precise trend of thought. "The modern solution is to evolve and develop into an integrated mode of awareness that will—for the first time in history—integrate the biosphere and the noosphere in a higher and deeper union".[74] He encourages us to begin building a noosphere, to bring heaven down to earth and to exalt earth to heaven, binding all peoples of the world into one global tribe.[75] He visualizes a supranational organization of federated states and of planetary consciousness,[76] capable of resolving such problems as environmental destruction in light of what is best for all human beings, not just for a privileged few. Wilber (1998, 2000) visualizes a stage of evolution even beyond this integration of

physiosphere, biosphere, and noosphere. In this advanced stage, the exalted condition of the over-soul or world-soul would assume the complete identity of our fully integrated planet, but with a cosmic perspective. This cosmic vision includes the entire planet and all selves in an integration that is spontaneously aware of "a common fountain, a common source"[77]of our planetary environment in the cosmos itself. Drawing on Teilhard, Wilber (1998, 2000) also believes in the possibility of integrating the human species by self-integration. This higher unity can then merge with the planet itself (the physiosphere) and the biosphere, while literally building a noosphere of harmonious intellectual activity that will spontaneously awaken to direct perception of the source of cosmic energy through the conscious guidance of a world soul.

In terms of individual human evolution, Wilber (1998, 2000) conscientiously outlines three primary ways of looking at our environment. The first way of looking at the environment is totally saturated with the sensory view of the natural world in which the spirit is equated with nature itself, and no more. The second way of looking at the environment separates spirit from nature in a psychological divorce that can have tragic tangible consequences. The third way of looking at the environment is called psychic mysticism, in which nature is seen as a perfect expression of spirit, uniting the spiritual world and this world with the understanding that nature is a subset of spirit.[78]The other side of the coin of nature perspectives is the emerging science of ecology, which is the spatial counterpart to the temporal process of evolution. As an expression of a non-anthropocentric view of the environment, it is the first of the natural sciences that is "highly reflexive and introspective".[79] Wilber (1998, 2000) reminds us that, before we attempt ecological healing, we must first reach mutual understanding and agreement

about the best way to collectively proceed.[80] The healing of our environment is more than merely getting the parts of the biosphere to fit together as a functional system. It is also a matter of mutuality which depends, foremost, upon individual growth and consciousness transformation.[81]

J. G. Bennett's Domain of Harmony: The Realization of Environmental Values

In Bennett's (1956, 1961, 1966a, 1966b) terms, the domain of harmony permits the emergence of reality as fulfillment—through-out the universe—of the will of God.[82] Central to Bennett's line of thought is the conviction that we are both spiritual and material, both essence and existence, and that we cannot renounce either pole of our nature without ceasing to be human.[83]This simple idea is the key to a deep mystery that pervades Bennett's work: the possibility of transformation. It is not possible to understand Bennett's ideas of realization (emergence of reality) and transformation without introducing four supplementary concepts: will, understanding, structures and history. This section will carefully dissect the interrelationships between these ideas and their ultimate purposes as the tools by which universal values are made real in the practical affairs of our daily lives. The concept of will, especially, is one of the most misunderstood terms in Western thought, with countless meanings in varying contexts, few of which have ever recognized the cosmic significance that it assumes in Bennett's work. These concepts will be placed in the context of environmental ethics at various points in the discussion, with a synthesis of them all in the chapter summary.

The Meaning of Will in <u>The Dramatic Universe</u>

The act of will initiates an action that makes possible an activity; the will does not control the world but makes it possible.[84] Bennett is making a distinction here between action and activity. Will initiates a particular type of action—an action that creates a

possible activity, from which it remains aloof. This action generates a kind of space or an energy field in which activity is then able to take place, although the will does not directly participate in that activity. In another context, Bennett (1956, 1961, 1966a, 1966b) defines the will as ableness-to-be, manifested as inner and outer relatedness.[85] In this sense, the proof of will is the ability to manifest a context of relationship, which sets the intentional stage for dynamic interaction. Bennett furthers explains that "our degree of connectedness or relatedness with other objects depends upon an act of will".[86] The activity of being in relationship is a manifested activity of an energetic space of intention that has been created by the will. The will provides the space of possibilities in which the activity of relationship can occur. Bennett also makes clear that understanding is a matter of the will and is nothing if not practical.[87] When we understand we spontaneously take action that is appropriate, relative to the field of our perception. An investigation into the meaning of understanding can be very useful in further elucidating what Bennett means by the will, and the vital connection of both to the practical realization of harmony.

The Meaning of Understanding in <u>The Dramatic Universe</u>

The domain of facts can be studied endlessly, yielding ever-increasing knowledge of the natural world in its many details and parts. Bennett (1956, 1961, 1966a, 1966b) emphasizes that we can know in part, but we can understand only the totality.[88]In another phrasing this insight could be stated in this way: to understand anything one must know everything.[89] Bennett is attempting to explain that knowing and understanding are very different human activities, focusing the attention in entirely different ways. "We understand by a mental act that is synthetic and creative; we know by an act that is analytic and automatic".[90] Bennett underscores the importance of understanding in daily life activities: some degree of understanding must always be present for effectual action

in the world.[91] Furthermore, "in understanding, the connection is common to the mind and its objects".[92] What he means is this: understanding is completely open to the space of totality, as opposed to knowing, which focuses only upon parts within the cosmic whole. This seems like a small point, but Bennett sees its deeper meaning: the distinction we have made between knowing and understanding is so alien to views that are held without question, that its importance can be easily disregarded.[93] Science performs an action upon the data while understanding is a transformation within the data.[94]According to Bennett, the process of transformation connects the two incompatible realms (of matter and spirit) and is, because of this, the principle of our very being.[95] Therefore, it is of utmost importance to briefly discuss what Bennett means by the word "transformation".

The Meaning of Transformation in <u>The Dramatic Universe</u>

A simple way of picturing transformation is to associate it with the three domains of fact, value and harmony: that which is transformed is fact; that which acquires substance through the transformation is value and the transformation itself is that which is realized in the domain of harmony—the three are distinct and yet they are also one.[96] Relative to our human experience, Bennett (1956, 1961, 1966a, 1966b) indicates that the complementarity of our natures (body and spirit) can lead step by step towards the transformation that is beyond nature.[97] The secret of this transformation is that the two natures remain what they are, but in being connected through action, they are both brought into a new realm of harmony.[98] Bennett suggests that the life of mankind upon the earth is a vast transformation whereby the two disparate natures seek harmony and fulfillment.[99] In order for body and spirit to connect, a third element distinct from both must enter, since it is not in either nature to cease to be what it is and become the

other.[100]Relative to the relationship of humanity to the environment, both the human species and the biosphere have a physical nature and a spiritual aspect. As a species, it appears that the connection between these two aspects of our being has been severed, for many reasons, resulting in our present wholesale abuse of the natural world.

What Bennett (1956, 1961, 1966a, 1966b) suggests is that we can restore a sense of the sacred in our environment by consciously learning to recognize qualities in the natural world, by assenting to the values they awaken in us, and by willing to create an intentional space that generates an energy field for appropriate activity relative to those values. This introduces a third principle that mediates between body and spirit, or between the domain of facts and the domain of harmony. This reconciling principle is outwardly embodied as life itself in the forms that populate the biosphere. The inner aspect of this harmonizing principle is recognition of the miraculous quality of life that spontaneously ought to move us to respect and to honor its diversity and its beauty. As we are moved to respond in this way, a transformation takes place within ourselves as healing agents and within the biosphere as the recipient of our healing intentions. A key component of Bennett's thought is his conviction that our capacity to perceive and to assent to quality requires us to see through the superficial appearances of forms—into the depths of their beings. When we do this, we awaken to perceive the inner structures of reality itself that link the domains of fact and value. Therefore, it is vital to understand what Bennett means when he invokes the word "structures" if we are to apply his work to environmental ethics.

The Meaning of Structures in The Dramatic Universe

Bennett (1956, 1961, 1966a, 1966b) affirms that we must use the power of understanding to apprehend structures instead of confining our perception to the limited knowledge of facts.[101] He continues:

> We can "know" structures only in their functional properties; whereas we "understand" them in their working. This working is very much more than actualization in time, for it concerns what things **are** and not simply how they **change**. Structures link Fact and Value, and they are consequently always interesting. The elements of structures in isolation or connected by general laws are only shadows of reality and there is always a step to be made in order to pass from knowing **about** them to becoming **aware** of the structures in themselves. The problems of knowledge—how we know, what we know, what knowing is—all arise because of the inherent incompleteness of any possible knowledge. No such problems arise in understanding structures.[102]

Communicating the meaning of structures is a significant purpose of Bennett's work,[103] for which he has developed a system of ideas that can only briefly be touched upon in this thesis. It would be possible to identify an infinite number of structures in the universe, although limitations of scale set practical parameters to our capacity to comprehend any given structure in itself. For example, the life of the biosphere is a complex significant structure[104]that is far beyond the capacity of any human being to fully grasp. The human body is a structure that all human beings have the capacity to relate to, although we are conditioned from childhood to look at our own bodies analytically instead of structurally (with the penetrating power of holistic understanding). Just as the concept of structure emphasizes the character of integration of parts into a whole without suppressing the independence of the parts, so also history in its total process does not suppress the significance of events, whether large or small.[105]

The Meaning of History in The Dramatic Universe

Bennett (1956, 1961, 1966a, 1966b) defines history as the dynamism of realization by which the harmonization of fact and value fulfills the purpose of existence.[106] According to Bennett,

> Transformation is never perfectly achieved in the existing world. It can be approximately realized in cosmic constructions such as the human organism. It is striven for and constantly evades us in history. The life of mankind upon the earth is a vast transformation whereby the two disparate natures seek harmony and fulfillment. By transformation, the significant events of human life are integrated into the stream of universal history.[107]

It is worth noting that the fourth, and last, volume of The Dramatic Universe is simply titled "History", in which Bennett attempts to complete the cycle of geological time by visualizing the unfolding of life over the next several billion years. Bennett affirms that the mutual fulfillment of fact and value is the universal harmony which is both in history and beyond it.[108] He asserts that beyond history is the source from which all values are generated,[109] completing the cycle by which essential values become temporal as they emerge through the world of facts. Unquestionably, the idea of history is the ultimate integrating concept throughout The Dramatic Universe, the overriding story that is intended to put all of human experience into perspective. This perspective contains both good news and bad news. The good news is that we have the possibility to evolve, to fulfill our destinies in the process of serving the fulfillment of our species, our biosphere, our planet and our solar system. The bad news is that we can fail on every level, hence the hazard that lends the universe its dramatic character.

The Meaning of Realization in The Dramatic Universe

Realization is the historical fulfillment of the purpose of existence;[110] it is also a property of experience that is associated with the transition from essence to existence,

although it can never be represented in the existential framework of the domain of facts.[111]We have already noted that assenting to a quality does not lead to an act of realization: instead, we must look beyond quality to the domain of harmony which is the seat of the real.[112]It is important to realize, according to Bennett (1956, 1961, 1966a, 1966b), that unless our sense of value enters effectually into our being-consciousness and our will-to-action, every utterance about value is meaningless.[113] His work is an exhortation to assent to the reality of values in full consciousness, thereby creating values by our actions.[114]In doing so, we realize reality, or the possibility of being translated into freedom, beyond the universal domain of facts.[115]Bennett reminds us that the quality inherent in value is dynamic; although this dynamic quality is lacking in fact, it can be connected with the property of realization that links essence with existence.[116]This property can only be invoked by a conscious act of will that intends to act upon the value in a practical fashion. Bennett emphasizes that the domain of facts does not include transformation, which belongs to the domain of harmony; that structures are not objects of knowledge because their true place is the domain of harmony.[117]He asserts that we do not know structures, but we know because of structures.[118]Finally, the basic point in this discussion of Bennett's ideas is that if the word love has no meaning, life is not worth living:[119] this is the most fundamental meaning of the word realization.

Summary

According to Bennett (1956, 1961, 1966a, 1966b), the act of willing creates an intentional space which generates an energy field in which dynamic activity can take place. The act of will is a response to the perception of a quality that appears to embody a value in the natural world. Assent to this value initiates a positive relationship with it, giving rise to a desire to take action to ennoble or to propagate the value by a practical

gesture—which occurs by the act of willing. The work of each of these writers represents an act of willing, creating an intentional space to address (in some form) a practical response to environmental decay. Eldredge (1998) sees that a political effort to empower underprivileged women and to create sustainable opportunities for indigenous peoples would greatly help to protect the world's remaining forests. Leakey and Lewin (1995) visualize a legal shift of environmental responsibility from protective institutions to greedy exploiters as a way of saving the diversity of species. Wilson (1992) itemizes a global five-step plan for creating a sustainable environmental future for coming generations.

Lovelock (1988) intuits a vision of a planetary intelligence that, he believes, can guide us to a more unified and comprehensive environmental intelligence. His plan of action involves scientific contemplation of the reality of Gaia in correspondence with increasing sensitivity to the entire array of earth's energetic systems. Barbour (1990, 1993) intends to integrate science and religion by carefully evaluating the hard and soft paths of environmental exploitation, with a clear sense of balance that overrides prejudice and greedy motives. His work is educational, creating an intentional space of dialogue that catalogues hundreds of perspectives, sorting through an almost endless list of opposing forces to find an acceptable ground of agreement. On an intellectual plane, his work represents a profound invocation of the domain of harmony, embodying a true sense of environmental values in practical healing actions. Teilhard (1964) was a mystic scientist who was convinced that the world is inherently endowed with spiritual purpose. He advocated deep and perpetual reflection upon our relationship with the natural world. He believed that introspection spontaneously awakens an ardor for life as a singular inner

quality that is manifested in countless outer forms. Teilhard's (1964) work closely corresponds to the intentional space that Bennett (1956, 1961, 1966a, 1966b) calls willing because of its emphasis upon interiorization.

Thomas Berry (1988) acknowledges the horror of our collective crimes against the natural world and reveals deep wisdom in his literary efforts to demonstrate what must be done to change the way we perceive and respond to our planetary home. His work also represents a profound attunement to the domain of harmony, with deeply felt convictions arising from a whole-hearted appreciation of values that he obviously believes are sourced in the natural world. Wilber (1998, 2000) emphasizes that the green revolution, which must take place in our collective relationship to the environment, must begin from within. In his own language, Wilber (1998, 2000) recapitulates Bennett's (1956, 1961, 1966a, 1966b) idea of the need to retrofit our intentions before outer action is possible—or even desirable. Wilber (1998, 2000) insists that we must dialogue about what exactly we need to do about environmental degradation before we set out to take more tangible action. This can involve many preparatory steps and it can also include the mystical gesture of willing an intentional space in which further practical activity can take place.

The practical action that must result from the will to heal our environmental problems occurs in what Bennett (1956, 1961, 1966a, 1966b) calls the domain of harmony. Once we become aware of the infinite array of value qualities that can be perceived in the context of nature, we are propelled to find some way to protect the natural world from imminent destruction. We can assent to the values inherent in these qualities and begin to ask what can be done to protect the environment: this is an aspect of willing. As we deepen our longing to do what we feel is right for the environment, we

create an intentional space that spontaneously generates an energetic field in which appropriate and intelligent activity can take place. Bennett asserts that it is very important for us at all times to distinguish between knowing about parts of the environment and understanding the cosmic environment in its totality. He emphasizes that understanding actually transforms us because it opens us to the domain of values (beyond the natural world) and moves us to take action by willing change to take place—in the tangible and unifying domain of harmony.

It is with the holistic power of understanding that we are able to see through the limited perceptions of traditional science and to apprehend the working of structures. Structures embody the content of the domain of harmony, as compared to the superficial surface appearances of the domain of fact. Bennett's (1956, 1961, 1966a, 1966b) structures integrate the parts into a whole without suppressing any of the parts. In the same way, history integrates all significant events, both large and small. Bennett was deeply interested in the historical process, postulating seven levels of history by which the harmonization of fact and value fulfill the purpose of existence. He also stated that the source from which all values are generated is beyond all of the dimensions of the natural world and even beyond history. In relation to the environment, we can relate to the natural world from the perspective of knowledge (as scientists do) or from the perspective of understanding (as holists do). The historical process is specific to a given space and time—limited to the natural world in which it is embodied as a reflection of the values that brought it into being.

Realization fulfills the purpose of existence as historical process. In terms of the environment, our appreciation of qualities that we perceive in the natural world can

inspire us to assent to their values in the understanding that opens us to the source beyond nature. This cosmic opening can move us to take appropriate action in relation to the values that we appreciate. The first step in this action is willingness to create an intentional space that generates an energetic field for right activity. More specifically, we can will to act in an immediate and tangible fashion to save the natural world. We can also act indirectly through the process of educating ourselves, and then others, about the environment—as a problem to be solved—and as an opportunity to be realized. Finally, we can act in a mystical and intangible fashion that explores the fine links between spiritual preparation and practical expression. All of these ways reveal the harmony of fact and value in the environment.

Notes

1. Eldredge, Life In The Balance, 165.
2. Ibid., 184.
3. Ibid., 188.
4. Ibid., 191.
5. Ibid., 188.
6. Ibid., 193.
7. Leakey and Lewin, The Sixth Extinction, 134.
8. Ibid., 209.
9. Ibid., 224.
10. Wilson, The Diversity of Life, 312.
11. Ibid.
12. Ibid., 281.
13. Ibid., 315.
14. Ibid., 320.
15. Ibid., 322-323.
16. Ibid., 333.
17. Ibid., 336.
18. Ibid., 340.
19. Lovelock, Ages of Gaia, 179.
20. Ibid., 236.
21. Ibid., 159.
22. Ibid., 19.
23. Ibid., 33-34.
24. Ibid., 155.
25. Barbour, Religion In An Age of Science, 216-217.

26. Ibid.
27. Barbour, Ethics In An Age of Technology, 131-133.
28. Ibid., 140-141.
29. Ibid., 242.
30. Ibid., 135.
31. Barbour, Religion In An Age of Science, 229.
32. Teilhard de Chardin, The Future of Man, 48.
33. Ibid., 230.
34. Ibid., 174.
35. Ibid., 185.
36. Ibid., 187.
37. Ibid., 286.
38. Ibid., 280.
39. Ibid., 36.
40. Ibid., 34.
41. Ibid., 122.
42. Ibid., 178.
43. Ibid., 75.
44. Ibid., 226.
45. Berry, The Dream of The Earth, 62-63.
46. Ibid., 104-105.
47. Ibid., 107.
48. Ibid.; 86, 112.
49. Ibid., 119.
50. Ibid., 44.
51. Ibid., xiv.
52. Wilber, Sex, Ecology and Spirituality, 23.
53. Ibid., 190.
54. Ibid., 251.
55. Ibid., 207.
56. Ibid., 239.
57. Ibid., 267.
58. Ibid., 204.
59. Ibid., 202.
60. Ibid., 80.
61. Ibid., 81.
62. Ibid., 73.
63. Ibid., 153.
64. Ibid., 242.
65. Ibid., 109.
66. Ibid., 157.
67. Ibid., 275.
68. Ibid., 254.
69. Ibid., 84.
70. Ibid., 85.
71. Ibid., 197.

72. Ibid.
73. Ibid., 202.
74. Ibid., 173.
75. Ibid., 176.
76. Ibid., 192.
77. Ibid., 293.
78. Ibid., 296.
79. Ibid., 244.
80. Ibid., 148.
81. Ibid., 148.
82. Bennett, II, 19.
83. Ibid., III, 54-55.
84. Ibid., III, 29.
85. Ibid., II, 17.
86. Ibid., III, 17.
87. Ibid., III, 18.
88. Ibid., I, 9.
89. Ibid., III, 18.
90. Ibid.
91. Ibid., III, 9.
92. Ibid., III, 11.
93. Ibid., III, 17.
94. Ibid., III, 8.
95. Ibid., III 54.
96. Ibid., III, 52.
97. Ibid., III, 55.
98. Ibid.
99. Ibid., III, 56.
100. Ibid., III, 55.
101. Ibid., III, 8.
102. Ibid., III, 15.
103. Ibid., III, 14.
104. Ibid., III, 39.
105. Ibid., III, 56.
106. Ibid, II, 18.
107. Ibid., III, 56.
108. Ibid., II, 30.
109. Ibid., II, 19.
110. Ibid.
111. Ibid., II, 32.
112. Ibid., II, 19.
113. Ibid., II, 16.
114. Ibid., II, 32.
115. Ibid.
116. Ibid., II, 36.
117. Ibid., III, 7.

118. Ibid.
119. Ibid., II, 20.

CHAPTER 6
SUMMARY AND CONCLUSION

The phrase "environmental ethics" has a cosmic meaning in J. G. Bennett's The Dramatic Universe (1956, 1961, 1966a, 1966b). This meaning includes the important and necessary work of "hard" scientists, such as Niles Eldredge (1998); Richard Leakey and Roger Lewin (1995); and E. O. Wilson (1992). These strict empirical investigators of the natural world compile tangible data in their search for patterns that will yield what Bennett calls "knowledge". Their empirical studies explore what Bennett describes as the domain of facts, which includes everything that exists in the entire universe. He fully supported such scientific investigation and respected its discoveries. In fact, he radically expanded the boundaries of scientific investigation by adding two dimensions to the natural world—a study which exceeds the bounds of this thesis. The work of these scientists fully agreed with Bennett's assertion that our ideas about evolution must soon be tempered by a deepening understanding of other species and of the richness of the natural world that surrounds us.

Most of the writers, whose work provided the sources for this thesis, consider the study of religion to be as valid as the study of science. Most agree that a spiritual world lies behind the façade of appearances. Bennett (1956, 1961, 1966a, 1966b) also supported this tenet, insisting that the spiritual world and the material world are equally plausible and that humanity (and all of life) exists as a harmonizing influence between these two great cosmic realms. This general tone of reconciliation informs the work of Lovelock (1988), Barbour (1990, 1993) and Teilhard (1964). Their efforts were

prolonged intentional efforts to sustain a dialogue between science and religion. Lovelock (1988) found it difficult to embrace religion, so his vision focused upon the Gaia hypothesis—a modern attempt to resurrect respect for the Earth Mother. His ideas form a valuable bridge between strict empiricism and holistic planetary intuitions.

Barbour (1990, 1993) lectured extensively upon the issues of science, religion, ethics and technology. He demonstrated a particular interest in approaching these topics on many levels, with an eye to practical solutions for prevailing human problems, including environmental degradation. Barbour's (1990, 1993) work conveys the impression of a tireless intellectual crusader whose mission is to generate healing dialogue. Teilhard (1964) was both a scientist and a mystic. His work is infused with mystic intuitions about the future of humanity and our intimate relationship with the natural world in which we live. In another light, he could be described as an incarnation of the fusion of scientific and religious thought. He was an incorrigible optimist, preferring to view the present in the roseate glow of a future that was already real in his own mind. Although controversial, he is widely quoted by those who long for a union of science and religion.

Thomas Berry (1988) incorporated many influences in his descriptions of our relationship as a species to the environment. He was clearly interested in history, with a universal sense of religion. He respected science but was disturbed by our modern fixation upon machines and the power to destroy. His contribution to the discussion of environmental ethics is misleadingly saccharine: he reads like a nature poet with an obsession for cliques. In reality, a more careful study of his ideas reveals a sharp mind with a powerful capacity for visualizing healing environmental alternatives. Wilber

(1998, 2000) is a holistic philosopher whose life work appears to be a need to integrate all human knowledge, with a strong leaning toward contemporary thinkers. His passion for deconstructing the esoteric details of science and religion includes an obsession with evolution and ecology. He proves to be an invaluable resource for anyone interested in the human depths of environmental ethics.

The ideas of J. G. Bennett (1956, 1961, 1966a, 1966b) are both the soil and the fruit of this thesis. The field of environmental ethics is a useful topic of enquiry and a plausible space for exploring Bennett's thought. The environment is under assault and every available mind can help to resolve the difficulties that are magnifying with each passing decade. Bennett's work can offer us a cosmic framework within which to discuss environmental problems. He was interested in far more than the environment, although he believed that our evolution as a species is inseparable from the evolution of the biosphere. Bennett is not an easy study, but he is well worth the effort. His ideas can begin to provide a foundation from which to explore a true integration of humanity and the environment. In this sense, his work can open a door into the study of *cosmic ecology* in the context of a cosmic environment. For Bennett, as well as for a number of other writers discussed in this thesis, our evolutionary process cannot be fulfilled in isolation from our planetary environment.

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BIOGRAPHICAL SKETCH

Bruce Monserud was born and raised in Northeast Iowa, obtaining a B. A. in English Literature from the University of Washington in 1974. He pursued the profession of landscape contracting, having obtained state licenses in California and Hawaii during his 20-year career. He returned to college to study the principles of landscape design in the Department of Landscape Architecture at the University of Florida. This led to further study in the Department of Religion, the first step of which is this thesis. He has a particular interest in the cosmology of garden design and the dynamics of the mystical garden.