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The Aim of **The Trumpeter** is to provide a diversity of perspectives on environmental relationships and Nature. By "diversity" we mean cross- and transdisciplinary reflections from both scholarly and nonscholarly sources. Our purpose is to investigate deep ecological philosophy as this manifests itself in the activities and lives of people working in different ways to come to a deeper and more harmonious relationship between self, community and Nature. **The Trumpeter** is dedicated to exploration of and contributions to a new ecological consciousness and sensibilities, and the practice of forms of life imbued with ecosophy (ecological harmony and wisdom). **Published Quarterly by LightStar Press, P.O. Box 5853, Stn B., Victoria, B.C., Canada V8R 6S8.**

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Table of Contents

INTRODUCTION: PROCESS, RELATIONSHIPS AND ECOSOPHY

Alan R. Drengson, Editor

The emergence of transpersonal ecology signals the convergence of ecophilosophy, transpersonal psychology and a new cosmology. The new cosmology is partially derived from recent theoretical work in the physical and biological sciences. Transpersonal psychology not only draws from recent research in consciousness, but also from earlier insights into the processes of human transformation found in authentic spiritual disciplines. Ecophilosophy, in pursuit of ecosophy, has critiqued the worldview and values of modern industrial society, and also of all social organizations based on dominance relationships. In these critiques the central anthropocentrism of industrial society — where Nature is treated as having only instrumental values for human exploitation — has been laid bare.

Going beyond critique, ecophilosophy has drawn insights from diverse contexts such as field ecology, ancient Taoism, Shamanic cultures, and process philosophy. It has created new stories of human relationships to Nature. These new stories reject industrial metaphors which construe the world to be made up of machines with discrete parts. It replaces these metaphors with more organic ones which allow for a plurality of stories. The world is not seen as made up of separate things with a fixed self-nature. The world is seen as a creative process. The human person develops dynamically through stages and phases embedded in larger patterns of meaning and relationship. Through this process we recreate ourselves by expanding our sense of identification, in our capacity for care in interdependent, symbiotic relationships. Thus, we revise and enlarge our stories, as

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well as create new stories reusing themes and meanings from old stories.

The process of increasing self-identification, from birth onwards, is characterized by definition through distinction and complementarity, where expanding awareness incorporates and reinterprets its own past in the present. This reinterpretation deepens the sense of meaning which is enfolded into a new sense of self as expressed in actions. As Hegel and others have noted, the process of expanding, conscious individuation begins with an act of separation and differentiation.

The specific nature of this process is partly a function of culture. Whether one individuates in a face to face tribal community, or in an atomistic society, makes a difference in the details of the process. There is some evidence that the process of individuation also varies between the sexes. This is by no means conclusive. Many of the differences observed between males and females might be due to culture.

The emergence of cognitive self-awareness, where one can make judgements about one's survival, interests, well-being and fulfillment, is conditioned by being able to distinguish one's self from others. The fundamental distinction is between self and other. The linguistic reflection of this is the grammatical distinction between subject and object. Once this basic distinction is made, a whole series of other dualities follow. For example, what is in the subject's interests is judged by the subject to be good; what is opposed to the subject's interests is judged to be bad. The initial conceptualization defines the object and subject in terms of their difference. The relationship is construed as division and separation. With deeper understanding the subject realizes that its perceptions of the objects around it, and of other subjects — sometimes viewed as objects as well — is conditioned by its own projections and preconceptions. When this is realized, it modifies its conceptions of the world, in recognition of the interdependence of subject and object.

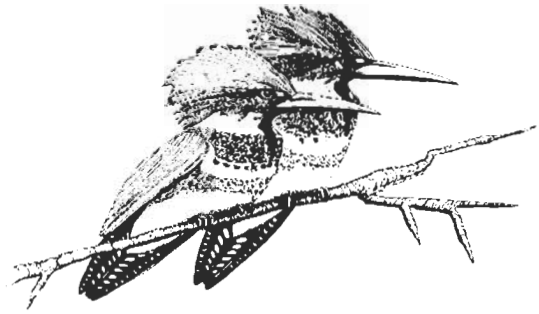
A child comes to have a sense of self-identity partly by differentiating itself from its parents, by asserting itself, by testing the limits they set for it. As the child matures, it realizes that its own reactions partly reflect a process of self identification which incorporated aspects of its parents. The shadow of the parent within, which was not consciously present, was projected out, and might have been seen as a supernatural parent figure. With continuing development, it is realized that the child has been the parent of this parent. A more realistic understanding and relationship between parent and offspring then becomes possible.

This process of maturation involving unity, differentiation, individuation and reintegration goes on throughout life. Its basic logical characteristics remain the same, in terms of how the process folds back into itself (recursiveness) what is learned, and thereby modifies its own past and its sense of itself. One comes to see that one's past is not a fixed thing; its meaning and significance expands or contracts, depending on how creatively and consciously one lives. In passing through the crystallization of a sense of mature independence, then, there emerges a recognition of interdependence between self and other. The "others" now become significant subjects with whom one can mutually create meaningful relationships (complementarity). Ecosophy is creation of relationships which honour all others as subjects, whether these are humans, animals, plants, or "inanimate" beings.

A deepening insight into this process and its forms of relationship eventually leads a person to appreciate that we are all part of one another, even though we each have our own destiny and story. We come to see, for example, that what is good for the Earth is good for humankind. The idea of complete separateness and total autonomy is then given up for a sense of interdependence, complementary interests, and relative autonomy. One's own life meaning is enlarged through sharing meanings with others.

The emerging new cosmology is woven around stories which reveal that we live within constantly changing, creatively evolving, dynamically interrelated fields and processes; our field of awareness is limited only by our own self-created boundaries. Our task as humans is to understand who we are within this process, and to create relationships with other subjects which are characterized by harmony and mutual respect. We evolve in awareness, then, from pre-egoic identification with our matrix — what we are embedded in, and then through a process of individuation we define and differentiate ourselves to develop egoic (personal) awareness. This personal self is characterized by deliberation, and the capacity for rational direction of life, while we take responsibility for ourselves, guided by the rules and principles which make social life possible. In time, the process of maturation goes beyond this sense of separation between self and other, and a person responds with the realization that the other is also a subject. It then becomes possible to have mutually beneficial, reciprocal relationships with other subjects, whose own internal lives are characterized by different meanings. Their different meanings no longer threaten one's integrity, but are seen as enriching one's own life.

The trans-egoic or transpersonal dimension of awareness is spontaneously ecosophic, for it is characterized by a compassion and respect which allows others their own creative freedom. All shadows of control and power hierarchy are absent, for they haunt the pre-egoic and egoic levels. There remain no hidden aspects of the self unilluminated. The world then opens to reveal endlessly enriching and deepening meanings within meanings, worlds within worlds. There is a sense of arriving home and knowing the place for the first time, but with a sense of familiarity. Transpersonal ecology is an appropriate way to comprehensively describe the processes of self transformation which yield ecosophy. In this edition of **The Trumpeter** we present articles which each contribute to understanding transpersonal ecology, beginning with an exploration of the processes of identification, moving on to the sense of place and belongingness related to commitment, then to the role of the critique of technology and art, and finally to explore the richness of the vision of reality as an ongoing creative, meaningful process.



TRANSPERSONAL ECOLOGY AND THE VARIETIES OF IDENTIFICATION

Warwick Fox

Three Bases of Identification

How does one realize, in a this-worldly sense, as expansive a sense of self as possible? The transpersonal ecology answer is: through the process of identification. As Naess says: "The ecological self of a person is that with which this person identifies. This key sentence (rather than definition) about the self, shifts the burden of clarification from the term 'self' to that of 'identification,' or rather 'process of identification.'"[1] How, then, does one proceed in realizing a way of being that sustains the widest and deepest possible identification? I suggest that there are three general kinds of bases for the experience of commonality that we refer to as identification; three general kinds of ways in which we may come to identify more widely and deeply. I refer to these bases of identification as **personal, ontological,** and **cosmological**.

Personally based identification refers to experiences of commonality with other entities that are brought about through personal involvement with these entities. This is the way in which most of us think of the process of identification most of the time. We generally tend to identify most with those entities with which we are often in contact (assuming our experiences of these entities are of a generally positive kind). This applies not only to concrete entities (e.g., the members of our family, our friends and more distant relations, our pets, our homes, our teddy bear or doll) but also to those more abstract kinds of entities with which we have considerable personal involvement (our football or basketball club, the individual members of which may change from year to year; our country). We experience these entities as part of "us," as part of our identity. An assault upon their integrity is an assault upon our integrity.

In contrast to personally based identification, ontologically and cosmologically based forms of identification are transpersonal in that they are not primarily a function of the personal contacts or relationships of this or that particular person. There is, of course, a sense in which **all** forms of identification beyond one's egoic, biographical, or personal sense of self can be described as **transpersonal**. However, the point here is that personally based identification is, as its name suggests, a far more personal — or, alternatively, a far less **trans**personal — form of identification than either ontologically or cosmologically based identification, since it is a function of the personal contacts or relationships of this or that particular person, whereas, as we shall see below, the latter two forms of identification are not.

Ontologically based identification refers to experiences of commonality with all that is that are brought about through deep-seated realization of the fact **that** things are. (I am using the complex and variously employed term **ontology** in this context to refer to the fact of existence per se rather than to refer to the question of what the basic aspects of existence are or how the world is.) This is not a simple idea to communicate in words! Moreover, I do not intend to say very much about this idea since, in my view, it properly belongs to the realm of the training of consciousness (or perception) that is associated, for example, with Zen Buddhism, and those who engage in such training continually warn about the limits of language in attempting to communicate their experientially based insights. Martin Heidegger is a notable Western philosopher who does attempt to convey such insights in words, but then, although deeply rewarding, he is also notorious for the difficulty of his language. It is interesting to note in this connection, however, that upon reading a book by the Zen master D.T. Suzuki, Heidegger is reported to have said, "If I understand this man correctly, this is what I have been trying to say in all my writings."[2]

The basic idea that I am attempting to communicate by referring to ontologically based identification is that the fact — the utterly astonishing fact — that things **are** impresses itself upon some people in such a profound way that all that exists seems to stand out as foreground from a background of nonexistence, voidness, or emptiness — a background from which this foreground arises moment by moment. This sense of the specialness or privileged nature of all that exists means that "the environment" or "the world at large" is experienced not as a mere backdrop against which our privileged egos and those entities with which they are most concerned play themselves out, but rather as just as much an expression of the manifesting of Being (i.e., of existence per se) as we ourselves are. We have perhaps all experienced this state of bring, this sense of commonality with all that is simply by virtue of the fact **that** it is, at certain moments. Things **are**! There is something rather than nothing! Amazing! If we draw upon this experience we can then gain some insight into why it is that people who experience the world in this way on a regular or semi- regular basis (typically as the result of arduous spiritual discipline) find themselves tending to experience a deep but impartial sense of identification with **all** existents. We can gain some insight into why such people find themselves spontaneously inclined "to be open for the Being [the

sheer manifesting] of [particular] beings" and, hence, why, for them, "the best course of 'action' is to let beings be, to let them take care of themselves in accord with their own natures."[3]

For those who cannot see any logical connection between deep-seated realization of the fact that things **are** and the experience of deep-seated commonality with — and thus respect for — all that is, I can only reiterate that these remarks cannot and should not be analyzed through a logical lens. We are here in the realm of what Wittgenstein referred to as the mystical when he said, "It is not **how** things are in the world that is mystical, but **that** it exists."[4] If one seriously wishes to pursue the question of ontologically based identification then one must be prepared to undertake arduous practice of the kind that is associated with certain kinds of experientially based spiritual disciplines. (Roger Walsh captures what is of central interest about these disciplines in this context by referring to them as **consciousness disciplines** in order to distinguish then "from the religious dogma, beliefs, and cosmologies to which most religious devotees adhere, and from the occult popularisms of both East and West."[5] Those who are not prepared to do this — that is, most of us — are no more in a position to dismiss the fruits of such practice than are people who would dismiss the fruits of scientific research without being prepared to undertake the training that is necessary to become a scientist, or at least to understand the general features of scientific procedure.[6]

Cosmologically based identification refers to experiences of commonality with all that is that are brought about through deep-seated realization of the fact that we and all other entities are aspects of a single unfolding reality. This realization can be brought about through the empathic incorporation of **any** cosmology (i.e., any fairly comprehensive account of **how** the world is) that sees the world as a single unfolding process — as a "unity in process," to employ Theodore Roszak's splendid phrase.[7] This means that this realization can be brought about through the empathic incorporation of mythological, religious, speculative philosophical, or scientific cosmologies.[8] I am not meaning to assert by this that these various kinds of accounts of how the world is are equal in epistemological status, only that each is **capable** of provoking a deep-seated realization that we and all other entities are aspects of a single unfolding reality. Consider, for example, the world-views of certain indigenous peoples (e.g., of some North American Indians), the philosophy of Taoism, or the philosophy of Spinoza.

For many people in the modern world the most viable — perhaps the only truly viable — source of cosmological ideas is science. Yet, despite this, there are many other people (including many who are formally trained in science or who simply have a general interest in science) who seem unable or unwilling to see science in a cosmological light. For them, science is all about prediction, manipulation, and control ("instrumental rationality") and cosmology is seen as something that belongs to mythology, religion, or speculative philosophy, or else as a highly specialized sub- discipline of physics that deals with the evolution and structure of the physical universe. But the anthropocentrically fuelled idea that science is all about prediction, manipulation, and control is only half the story. As George Sessions says, "Modern science...[has] turned out to be a two-edged sword."[9] The other side of science is its importance for understanding our place in the larger scheme of things (and it is scarcely necessary to add that this aspect has had profoundly **non**anthropocentric implications). This side of science is its cosmological aspect. Considered from this side, modern science can be seen as providing an account of creation that is the equal of any mythological, religious, or speculative philosophical account in terms of scale, grandeur, and richness of detail. More specifically, modern science is providing an increasingly detailed account of the physical and biological evolution of the universe that compels us to view reality as a single unfolding process.[10]

The most obvious feature of the physical and biological evolution of the universe as revealed by modern science is the fact that it has become increasingly differentiated over time. This applies not just at the level of biological evolution but also at the level of the physical evolution of the Cosmos. If we think of this process of increasing differentiation over time diagrammatically then it is natural to depict it as a branching tree. Indeed, this is precisely the way in which evolutionary theorists think of biological evolution.[11] In general terms, ancestral species do not change **into** newer species; rather, newer species radiate out (branch away) from ancestral species, which can continue to exist alongside the newer species. This "budding off" process occurs when populations of a particular kind of organism become in any way reproductively isolated (e.g. through geographical divergence or through divergence in breeding seasons) and then undergo changes in their genetic composition, primarily as a result of natural selection, to the point where members of one population are no longer capable of interbreeding with members of the other population.[12] But it is not only phylogenetic development (the evolution of species) that must be depicted as a continually branching tree. The image of a branching tree is just as relevant to other forms of development that involve increasing differentiation over time, whether it be ontogenetic development (the evolution of individual organisms from a cell to maturity) or the evolution of the universe itself from **nothing** to its present state some fifteen billion years later.[13] As the science writer Stephen Young explains in a brief recent introduction to the importance of the tree metaphor in science generally: "Trees are indispensable to science. From physics to physiology, they serve as metaphors, expressing in a word details that would otherwise occupy a paragraph...The theory of evolution is unthinkable without trees. Elsewhere within science, afforestation continues apace. If trees did not exist, scientists would have to invent them."[14]

Even if our present views on cosmological evolution (including phylogenetic and ontolgenetic evolution) turn out to stand in need of modification in crucial respects, we still have every reason to believe that the particular views that supersede these views will be entirely in conformity with the far more general idea that all entities in the universe are aspects of a single unfolding reality that has become increasingly differentiated over time. The justification for such confidence lies not only in the fact that **all** the evidence that bears on this question across **all** scientific disciplines points in this general direction, but also in the fact that even the most radical scientific (i.e., empirically testable) challenges to our present scientific views also point in this general direction. What is at issue in scientifically framed debates about the evolution of the universe or the evolution of life is only the question of the **mechanisms** of evolution (i.e., the mechanisms that underlie the increasing differentiation of the universe over time), not the fact of evolution per se.

NOTES

1. Arne Naess, "Self-realization: An Ecological Approach to Being in the World," **The Trumpeter** 4(3) (1987): p. 35. For an account of personally based forms of identification as a transpersonal developmental process, see Alan R. Drengson, "Developing Concepts of Environmental Relationships," **Philosophical Inquiry**, 8(2) (1986): 50-63.

2. Quoted in William Barrett, "Zen for the West," in **Zen Buddhism: Selected Writings of D.T. Suzuki**, ed. William Barrett (Garden City, N.Y.: Doubleday/Anchor Books, 1956), p. xi. There is a whole literature on the similarities between Heidegger's thought and Eastern thought, especially Zen. For a guide to much of this literature, see the papers and books listed at note 3 in Michael Zimmerman, "Heidegger and Heraclitus on Spiritual Practice," **Philosophy Today** 27 (1983):87-103. Special mention should be made here of Zimmerman's own book on Heidegger entitled **Eclipse of the Self: The Development of Heidegger's Concept of Authenticity** (Athens: Ohio University Press, 1981), which explores the relationship between Heidegger's thought and Zen in its final section (pp. 255-76). In addition to the papers and books cited by Zimmerman in "Heidegger and Heraclitus," see the following inspirational papers by Hwa Jol Jung: "The Ecological Crisis: A Philosophic Perspective, East and West," **Bucknell Review** 20 (1972):25-44; and "The Paradox of Man and Nature: Reflections on Man's Ecological Predicament," **The Centennial Review** 18(1974):1-28.

3. Michael Zimmerman, "Toward a Heideggerean Ethos for Radical Environmentalism," **Environmental Ethics** 5 (1983):99-131, pp. 102 and 115.

4. Ludwig Wittgenstein, **Tractatus Logico-Philosophicus**, trans. D.F. Pears and B.F. McGuiness (London: Routledge and Kegan Paul, 1961), proposition 6.44.

5. Roger Walsh, "The Consciousness Disciplines and the Behavioral Sciences: Questions of Comparison and Assessment," **American Journal of Psychiatry** 137 (1980):663-73, p. 663.

6. On this general point, see Ken Wilber's insightful essays "Eye to Eye" and "The Problem of Proof," which constitute the first two chapters of his book **Eye to Eye: The Quest for the New Paradigm** (Garden City, N.Y.: Anchor Books, 1983).

7. Theodore Roszak, **Where the Wasteland Ends: Politics and Transcendence in Postindustrial Society** (London: Faber and Faber, 1973), p. 400.

8. On the general question of the empathic incorporation of cosmologies or "world models," see Alex Comfort, **Reality and Empathy: Physics, Mind, and Science in the 21st Century** (Albany: State University of New York Press, 1984). By **empathy**, Comfort means an "incorporation going beyond intellectual assent" (p. xviii). See also Stephen Toulmin, **The Return to Cosmology: Postmodern Science and the Theology of Nature** (Berkeley: University of California Press, 1982), esp. the final chapter in which Toulmin explicitly links the cultivation of a cosmological sense of things — or what I am referring to as cosmologically based identification — with the development of "a genuine piety...toward creatures of other kinds: a piety that goes beyond the consideration of their usefulness to Humanity as instruments for the fulfilment of human ends" (p. 272).

9. George Sessions, "Ecocentrism and the Greens: Deep Ecology and the Environmental Task," **The Trumpeter** 5 (1988):65-69, p. 67.

10. One could drown in the number of semi-popular and more technical books that could be cited at this point! A gentle approach might be more effective; thus, for a highly readable, comprehensive, **single** volume overview of the scientific view of the world, see Isaac Asimov's exemplary guide **Asimov's New Guide to Science**, rev. ed. (Harmondsworth, Middlesex: Penguin Books, 1987). For an excellent systems-oriented overview of the scientific view of the world, see Ervin Laszlo, **Evolution: The Grand Synthesis** (Boston: Shambhala, 1987).

11. See, for example, Richard Dawkins, **The Blind Watchmaker** (London: Penguin Books, 1988), esp. ch. 10: "The One True Tree of Life."

12. See Mark Ridley, **The Problems of Evolution** (Oxford: Oxford University Press, 1985), ch. 8: "How Can One Species Split into Two?"

13. For overviews of recent work on the origins of the physical Cosmos, see Paul Davies, **God and the New Physics** (Harmondsworth, Middlesex: Penguin Books, 1984); Paul Davies, **Superforce: The Search for a Grand Unified Theory of Nature** (London: Unwin Paperback, 1985); John Gribbin, **In Search of the Big Bang: Quantum Physics and Cosmology** (London: Corgi Books, 1987); Alan H. Guth and Paul J. Steinhardt, "The Inflationary Universe," **Scientific American**, May 1984, pp. 90-102; Stephen W. Hawking, **A Brief History of Time: From The Big Bang to Black Holes** (New York: Bantam Books, 1988); and Heinz R. Pagels, **Perfect Symmetry: The Search for the Beginning of Time** (New York: Bantam Books, 1986).

14. Stephen Young, "Root and Branch in the Groves of Academe," **New Scientist**, 23/30 December 1989, pp. 58-61, at pp. 58 and 61.

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WHAT IS BIOREGIONALISM?

Peter Berg

Introduction

The places we live in are alive. They are bioregions, unique life-places with their own soils and landforms, watersheds and climates, native plants and animals and many other distinct natural characteristics. Each characteristic affects the others and is affected by them as in any other living system or body.

People are also an integral part of life-places. What we do affects them and we are in turn affected by them. The lives of bioregions ultimately support our own lives, and the way we live is becoming crucial to their ability to continue to do so.

Bioregions are geographic areas having common characteristics of soil, watershed, climate, native plants and animals that exist within the whole planetary biosphere and unique and intrinsic contributive parts. A bioregion refers both to geographical terrain and a terrain of consciousness — to a place and the ideas that have developed about how to live in that place. Within a bioregion the conditions that influence life are similar and these in turn have influenced human occupancy.

A bioregion can be determined initially by use of climatology, physiography, animal and plant geography, natural history and other descriptive natural sciences. The final boundaries of a bioregion are best described by the people who have lived within it, through human recognition of the realities of living-in-places. All life on this planet is interconnected in a few obvious ways and in many more that remain barely explored. But there is a distinct resonance among living things and the factors that influence them which occurs specifically within each separate place on the planet. Discovering and describing that resonance is a way to describe a bioregion.

There are countries that can't be found in a world atlas, although they can be seen in a glance out the window, countries whose soft borders remain invisible to governments, even though travellers easily sense crossing them. There are natural countries founded on specific soils and land forms, exposed to particular climate and weather and populated by native plants and animals which have endured since the last Ice Age. Each is a separate living part of the unified planetary biosphere; tissues and organs in the current manifestation of Earth's anatomy. They exist as a live geography more distinct than the nations and states whose borders shift to arbitrarily include or divide them.

Re-inhabitation

Re-inhabitation means learning to live-in-place in an area that has been disrupted and injured through past exploitation. It involves becoming native to a place through becoming aware of the particular ecological relationships that operate within and around it. It means understanding activities and evolving social behaviour that will enrich the life of that place, restore its life-supporting systems, and establish an ecologically and socially sustainable pattern of existence within it. Simply stated, it involves becoming fully alive in and with a place. It involves applying for membership in a biotic community and ceasing to become its exploiter.

Re-inhabitants are as different from invaders as those were from the original inhabitants. They want to fit into the place, which requires preserving the place to fit into. Their most basic goals are to restore and maintain watersheds, topsoil, and native species — elements of obvious necessity for in-place existence, because they determine the essential conditions of water, food and stable diversity. Their aims might include developing contemporary bioregional cultures that celebrate the continuity of life where they live and new region-to-region forms of participation with other cultures based on mutuality as a species in the planetary biosphere. Shifting to a re-inhabitory society, however, requires basic changes in present day social directions, economics, and politics.

Re-inhibitory economics would seek sufficiency rather than profit. They might more aptly be termed **ecologics**, since their object is to successfully maintain natural life-system continuities, while enjoying them and using them to live. Most current forms of economic activity that rely on the bioregion's natural conditions would continue in a re-inhibitory society, but they would be altered to account for the short and long-term variations in their cycles.

Re-inhabitants of the continent are off the hard-top, and the paths lead to essential food and water, a sense of life-in-place, an understanding of native peoples' names for things and local spirits.

Useful information for re-inhabitants can come from a wide range of sources. Studies of local native inhabitants, in particular, the experience of those who have lived there before. Re-inhabitants can apply this information toward shaping their own life patterns and establishing relationships with the land and life around them. This will help determine the nature of the bioregion within which they are learning to live in place.

Living-in-place

Living-in-place means following the necessities and pleasures of life as they are uniquely presented by a particular site, and evolving ways to ensure long-term occupancy of that site. A society which practices living-in-place keeps a balance with its region of support through links between human lives, other living things, and the processes of the planet — seasons, weather, water cycles — as revealed by the place itself. It is the opposite of a society which makes a living through short-term destructive exploitation of land and life. Living in place is an age-old way of existence, disrupted in some parts of the world a few millennia

ago by the rise of exploitative civilization, and more generally during the past two centuries by the spread of industrial civilization.

Everything that pertains to the feeling of belonging to a place has almost nothing to do with county, state, province and national boundaries surrounding them in the region they will defend. City and country people — even suburbanites — are all on the same planet. They all live in distinct life-regions, absolutely unique creases of the planet's skin. Their interdependence in a regional life circle isn't an esoteric proposition reserved for globalist bio-engineers and corporate environmental planers. It is their life, their spirit, their species heritage.

Native people already know this. The struggle to regain and hold traditionally native lands is an inspiration for North American re-inhabitants.

A place pronounces itself in each consciousness as an ultimately personal realization, an individual vision that is everyone's birthright and the realm of human species/planet integrity.

Growing the politics for a life-place has to be based on the reality of living there, and it's necessary to remind ourselves that no facts are established without evidence.

A bioregional politics originates with individuals who identify with real places and find ways to interact positively with the life-web around them. Involving close-by watershed neighbours creates a "socialshed." This seed group is and will remain the most important unit of bioregional political interaction.

Several socialsheds of neighbours working on a wide variety of different projects (co-ops, community gardens, renewable energy, bioregional education, recycling and many others) can easily join together to form an organization for the broader local community. In effect, it would be a watershed council, rightfully claiming representation for the closely shared place itself. A watershed council is the appropriate forum for directly addressing present inhibitory issues and also for stating new objectives that are based on the principles of restoring natural systems, meeting human needs and supporting individuals. It can effectively contend with the closest institutions of government (town, city and county) to secure positions. These established governments may be arbitrary units in bioregional terms, with unnatural straight-lined borders or control over a patchwork of different natural geographies, but their policies hold for parts of real life-places and must be dealt with while the council presses for eventual self-determination in the watershed.

Bioregionalism, Green Politics and Environmentalism

There has been some confusion about the relationship of life-place concerns and "green politics" ever since the first North American Bioregional Congress. A few participants at that event have even stated that there is no difference between the two. The distinctions are very clear, however, and should be understood so that genuine bioregional goals can be realized.

First of all, green politics attempts to cover a more extensive range of areas, but where there are similarities, bioregional directions are much more definite and specific. This is obvious in a statement of definition from the initial Green Organizing Planning Meeting:

> "Green" politics interweaves ecological wisdom, decentralization of economic and political power whenever practical, personal and social responsibility, global security, and community self- determination within the context of respect for diversity of heritage and religion. It advocates non-violent action, cooperative world-order, and self-reliance.

Some of the words are the same, but the sense of them is very different. Bioregionalists have a specific direction for "ecological wisdom": they want to restore and maintain watersheds and bioregions. These are the places to which they want to decentralize and where they wish to practice self-determination. Their "personal and social responsibility" is to meet basic human needs and create ways to support individuals in life-places. As for extending their goals to "global security" and "cooperative world order," bioregionalists may well choose to ally with groups and movements which develop effective ways to apply that sentiment, but their own primary effort is to solve problems where they live.

The most critical difference between the movements may lie with their actual ecological orientation. How much "ecological wisdom" are they really prepared to accept? Bioregionalists answer, "All we can get!" They see their lives as intertwined with ongoing natural processes as part of the life of a place. From their biocentric viewpoint, human society is ultimately based on interdependence with other forms of life. They follow that conviction to make choices about which kinds of work to undertake to oppose Late Industrial depredations.

It is not established that green politics followers are similarly committed and questionable as to whether they will become so. Theirs is a multiplicity of concerns (**ecological wisdom** is only one of ten values listed) and among many greens, ecological awareness is limited to an older environmentalist perspective — attempting to reform industrialism instead of aiming to replace it. Some bioregionalists who are also active in green politics feel that they can reach members of that movement and change its direction. No doubt some will be persuaded, but wishful evangelism isn't a good foundation for building coalitions. Truly relevant life place politics will originate from watershed councils and events such as the North American Bioregional Congress. When support for the positions of these naturally-scaled groups is sought, greens may yet prove to be very strong allies regardless of their different emphasis and direction.

Classic environmentalism has bred a peculiar negative political malaise among its adherents. Alerted to fresh horrors almost daily, they research the extent of each new life-threatening situation, rush to protest it, and campaign exhaustively to prevent a future occurrence. It's a valuable service, of course, but imagine a hospital that consists only of an emergency room. No maternity care, no pediatric clinic, no promising therapy, just mangled trauma cases. Rescuing the environment has become like running a battlefield aid station in a war against a killing machine that operates just beyond reach and that shifts its ground after each seeming defeat. No one can doubt the moral basis of environmentalism, but the essentially defensive terms of its endless struggle militate against ever stopping the slaughter. Environmentalists have found themselves in the position of knowing how bad things are but are only capable of making a deal.

Environmentalism, at best, reaches its zenith in a standoff. Its time to shift from saving what's left and begin to assert bioregional programs for re-inhabitation.

Bioregional Politics

The West is a state of mind that arose through displacement of people from their regional identities: Europeans transferred to America; indigenous people exterminated or removed from their land in the Americas, Australia and the Pacific Islands; Africans snatched from their continent and enslaved in America; home-based Europeans losing their regional cultures to global monoculture. Globalism, monoculture and displacement (human beings bereft of their own and other species) are fatal.

Our species history stretches back millions of years, long enough to have exerted an active force in the development of the whole biosphere — certainly the most active recent force since the Ice Age. All species share the planet interdependently. We ultimately depend on all the others for our existence. Both for food and for illumination. Spirit and survival species-to-species are essentially connected. Our species is still learning from the others: silent conversations of plants, controlled conception among wolves and deer, the sensitive social order without coercion that turns a flock of birds or a school of fish. This is our circle of the possible.

It's time to develop the political means for directing society toward restoring or maintaining the natural systems that ultimately support all life. On a farm in the country or in a city apartment, we're all completely enmeshed in the web of life. We can't know all the details of all the connections. **Bioregional politics doesn't try to overcome the mystery, it is aimed toward making a social transition so that we can live with the mystery. Can we stop tearing the web apart and consciously build a role as partners in all life? We better, and we can by beginning where we live.**

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A METAMORPHOSIS FOR CITIES: FROM GRAY TO GREEN

Peter Berg

I.

Cities have changed in fundamental ways since the middle of this century. They have become incomprehensible and dangerous, and their future is one of the most important planetary considerations confronting humankind.

The largest are two and three times the size New York was in 1950 when with 8 million inhabitants it was already considered to be impossibly huge. At present Mexico City leads with over 22 million. Tokyo and Sao Paolo among others have only a few million less.

Whatever their current size, nearly all cities will continue growing at a faster rate. About 100 metropolitan areas with at least 5 million people are projected for 2025, three times as many as there are today.

Cities this big can't be known intimately. The historically relatable cities such as ancient Athens, Pepys' London or even Walt Whitman's Brooklyn have disappeared, replaced by enormous puzzles that look extremely different from each person's position in them. Consider that many cities are more populous than entire small nations, some containing as much as half of their own national populations. No longer merely the centers of countries, they have become independent organisms whose constantly changing sets of systems continually move beyond knowledge and control.

Cities also demand too much from their bases of support, overreaching local bioregions to pull resources from thousands of miles away. For example, Los Angeles drains water from Northern California, extracts coal for electrical power from the Great Basin's Four Corners area, and ships in liquified natural gas from Indonesia. As cities continue to expand there is ever-increasing competition for the same water, energy and food resources. These are running out faster than planners could have imagined before the population boom of the last few decades. Even now administrators don't realize how vulnerable to chaotic shortages and supply breakdowns cities have become.

Once a rare and privileged way of life supported by a large agriculturally-productive rural population, city-dwelling is fast becoming the norm. In spite of the fact that they are grotesquely overgrown compared with the recent past, over-extended and subject to crippling disruptions, urban environments will soon be the primary inhabitation sites for our species. As late as 1950 less than thirty percent of the world's population lived in cities and towns of 25,000 or more. But by 2000 half of humanity will no longer live on the land. In some places the figure will be much higher, over 75% in Latin and North America, Europe, East Asia and Oceania. Fewer people are remaining in direct contact with Nature at a time when more urbanites need to somehow produce part of the resources they consume.

Cities not only restrict beneficial contacts with Nature, they inexorably surround and destroy it. Open spaces that previously separated urban areas fill in with new development to encircle natural areas like cages in a zoo. A nearly unbroken megalopolis runs down North America's eastern seaboard from Boston to Atlanta that is in effect a wall barricading wild life from the ocean. Cities bordering on rivers sprawl further and further along the banks to thinly stretch and finally break the all-important water links of ecosystem chains.

Metropolitan areas have the densest numbers of people, so they are the places where most resources are consumed and most wastes are produced. Consumption levels for industrialized countries are excessively high in general and sometimes outrageously bloated. For example, annual gasoline use in the urban U.S. is 400 gallons per person: four times as high as in Europe and ten times greater than for Asian cities such as Hong Kong and Singapore. Outright squandering of resources is commonplace and can be plainly seen in hydrant water pouring down gutters for hours, newspapers and packaging littering streets, and hundreds of thousands of unneeded electrical lights burning all night.

The effects of city-generated wastes and sewage are often less visible but much more perilous. Rivers, lakes and bays near urban areas are universally subject to some degree of pollution, sometimes so high that they become devoid of aquatic life. Soil and underground water near garbage landfills are contaminated with deadly concoctions. Air-borne factory smoke and traffic exhaust kill nearby forests and poison far-distant lakes. When controls are attempted they can be quickly out-dated by the sheer volume of urban growth — reducing harmful emissions from each auto by half still means more smog if the number of cars triples — and fresh disasters are constantly being discovered.

These are large-scale problems whose simultaneous effects are capable of cracking the foundations of our present social and political concerns. Many cities have begun to reveal a neglected and grim side that forecasts a meaner future. Their wounds show openly in ruined inner districts, abandoned and burned-out buildings, rows of broken windows in empty factories, debris-filled vacant lots and pot-holed streets. Further growth will lead to deepening crises such as can now be found in Mexico City: declining job opportunities as more people arrive, housing shortages, growing disparity and animosity between well off and poorer individuals and districts, withdrawal of whole sections of the city from administrative control and essential services, mounting physical and mental health problems, and decay of basic infrastructures ranging from public education to sewage systems. In varying degrees some cities will even come to resemble devastated Beirut.

II.

A profound transformation is needed in the way cities are conceived. This can't be merely an administrative reform or change in design of systems or structures because it needs to involve a completely new set of priorities and principles. The future purpose and function of cities and the activities of city-dwelling must become the focus of social and political consciousness on a primary level.

The first step toward **reconceptualizing** urban areas is to recognize that they are all situated in local bioregions within which they can be made self-reliant and sustainable. The unique soils, watersheds, native plants and animals, climate, seasonal variations and other natural characteristics that are present in the geographical life-place where a city is located constitute the basic context for securing essential resources of food, water, energy and materials. For this to happen in a sustainable way, cities must identify with and put themselves in balanced reciprocity with natural systems. Not only do they have to find nearby sources to satisfy basic human needs, but also to adapt those needs to local conditions. They must maintain natural features that still remain and restore as many of those that have been disrupted as possible. For example, restoring polluted bays, lakes or rivers so that they will once more be healthy habitats for aquatic life can also help make urban areas more self-reliant in producing food.

Different geographical areas have different conditions depending on their natural characteristics. Bioregionally-founded values that are appropriate to each place should be agreed upon and then used to direct municipal policies. Guides for doing this can be transferred over from some basic principles that govern all ecosystems.

1. Interdependence

Heighten awareness of interchanges between production and consumption of resources so that supply, re-use, recycling and restoration become more closely linked. Reduce inequitable exploitation.

2. Diversity

Support wide ranges of means to satisfy basic human needs and a multiplicity of cultural, social and political expressions. Resist single-interest solutions and monoculture.

3. Self-regulation

Encourage decentralized activities carried out by groups in neighborhoods and districts. Replace top-down bureaucratic agencies with grassroots assemblies.

4. Long-term stability

Aim policies to work under various conditions and for several generations. Minimize short-term programs and patchwork remedies.

When interdependence, diversity, self-regulation and long-term stability are consulted it is possible to make much more ecologically coherent and therefore more practical decisions than are generally seen today. Applied to the cycle of food production and consumption, for example, they could lead to these beneficial features: more small-scale farms and gardens near or in the city that employed greater numbers of people, preserved and restored green spaces, reduced transportation costs and provided fresher produce; wider use of permaculture (permanent agriculture) and native food plants to conserve and built topsoil, lower water use and maintain natural habitats; subscription buying by institutions and groups of individuals who spend a certain yearly amount to receive a specified quantity of produce, thereby stabilizing farm incomes and levels of food production; collection of tree and yard trimmings, food scraps and other organic wastes to create compost fertilizer; re-use of urban grey water on farms and in gardens to reduce fresh water consumption; and some type of food production on everyone's part ranging from backyard, rooftop, window box and community gardens to work-sharing on farms.

III.

Each urban area needs to develop an ecologically-oriented Green City Program that delivers a high quality of life for all of its residents in harmony with its bioregion. City greening includes urban planting but extends to much more than revegetation. It also means conversion to renewable energy, development of suitable transportation, extensive recycling and re-use, greater empowerment of neighborhoods, support for socially responsible small businesses and cooperatives, restoration of wild habitat, wide participation in planning for sustainability, and creation of new civic art and celebrations.

There are already many separate groups working in various sectors of urban sustainability who can supply pieces of an overall program. They should help in drafting sections of it to authenticate a grassroots approach, introduce disparate elements in the same field to each other and eventually join together differing concerns under an overarching "green umbrella" to accomplish the massive governmental changes that are necessary. In planning the transition from using polluting fossil fuels and dangerous nuclear power to renewable sources such as solar, hydro and wind, for example, representatives can be drawn from businesses that manufacture, distribute and install renewable energy equipment, labor groups who will benefit from jobs in those areas and agencies that regulate energy production and use, as well as from alternative energy advocacy and environmental groups.

Here are some examples of changes in municipal policies that might be recommended in different parts of a **Green City Program** whose implementation would have powerfully transformative effects:

1. Retro-fit public buildings for renewable energy.

Equip city office buildings, school, libraries, fire and police stations, and all other structures with some means to produce their own energy from renewable sources.

2. Develop suitable transportation.

A wide front of new approaches including company buses and vans to transport workers directly to job sites, point-to-point conveyances to replace use of autos for shopping and appointments, in-neighbourhood transit such as ride switchboards for local businesses and offices, discouragement of single-passenger auto use by prohibiting it at peak times and downtown, increased gasoline taxes that are earmarked for light rail construction, and establishment of multiple-use zoning to allow more businesses and institutions to operate closer to where people live and thereby reduce the need to travel to work.

3. Initiate full-scale recycling and re-use.

Curbside pick-up of household organic and manufactured recyclables. Stringent reprocessing of all wastes from industrial processes. Establishment of small-scale neighborhood secondary- materials industries. Require municipal government to purchase recycled materials whenever possible, preferably from local sources. Create grey water treatment facilities so that it can be used to water lawns and trees, wash vehicles, clean buildings, flush toilets and for other uses that don't require fresh water. Install household units to recycle used wash water for similar purposes.

4. Empower neighborhoods.

Devolve a large percentage of tax revenues to neighbourhood councils and assemblies for direct local use. Provide space and materials to greatly enhance neighborhood communications ranging from meeting places to bulletin boards and even FM radio and cable TV facilities.

5. Assist socially responsible businesses and cooperatives.

Greater employment and higher levels of prosperity are possible through assisting the creation of sustainability-oriented small businesses and co-ops by providing "incubators" where offices, equipment and materials can be shared. City government should also establish priorities for procuring supplies from these new companies.

6. Restore wild habitat.

Find and refurbish natural sites. Establish new corridors of native vegetation in the city, linking habitats so that wild life can move unimpeded through urban areas. To make these corridors, restore creeks where possible by bringing them up from storm sewers.

7. Open the process of planning for sustainability.

Solicit neighborhoods' visions of their futures and use these as standards for determining changes. Adopt "statutes of responsibility" that charge officials to maintain the health of cities and their inhabitants. Citizens could take legal action against them if air, water and soil are not kept free of poisons.

8. Celebrate life-place vitality.

Assist creation of small-scale localized media (murals, billboards, markers) that feature natural characteristics. Stage public celebrations of natural events such as seasons and animal migrations. Provide guides to natural sites.

Some of these measures reduce costs and eliminate waste on a vast scale. Most are directly related to greatly improving the health of local bioregions. All of them involve new job opportunities and contribute to self-reliance. And they are only a few examples of many more changes that should be made.

IV.

For a Green City Program to succeed, there also needs to be a radical new consciousness about living in cities on the part of individuals. City-dwelling has traditionally been easier and more luxurious than country life. Residents have been accustomed to services and amenities that were relatively inexpensive and whose continuous supply was not their responsibility. People still assume that water, food and energy will continue to flow into cities as effortlessly as in the past, even though they know that the places where those resources originate have been severely degraded. But the realities of urban life are changing rapidly and will change more drastically in the near future. Since mid-century, utilities, health services, food prices, and housing costs have increased many times over. They will rise even more sharply as cities continue to expand and compete for resources that are diminishing in quantity and quality. Presently, travellers return to comparatively prosperous countries like the United States shocked by the desperate conditions in places like Calcutta, Rio de Janiero and Nairobi. They believe that their own communities are immune to the spectrum of problems ranging from inflation and endless delays to widespread diseases and abject poverty that they find there. Soon it will become clear that although these calamities have struck Third World countries first, parallel developments are due for many other urban areas. There simply are not enough basic resources even in developed countries to sustain the huge urban populations that are accumulating. The abundance of oil, electricity, foodstuffs, and fresh water they enjoyed in the 50s and 60s will be seen as an anomalous historical period when precious commodities were lavishly consumed, in the same way that we now view the high quality of wood and stone used to construct ordinary buildings in the last century.

City life was once mediated and stabilized by social and cultural groupings that occupied particular districts. Established historic and ethnic communities often played the largest part in fostering an individual's sense of identity and personal angle of perception for relating to the city as a whole. These zones of security and belonging have been seriously eroded or completely destroyed and replaced by growing wastelands of anonymity and fear. Their loss is a main reason why cities are less convivial and more threatening.

Although cities as we know them are on the verge of collapse, people are not aware of the great changes that are coming. Media coverage is restricted to isolated situations like the plummeting decline of Detroit or abysmal lack of public services in East St. Louis, and politicians are reluctant to air the bad news, even as they quietly move to the suburbs. In fact, the city is at a point of major transition. We are beginning to see an historical shift comparable to the birth of the modern industrial city in the late 18th century. Urban people will be obliged to undergo a thorough transformation. To reclaim a positive outcome from deteriorating situations, city-dwellers have to become "urban pioneers" in a concrete, steel and glass environment, developing new urban forms and remaking their own lives as they simultaneously recreate the urban landscape. To do this they need to learn new skills, redirect their energy and inventiveness, and align their efforts with the more self-reliant and sustainable vision offered in a Green City Program.

The profile of an urban pioneering life includes these elements: working several part-time jobs rather than a single-employment 40 hour week; growing some food on a continuous basis: recycling household wastes and water; refitting dwellings for energy conservation and maintaining some means for producing energy from renewable sources; restoring wildlife habitats; reducing or eliminating the use of a personal automobile; developing new cultural expressions that reflect bioregional and planetary themes; and participating in a neighborhood council to decide

everything from planning and justice to social services and celebrations. It will replace the often deadening and escape-seeking urban existence of the present with stimulating, highly varied and creative pursuits that are more related to artists and nature-seekers than to factory and office workers. Even in a densely populated metropolis, these new urbanites will be able to claim personal home-neighborhood-villages and be fully involved with them. Many people are already doing some of the things that lead to this transformed urban life. When most people are doing all of them, urban-dwelling will be much richer and more livable.

In a municipality dedicated to carrying out a Green City Program the citizenry could have much greater interaction with government than at present. To accomplish recycling goals, for example, people would not merely put out materials to be collected. They would expect the city to help create jobs by assisting groups and businesses who remanufacture products from those materials, and to purchase them whenever possible preferably from neighborhood-based companies and cooperatives. The government would be viewed as an instrument for carrying out the residents' intention to make the city self-reliant and sustainable.

V.

The future prospect for cities is at a critical juncture. If allowed to continue in their present course, the detrimental affects on people, bioregions and the planetary biosphere will soon reach an intolerable point. Currently 850 million urban people worldwide are squatters: 50% of Third World city-dwellers have no plumbing or electricity. If current trends continue, by 2000 the number of squatters will more than double to over 2 billion, with a similar acute increase in those living without rudimentary necessities. A nightmarish scenario with billions crowded into urban heaps and living in despairing poverty has already begun. It will surely proceed to even worse stages of routine breakdowns in production and distribution of essential human requirements, collapse of basic infrastructures, extreme conflict between social and economic groups, and governmental chaos.

There is a saving alternative to this painful outcome, but it requires a thorough transformation in the purpose of cities and the ways that people live in them. Bioregionally-oriented governments and ecologically-conscious residents carrying out Green City Programs can end and even reverse the present ruinous trends. Rather than destroying the bases for obtaining resources, we can develop renewable energy, recycle materials and water, and produce food within cities themselves. Rather than destroy natural areas, we can maintain and restore habitat for native plants and animals and increase the number of green spaces. Rather than watch urban areas become more anonymous as they become larger, with more violence, lack of jobs and homelessness, we can empower neighborhoods to carry out community services on a local, personalized and mutual basis.

Cities must change soon and in profound ways, and this huge metamorphosis can be the occasion for a positive shift in consciousness that harmonizes the needs of society with those of the natural systems that ultimately support it.

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HOW COMPUTERS CONTRIBUTE TO THE ECOLOGICAL CRISIS

C.A. Bowers

Recent reports on global changes in life-sustaining ecosystems, such as the annual **State of the World** published by the Worldwatch Institute and the special issue of **Scientific American** entitled "Managing Planet Earth," support the conventional thinking that computers are one of the most important technologies we have available for understanding the extent of the crisis and the steps that must be taken to mitigate it. Processing scientific data and modelling how natural systems will react to further changes caused by human activity suggest that the computer is essential to a data- based approach to understanding the dynamic and interactive nature of an ecology. Having recognized the genuine contributions that computers make to addressing the ecological crisis, I also want to argue that computers help reinforce the mindset that has contributed to the disproportionate impact that Western societies have had on degrading the habitat. Put simply, computers represent a Cartesian epistemology (an argument that has also been made by Hubert Dreyfus, Terry Winograd, and Theodore Roszak), and the use of this technology reinforces the Cartesian orientations of our culture — which includes the critically important aspect of consciousness, wherein the self is experienced as separate from the natural world.

This Cartesian way of thinking can be seen in how the lead article in **Scientific American**, "Managing Planet Earth," frames the nature of the ecological crisis as a problem of more rational management of the planet. As the author, William C. Clark puts is, "Managing Planet Earth will require answers to two questions: What kind of planet do **we** want? What kind of planet can **we** get?" The italics were added here to bring out how a Cartesian way of thinking, with its emphasis on instrumental problem solving, also strengthens the cultural myth, which has roots much deeper in Western consciousness, of an anthropocentric universe (that is, "man" is the central figure and must treat the biosphere as a resource for achieving his purposes). The Cartesian mindset shows up in the special issue of **Scientific American** and the annual reports of the Worldwatch Institute in another way that is critically important to any discussion of how computers relate to the deepening ecological crisis. Although both publications provide a wealth of data which, according to one of the canons of the Cartesian position, is supposed to be the basis of rational thought, **they totally ignore that culture is part of the problem**. In fact, culture is not even mentioned in these data-based representations of the ecological crisis.

This is particularly surprising because culture, understood here as encompassing both the deep layers of a symbolic world and the whole range of human activities given distinctive form by the shared symbolic sense of order, is an aspect of every humanly caused change in the ecosystems now viewed as endangered. Beliefs, values, uses of technology, economic practices, political processes, and so forth, while varying from culture to culture, relate directly to population growth, loss of forest cover, destruction of habitats that threaten species with extinction, warming of the atmosphere, spread of toxic waste in water supply and top soil, and so forth. The irony is that the researchers who provide useful data and computer simulations of how natural systems will react under further stress, also contribute to putting out of focus the contributing role that cultural beliefs and practices play in the ecological crisis.

The Ecological/Cultural Crisis

The phrase "ecological crisis" should be represented as the "ecological/cultural crisis." When viewed in this way, we can then begin to consider more fully the cultural orientation that is reinforced not only by the epistemology embedded in the computer, but also by how the computer is represented to the public and to students. We can then also open up a discussion of whether it is possible, particularly in educational settings, to create software programs that take into account the deep levels of culture (including differences in cultures) which give form to human thought and behavior. This latter possibility, which may well be beyond the capacity of this Cartesian machine, is important to whether the computer can be used to help illuminate the cultural patterns that are degrading the habitat. But first we need to identify other aspects of the Cartesian cultural orientation reinforced by the computer — which has become the dominant icon for representing the authority of a particular form of knowledge.

The Cartesian mindset has distinctive characteristics that set it apart from other cultures that have, in a variety of ways, evolved along paths that have been more ecologically sustainable, some for many thousands of years. This is mentioned here not for the purpose of romanticizing these cultures but, instead, to bring out that one test of a viable culture is its ability to live in balance with its habitat. This test is perhaps too pragmatically simple for a culture where the abstract theories of philosophers have been given, in certain powerful circles, more legitimacy than the contextualized forms of knowledge that have evolved in habitats lacking a margin of surplus that allowed for experimentation with abstract ideas. But it is the test that all cultures must now meet as we recognize that our surplus is increasingly illusory.

The Cartesian mindset, in addition to ignoring the nature of culture (and its influence on thought) and furthering the view of an anthropocentric universe, has other distinctive elements reinforced through the use of computers. These include what has become in modern Western consciousness the basis for objectifying the world (that is, Descartes' distinction between **res extensa** and **res cogitans** — which also served to naturalize the Cosmos), a view of the rational process where data becomes the

basis of procedural and constructionist thinking, and an instrumental and explicit problem-solving approach to a world that is posited as mechanistic in nature.

The dimensions of human life ignored by the Cartesian mindset correspond to the weakness in computers. Contrary to the myths constructed by Descartes, Bacon, Locke, and other thinkers of this period, a strong case can be made that most of our knowledge is **tacit** in nature, learned as analogues that serve as templates for future experiences, encoded in a metaphorical language that provides a shared schemata for thinking, and represents a collective interpretation framed by the epic narratives that constitute the basis of the culture's **episteme**. As we obtain better accounts of other world views — Hopi, Dogan, Koyukon, Confucian cultures in the Far East, and so forth — it becomes increasingly difficult to maintain the popularized rendering of Descartes' legacy: the image of a culture-and tradition-free individual, objective data, and a conduit view of language. The sociology of knowledge (within our own tradition) and cognitive anthropology point to the cultural basis of thought and behavioral patterns, and to the way in which each cultural group experiences these patterns as part of their national attitude — this also applies to the members of our Cartesian culture whose schemata cannot take into account tacit and culturally constituted knowledge.

Patterns that Connect the Individual

If we turn to the writings of Gregory Bateson, instead of the findings of cognitive anthropology, we find an account of human existence expressed in the language of science that challenges the conceptual foundations of the Cartesian mindset and, at the same time, points to the possibility that primary cultures (like the Hopi, Koyukon, aborigines of Australia, and so forth) may have taken developmental paths that are more ecologically sustainable. Unlike the modern Cartesian approach to viewing the rational process as something that occurs in the head of an autonomous, culture-free individual, Bateson emphasizes the patterns that connect, the information exchanges that constitute the life of an entire natural/social system of which the individual is a participating member, and the dangers facing humans when their conceptual mapping processes (what he calls "determinative memory") are unable to take into account the information exchanges that signal the condition of the ecology upon which they are dependent. As Bateson put it, "thus, in no system which shows mental characteristics can any part have unilateral control over the whole. In other words, the mental characteristics of system are immanent, not in some part, but in the system as a whole." (**Steps to an Ecology of Mind**, p. 316) His statement that "the unit of evolutionary survival turns out to be identical with the unit of mind," (p. 483) has a strong echo in the culture of primal peoples where human practices and the natural world are understood as morally interdependent.

Although it is tempting to dwell further on how a consideration of ecologically sustainable cultures enables us to recognize those aspects of our own belief system that are contributing to the destruction of our habitat, it is necessary to turn our attention more directly to the question of whether the use of computers is really helping us understand the ecological crisis in a way that does not perpetuate the very mindset that has been such an important contributing factor. At some point, accumulating more data on the extent of environmental damage and producing better computer models of changes in the ecosystems becomes a distraction from addressing the real challenge — which is to begin the exceedingly difficult task of changing the conceptual and moral foundations of our cultural practices. We already know that the trend line reflecting the demands of cultures on the habitat is upward, and that the trend line reflecting the sustaining capacity of natural systems is downward. More computer-processed data may enable us to predict with greater accuracy when we will cross certain irreversible thresholds. But that will be of little use if we cannot reverse the demands made by cultures whose belief systems represent the environment as a natural resource and human choices as limited only by a lack of data. The challenge now is to become aware of our own taken-for-granted culture, and to evolve **new narrative traditions** that represent humans as interdependent members of the larger information and food chains that make up the ecosystems.

Computers, the Environment, and Education

The use of computers in educational settings seems to be where the question of relevance can be most clearly raised. As educational software ranging from databases to simulation programs have been written by people who are embedded in the Cartesian/liberal mindset (objective data, autonomous individuals who construct their own ideas, progressive nature of rationally directed change and technological innovations, a conduit view of language) it may be premature to reach the conclusion that the educational uses of computers can only reinforce the Cartesian mindset that has helped, paradoxically, to create a form of technological empowerment that contributes to the possibility of our own extinction. As Theodore Roszak points out, the basic relationship in the educational use of computers involves the mind of the student meeting the mind of the person who wrote the program, and the mental processes that establishes what constitutes the "data." If the mind encountered by students, mediated of course by the amplification characteristics of computer technology, has never considered the aspects of human/culture experience ignored by Cartesianism, it would be impossible for the students to write a program that takes into account the deeper levels of culture. Or, for that matter, it would be impossible to frame the thought process in a way that enables students to recognize that language and thought are influenced by the **episteme** of a cultural group.

The close connection between computers and the form of consciousness associated with print technology make it impossible to represent the thought processes of other cultural groups in a way in which students could enter into its epistemic patterns at a taken-for-granted level. As Eric Havelock and Walter Ong argue, print makes what is represented appear as data — abstract, decontextualized, and rationally apprehended. But it should be possible to move some distance away from the more stultifying aspects of the Cartesian mindset reinforced through print-based discourse. Software programs that help illuminate the nature of culture would seem to be a step in the right direction, both in terms of understanding the symbolic foundations upon which thought and social practices rest, and in terms of recognizing that **culture is part of the ecological crisis**. One aspect of culture that needs to be illuminated, which would be a prelude to considering comparative belief and value systems, is the metaphorical nature of language. Particularly important would be understanding how the root metaphors of a cultural group (for

us, a mechanistic image of Nature) influence the process of analogic thinking (i.e., choice of generative metaphors) and leads to the existence of iconic metaphors that encode the earlier process of analogic thinking. Iconic metaphors such as "data," "artificial intelligence," and "computer memory," are examples of this process of encoding earlier processes of analogic thinking, which in turn was influenced by the root metaphors taken for granted at that time. How the metaphorical nature of language provides the schemata for thinking becomes especially critical to the process of recognizing how current thinking about the ecological crisis largely is framed by the metaphors central to Cartesianism. Viewing language as encoding the process of analogic thinking also bring other aspects of culture into consideration: how people in our own past as well as members of other cultural groups have different views of reality, how the past can influence the present at a taken-for-granted level, and how the individual is, in actuality, giving individualized expression to shared cultural patterns. Becoming aware of culture, it should be kept in mind, is just the first step in a process that must eventually engage the more politically difficult problem of sorting out the cultural patterns that are ecologically sustainable over the long term.

There is another line of development in educational software that may be fruitful to explore. This could involve the use of problem-solving simulations framed in terms of the patterns of thinking of other cultural groups who have lived within the limits of their habitats (this would help students recognize the assumptions of our culture that ignore the problem of long term interdependency) and the use of simulations that consider the future ecological impact of our assumptions about human life, material and technological progress, and rational control of the environment.

The Moral Poverty of the Information Age

With the cultures of the world placing increasing demands on biosystems that are showing signs of disruption and decline, the most critical aspect of the problem — at least in terms of the human/cultural roots of the crisis — is to change the root metaphors that underlie the foundation of our Western value system. Serious consideration, for example, should be given to Aldo Leopold's argument that a land ethic should replace the anthropocentrism of the value orientation that now guides individual decisions — including our uses of technology. Very succinctly, he argues that an ethical consideration of our interdependency with the environment, if taken seriously, should lead to "a limitation on freedom of action in the struggle for existence." Restriction of self for the sake of others, where "others" is understood as including the entire "biotic community," now is paramount to human survival, given the size of the world's human population and the scale of its technological capacities.

What this will mean for how we use computers is not entirely clear at this time, but one point that now seems irrefutable is that the future has a moral dimension to it that is ignored by the image of an "Information Age." The moral dimensions of the ecological crisis bring us back to a central theme of this discussion: namely, that "data" and simulation models tend to hide the deeper levels of culture. The transmission of culture, which occurs whenever a language system is used as part of a computing process, points to a need to consider the cultural orientations that are being reinforced by this technology, and to asking whether it is part of the solution or part of the problem. The consequences of taking these concerns seriously are so important that they need to be given a more central place in future considerations of the educational use of computers and in understanding the influence of this technology on social change.

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ART AND ENVIRONMENT

John K. Grande

The whole process of modernization in which we find ourselves now preoccupied at all levels of society is an overwhelming one. It leaves the artist grappling with questions of identify on a more fundamental level than ever before in history. Not only has the art of late industrialization and its nostalgic association with materialism poisoned expression, it also has created a state of alienation from the materials an artist uses. They are seen as being, first and foremost, product potential. The use of concepts, word-text and altered, recuperated products seen in works by Tony Cragg, Bill Woodrow, and Bill Mach while appearing clever, equate symbolic metaphor with the synthetic language of production. Statement becomes the sole basis for expression, while notions of integration into Nature are ignored. The heretical forms of contemporary artists such as Richard Deacon and Anthony Gormley are an attempt to defend an older version of art. Unfortunately their art is merely transitional, an attempt to maintain codes of aesthetic narcissism that is part of the exhaustion of identity in a consumer society. It propagates the naive view that we are somehow immortal, gods of our own creation. Dogma surrounds us. The literal character of these art forms is fundamentally backward looking and incipiently materialist. The history of Western culture now leaves us feeling that we have no choice as to how we can create, but we do. Prototypes from the past mislead us as to how artists can create expressive works in the future. In the words of Each German playwright Heiner Muller, "The angel's wings move ever more weakly until they may come to a halt."

The frenetic anxiety of today's art world is associated with the idea that we might as well cash in now, because we do not know what tomorrow will bring. The message has become more important than the medium. This crisis of expression is not always evident, buried as it is beneath the vast volumes of books (themselves products) that reify our Cartesian, quantifiable view of art and history. By manipulating Nature through art we have treated it not as an equal partner, the fundamental facet of any economy, and a true source for expression but instead as something to be framed. The artist has sought to exploit Nature as readily as any industrial giant. Nature becomes a device to be used, and the main purpose of a work of art is to have a name attached to it.

For Carl Jung the essence of man's creativity is expressed through myths and metaphors, derived from our inner identity, our place as a living, biological being in a world governed by the laws of Nature. For today's culture, materialism itself has been mythologist. In post-production societies, Aristotle's comment "art imitates nature" is now misunderstood to mean that serialism, (a parallel to production that does not generate new ideas or aesthetic prototypes but reproduces ideas in art as mere material) is a representation of life itself. This is not at all true. Aristotle's statement was a paraphrase for our inner world, the creative spirit, not what has been produced as material evidence of this.

Our view of life itself has poisoned life's joyful and tragic components, and themes of life and death in current artistic production have little to do with their classic origins. Instead, they are mostly associated with material subjectification, and individualist alienation in consumer society. Is there any alternative? Yes. Artists can choose how they wish to interpret their experience, which includes all time from birth to death, not just significant, edited time, or what Platonists would call the conscious facet of experience. An art of the future needn't follow precedents from the art of industrial and post-industrial society. It could find its new impetus from a new relation to Nature where material is seen as a part of a living ecosystem, not just become a means of developing new, more perverse egosystems intended to get the artist-creator a slice of the diminishing economic pie.

Earlier in this century Friedrich Kiesler, a close friend of Theo van Doesburg, founder of the de Stijl movement, recognized these relations in his twin principles of correalism and biotechnics developed in the mid-twenties. Correalism recognized the pre-eminent behaviour pattern of Nature as being that of continuity. Correalist designers were to consider every object in the universe in relation to its environment. Biotechnics was for Kiesler, a manner of design "responsive to man's habits". He evolved biotechnics as a response to society's "incapacity to provide and sustain a healthy and healthful shelter for each of its members and to deal adequately with these demands for all income levels.... Functional design develops an object. Biotechnical design develops the human being."

Post-modern art is subsumed to a language of expression that has not been redefined since the early part of this century. Visionaries such as Kiesler have attracted little attention, as our relation to "nascere" the Latin root for Nature meaning "to be born" have become increasingly distant. Instead, our history of art has become frozen by quantification, the material layerings of determinism, which like a pile of rubble threaten to bury us and our civilization completely. Our history forms part of an appropriative, essentially male dominated economic model for society's structuring. Procreative models for creativity, closer to the female experience, rely on direct intuitive experience for creative expression and has few structural models on which to base its expression. These could offer a clue as to how we an create regenerative, living models for expression in the future more closely allied to our endemic place in the natural world.

Developments in the art of this century have been closely linked to technological development, either through war or for purposes of pure profit. The notion of an avant garde which is inimically attached to a presumption of economic progress, is one that more traditional Asiatic societies such as China and Japan have, until recently found difficult to grasp. The dominance of machines over human and Nature has created

man-made landscapes whose scale is staggering and would have shocked the Romantics who witnessed the arrival of early industrialism and intuited its effects. The poet Percy Bysshe Shelley wrote in 1821, "The cultivation of those sciences which have enlarged the limits of the empire of man over the external world, has, for want of the poetical faculty, proportionally circumscribed those of the internal world; and man having enslaved the elements, remains himself a slave."

The Cubist splitting up of space, flattening of perspective was direct evidence of our increasingly severe break with a realistic view of Nature based on external observation and appreciation of the infinite variety of living forms that exist in our world. T.S. Eliot's "The Wasteland" published in 1922 where he wrote the lines — "On Margate Sands. I can connect Nothing with nothing" — now seems as much a eulogy to our alienation and loss of ties to Nature as any verse written this century. Likewise, Marcel Duchamp's readymades appeared to broaden our definitions of what art could be, but were also a conscious, dispassionate incorporation of the syntax of manufacture into art. Duchamp saw art as humanity's purist invention, without relation to any biological or natural source. The artist deferred completely to the forces of production. Avant gardism became intrinsically associated with a tautology of technological progress. Products themselves, artist's materials, humanity itself is undeniably a part of Nature and must rely on Nature for its survival.

While De Stijl (1917-1928) and Bauhaus (1919-1933), two of this century's most pervasive movements in art and architecture, did incorporate the study of a design based on natural observation, for them design was purely functional, a cog in a system of industrial progress that made little attempt to integrate Nature as an equal, reproductive participant in this world. The blindness of this new vision of an aesthetic techtopia that would solve all human ills was perfectly expressed by Piet Mondrian when he wrote:

> It would be illogical to suppose that non-figurative art will remain stationary, for this art contains a culture of the use of new plastic means and their determinate relations.... This consequence brings us, in a future perhaps remote, towards the end of art as a thing separated from our surrounding environment, which is the actual plastic reality.

The stultifying results of the Bauhaus vision are all around us today. Their stressful, monotonous geometries go against our natural instincts, which seek a variation that Kiesler recognized, and that millennia of survival in Nature have adapted us to. McLuhan's typographical human, whose life is merely a representation of built images, concepts that live more inside one's thoughts than in a reality acted on by Nature, is now an omnipresent fact.

As we now approach the end of this century, it is now more than evident that our Western traditions of art must come to an end. Our extensive reliance on the syntax of our art, its structural basis, is indeed a weakness and not finally a strength. We can replace it with a more subtle but longer lasting vision, whose main premise is the value of integration into a built or natural environment. This would, by necessity require a greater exploration of the unconscious, of our biological origins within ourselves, our endemic relation to Nature. An art of the future may seek to fuse Eastern and Western values of what it constitutes. Our art and architecture could be revivified if only we can understand the volatile, endlessly changing nature of all material, both organic and inorganic. It acts according to natural laws which are as important to the scientist as they should be to the artist.

Creativity is based primarily in our feeling a connectedness to Nature. It exists in a holistic energy of life, which is as much ethereal as physical. If we can understand the procreative process of living itself then we will be able to cast aside the appropriative models, the structural layerings on which present day art is based. In so doing, we can substitute more searching ecological models for creative expression which more readily approach an infinite, more universal model for expression. Art can play an essential role in guiding our society's vision towards a regenerative future vision of life. Temporal values of material accumulation and historic notions of economic progress can be set aside.

Presently, the instinctive life forces and physical energies that truly propel us through time are relegated to a lesser place than the impact statements and manipulation of visual or material form in art. The artist is absolutely compromised and seeks to find wholesome forms of expression in the unwholesome values of a profit-oriented economy. This deceptive situation must change if our planet is to survive. It will depend on each individual's commitment to move away from a personal identification with external, material result and towards a resouling of art, where there are real, communicative and integral values based on humanity's commitment to ourselves and the plantary ecosystem we inhabit.

In the future it may be necessary for art to remain unnamed and for artists to not sign their works, in order to allow significant works of art to be appraised for their own integral value within a given environment. This process would demystify the myths surrounding the material value of art which have, in this century, caused so much damage to the process of discovering the real meaning of the life experience, so important to real art. This challenge will require as much strength and resistance on the part of artists, as have ever been known in our world's recorded history. It relies on our passive acceptance of an equal relation, not superior relation, to the other species and elements in our ecosystem and would return the poetic, musical key to the material arts. Its results will resemble much of what has been unrecorded in humankind's short presence on this planet, the integration present in primitive cultures — where economy and ecology were more purely blended, and where works of art were generally unnamed and created not for money but for reifying purposes. For centuries the art of primitive cultures was not recorded or put on an equal footing with Western culture. It represented a kind of unknowing opposition to the dominant expanding economic and later industrial worldview that has caused our present day state of affairs. We now seek to incorporate primitive characteristics within our own Western traditions precisely because of the spiritual vacuum created by the exclusively economic model for our civilization. In the words of Arnold Toynbee:

> In repudiating our own native Western tradition of art and thereby reducing our aesthetic faculties to a state of inanity and sterility in which they seize upon the exotic and primitive art, as though this were manna in the wilderness, we are confessing before all men that we are forfeiting our spiritual birthright. Our abandonment of our traditional artistic technique is manifesting the consequence of some kind of spiritual breakdown in our Western civilization.

Unnaming art would have an immediate impact, liberating art, unseating it from any economic associations we might associate it with, and moving it once again in the direction of pure, living experience, as it was in ancient times when the Lascaux caves were painted.

Nature needn't be extracted, assembled and projected to make an ecological statement. Although this kind of approach resembles the Japanese Garden tradition of the 17th century, the latter continues to manipulate Nature, structuring it, organizing it, underlining a theory. It culls Nature, and becomes advertising for a particular culture's anthropocentric worldview. There are examples of art which uses organic, living material at present, but it is still used exclusively to promote an artist's name. Nature is not allowed to exist in its own unnamed context.

Real art doesn't need an audience — it has its own integral identity and that's why it was created. Simultaneously occupying real space and being a creation, art can integrate almost invisibly into a given environment. It may seem almost secret, camouflaged, and an anathema to our current obsessive approach to artistic production. At any moment in time there are thousands of exhibitions taking place in the world. How can an artist construct a meaningful artistic identity, if it is seen exclusively in terms of individualist achievement in an economic marketplace? Recognition in these terms is now virtually meaningless. Values of reintegration of economy into ecology will become more marketable in the future. The current "big sell" commoditization of all facets of our lives, which empties us of any true feeling, causes value crises and loss of identity in the name of materialism, can no longer be supported by a responsible, survival economy.

Self-reliance, diversity, and a new appreciation of life in and of itself will be the key to an art of the future. Today's artists can and will put something back into Nature by direct action. To quote Friedrich Kiesler again:

> More than in any other realm of human life the so-called artist must learn only one thing in order to be creative: not to resist himself, but to resist, without exception, every human, technical, social, economic factor that prevents him from being himself.

Art of the future could represent a modest reintegration of the human spirit into Nature. By not being the central feature of a given environment, it would be an unexpected discovery. It could express a return to the soul. The spirit of creativity is unconscious, and it can inspire us to see our place in Nature in new and interesting ways. Prototypes for such an art already exist in the works of Anish Kapoor, Andy Goldsworthy, Richard Long, Hamish Fulton, Toya Shigeo and many others. Their work suggests that Nature is an open and versatile process. Today's economists could do well to understand this. The world's life forms — ourselves included — will not survive, nor will our ecosystem, if we do not develop socially responsible prototypes on which to base our collective culture. This viewpoint places expression outside our Western traditions of expressing humanity's joys and despair without considering Nature. Its incipient neutrality could be adopted in all fields of the arts. To quote Heiner Muller, "In the end all that remains is poetry. Which has the better teeth, blood or stone?"

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INTRODUCTION TO PROCESS PHILOSOPHY

Patsy Hallen

> It is wise to listen not to men but to the law and to acknowledge that all things are one.
> Heraclitus of Ephesos[1]

> The purpose of philosophy is to rationalize mysticism.
> Alfred North Whitehead[2]

It is imperative to search for a metaphysical foundation for our growing ecological consciousness. For, unless we have a vision of how things are — a vision with which we can fully identify — we will not be as effective in bringing about enduring environmental change. As Arne Naess puts it:

> Without a change in consciousness, the ecological movement is experienced as a never ending list of reminders.[3]

If we have a vision of humans as inseparable from and dependent upon Nature, then environmental martyrdom becomes unnecessary. It is in our interest to protect Nature. To wantonly harm Nature means injuring ourselves.

It is the purpose of this focus in this edition of **The Trumpeter** to explore some aspects of this new vision: The metaphysical basis for ecocentrism offered by Process Philosophy.

Process Philosophy has a rich and complex history, although it has always been confined to the margins. As Arran Gare points out in his Ph.D. thesis on Process Philosophy,[4] the ideas of becoming and process have generally been anathema to philosophers who, since Parmenides, have been seeking an unchanging, permanent world behind the fluctuating world of appearances. Process Philosophy seeks to overturn this common assumption that the ultimately real must be fixed and to underscore the flowing and interrelated nature of Nature. As Heraclitus expressed: "You cannot step twice into the same river, for fresh waters are ever flowing in upon you."[5]

In addition to this ontological commitment to the primacy of process, process philosophy subscribes to an epistemological irreducibility. Life cannot be fully understood in terms of non-life and the opposite is proposed: It is just as appropriate to interpret the so-called "lower" forms of life in terms of the "higher" forms of life. Life for A.N. Whitehead is scientifically defined as "the enjoyment of emotion."[6]

Process Philosophy has received twentieth century renewal with philosophers such as Henri Bergson and Alfred North Whitehead. But despite the substantial efforts of such thinkers, process philosophy has not been high on the philosophy agenda. As Arran Gare points out,[7] this has not been due to the failure of their arguments but to the closing down by positivism and analytic philosophy of ontology as a respectable dwelling.

Ironically, while Process Philosophy has been marginalized in philosophy, its importance for science has increased proportionately. David Bohm, one of the most creative thinkers in the area of quantum theory, Ilya Prigogene, a celebrated figure in thermodynamics and C.H. Waddington, one of the most important biologists this century, have been profoundly influenced by process philosophy.

Each of the following articles can be seen as an attempt to advance this tradition. It may be a surprise to include two articles on Hegel. But the traditional Anglo-Saxon picture of Hegel as an idealist committed to an unchanging absolute is a misleading myth. Instead, it is proposed that the philosophy of G.W.F. Hegel provides such a sound metaphysical basis for recognizing and arguing for the unity of Nature.

The first article [by Patsy Hallen] points out how Hegel's dialectical notion of reality undermines a mechanical, instrumental view of Nature and helps us to realize a holistic vision whereby our nature and its wholesomeness are intimately involved with Nature. Each person is a complex of relations and so each person is profoundly intertwined with Nature. The second article links Hegel to the emerging ecocentred world view and offers an extension and a deepening of such a paradigm in the work of Edgar Morin. Sean Kelly offers us an insightful discussion of the ideas of both philosophers and of their respective and mutually complementary contributions to holism. Next Susan Armstrong-Buck provides us with a rich and scholarly discussion of how the Process Philosophy of Alfred North Whitehead can illuminate some of the more contentious and difficult concepts of environmental philosophy. Finally, Arran Gare presents a convincing case as to why Process Philosophy is essential to an effective environmental ethics.

NOTES

1. Fragments of Heraclitus of Ephesos, cited by John Burnett, **Early Greek Philosophy**, N.Y.: Meridian Books, 1957, p. 132.
2. Alfred North Whitehead, **Modes of Thought**, N.Y.: Capricorn Books, 1938, p. 123.
3. Arne Naess, **Ecology, Community and Lifestyle**, translated and edited by David Rothenberg, Cambridge: Cambridge University Press, 1989, p. 91.
4. Arran Emrys Gare, **Science, Process Philosophy and the Image of Man: The Metaphysical Foundations for a Critical Social Science**, 2 vols, Ph.D. thesis submitted to Murdoch University, Perth, Australia, 1981, Volume 1, p. 357.
5. Heraclitus, as cited by Burnet, **op. cit.**, p. 136.
6. A.N. Whitehead, **op. cit.**, p. 229.

7. A.E. Gare, **op. cit.**, Volume I, p. 362.

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HOW THE HEGELIAN NOTION OF RELATION ANSWERS THE QUESTION "WHAT'S WRONG WITH PLASTIC TREES?"

Patsy Hallen

The environmental crisis is not just a result of maladjusted economic power, military insanity, population pressure or social injustice whereby one American uses fifty times the resources of one Indian. It is also a crisis of the human spirit. Hence, to solve the grave problems posed by the environmental crisis we need not only a sustainable and just economic system, a peace force, equitable population controls, less tunnel vision in science and more appropriate technology. We need new ways of seeing. We need to reexamine our place in Nature and develop a new world view which recognizes the unity of Nature and, on this metaphysical basis, details the rights of future generations, animals and other aspects of the environment, both living and non-living. The purpose of this paper is to help correct the current perceptual crises by attempting a metaphysical justification for the unity of Nature using Hegel's philosophy as a framework.

We need a new environmental ethics. But such a task demands an integrated metaphysical system. Before we can assign rights to animals or legal standing to trees, we need to articulate and defend a new view of the nature of life and the nature of mind — a view of the nature of reality.

An effective ethics hinges on a comprehensive, consistent, fruitful and persuasive ontology. Such an ontology is provided, I believe, by the process philosophy of such thinkers as G.W.F. Hegel, A.N. Whitehead or H. Bergson and has been developed recently by an Australian philosopher, Arran Gare, one of the contributors to this focus in **The Trumpeter**.[1] The world view of process philosophy is grounded in the vision of reality as a developing, organic whole whose aspects are defined by their interrelations. This holistic, process view of reality which dovetails with the major scientific developments of the 20th century (for example, relativity theory, micro-particle physics, and ecology) needs to be articulated and defended because it stands as a challenge to the dominant thought-habits of our age, which are so deeply ingrained they go unnoticed, but which nonetheless structure the universe of discourse in which environmental decisions are taken. As Wittgenstein quips, "one thinks that one is tracing the outline of a thing's nature...and one is merely tracing round the frame through which we look at it."[2]

The prevailing orthodoxy, which fixes the boundaries of our mental set, is based on the analogy that the world is like a machine. This powerful foundational metaphor does not strike us but shapes the structures of our mind and our society. Wittgenstein notes:

> The aspects of things that are most important for us are hidden because of their simplicity and familiarity. (One is unable to notice something because it is always before one's eyes). The real foundations of his inquiry do not strike a man at all. Unless **that** fact has at some time struck him. And this means we fail to be struck by what, once seen, is most striking and most powerful.[3]

This picture of a mechanical universe "holds us captive".[4] It influences the way we think of the earth — not as a fragile web of life but as a machine whose parts are not interrelated organically. If one part wears out we can replace it, like changing a spark plug. The mechanical model influences the way we treat animals — not as sensitive creatures capable of suffering but as objects to be manipulated, as things to be dissected. And the mechanical paradigm influences the way we treat people — not as potentially free centres of activity and creativity but as objects to be controlled. As Steven Rose points out[5] this ideological trap opens with cute quips like: "Mummy has a machine in her tummy which Daddy starts with his staring handle," takes in most Australian psychology programmes intent on behaviour modification rather than understanding, and ends up making body counts in Vietnam style, degrading our perception of humans as irreplaceable centres of dignity.[6] Finally, the mechanical model influences the way we do science, since implicit within it lies a commitment to the methodology of reductionism.

So our quest for an effective environmental ethics must begin at the start. We must begin with the foundation of thought which simultaneously challenges the dominant theoretical framework — the reductionist, mechanical world-view — and develops a new vision of reality, an ecological, holistic paradigm which sees things in dialectical process.

But a metaphysical starting point is necessary not only to arouse us from our dogmatic slumber[7] and not only to securely anchor our environmental ethics in good holding ground. In addition, without this ontological grounding, there is very little wrong with plastic trees. Let me explain.

In the prestigious journal **Science**, Martin Krieger published an article entitled "What's Wrong with Plastic Trees?" In it he says:

> What's wrong with plastic trees? My guess is that there is very little wrong with them. Much more can be done with plastic trees and the like to give most people the feeling that they are experiencing nature.[8]

Krieger is an urban planner who sees no intrinsic value in Nature and who thinks that the social justice of utilitarianism is the only moral criterion to be observed. He posits that since only a few segments of the population feel a need for the natural world (I would argue because they are not numbed to their true needs), the utilitarian principle of what brings happiness to most people dictates the replacing of real trees with plastic ones. Plastic trees are not as vulnerable nor as costly as real ones; they do not need water; they look good and they even provide shade. In a world where increasingly artificial objects and settings supplant those supplied by Nature (astroturf instead of grass, synthetics rather than wool or cotton), in a world where an economy of undifferentiated growth struggles to service even the most basic human needs, the assumption is that there is very little wrong with plastic trees, if they can save money. A few years ago a Los Angeles suburb installed more than 900 plastic trees and shrubs in concrete planters.

As Laurnece Tribe points out,[9] the concept of plastic trees provides an "illuminating metaphor" through which to expose and criticize certain assumptions which dominate our environmental thought, laws and policies. The plastic tree supporters have a view of Nature which is tied to human self-interest, and a limited version of that. Our social, political and intellectual tradition regards satisfaction of consumer wants as the only possible or reasonable measure of what is good.

So what is wrong with plastic trees, if that is what people really want? The burden of this paper is to uncover the ideological bias of our system and to attempt to show what is wrong with plastic trees. If our world were a machine, then a plastic replica of a tree might be the functional equivalent of a real one. But our world is not like that.

I will argue that humanism (whereby human self-interest is the only criterion of moral relevance), sentienism (whereby the capacity for suffering is the only criterion of moral relevance) and vitalism (whereby life is the only criterion of moral relevance) are limited. They are limited because they do not recognize that each person, each potential sufferer, each living being such as a tree is a complex of relations and as such is intimately connected to the rest of Nature. Unless we understand this metaphysical reality of the unity of Nature, of how a tree is, in reality, a living microcosm of the whole, of how my wellbeing is interwoven with that tree and with the rest of inorganic Nature, we will have failed to understand what is wrong with plastic trees; we will have failed to comprehend the arrogance of humanism.

Peter Singer's view, which represents sentienism,[10] has problems similar to humanistic urban planners like Martin Krieger. Singer cannot enlarge his circle of altruism to embrace trees or the land because his only criterion of ethical action is the principle of impartial consideration of interests. Since a tree or a mountain does not have the ability to feel, Singer argues that it cannot have interests, and therefore it is denied access to the moral circle.[11] For Singer the circle of moral responsibility is expanded sufficiently if it includes all those non-human animals which have a capacity to feel. The shortfall of Singer's view — his stopping at sentient creatures — is due to his reliance on only one moral principle: The principle of impartial consideration of interests and on the lack in his philosophy of an appropriate metaphysical grounding for his ethics.

Even the vitalism of a great person like Albert Schweitzer[12] has its shortfalls because it does not consider the inherent value of land forms such as mountains, rocks or the soil.

What I hope to do in this paper is to provide reasons for a holistic environmental ethics which demonstrate why we need to move beyond humanism, sentienism and even vitalism; why we need to consider things as a whole. A metaphysical understanding of the unit of Nature undermines anthropocentrism, anthropocentric moral criteria like the capacity for suffering, and partial moral principles like the reverence for life, and guarantees each aspect of Nature an intrinsic worth.

Hegel's notion of relation forms the backbone of an argument for the unity of Nature. The concept of relation provides a metaphysical basis for a form of ecological egalitarianism. In order to understand how things participate in an underlying unity, it is necessary to expose Hegel's dialectical way of thinking and being.

According to Hegel, life's rhythm is a dialectical beat. For Hegel, life, while rooted in cooperation, is at the same time a continual process of each living thing holding out against antagonistic forces as a self-developing unity. To use Marcuse's example from **Reason and Revolution**,[13] a stone is a stone only in so far as it actively resists and maintains itself against the batterings of waves, erosion by the sea, thermal variations, and the pressure of vacationers' feet. Everything from the mineral to the self-conscious is actual only in and by and through struggling with and overcoming such unpropitious elements. Life for Hegel is not possible without dialectical stress. A totally hostile environment would slay life, a totally irenic environment would stagnate life. To be at all for Hegel is to be developing, and to be developing is to be in some sort of tension. Even the most serene of avatars, in complete harmony with the Cosmos, is at variance with (overcoming and not succumbing to) **Maya**. "Contradiction is the root of all movement and vitality."[14] According to Hegel, any being is an identity mediated through difference.

As things are themselves only by repelling their opposites, for Hegel they are their opposites. In other words, a thing's being consists in its relation to its **other**. A plant's shape is determined by its environment, by the position of the sun and water, by the soil and the surrounding stones. A plant's identity is won by mediating through difference and its shape contains the history of its opposition within it, as the plant's stem might be kinked from travelling round a protruding stone. As Hegel expresses it: "Something is alive only in so far as it contains contradiction within it and moreover is this power to hold and endure the contradiction within it."[15]

The power of any subject for Hegel be it mineral, vegetable or animal is to both "be itself in its otherness" and to make that negativity part of its own unity.[16] Hegel refers to this process as the "negation of negation"[17] whereby the other (negation) is negated **as other**, since the subject mediates and transforms the externality, internalizing it. For Hegel anything must be a subject, and as a subject it is constituted by its relations.

Hegel's epistemology reflects his ontology. To think at all for Hegel is to confront contradiction. In fact, Hegel sees his way of knowing as appropriate because it reflects the way of Being. In order to further illuminate how interrelated things are for him, let me give you one example of contradiction confronted by the mind in its attempt to comprehend.

To assert "I am me" and no one else but me, I am singular, unique, is also to say I am not you; I can only be me if I have another with whom to contrast myself. My me-ness is given by you. I have self, certainly, only by courtesy of you. If you were not there, how could I be me? For Hegel's ontology of growth, self-assertion entails self-direction, actualization involves alienation.[18] On the level of knowledge as well, everything contains its own opposite. Every positive statement contains, concealed within itself a negative, and this negative is on the other hand, just as much positive.[19] Spinoza's principle — all determination is negation ("Determinatio negatio est")[20] — is turned inside-out and made to work double time. For not only is determination negation but negation is determination. To assert that "I am me" not only means that I am not you, but also means that I am not all that is not-me. The not-me therefore constitutes me as much as the me, for what I am not, what I exclude or repel makes me what I am. To specify my limitations is to circumscribe my characteristics and so to determine who I am. Hegel declares "Negation is just as much affirmation as negation."[21]

Hegel's analysis shows over and over how seemingly mutually exclusive aspects are seen to require one another and to be both essential for a complete understanding. Dialectical understanding does not explain away contradiction; rather it resolves, transcends and sublimates the differences as the self forges a new identity based on the discovery of non-self.

Hegel drew upon the German language's peculiar ability for combining ambivalent even antithetical meanings in one word to capture the dialectical process. Each former-stage (in life or thought) is "aufheben" which means, abolished, preserved, uplifted.[22] Each phase is overthrown, but none is ever annihilated, disappearing without a trace. Each is dethroned, so to speak, by the new heir, and via the process illuminated and hence transfigured. "To supersede is at once to negate and to preserve,"[23] as the stone's imprint was negated and yet preserved in the plant's development, as the other's imprint was negated and yet preserved in my voyage of self discovery. For Hegel the dialectic works because it mirrors the way things grow and develop.

Hegel's iconoclastic, anti-dogmatic method of truth-getting is ontologically sound because it expresses the discontinuities of life, the antithetical tendencies in reality itself. Contradiction exists in the world as well as in people's endeavour to comprehend the world. Truth is alive and dynamic for Hegel. Truth is organic, each part related to every other, each part false in isolation. The true, declares Hegel is the whole.[24] This sounds like a tautology but it is not. For it means that truth is, as Hegel expresses it, the "synthesis of antagonistic claims grown mutually implicative."[25]

The upshot of this analysis is that a thing's relations — even seeming antagonistic relations — constitute its nature. The value of an eagle cannot be comprehended without considering mountain crags; the value of a worm cannot be understood without considering the soil; the value of life radically depends on non- life. Hegel cautions that if one side ignores its opposite, it might well turn into its opposite, as the master becomes enslaved by his possessions, by his inactivity, by his dependence upon his slave.[26] If blind to the value of non-life, life must cease.

In order to further illustrate how opposed and seemingly irreconcilable relations make up a thing's reality, let me use one final example. Hegel declares attraction and repulsion to be "inseparable".[27] If there were no repulsion at all, all would be one, one unit, since repulsion is the principle of the many, of discreteness. So repulsion is a necessary condition of attraction whereby one is pulled towards another. But attraction is also a necessary condition of repulsion, since attraction prevents repulsion from turning into mere indifference. As Hegel puts it:

> [S]ince each of the two opposed sides contains its other within itself and neither can be thought of without the other, it follows that neither...taken alone, has truth; this belongs only to their unity.[28]

For Hegel, to be separate or independent is merely a pose, a stress which depends on the background which independence tries to treat as irrelevant. In reality independence is dependent. In fact, everything must be mediated by its opposite, if it is to have integrity. In Hegel's philosophy a thing and its environment replaces the essential-accidental polarity, becoming the deeper meaning of both.

> The proper aim of philosophy is often represented as the ascertainment of the essence of things: a phrase which only means that things instead of being left in their immediacy, must be shown to be mediated by, or based upon, something else.[29]

The doctrine of an independent self-sufficient human morality is a delusion. The belief that we can draw a moral line between a splendid wren and the bracken in which it lives is a delusion. The desire to segregate value and inert matter is a delusion. Human value and the value of sentient creatures must be mediated by natural value; life contains non-life within itself.

Hegel's ontology and epistemology declare that a thing only has a nature, only a significance, only exists at all in terms of its relations. To separate human life from the rest of life, to sever life from non-life, to compartmentalize humans and Nature, to see human self-interest as divorced from the interests of the ecosystems is to misrepresent the meaning of each.

To consider moral issues solely from the point of view of the human species is to make a false assumption, for non-human realities constitute our very being, according to Hegel. Hegel cautions that humans "must digest their organic nature and take possession of it from themselves."[30] To do this we need the mediation of our bodies. That is, we must be natural in order to explain Nature. Implicit in this claim is a doctrine of affinity, and the seeds of the Marxist notion that Nature is our body.[31]

For Hegel, Nature and humans are born together (**co-naissance**) in knowledge. Nature needs to be related to mind to be fully actual; the mind needs to be related to the world to be actually fulfilled. A person can become who she is only if she internalizes the relations which constitute the world. Destroy a thing's relations and you destroy the thing. Why? Because every substance is a configuration of relations. So human morality exists only in relation to the whole, just as "every individual entity has meaning and significance only in its relation to the totality."[32]

As Hegel eloquently expresses it:

> A way to the east is also a way to the west. Positive and negative are...intrinsically conditioned by one another, and are only in relation to each other. Thus we say: I am a human being, and around me are air, water, animals and all sorts of things. Everything is thus put outside of every other. But the aim of philosophy is to banish indifference and to ascertain the necessity of things. But that means that the other is seen to stand over **its** other. Thus, for example, inorganic nature is not to be considered merely something else than organic nature, but the necessary antithesis of it. Both are in essential relation to one another; and the one of the two is, only in so far as it excludes the other from it, and thus relates itself thereto. Nature in like manner is not without mind nor mind without Nature...."[33]

and again,

> Everything that exists stands in correlation and this correlation is the veritable nature of every existence.[34]

Hegel's thesis that everything is only what it is by its relation to other things testifies to the unity of Nature. And the unity of Nature testifies to the need for an environmental ethics to incorporate into the moral circle not just humans and their wish for plastic trees, not just creatures capable of suffering, nor just living beings. For each of these aspects of Nature depends upon and is intimately related to the whole. As Hegel declares, the truth is the whole and a true environmental ethics must begin by framing its moral considerations in terms of the whole ecosystem.

Hegel's concept of relation provides a metaphysical basis for the unity of Nature. Evidence for this unity comes from many other sources. The natural sciences tell us that we are connected in a deep way with the rest of the universe. The carbon in our bones is the same carbon that forms the rocks of ancient mountains. The sugar in our bloodstream once flowed in the sap of now fossilized trees. As Carl Sagan expresses it:

> ...the iron in our blood, the calcium in our teeth, the carbon in our genes were produced billions of years ago in the interior of a red giant star. We are made of star-stuff. Our atomic and molecular connection with the rest of the universe is a real and unfanciful cosmic hookup.[35]

Things are profoundly inter-connected. Reality is a complex and dynamic web of energy. To ignore this fundamental cosmic hookup, when we construct an environmental ethics, is to render our vision myopic. A better way of reading Nature must be grounded in the reality that "we are much more like yeast than we are unlike it."[36] As George Wald confesses,

> None of us had ever dreamed before that such intimate relationships hold together the entire world of living organisms — that with such vast stretches of evolution coming between, we still retain so close a genetic relationship with yeast...I for one am proud of it....[37]

These relationships cut very deep, testifying once again to the unity of life. To construct an ethic which asserts that only creatures capable of suffering are morally considerable is to be blind to the deep and moving truth that our bodies contain the mineral elements of rocks, our cells share the same historically evolved-components as trees, our brains contain the basic neural core of reptile bird and sister mammal.

Humans and Nature cannot be separated. Their truth is their relation, and any moral system must begin by recognizing their essential interdependence. To locate value only in the human realm is, in the end, to devalue humans. As Rolston points out, facts and values inseparably co-evolved.

> Nature is not barren of value; it is rather the bearer of value.... Future historians will find our century remarkable for its breadth of knowledge and narrowness of value judgements. Never have humans known so much about, and valued so little in, the great chain of being.[38]

I am convinced the linkages are more deep and subtle than we might imagine. To maintain moral independence from the rest of Nature is only a pose. **There is a pattern which connects us all.**

In addition to the **ecological** evidence for the thesis of the unity of Nature, that life is a complex web of interdependent aspects, in addition to the **metaphysical** evidence for the thesis of the unity of Nature, that we are constituted by our relations and as such Nature is our body, in addition to the **epistemological** evidence for the thesis of the unity of Nature, that the truth is the whole, and until subject and object are united in a form of embodied knowledge[39] our understanding will be incomplete, there is **psychological** evidence. As Norman O. Brown points out, to heal is to make whole, as in wholesome, to make one, to unify or reunify our split selves, male/female, mind/body, rational/natural.[40] The plastic trees of Los Angeles are a symbol of a myopic and unwholesome system that does not recognize humanity as a part of Nature and the natural order a constituent part of humanity.

You may say: This poetic vision is all very well but what do we do when values conflict? Having assigned an intrinsic worth to all members of the eco-community, how do we rank the rights of each member and each species, when we are obliged to set priorities? How do we balance distributive justice (to the individual) with collective justice (to the group)?

First of all may I say that whatever moral system one adopts there are inevitably value conflicts. Even egoism is not immune, so value conflict is not a result of a holistic ethic.

Secondly there are lots of cases of moral transparency as clear-cut as baking an innocent obliging stranger in one's oven.[41] We do not need to destroy a rare wilderness area to supply electricity to industry in Tasmania, when more sustainable alternatives exist. We do not need to endanger a unique jarrah forest and a city's water supply in West Australia to make beer cans out of aluminium. We do not need to addict 1,000 monkeys to heroin to help heroin addicts.

Having said this, it is true that there are plenty of unclear cases "where the tug of obligations is so equal as to provide no easy or reasonable solution."[42] Then we must pick the best way to lose. This choice cannot be decided **a priori**; we must understand the facts and be aware of the situation. In these cases I argue for a "situation ethic,"[43] for an "ethics of ambiguity."[44] Our principles must be mediated by the specific situation and by the ambiguities of the existential condition to accord with the dictates of what Aristotle called practical wisdom.[45] Only a "syllogism of action"[46] whereby our principles form the major premise, the situation comprises the minor premise and the

conclusion is based on the dialectic between the two premises, can solve or dissolve cases of moral opacity.

We must also beware of the danger of over-theorizing. Our theories can ge unreal, "too thin to touch real events and people, too heavy to bear."[47] We can end up with the explanation more inscrutable than the event we are trying to explain. Our theories are limited but value conflicts are real. The solution is neither to abandon our theories nor to rely exclusively on theory.

Part of the solution as well is to see that most environmental decisions are not mediated by reason at all, only by "the cunning of unreason" to use Hegel's term, or by short-term vested interests. In reality, value conflict is a blessing since it means that choices are opened out to greater participation by many interested parties and are not taken behind closed doors in corridors of corruption. So let us see value conflict as a state to welcome, rather than to avoid.

Another key issue to be resolved is: "How far can we expand our moral horizons?" I have argued the sentienism (whereby morality applies only to all conscious, sentient creatures capable of suffering) is an incomplete morality as it prevents moral relevance extending to natural objects such as trees. But how far can we extend the notion of "rights" in our land ethic? To all creatures capable of enriching their experience? To all living creatures? To natural objects such as mountains and gorges? Should the soil be given moral consideration as the necessary condition for living organisms to prosper, or should it be given moral consideration in its own right? Should lakes be assigned rights or only the complex of living creatures that an ecosystem such as a lake supports? In other words, how far can we meaningfully extend concepts and considerations? I have argued that we must recognize the value of inanimate objects since they are a crucial part of the ecosystem. The soil is morally considerable because it is the environment wherein life stirs, develops and grows. A rock is morally considerable because of its ability to maintain itself as a unity. In fact, it is not how far we can extend moral considerations, since this suggests that values are only our creation, but in reality we only have the power of moral consideration because of the "value generating power of non-living objects."[48]

The final question I would like to pose and which is implied by my thesis of the unity of Nature is this: How can we, as humans, transcend anthropocentrism? How can we genuinely not put ourselves first? I would argue that ultimately this is neither possible nor necessary. Our self interest may be considerably enlightened, but it can never be completely extinguished, and to see self interest only in terms of self is to extinguish it. Let me explain.

At a fundamental level it is impossible to escape some form of anthropocentrism. Although one cannot reduce ecological concern to human interests (since something like a Karri forest is an end-in-itself and not just a means to enlarge human sensibilities, capabilities or productivity), it is to human interests that we must appeal to ensure the well-being of such ecological richness. But this limitation of having to appeal to human interest, an in-built anthropocentrism, is a paradoxical limitation, since it turns out to be a source of strength. For in typical Hegelian fashion it is only as humans recognize an intrinsic integrity to Nature that we discover our own true Nature. It is only when we accept our dependency on Nature and see ourselves as part of Nature that we can be in touch with our sources, our well spring, and realize our potential. There is no "ontological divide" in Nature.[49] To care for the environment[50] is to realize ourselves.[51] Ecological resistance is self- defence.[52] Humans and ecosystemic interests coincide. I close with the words of Loren Eiseley because they helped me to understand the unity of Nature:

> I saw, had many times seen, both mentally and in the seams of exposed strata, the long backward stretch of time whose recovery is one of the great feats of modern science. I saw the drifting cells of the early seas from which all life, including our own, has arisen. The salt of the ancient seas is in our blood, its lime is in our bones. Every time we walk along a beach some ancient urge disturbs us so that we find ourselves shedding shoes and garments, or scavenging among seaweed and whitened timbers like the homesick refugees of a long war.... The human brain, so frail, so perishable, so full of inexhaustible dreams and hungers, burns by the power of the leaf.[53]

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About the Author: See the note on **Patsy Hallen** at the end of her introduction to this focus on process philosophy.

SCIENCE, WISDOM, AND THE ECOCENTRIC PARADIGM: THE SIGNAL CONTRIBUTIONS OF HEGEL AND MORIN

Sean Kelly

In this paper I will demonstrate the special relevance of Hegel and Edgar Morin for the emerging ecosophical paradigm. I will argue, to begin with, that the fundamental principles of this paradigm were first clearly articulated in Hegel's "Science of Wisdom." I will then go on to show how Morin's ongoing work represents an organic (and, thus, creative) extension of Hegel's foundational insights. The ideas of both thinkers, I will suggest, will prove invaluable to the burgeoning ecosophical movement, and more generally to all ecologically minded (or mindfully ecological) thinkers.

Perhaps the most fundamental operative principle of the ecosophical paradigm is that of **holism**. In contrast with the mechanistic analogy governing the classical (modern) scientific outlook, according to which Nature is seen as constituted of so many atomistic elements (or **particles**) in purely external relation to one another, the ecosophical paradigm envisions Nature as essentially **organismic**. Just as the life of the cell, or the functions of an organ, cannot be understood in isolation from the complex organization of the living body as a whole, so individual organisms, along with all natural systems, must be seen in the context of the **eco**systems to which they are essentially — i.e., internally — related.

A sublime expression of such holistic vision is the increasingly popular "Gaia hypothesis," which conceives of the Earth as a single, sentient organism. While the Gaia Hypothesis struck the general scientific community as a novel, and even revolutionary (albeit fanciful) idea, Hegel had already spoken, a century and a half earlier, of the Earth as "the geological **organism**" and "the universal image of life."[1] "...just as springs are the lungs and secretory glands for the earth's process of evaporation," he writes, "so are volcanoes the earth's liver, in that they represent the earth's spontaneous generation of heat within itself."

> Everywhere we see tracts, especially sandstone beds, which are always giving off moisture. I regard mountains, therefore, not as gatherers of rainwater which penetrates into them; on the contrary, the genuine springs which generate rivers like the Ganges, Rhone, and Rhine have an interior life, a striving and a stirring, like naiads.[2]

Hegel, moreover, goes much further than the Gaia Hypothesis in his view that all of "Nature is, in itself, a living whole."[3]

There are two sides or faces to the Gaia Hypothesis, both of which are fully articulated in and as Hegel's Science of Wisdom. The first, suggested by the term "hypothesis," is the strictly scientific, which in this case refers specifically to the systems approach of ecology. Thus "Nature," writes Hegel, "is to be regarded as a **system of stages**, one arising necessarily from the other and being the proximate truth of the stage from which it results."[4] Hegel is not implying here a **temporal** evolutionary sequence — although the concept of evolution is evidently very compatible with his position. Rather, Hegel is primarily concerned with the idea that Nature, as a "living whole," manifests its organizational complexity as a nested hierarchy of systems within systems, ranging from the simplest and most abstract (the space- time continuum) to the most complex and concrete (the animal organism).

The second face — which in fact is the only true face — is suggested by the name "Gaia," the Greek Earth goddess. Although Hegel did not personify the Earth in this manner, he looked upon it, along with Nature as a whole, as the self-manifestation of the "Absolute Idea" (or the idea of the Absolute) which the religious refer to as "God." Speaking in the metaphorical language of the mystical trinitarian theology which underlies his system, Hegel writes:

> God reveals Himself in two different ways: as Nature and as Spirit. Both manifestations are temples of God which He fills, and in which He is present. God, as an abstraction, is not the true God, but only as the living **process** of positing His Other, the world, which, comprehended in its divine form is His Son; and it is only in unity with His Other, in Spirit, that God is Subject.[5]

This passage is significant not only because it states explicitly what the Gaia Hypothesis merely implies — namely, that the Earth and Nature are worthy of our "ultimate concern"[6] — but more importantly because of the manner in which the divine, the natural, and the human are seen as "moments" of a single "living process" which each, in its own sphere, exemplifies. "Each of these moments," as Hegel puts it, "is itself the whole Idea and must be posited as the divine totality."[7]

Thus, Hegel's thorough-going holism does not stop with the insight into Nature's complex or systemic organization. To be true to its essential principle, this insight must bend back on itself (**reflexio**) to include the knowing subject to whom Nature's holism is manifest. One might say, therefore, that the path of ecosophy, or the Philosophy of Nature, as Hegel called it, "is that which overcomes the division between Nature and Spirit and assures to Spirit the Knowledge of its essence in Nature."[8]

> A rational consideration of Nature must consider how Nature is in its own self this process of becoming Spirit, of sublating its otherness — and how the Idea [of the whole] is present in each grade or level of Nature itself; estranged from the Idea,

> Nature is only the corpse of Understanding [or reductive, simplificatory thinking].... the very stones cry out and raise themselves to Spirit.[9]

In Hegel's mature System — as set forth in his **Encyclopaedia of the Philosophical Sciences** — the Philosophy of Nature is followed by the Philosophy of Spirit (or human culture). Both of these are preceded by the Logic, which presents the system of archetypal categories at work in both Nature and Spirit, culminating in the Absolute Idea (or the idea of the Absolute). It is only when the holistic insight develops itself to the point of seeing not only its knowledge of Nature, but also the nature of knowledge as grounded in and manifesting the same living process that science comes home to Wisdom.

I have argued elsewhere that Morin is Hegel's contemporary heir.[10] Echoing Hegel's call for a Science of Wisdom, Morin insists that the new science must involve "the ongoing reflexivity science ⟷ philosophy,"[11] or more generally "science ⟷ con-science."[12] The paradigmatic expression of this new reflexivity is to be sought in what Morin calls "general ecology."

> General ecology raises to consciousness the problem of the relation between humanity and nature in its full comprehensiveness and actuality. It raises to consciousness the question of life and death, of the future of our species and that of the biosphere itself.[13]

In contrast with the more extreme forms of pure wilderness thinking, on the one hand, and technocratic anthropocentrism, on the other hand, Morin writes:

> The true reality, forever polarized between natural eco- organization and human socio-organization, is mixed, fluid, and multidimensional: the true reality is the complex eco-(bio-socio)- logic constituted by biotic and social eco-organization where the urban, the rural, and the wild overlap and interfere with one another through interactions at once complementary, concurrent, and antagonistic.
>
> Our pluri-ecological universe is thus a universe where everything is organized according to innumerable interactions between physical, chemical, climatic, vegetable, animal, human, social, economic, technological, and ideological constituents.[14]

In resonance with Hegel's holistic view of the philosophy of Nature as the discipline which attempts to heal the division between Spirit and Nature, Morin's general ecology can in no way be opposed to the anthroposocial realm.

> It must be realized that societies, including, and especially, our own are geo-eco-bio-anthropological entities, and that eco-systems — including, and especially, those of our epoch — are equally anthropo-socio-ecosystems. There is no longer any "pure" nature, and there never was a "pure" society ....
>
> Thus, general ecology must encompass the anthropo-social dimension, just as anthropo-sociology must encompass the ecological dimension.[15]

Therefore, while ecosophy or the ecological paradigm is obviously eco- centric, the **Oikos** in question is one that both includes and (paradoxically) is included within the specifically human realm to which it has given birth. Those who persist in dichotomizing and polarizing human needs and biospheric ones in the name of ecosophy, are caught in an abstract, simplificatory, and fragmenting thought- modality which, despite good intentions, is counter productive to the wisdom to which they aspire. The thought-modality in question, as we have seen, Hegel refers to as "the understanding" (**Verstand**). In its blindness to the paradoxical or antinomial character of complex wholes, the understanding, "sticks to fixed determinations and their distinctions from one another; every such limited abstract it treats as having a substance and being of its own."[16]

Instead of the abstract and oppositional thinking of the understanding, ecosophical thinking must endeavour, as Morin puts it, "to re-member the mutilated, articulate the disjointed, and think the obscured."[17] Ecosophical thinking must, in short, be capable of "**enveloping the anti in the meta.**"[18] Such, in Hegel's terminology, is the virtue of "speculative reason" (**Vernunft**) which alone is able to apprehend "the unity of determinations in their opposition."[19] The transition from the understanding to speculative reason is mediated by the dialectic. In the dialectical process, critical reflection is doubled back on itself, so that a "self- sublation" (**Aufhebung**) of the "finite determinations" of the understanding takes place whereby they "pass into their opposites."[20]

While Morin has acknowledged his indebtedness to the speculative tradition inaugurated by Hegel, he takes issue with the idealistic framework to which the dialectic is subordinated. One sees this, for instance, in Hegel's sometimes oversystematic organization of the scientific data and theories of his day into the triadic pattern or rhythm of the dialectical process (and in his insistence on the "necessity" of transitional moments). One sees it also in his Platonic conception of the absolute "Idea" (rather than calling it the idea of the Absolute, or simply "the Whole") as the ultimate logical category. Morin, therefore, is quick to credit Hegel with having

> clearly recognized the existence of a principle of negativity which transforms all things ... into their opposites; but he placed this principle within the auto-development of Spirit, while what is required is that this principle be ecologized, which is to say the dialectic must itself be sublated in a **dialogic** ... that instigates the interaction, through the joining in a manner at once complementary, concurrent, and antagonistic, of two logics — auto- logic and eco-logic — that nevertheless share the same body.[21]

The dialogic, as Morin sees it, is more faithful than the dialectic to the irreducible complexity of the relation between Nature and Spirit. To avoid reductionism — whether of the idealist or materialist type — one must effect what might be described as a suspension of the synthetic closure of speculative reason. Personally, I am not convinced that such a suspension is substantially different from, or not already implied in, Hegel's notion of speculative reason, whose sublation, as Hegel never tires of telling us, both negates **and** preserves the moments involved. Nevertheless, it is true that, within the context of Hegel's absolutist systemic vision, the synthesis of the third term does tend to mute the dynamism of the dialectic through which it is generated. It is for this reason that Morin, despite his recognition of the need to "envelop the anti in the meta," stresses the supremacy of the dialogic which, as we have seen, he defines as "the symbiotic combination of two [or more] logics in a manner at once complementary ... **and** antagonistic."[22]

Because Morin rejects the possibility of absolute knowledge, there is no place, in his vision of the new science, for the kind of God-talk with which Hegel feels so comfortable. While Hegel is the first to admit the symbolic or metaphoric character of such talk — and indeed calls for its translation into the conceptual discourse of the Logic — Morin considers such terms as "God," "Reality," or "Idea" to be potentially mystifying "conceptual idols." Such terms are "reassuring because they pretend to illuminate." In fact, however, "they merely impede an approach to the inconceivable."

> Apart from a few thinkers — such as Heraclitus and Jakob Boehme — the Western cognitive tradition has taken on the mission of elucidating the obscure or the unknown, of resolving and finally dissolving it altogether. Contemporary reflection, on the contrary, must begin with the consciousness of the limits of knowledge, not so as to enclose itself within these limits, but in order to become a sentinel of the unknown and a satellite of the inconceivable.[23]

Unlike Hegel, who claims, through the speculative "negation of negation,"[24] to arrive at a positive grasp of the Absolute or the Whole as the identity-in-difference of Nature and Spirit, Morin refuses to step off the **via negativa**, preferring instead to abide with the ever-intuited but forever irreducible mystery. Morin does, however, speak of a generative "chaos"[25] as the creative ground out of which Nature and Spirit (or knowing) both emerge. In any case, and as I have argued previously, the positions of Hegel and Morin each call out to be dialectically or dialogically articulated around the principle of complex holism which informs them both. From the perspective of this common principle, each will be seen to have its specific, and equally vital contribution to make to the emerging ecosophical paradigm.

NOTES

1. Hegel, G.W.F., **Hegel's Philosophy of Nature** (Being Part Two of the Encyclopaedia of the philosophical Sciences: 1830). Translated by A.V. Miller. Oxford: Clarendon, 1970. Paragraph 337.
2. Ibid., par. 341, addition.
3. Ibid., par. 251.
4. Ibid., par. 249
5. Ibid., par. 246, addition.
6. The phrase is Paul Tillich's. See, for instance, his **Systematic Theology**, Vol. I. University of Chicago Press, 1951, pp. 11-12.
7. **Philosophy of Nature**. par. 247, addition.
8. Ibid.
9. Ibid.
10. See my "Hegel & Morin: the Science of Wisdom & the Wisdom of the New Science," in **The Owl of Minerva: Biannual-Journal of the Hegel Society of America**. Vol. 20, Number 1 (Fall 1988). pp. 5167.
11. Edgar Morin, **La Methode**, III i: **La Connaissance de la Connaissance**. Paris: Seuil, 1986, p. 19. All of the Morin translations are my own.
12. The French word conscience means both "consciousness" and "conscience."
13. Ibid., p. 91.
14. Ibid., p. 76.
15. Ibid., p. 77.
16. Process philosophers will immediately recognize this as "the fallacy of misplaced concreteness."
17. Morin, **La Methode, I: la Nature de la Nature**. Paris: Seuil, 1977, p. 23.
18. Morin, **Science avec Conscience**. Paris: Fayard, 1982, p. 317.
19. **Logic**, par. 82, p. 119.
20. Ibid., par. 81, p. 115.
21. **Methode**, II, p. 82. My emphasis.
22. **Science avec Conscience**, p. 287.
23. Morin, "Some Notes on the Dialogue between David Bohm and Sean Kelly (unpublished manuscript). The dialogue in question is "Science, Society, and the Generative Order" (forthcoming in **Zygon: Journal of Religion and Science**).
24. See my "Hegel & Morin: etc." (**op. cit**), p. 56.
25. See, for instance, **Methode**, I., p. 57.

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WHAT PROCESS PHILOSOPHY CAN CONTRIBUTE TO THE LAND ETHIC AND DEEP ECOLOGY

Susan Armstrong-Buck

> Rationalism is an adventure in the clarification of thought, progressive and never final. But it is an adventure in which even partial success has importance.
> Alfred North Whitehead **Process and Reality** (1929)

A Critique of Current Ecophilosophy Discussions of Intrinsic Value

The land ethic, as developed by J. Baird Callicott and Homes Rolston, III, and the deep ecology movement as described by Naess, W. Fox, Devall and Sessions, among others, are crucially important ways of approaching an environmental ethic. Yet, as vital and challenging as these approaches are, there are three areas in which they present difficulties: the intrinsic value of Nature, the relation of self to Nature, and the differences between wild and domestic animals. In some ways these difficulties are metaphysical, and can, it seems to me, be lessened with the aid of concepts derived from the process philosophy of Alfred North Whitehead.

In order for us to make good decisions regarding the environment, we need to be clear about what is valuable about the environment. Indeed, "this question...frames much of the debate in contemporary environmental ethics."[1] But before we can proceed, we have to deal with the lack of a common vocabulary. Discussions concerning natural value have often involved two different terms: "intrinsic value" and "inherent value," used in different senses by different authors. To give a few well-known examples, Rolston uses "intrinsic to mean natural value independent of human reference, whereas Callicott has sometimes used "intrinsic" in the sense of other-oriented values which are dependent on human values.[2] Regan uses "intrinsic" to refer to the value of experiences which an individual has, and prefers to use "inherent value" to refer to the worth of an individual, independent of its experiences.[3] Taylor uses "inherent worth," which he states is "essentially identical" to Regan's "inherent value."[4] And Devall and Sessions use the terms synonymously.[5]

It seems to me that we would be better off to consistently adopt the usage of Rolston, as have Callicott and others such as Zimmerman.[6] Etymologically, "intrinsic" carries the meaning of inward and inner, and therefore can be readily used to refer to the innermost actuality of a thing. "Inherent" means existing as an attribute, and "attribute" means to allot to.[7] Thus, it seems most straightforward to use "intrinsic value" to refer to objective value, the value a thing has in and of itself, and to use "inherent value" to refer to the value a thing has for human beings, when considered in and of itself.

Given this terminology, there are only two choices: either all natural value is non-intrinsic, or at least some natural value is intrinsic, that is, good in itself or good without qualification. Which position is correct depends upon whether "value" is only a relational term referring to states of mind, such as interests, desires, and experiences. Those who decide for a relational term will reject any metaphysical claim of intrinsic value.

But suppose we maintain that "value" is not only a relational term, but rather that it can also refer to a non-relational attribute. We might then draw on Kant's doctrine of the unconditional worth of a rational being, independent of the nature of its interests and desires. For example , Regan argues for the intrinsic value (definition above) of individuals who are subjects of a life, rather than basing intrinsic value of the experiences of those individuals.[8] Regan has expanded Kant's doctrine of rationality as a non-relational attribute which confers intrinsic value to include the notion of being-the-subject-of-a-life as the crucial non-relational attribute. The idea of intrinsic value as a non-relational attribute is also often thought to include the concept of self-sufficiency, as in Kant's jewel which shines by its own light.[9] In concert with this, Regan sees individuals with inherent worth as autonomous individuals whose claims are to be adjudicated according to principles of justice and minimization of harm.

Given the definitions above, we can now ask how some land ethicists and followers of the deep ecology movement answer the question of the status of natural value. Let us begin with J. Baird Callicott, a prominent exponent of the land ethic. He maintains that Nature has inherent value, evidenced in our experience of "bio-empathy."[10] Callicott develops an "expanded Humean account," according to which all value requires a valuer or consciousness. Since he does not acknowledge the possibility of nonhuman consciousness as a valuing consciousness, all natural value is "anthropogenic," that is, generated by our sentiments, by what human beings care about and are interested in. But not all values are based on selfish human feelings of interests: feelings can have different kinds of objects. The feelings which concern others are moral sentiments.[11] We can be disinterested; we can sacrifice our own interests in a compassionate empathy or concern for justice.[12] And these moral sentiments can be concerned with different domains (family ties, public life, interspecies relations, biosphere relations, etc.).

Callicott follows Hume in affirming that since moral sentiments are functions of a common human psychological structure, there are, as a matter of fact, invariant moral judgements based on "consensus of feeling." Darwin, according to Callicott, completes Hume's theory by explaining how "normal human psychological characteristics, including the moral sentiments, were fixed by natural (and perhaps by sexual) selection."[13]

Callicott has enriched his position in recent years by suggesting a "tree-ring" theory of values, in which we apprehend more inclusive obligations as we mature.[14] The inner obligations

(self, family, etc.) generally take precedence over more outer obligations (group, national, biospheric). This analogy is helpful because tree rings do not disappear but continue to exist as the tree grows outward, thus indicating that obligations at all levels continue to obtain. This is consistent with our intuition that having to override an obligation does not cancel it.[15] If I miss a luncheon date with a friend in order to help victims in a car accident, I still owe something to my friend: an explanation and another luncheon appointment, which I will most certainly keep, unless the sky falls in!

But the tree ring metaphor applies only to static relationships and also does not do enough to guide our decisions when interests in different "rings" conflict. Callicott does make it clear that he rejects a simplistic extension of our duties as members of the human community to our duties as members of the biotic community. He also recommends the respectful use of individual plants, animals, and even natural objects, offering the example of Native America peoples.[16] However, these recommendations are extremely general. In particular, the Amerind example raises more questions than it settles: How can we take a model of animals as "voluntary participants" in an economic exchange with tribal people and apply it to our current animal experimentation, factory farming, zoos, etc? Granted, Callicott does argue that ecocentric ethics mandates vegetarianism, at least with respect to animals and factory farming, but he does not address the many other exploitative uses of animals. Also, he insists that an adequate environmental ethic must "provide differential intrinsic value for wild and domestic animals and species."[17] But other than a reference in an earlier article to domestic animals as "human artifacts,"[18] he provides no argument why we must do so. He rather concludes that our obligations to humans "come first...they are not challenged or undermined by an ecocentric environmental ethic."[19]

While Callicott affirms the correctness of Hume's theory of morality as emotive, in an article published in 1985 he seems to want to escape from the limitation of locating all value in human sensibility.[20] He also refuses to saddle himself both with Hume's deadend metaphysical scepticism and with Leopold's uncritical use of the Cartesian dualism imbedded in modern science. Callicott has, therefore, developed an expanded view of self, based on quantum mechanics, and in the process seems to have aligned himself such ecophilosophers as Arne Naess, Bill Devall and George Sessions.[21]

Zimmerman shows that Callicott's view can be usefully separated into two different interpretations of quantum theory.[22] In the "more radical interpretation" Callicott maintains that Nature is constituted by "real, internal relations"[23] and Callicott cites Naess's idea of organisms as "knots in the biospherical net or field of intrinsic relations."[24] There is no separate "I" which opposes itself to Nature. He then proceeds to affirm that if the ego is intrinsically valuable (for which he does not argue), and if Nature is continuous with the self, then Nature is simply my extended ego, and hence is also intrinsically valuable.[25]

Followers of deep ecology such as Naess, Fox, Devall and Sessions, in a way, seem to agree with Callicott in affirming the idea of the self extended to identify with Nature (although not in the sense of "ego") which they base not only our personal experience, but find precedence for in various philosophic, literary and religious traditions. For example, Devall and Sessions state that "self-realization" is one of the two ultimate norms of their philosophical basis for deep ecology. (The other is ecocentric equality.)

> ...The deep ecology sense of self requires a further maturity and growth, an identification which goes beyond humanity to include the nonhuman world.... The "real work" can be summarized symbolically as the realization of "self-in Self": where "Self" stands for organic wholeness.[26]

The emphasis on Self-realization as one possible basis for the deep ecology movement has given rise to controversy over the meaning of "self" in this context. There are several issues which need separate consideration.

First, Warwick Fox has recently argued that "Self-realization" can be interpreted either in a direction of a claim of intrinsic value theory (an axiological approach), or in a direction of "identification," (a "psychological-cosmological" approach leading to the awareness that all life is one), and that the latter direction is characteristic of deep ecological philosophers such as Naess, Sessions and Devall. Fox goes on to argue that the intrinsic value theory (axiological approach) "serves to reinforce a narrow, atomistic, particle-like sense of self."[27] However, this is not true of process philosophy.

Second, what are the dangers, if any, of affirming such a process of extending sense of self identification? Feminist thinkers have argued that such an inclusive self, if restricted to ego merely tries to absorb, control and contain Nature. The self engulfs Nature in an attempt to overcome it, without risking encounter with a real other: the "subtext is one of domination and control."[28] Also, Peter Reed has argued that the primary experience of Nature is one of respect and awe due to the unbridgeable "otherness" we experience. Anything we can relate to as a Thou has intrinsic value, and the recognition of intrinsic value brings with it an obligation to respect that value.[29]

Naess has replied to Reed by first disavowing the requirement that Self-realization ("Ecosophy T") be accepted by all followers of deep ecology. He then goes on to stress the difference between what he calls the "technical sense" of "identification" as a process in which I spontaneously react to the interests of another as my own interests and the more everyday sense of identification as involving resemblance.[30] He maintains that identification with Nature in the technical sense will continue to be a major focus for many followers of deep ecology. Naess argues that the inclusive Self of his ecosophy T overcomes the old egotistic-altruistic debate, because "Care flows naturally if the "Self" is widened and deepened so that protection of free Nature is felt and conceived as protection of ourselves..."[31]. Would that this were so simple! Even (especially) with our children, we confront our own shadows, our desires for power, our fears and inadequacies. We are limited selves, whose desires can conflict even with the desires of those we love most dearly. To achieve the enlarged sense of Self, Naess talks of, seems almost superhuman or at least saintly.

Holmes Rolston III's subtle and carefully worked out account of intrinsic value is importantly different from Callicott's inherent value and Arne Naess's Self-realization in Ecosophy-T. Rolston writes of "wild value," value not bestowed by human beings but found in a complex, interrelated natural world.[32] At the risk of imposing a misleading structure on his views, we can distinguish several aspects to his understanding of natural value.[33] First, Nature is valuable in its own right as "organic problem-solving."[34] Value is basically the making of form.

Form-making always has a history; it is "storied achievement," achievement with a past.[35] Second, intrinsic value is what "makes a favourable difference to an organism's life. As spontaneous natural systems, organisms are "vital gestalts," owning their lives.[36] Third, "systemic value" makes a favourable difference to an ecosystem. Intrinsic and instrumental value are inseparable in an ecosystem: organisms as individual centers are each of intrinsic value, but an organism can provide instrumental value to another organism, as in being eaten. Fourth, Nature is valuable as our source. Since we find our own existence to be of value, we can readily see that the source of our existence is the source of value too. To value only ourselves would be to appreciate only the fruit and not the plant, only the last chapter and not "the whole story."[37] Fifth, value is "worthwhile experience," which can be had by animals as well as by human beings. Conscious experience can provide a novel "value bonus" to the other kinds of value, and self-conscious experience an even greater bonus.

Yet, however ground-breaking Rolston's account of natural value, he does not fully succeed in relating various kinds of values. In fact, in a sense values do not conflict for Rolston because, as Carlson points out in commenting on **Philosophy Gone Wild**, Rolston understands values primarily in either aesthetic or scientific terms, at least in the essays in that collection.[38] Rolston seems to affirm that things are good as they are. We are thus left without any place for moral values. Yet aesthetic value is certainly not identical with moral value, since, for example, the latter involves notions of obligation and references to past and future. This elimination of moral value in Nature does not seem to worry Carlson, since he thinks that aesthetic experience provides an adequate sense of obligation for practical purposes.

In his book **Environmental Ethics** Rolston strives to bring clarity to environmental decision making by distinguishing between our memberships in the natural and the cultural communities.[39] Unfortunately, several of his judgement calls are unconvincing because the distinctions between natural and cultural communities are difficult to spell out. For example, Wenz points out that while eating is undeniably natural, eating is also undeniably cultural; thus domesticating and eating animals cannot be understood, as Rolston would have us do, as simply doing what other animals do.[40] According to Rolston, domesticated animals are "cultural artifacts" which have no ecological niche, and yet they can still suffer. He applies to them the general principle that domestic animal suffering should not exceed that found in Nature. He also states that there is no indignity in such domestication.[41] Here, it seems to me, Callicott sees something that Rolston misses. There is something very important about the non-tame, both ecologically and psychologically. We respect the wildness of animals, particularly large predators such as grizzlies and mountain lions, who might conceivably eat us, but we also respect innocuous wild animals, simply for their resourceful independence of us.

Throughout his work Rolston stresses the overriding value of the "productive process" itself: the creative evolutionary advance provides "the invitation to value;" it is a "lure that elaborates higher values."[42] He also states that intrinsic value is present through the process, even in rocks. Yet as Attfield notes in his review of **Environmental Ethics**, Rolston tends to assert rather than argue for these views.[43] Key phrases such as "not being pointless" and "showing appropriate respect" need to be spelled out.

It is time to summarize the points we have made in this critique of these major approaches to environmental philosophy. I shall do so under three main categories:

1. There is a **lack of a coherent doctrine of intrinsic natural value**. Callicott's attribution of inherent value to Nature does not fully account for our sense of intrinsic value **in** Nature. There is something limited, something unavoidably anthropocentric in any theory which grounds natural value only in human sensibility. I do not think that we should settle for only inherent natural value, however broadened, unless we are convinced that there is no way to make sense of a theory of intrinsic natural value. Even Darwin did not restrict himself to human valuers.[44]

While Rolston offers a doctrine of intrinsic natural value, its metaphysical ground is unclear. The presence of intrinsic value in inorganic entities and the attribution of immanent purposiveness to the whole of natural processes go unexplained. And without a metaphysical justification, the place of moral values in Nature is insufficiently delineated: The contrast of "natural" and "cultural" fails to provide adequate grounds for moral guidance.

2. There is an **inadequate justification for differing treatment of wild and domestic animals**.

3. There is an **inadequate formulation of the relationship of the self to Nature**. Naess's concept of extension of self identification to include Nature does not make sufficiently clear the differences between autonomous individual organisms, which are ineluctably other. We cannot ignore our experiences of freedom, self- determination, and tragedy, as well as our tendency to be entangled in our projections of good or evil. Moreover, there are profound uncertainties regarding our self-identifications. A number of feminist writers have convincingly demonstrated that Nature has been the screen upon which human (and predominantly female) aspects of self have been projected.[45]

The Contributions to Process Philosophy

Process philosophy has something to offer in connection with the difficulties just outlined, partly just because it provides a carefully worked-out metaphysical system, and partly because that metaphysical system is a "philosophy of organism." It is not of course possible in this essay to present Whitehead's metaphysical system; only a few particularly germane aspects of it will be highlighted.[46]

1. **A metaphysical system can bring order and clarity to our experience**. Metaphysical systems attempt to formulate the basic structures of what is real. They satisfy our need for coherence as we struggle to interpret our lives.[47] Metaphysical systems offer the possibility of going deeper than common sense or the collective varieties of mass consciousness. What is exciting about metaphysics is that we can find some order in the confusing scene which is human experience in general, as well as in our little temporary part of it.

Whitehead's approach combines the grand manner of doing metaphysics — the sublime faith shared with Plato, Aristotle,

Descartes, Kant, Hegel, and many others, that human reason can apprehend something of reality — with the empiricism that insists that the "prime requisite" of a metaphysical system is its applicability to the actual world.[48] And Whitehead understand that such a system is always a tale spun by a finite being from its own finite perspective, so that in a strict sense all metaphysical systems are incomplete: They are not pronouncements of a godlike reason, but rather, adventures of the imagination.

2. **According to process metaphysics, things are not substances, but events, "actual occasions" or "concrescences."** Things are ultimately "actual occasions" for Whitehead, "the final real things of which the world is made up...drops of experiences, complex and interdependent."[49] The world is a creative advance constituted by the coming into being of actual occasions, each of which lasts approximately one-half second. Whitehead derived the idea of actual occasions from two sources: that of our immediate experience of the ongoing integration of the contents of our awareness into one conscious center, and the idea of a quantum of energy in physics.[50]

3. **Each thing has intrinsic value because it is self-significant.** Each actual occasion unifies the many things in the world in its own way. Whitehead terms this ultimate principle "creativity." Because an actual occasion is different from any one of the many it unifies, each actual occasion is a novel entity, and hence contributes an irreplaceable achievement to the evolving universe. An actual occasion's own way of unifying the many is its pattern, its "subjective aim." Its subjective aim originates from an "initial aim" supplied by the "primordial nature of God," Whitehead's phrase for the fact that possibilities for actualization are organized and available to each emerging actual occasion. God is the Lure to novelty and intensity of feeling, the "Poet of the World." This doctrine of God's purposive immanence resonates with Rolston's sense that the creative evolutionary process has a point to it.

Actual occasions are subjects: Each actual occasion has an inwardness, a subjectivity, an experience of itself as a self-creating process. Whitehead uses "experience" in a broad sense as a "taking account of the world." Because actual occasions are constituted by their "prehensions" or feelings of the world, they are said to experience their world, whether they are conscious or not. Because actual occasions experience their self-creation, they have intrinsic value. Here Whitehead agrees with Callicott (and Hume) that there is no value without experience, but Whitehead differs in according experience to **all** actual occasions, including those making up subatomic particles and events. Moreover, Rolston's assertion that rocks have intrinsic value can be understood by means of Whitehead's doctrine of rocks as aggregates of actual occasions. Everything is intrinsically valuable in three respects: Each actual occasion enjoys its own experience, its achievements are taken up by others, and they also contribute to the entire actual world by means of the "consequent nature of God." (see below)

4. **Each thing is internally related to everything else.** According to Whitehead's metaphysical system, each actual occasion is constituted by its unification of the world from its own unique perspective. As it comes into being, the actual occasion receives its initial aim from God, which guides the way it prehends (feels) the givenness of the world. A thing **is** the unification of its feelings of the world, and these feelings are both mental and physical. Mental (conceptual) feelings concern universals, "eternal objects," possibilities, and physical feelings concern the objectified actual occasion. All actual occasions experience both kinds of feelings and thus all actual occasions have a "mental" and "physical" pole. The feelings of an actual occasion are **objective** aspects of the world. Thus, Whitehead does not have to choose between doctrines of intrinsic value as relational or non- relational, between limiting value to states of mind (inherent value) vs. finding it in non-relational individual attributes which seem impossible to specify non-arbitrarily.[51] Intrinsic value is fully relational but also fully objective. Whitehead's process metaphysics also allows him to escape the problem stated by Eric Katz, who makes things hard for himself by stipulating that "an entity valued intrinsically requires no relations with any other entities."[52] Weston makes the same mistake in his dismissal of the notion of intrinsic value.[53]

5. **Each thing is a subject, freely creating itself.** Theories concerning the relationship between things have tended either toward the discredited, isolated Cartesian ego, or toward the dissolution of the individual in a massive pudding, in which we are all one. Process philosophy recasts this polarity such that each thing is a whole, something in itself, freely self-determining to a degree, and at the same time internally related to its actual world. The actual occasion has its subjective aim, which is how **it** feels its data.

Whitehead has three doctrines which guarantee the individuality and freedom of an actual occasion. First, an actual occasion can feel its world positively or negatively. Each actual occasion is a decision involving exclusion, limitation. Individuality requires negation: being something means not being everything. Second, the actual occasion reaches a complete closure; it "perishes" when it achieves a unification of data in its "satisfaction." The satisfaction is the final phase in the process of concrescence, and is one complex, fully determinate feeling. The concrescence "takes" about one-half second (a duration Whitehead derived from the time it takes the brain to know what it is thinking). The actual occasion is then "objectified" by the actual occasions which follow it, and constitutes irrefutable data, stubborn fact, for them. The satisfaction (also termed "superject") is its individual contribution to the world, but its subjective experience is private and cannot be experienced by another. Third, an actual occasion cannot prehend (feel) its contemporaries, those actual occasions which are forming themselves simultaneously with it, because they too are in process: there is nothing about them to be objectified or felt. This doctrine allows the actual occasion to attain its satisfaction in freedom.

6. **Things differ in intrinsic value.** For Whitehead things are processes of unification of feelings, issuing in the satisfaction. These feelings are feelings of the actual worlds (environments) of the actual occasions. Environments differ, and thus actual occasions differ. The satisfactions attained by actual occasions differ in the intensity of feelings, the complexity of feelings, and the novelty and harmony of feelings which are integrated.[54] What makes actual worlds (and hence satisfactions) different is the organization operating in that actual world. Whitehead spends a great deal of time discussing the various kinds of organization by means of his doctrines of "nexus" and "societies." According to him, the differences we observe be-

tween living and nonliving, plants and animals, and animals and human beings, are all due to differences in the organization of the constituent actual occasions of each entity. For example, "the molecules within an animal body exhibit certain peculiarities of behaviour not to be detected outside an animal body."[55] The diverse mode of organization allows a varying internal complexity of the actual occasion. Whitehead is thus able both to exhibit the continuity between different kinds of things, as well as the differences in their experience.

Whitehead interprets this difference in experience as a difference in intrinsic value because for him there is an immanent purposiveness in Nature, which he describes as the primordial nature of God. God desires there to be as much novelty, harmony, intensity of feeling, and complexity in the experience of an actual occasion as possible. The primordial nature of God lures the nascent actual occasion to incorporate the best possible initial aim for its self-creating process, and, when the actual occasion has perished, the consequent nature of God preserves and harmonizes its satisfaction with everything else, so that nothing is lost. This ongoing, everlasting synthesis is God as the "great companion" and the "fellow-sufferer who understands."

Using this doctrine of intrinsic value we can see that being moral means to preserve and promote the intrinsic value found in our own experience and in the experience of all entities within our influence. In addition, we have a greater obligation toward entities with more intrinsic value, that is, entities which are capable of more significant experience. Our obligations apply to all entities and incorporate both the intensity of that entity's own experience and its contribution to the intensity of experience of other members of the ecosystem in question (Rolson's "systemic value").

7. **Differences in Satisfactions explain the differences between wild and domestic animals**. Callicott challenges environmental ethicists to account for our intuition that wild and domestic animals have different intrinsic value.[56] Rollin argues convincingly against such a blanket difference.[57] But what intuitive difference we do feel can be accounted for by considering how the satisfactions of actual occasions would differ in different environments. An animal is an almost unimaginably complex "society" of societies of actual occasions, culminating in a "dominant occasion" or psyche. The actual world of that dominant occasion, beyond that of the societies making up the animal's bodily experience, includes animal, plant and nonliving societies. In a rich and challenging actual world, such as that of wilderness, the dominant occasion will be one of rich and intense feelings. To the extent that the actual world of a domestic animal is impoverished, **it** is impoverished.[58] There **is** an indignity in its one-sided dependence on us and particularly in its subordination to our desires. But the domestic animal never becomes machine-like. The occasions constituting a machine would lack significant novelty of feeling.

Genetically engineered animals are extreme cases of domestication. However, these animals do not necessarily differ in their experience of the world from non-genetically engineered animals. In fact, from the animal's point of view such engineering may be desirable if it reduces suffering.[59] A third category of "companion animal" is also needed, because many such animals have rich opportunities for experience, although of a different type than that provided by being wild or raised for food, and perhaps one which offers an opportunity for more individuality. There is a **mutuality** in our relationship with companion animals which provides a kind of dignity.

However, despite the above, I agree with Callicott concerning the great significance of the natural. The natural is allied with the nonhuman other, the unconscious, with that which is beyond the "cramp of consciousness," to use Jung's phrase. There is something distinctly nightmarish in the vision of a domesticated planet, with no place for weeds, wild thoughts, wild lovers, or unpredictable rebellions.[60]

Conclusion

In summary, according to process philosophy:

First, Nature is intrinsically valuable, but how that value is felt depends on the feeler. There are degrees of intrinsic value, corresponding to differences in richness or experience.

Second, the human self or psyche is a society of societies, an integration of the experience of subordinate actual occasions constituting the human organism as well as its environment. The psyche is both internally related to everything else and a distinct entity, free and self-determining to a degree.

Third, wild and domestic animals differ in value not across the board, but according to the experiences issuing from their actual worlds.

Unfortunately, process philosophy does not have all the answers. Whitehead was a logician and mathematician and interested in physics. His language is often abstract and difficult. More seriously, it is difficult to account for the unity of an organism (at the level of animal or plant) given his ultimate atomism.[61] But perhaps enough has been said to indicate that process philosophy offers a profound vision of the "creative advance" of the Cosmos, in which we are privileged to participate.

NOTES

1. Anthony Weston, "Beyond Intrinsic Value: Pragmatism in Environmental Ethics," **Environmental Ethics** 7.4 (Winter 1985): 321-339.
2. J. Baird Callicott, "Non-Anthropocentric Value Theory and Environmental Ethics," **American Philosophical Quarterly** 21.4 (October 1984): 299-309.
3. Tom Regan, **The Case for Animal Rights** (Berkeley and Los Angeles: University of Calif. Press, 1983), p. 235.
4. P.W. Taylor, **Respect for Nature: A Theory of Environmental Ethics** (Princeton: Princeton University Press, 1986), pp. 71-75.
5. Bill Devall and George Sessions, **Deep Ecology: Living as if Nature Mattered** (Salt Lake City: Gibbs M. Smith, Inc., 1985), p. 70.
6. Michael E. Zimmerman, "Quantum Theory, Intrinsic Value, and Panentheism," **Environmental Ethics** 10.1 (Spring 1988): 3-30; and J. Baird Callicott, "Intrinsic Value, Quantum Theory and Environmental Ethics," **Environmental Ethics** 7.3 (Fall 1985): 257-275, esp. p. 262.
7. **Concise Oxford Dictionary of English Etymology**, ed. T.F. Hoad (Oxford: Clarendon Press, 1986).
8. Regan, **op. cit.**, pp. 205-11; 235-239.
9. Immanuel Kant, **Fundamental Principles of the Metaphysics of Morals**, trans. Thomas Abbott (Indianapolis: Bobbs Merrill, 1949), p. 12.
10. J. Baird Callicott, "Non-Anthropocentric Value Theory," **op. cit.**, and "On the Intrinsic Value of Nonhuman Species," in **The Preservation of Species: The Value of Biological Diversity** (Princeton: Princeton University Press, 1986), pp. 138-172.
11. I disagree with Callicott's position that "moral sentiments are, by definition, other-oriented." (**ibid**, p. 305). It seems to me we can be genuinely concerned with our own moral growth, our own future, etc.
12. See the important work **The Altruistic Personality: Rescuers of Jews in Nazi Europe**, by Samuel P. Oliner and Pearl M. Oliner (New York: Free Press, 1988).
13. Callicott, "On the Intrinsic Value," **op. cit.**, p. 162.

14. J. Baird Callicott, "In Search of an Environmental Ethic," in **Matters of Life and Death**, ed. Tom Regan (New York: Random House, 1986), pp. 381-423; and "The Conceptual Foundations of the Land Ethic," in **In Defense of the Land Ethic: Essays in Environmental Philosophy** by J. Baird Callicott (Albany: State University of New York Press, 1989), pp. 186-217.
15. See W.D. Ross, **The Right and the Good** (Oxford: Clarendon Press, 1955), esp. pp. 18-36.
16. Callicott, "Conceptual Foundations," **op. cit.**, pp. 208-9 and "In Search of an Environmental Ethic," **op. cit.**, pp. 412-417.
17. "Callicott, Non-Anthropocentric Value Theory," **op. cit.**, p. 420.
18. "Animal Liberation: Animal Liberation: A Triangular Affair," **Environmental Ethics** 2.3 (Winter 1980): 311-338.
19. Callicott, "In Search of an Environmental Ethic," **op. cit.**, p. 420.
20. J. Baird Callicott, "Intrinsic Value, Quantum Theory." **op. cit.**
21. Callicott, **Ibid.**, p. 271.
22. Zimmerman, **op. cit**.
23. **Ibid.**, p. 273.
24. Arne Naess, "The Shallow and the Deep, Long-Range Ecology Movement," **Inquiry** 16 (1973): 95.
25. Callicott, "Intrinsic Value, Quantum Theory," **op. cit.**, p. 275.
26. Devall and Sessions, **op. cit.**, p. 67.
27. Warwick Fox, "On the Interpretation of Naess's Central Term 'Self-Realization'", **The Trumpeter** 7.2 (Spring 1990): 98-101. I regret that I have not yet obtained a copy of his new book **Toward a Transpersonal Ecology**, (Shambhala, Boston, 1990) in which this argument is worked out.
28. Jim Cheney, "The Neo-Stoicism of Radical Environmentalism," **Environmental Ethics** 11 (1989): 293-325. Unfortunately, Cheney does not simply attack "ecosophy T" **simpliciter**: he also denounces the doing of metaphysics as equivalent to seeking an "authoritarian impersonal truth...a safe, insulated, alienated" alternative to experience itself (p. 311). Here Cheney's protest seems misdirected. It is one thing to object to an intellectual project as "totalizing" or "salvational" (although what is self-evidently objectionable about such goals?), and quite another to identify such a project with metaphysical inquiry.
29. Peter Reed, "Man Apart: An Alternative to the Self- Realization Approach," **Environmental Ethics** 11.1 (Spring 1989): 53-69.
30. Arne Naess, "**Man Apart** and Deep Ecology: A Reply to Reed," **Environmental Ethics** 11.2 (Summer 1990): 185-192.
31. Arne Naess, "Self-Realization: On Ecological Approach to Being in the World," **The Trumpeter** 4.3: pp. 35-42.
32. Holmes Rolston, III, "Values Gone Wild," in **Philosophy Gone Wild** (Buffalo: Prometheus Press, 1989), pp. 118-142.
33. See Allen Carlson's perceptive review of Rolston's book in **Environmental Ethics** 8.8 (Spring 1986): 163-177.
34. Rolson, **op. cit.**, p. 126.
35. **Ibid.**, p. 138.
36. Rolston, **Environmental Ethics** (Philadelphia: Temple University Press, 1988), pp. 98-100.
37. Rolston, **Philosophy Gone Wild**, **op. cit.**, pp. 121-3; **Environmental Ethics**, **op.cit.**, pp. 186-88.
38. Carlson, **op. cit.**, pp. 175-6.
39. See also Rolston, "Treating Animals Naturally?" **Between the Species** 5.1 (Winter 1989): 1-10.
40. Peter S. Wenz, "Treating Animals Naturally," **Between the Species** 5.1 (Winter 1989): 1-10.
41. **Ibid.**, p. 83.
42. **Ibid.**, p. 221.
43. Robin Attfield, in **Environmental Ethics** 11.4 (Winter 1989): 363-68.
44. Charles Darwin, **The Origin of Species and the Descent of Man** (New York: Modern Library, undated), pp. 445-460.
45. To name one fine work, see Carolyn Merchant's **The Death of Nature: Women, Ecology, and the Scientific Revolution** (San Francisco: Harper and Row, 1980), esp. chap. 1.
46. For a somewhat fuller discussion of Whitehead's system, see Susan Armstrong-Buck "Whitehead's Metaphysical System as a Foundation for Environmental Ethics," **Environmental Ethics** 8.3 (Fall 1986): 241-259. Also see Charles Birch and John B. Cobb, Jr., **The Liberation of Life: From the Cell to the Community** (Cambridge: Cambridge University Press, 1981), esp. chaps. 4 and 5; Jay B. McDaniel, **Of God and Pelicans: A Theology of Reverence for Life** (Louisville: Westminster Press, 1989); and Daniel A. Dombrowski, **Hartshorne and the Metaphysics of Animal Rights** (Albany: State University of New York Press, 1988).
47. Callicott has recently protested against Christopher Stone's recommendation that we abandon the search for a "monistic" ethics adequate to all of our experience: "The Case Against Moral Pluralism," **Environmental Ethics** 12.2 (Summer 1990): 99-124.
48. Alfred North Whitehead, **Process and Reality: An Essay in Cosmology**, ed. David R. Griffin and Donale W. Sherburne (New York: Free Press, 1978), p. 5.
49. **Ibid.**, pp. 8-9.
50. Whitehead, **Modes of Thought** (New York: Free Press, 1968), p. 89, and **Science and the Modern World** (New York: Macmillan, 1948), pp. 195-98.
51. Naess makes the same point in an opposite way when he says that subject-object dualism is essential for value subjectivism. ("Identification," **op. cit.**, p. 268).
52. Eric Katz, "Searching for Intrinsic Value: Pragmatism and Despair in Environmental Ethics," **Environmental Ethics** 9.3 (Fall 1987): 231-241, p. 249.
53. Weston, **op. cit**.
54. Both Regan and Taylor refuse to acknowledge degrees of intrinsic value. Taylor bases his theory on **telos**, on each thing having its own good. Thus he argues that plants, animals and human beings have equal intrinsic value (our definition). But he does not discuss what having its own good would mean for different kinds of things. **Respect for Nature**, op. cit. In her appraisal of Regan's theory, Russow argues for the incorporation of differing values for different individuals in a way very similar to that of Whitehead. Lily-Marlene Russow, "Regan on Inherent Value," **Between the Species** 4.1 (Winter 1988): 46-54.
55. **Process and Reality, op. cit.**, p. 106.
56. J. Baird Callicott, "Non-Anthropocentric Value Theory," **op. cit.**, p. 304.
57. See Bernard E. Rollin, **The Unheeded Cry** (Oxford: Oxford University Press, 1990), pp. 256-259.
58. Shapiro develops a similar idea from a non-Whiteheadian starting point in his "The Death of the Animal: Ontological Vulnerability," **Between the Species** 5.4 (Fall 1989): 183-194. He argues that an animal's **telos** (species identity) is so tied up with habitat that in cases of boredom in captivity the animal loses its species **telos** and become "generic," and no longer has interests. We have harmed the animal in a fundamental way.
59. See Bernard E. Rollin, "On **Telos** and Genetic Manipulation," **Between the Species** 2.2 (Spring 1986): 88-89; and Evelyn Pluhar, "On the Genetic Manipulation of Animals," **Between the Species** 1.3 (Spring 1985): 13-18.
60. See John Rodman, "The Liberation of Nature?" **Inquiry** 20 (Spring 1977): 83-145. "Wild lover" is Tom Birch's phrase in Cheney, **op. cit.**, p. 313.
61. See S.B. Armstrong, **The Rights of Nonhuman Beings; A Whiteheadian Study**, Ph.D. diss., Bryn Mawr College (Ann Arbor, Mich.: University Microfilms, 1976), chap. 2.

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ENVIRONMENTAL ETHICS AND PROCESS PHILOSOPHY

Arran Gare

Attempting to develop environmental ethics raises the question of what is ethics? What is the point of ethics? Is it simply the effort to discriminate right from wrong, good from bad? Or should it also provide the motivation to act and reveal how to act effectively? Should it evaluate individual actions only, or should it be concerned with what is the good life? Should it be concerned only with individuals, or should it be the basis for evaluating institutions, organizations and artifacts? In my view ethics should do all these things, and for this reason, if environmental problems are ever to be addressed effectively, it will be necessary to develop an environmental ethic on the basis of process philosophy.

In his effort to reveal the roots of the ecological crisis, Lynn White Jr. argued that:

> The artifacts of a society, including its political, social and economic patterns, are shaped primarily by what the mass of individuals in that society believe, at the sub-verbal level, about who they are, about their relation to other people and to the natural environment, and about their destiny.[1]

If this is the case then clearly most of the work of ethical philosophers has been misdirected. It has not addressed basic beliefs about who we are, what is our relation to other people and the environment, and about what is our destiny, but has worked within a particular framework of beliefs, at best spelling out their implications. For the most part, this has involved assuming that people are egoists, and that moral philosophy is ultimately concerned with the common good and with providing reasons why individuals should constrain their egoism to accord with the common good.

This failure of ethics is not surprising, since part of the system of beliefs which dominate the world involves the acceptance of a disjunction between science, concerned with how the world is, and ethics, concerned with how we should act — with aesthetics being a grab-bag of the humanly significant phenomena left over. It is this disjunction which has created the crisis in ethics identified by Alisdair MacIntyre in **After Virtue**, a crisis in which "we have — very largely, if not entirely — lost our comprehension, both theoretical and practical, of morality."[2] As MacIntyre correctly pointed out, the failure of modern ethics is the failure of the Enlightenment project of reestablishing ethics in the wake of the destruction of the medieval cosmology by the mechanical world-view purveyed by science.

What makes environmental philosophy (along with feminism) so intellectually significant is that this underlying system of beliefs has been brought into question. However, in striving to question and replace the basic beliefs which dominate society, environmental philosophers have called upon diverse authorities: physicists, logicians, Buddhists, Spinoza, Castaneda, Heidegger, Alan Ginsburg, Whitehead and Hegel among others. Whitehead and Hegel represent the tradition of process philosophy.

The active tradition within metaphysics to refine and defend the categories of process philosophy has been a sustained one. Ivor Leclerc's work is exemplary in this regard. A process view of the world has underlain much of the anti-mechanistic tradition in the human sciences, with the symbolic interactionists having been inspired by George Herbert Mead, a process philosopher. Now process philosophy is providing an alternative grand research programme in the natural sciences. As Ilya Prigogine, the 1977 Nobel laureate in Chemistry, argued:

> [W]e are in a period of scientific revolution — one in which the very position and meaning of the scientific approach are undergoing reappraisal — a period not unlike the birth of the scientific approach in ancient Greece or of its renaissance in the time of Galileo.[3]

This revolution involves acceptance of the primacy of becoming over being, of the irreducibility of complexity, and that we, as conscious agents investigating the world, are part of the world. This is the essence of the process view of the world.

With such a revolution in science, what is astonishing is the extent to which the structure of ideas which crystallized around the acceptance of the mechanistic view of Nature has sustained itself. Part of the reason for this is that academic life has evolved in such a way that the sort of thinking engaged in by the major philosophers of the past, is no longer acknowledged to be a valid enterprise. In the seventeenth century Hobbes elaborated a new conception of humanity and its place in the world in terms of the new mechanical world-view, or rather, world-orientation, and rethought ethics and political philosophy accordingly. Hobbes' conception of humanity is now incorporated by society and people, and is constitutive of social relations in the modern world. Academics now reinterpret Hobbes, but do not consider the possibility of doing what Hobbes did. What is required at present is a total rethinking of all aspects of what it is to be human and of humanity's place in the world in terms of the new conception of Nature, and the discovery of a path to transform society by incorporating the new conception of humanity into social, political and economic relations.

To begin such a task it is first necessary to describe in very simple terms what a process view of the world is. Metaphysical systems are based on a coordinating analogy of metaphor, and the analogy most called upon by process philosophers is that of music. The world is understood not as a collection of objects located in space and changing their position over time, but as a durational process of creative becoming consisting of a multiplicity of self-ordering patterns of activity or processes in various relationships to each other — independent, mutually dependent, hierarchical and so on. These processes emerge to attain a limited autonomy from the conditions of their existence, and

then either through immanent causation or through the undermining of their conditions of existence, perish. So, as Frederick Engels wrote,

> ...the whole of nature, from the smallest element to the greatest, from grains of sand to suns, from Protista to man, has its existence in eternal coming into being and passing away. In ceaseless flux, in unresting motion and change.[4]

What we generally take to be objects are really ordered patterns of potentialities or structures: to continue in existence, to resist penetration an deformation, to reflect or deflect light, and so on, which are maintained by processes. Space and time are not the containers of processes but emerge or become with the ordering of activity as the order of potentialities of processes for independence and interaction.

Living organisms can then be conceived of as processes which not only reproduce themselves but have the capacity to assume their own significance, to define their environments in terms of themselves and their needs, and to act accordingly. This allows organisms to be conceived of as subjects, at least in germinal form, and their environments as their worlds, with there being as many worlds as there are organisms. However, organisms do not occur in isolation. Life on Earth can be conceived of as a multiplicity of self-regulating ecosystems, ranging from the world ecosystem, which maintains the conditions for life on Earth, to the interdependence of a few species of organisms in a small community.

Humanity can then be seen as a creative or destructive participant in the world ecosystem. Using the categories of process philosophy, humans can be conceived of as essentially social and cultural as well as biological, with human organisms becoming self-conscious subjects by appropriating a cultural heritage through their relations to other people. On such an account, people are not only moved by appetites and aversions. They are struggling to become human by trying to make sense of or to understand the world, to gain recognition and thereby an identity, and to gain control over the conditions of their lives. Societies can then be represented as consisting of multiplicities of mutually dependent, partially autonomous structures generated and continually reproduced by the struggle for these ends, such structures being the pre-existent conditions for individuals to pursue these ends, while constraining the way in which these ends can be pursued. These structures can then be seen to facilitate the emergence of processes, ranging from small groups to socio- economic formations, with dynamics beyond people's intentions, which then further constrain people's consciousness and behaviour. But since people can be conceived of as emergent processes, as capable of critically reflecting on their cultural heritage and then acting on the basis of this, they can be conceived of as being able to attain some degree of autonomy from these conditions of their existence. Individuals must then be seen as to some extent self-creating, and in creating themselves as participating in the process of creative becoming of their society, of humanity and Nature.

Conceived of in such terms, humanity, as part of and within the world, is one of the processes through which the world is attaining consciousness of itself, its significance and potentialities. The goal of inquiry should be seen as understanding, a mode of being in the world by which the world becomes intelligible. It is the way we are meaningfully situated in our world through our bodily interactions, our cultural institutions, our linguistic tradition, and our historical context. The aim of science should be to deepen understanding, to facilitate seeing things in broader perspective, while simultaneously appreciating more fully the uniqueness of each individual. There is no reason why the development of understanding so conceived should not lead to an appreciation of meaning in the world, and to an appreciation of the relative significance of its different participants.[5] And it is impossible to understand beings as processes of becoming without appreciating their intrinsic value. From the "universe of death," as Coleridge described the world of mechanistic science, to a science based on process philosophy that leads closer to the experience expressed by Wordsworth in which:

> ... all
> That I behold respired with inward meaning.

Individuals, being like melodies singing themselves within a symphony, make a contribution in society, to humanity and to Nature, which remains as part of the becoming of these after they have ceased to exist as active individuals. Developing their understanding is participating in the creative becoming of the world, and the way the world comes to be understood then orients them for action in relation to this becoming. This involves the appropriation, use and development of concepts which become part of social reality by mediating their interactions with each other, with society and with the rest of Nature. So with each thought and action people are creating themselves and participating in the creation of their community and of the world: and the lives they lead are an indelible contribution to becoming of the world. The basic ethical question confronted by each individual is: What contribution to the world are they to make?

In considering this question it is necessary to dispense with the trifurcation between knowledge, ethics and aesthetics and to reorient thinking about means and ends. It has been noted by Nietzsche that it is the tendency to posit the value of an action, character or existence to the purpose for which it has acted or lived.[6] The final result is that everything is reduced to a means for an end, which being put further and further off, finally evaporates, leaving the world to appear meaningless. This is the ultimate nihilistic consequence of the belief in 'progress'. In terms of process philosophy, it is impossible to conceive of anything in the becoming of the world as merely a means; but on the other hand there is no need to reject the notion of an ultimate end. The ultimate end is the whole duration of the becoming of the world in which every individual, every activity and action is of significance in itself, including anything which is taken as a means to some further end — just as each note is of significance in itself in a symphony.

The ideal of ordering everything into simple means-ends relations in such a world must also be rejected. Participating in a process of creative becoming, the world cannot be totally controlled by people. Rather, it is necessary for people to think in terms of the intrinsic significances of actions and at the same time how their actions contribute to their own potentialities and to those of other co-becoming processes. Rather than an instrumentalist rationality, what is required is a creative rationality which reflexively acknowledges itself to be participation in the becoming of the world.

Such self-creation is essentially socio-cultural. People become selves with a sense of identity through their culturally mediated achievement of reciprocal recognition. Where a process view of

the world is assumed by people, and both the essential sociality of human being and the possibility of the emergence of individuality transcending these conditions is acknowledged, as it is among the Fipa of Tanzania,[7] then there can be no sharp division between public interest and self interest. Self- formation and commitment to others are seen as indissociable. As Rabbi Hillel put it:

> If I am not for myself, who will be for me?
> If I am for myself only, what am I?
> If not now, when?

Ultimately, it is only by participating in and taking responsibility for socially approved activities that people see themselves as able to attain self-hood.

The order which defines what is approved or disapproved and which thereby facilitates the achievement of self-hood can be defined as the moral order. One of the most important tasks for environmental ethics is then identifying the effective moral order through which people gain or fail to gain a sense of identity, to reveal how this helps or undermines efforts to deal with environmental problems, and then to develop new possibilities of gaining a sense of identity to replace destructive forms. The first part of this task is too complex to consider here, but a major requirement for establishing alternative ways for people to achieve an identity is through the redefinition of ethical concepts. There are three which are particularly important in this regard: justice, duty and integrity.

Justice I will redefine as the appropriate recognition and acknowledgement in thought, feelings and action of the nature, and thereby the meaning and significance of anything. Justice so conceived requires of people sensitivity, consideration, imagination and compassion to understand the situations and perspectives of other beings — whether human or non-human, breadth of understanding to appreciate the past causes and present dynamics responsible for existing conditions and the incidental effects of actions, and judgement to balance different claims to justice. It is the notion of justice which Simone Weil brought to light, when she pointed out the radical difference between calls for justice and assertions of rights:

> If you say to someone who has ears to hear: "What you are doing to me is not just," you may touch and awaken at its source the spirit of attention and love. But it is not the same with words like "I have the right..." They evoke a latent war and awaken the spirit of contention.[8]

Underlying the environmental crisis is the basic injustice of defining the world as a mechanical order of things. It is this which Peter Singer was reacting against, when he protested against treating animals "like machines that convert low-priced fodder into high-priced flesh..."[9] But to justify Singer's position it is necessary to establish and defend an alternative conception of life to that offered by mechanistic materialism, and it is process philosophy which supplies this.[10]

As far as the environment is concerned, the most significant actions people perform are as functionaries of organizations. Ignoring this has rendered much of moral philosophy sterile. Organizations are defined by the ideals and goals they are committed to. To act as a functionary is to be constrained to define situations, people, organizations and Nature in a particular way in accordance with the ideals and goals of the organization. Two ethical concepts are of prime significance in this: **duty** and its negative correlate, **corruption**. In the past these have generally been taken to define whether people act or fail to fulfil the expectations of their positions in accordance with the ideals and goals of their organizations. However, since Nuremburg, duty can be taken to include taking responsibility for the ideals and goals of one's organizations and what role one is playing in realizing these. Failure by individuals as institutional actors to consider whether the way the world is conceived by them is just or unjust can itself by designated as corrupt.

The challenge to individuals is whether to take responsibility for the way they conceive the world in their actions, and then, to have the courage to act upon their own judgements. Such action will almost invariably make life more difficult for them. But taking responsibility for one's conception of the world and acting according to one's subsequent convictions gives a unity to one's life beyond that of being merely cyphers of social pressures and forces. It is this unity or wholeness which can be designated **integrity**. In the present world heading towards ecological catastrophe because the dominant institutions of industrialism are based on an unjust conception of both Nature and humanity, integrity is called for on a massive scale.

Considering ethics without considering politics is to truncate the subject in a way which guarantees its ineffectiveness. For Aristotle, ethics and politics were indissociable. His **Nicomachean Ethics** was devoted to working out what is the highest good for humans, the ultimate end which is desired for its own sake and for which all other ends are means, while his **Politics** was devoted to working out how societies should be organized to enable people to live the best possible life. While one might disagree with Aristotle's conclusions as to what the highest good for humans is, it is difficult to conceive of a better formulation of the relation between ethics and politics, and how to conceive the fundamental problem of political philosophy.

The answer given to the first and most fundamental question: what is the ultimate end of life, will depend on what conception of humans and their place in the world is adopted. Aristotle argued that the ultimate end of life is spiritual well-being (**eudaimonia**) which is achieved by the "activity of the soul in conformity with excellence or virtue, and if there are several virtues, in conformity with the best an most complete."[11] On the basis of his general metaphysics and corresponding conception of the nature of humans, he argued that the highest virtue is the activity concerned with theoretical knowledge or contemplation. In relation to politics he then argued that the ideal polis is one "which has virtue sufficiently supported by material resources to facilitate participation in the actions which virtue calls for."[12] In terms of process philosophy people are striving to orient themselves, to gain recognition, and to gain control over the conditions of their existence. If the process view of the world is valid, societies should be organized to facilitate the achievement of these ends. They should be designed to promote cultural life, justice and liberty, where cultural life is understood as the communicative activity in which, through dialogue,literature and other forms of communication, ways of understanding, experiencing and modes of being in the world are revealed, tried out and questioned, further developed or replaced, problems defined and projects of action formulated, elaborated and evaluated; justice is understood as appropriately recognizing the significance of all entities, both humans and non-humans, in social practices and in institutions; and liberty is understood as

the condition in which people can live with integrity. This requires not only freedom from constraints, but also the means for people to form relationships and make commitments to others, to develop their abilities and their understanding of the world, and to participate in the economic, political and cultural processes of society. Negative liberty is important not in itself but as a condition for achieving positive liberty. So understood, cultural life, justice and liberty must be seen as mutually dependent, though irreducible to each other. Existing institutions should be evaluated and preserved, transformed or abolished according to whether and how much they facilitate the life of culture, justice and liberty.

With this conception of politics, economics must be reformulated and the environment must be given the central place: As the condition for the maintenance and reproduction of society and for the realization of humanity's highest ends, and as consisting of non-human life forms with a significance in their own right which, if justice is to be done, must be appropriately recognized. The most important form of justice in terms of which any society and every institution in society must be evaluated is its affect on its environment.

The formulation of such ideas in themselves is of little significance. What is required is a determined effort to live according to this new conception of the world. Such efforts are not likely to be successful in isolation. They need to be seen as part of a movement. The unity of this movement cannot be defined only in terms of some general notion of environmental problems. It needs to be part of an alternative hegemonic culture. Fully articulated, process philosophy promises to provide the basis for such a culture, just as mechanistic materialism provided the basis for the culture of modern industrialism.

NOTES

1. Lynn White Jr. "Continuing the Conversation" in Barbour, **Western Man and Environmental Ethics**, Reading: Addison-Wesley, 1973, pp. 55-64, p. 57.
2. Alisdair MacIntyre, **After Virtue**, 2nd ed. Notre Dame: University of Notre Dame Press, 1984, p. 2.
3. Ilya Prigogine, **From Being to Becoming**, San Francisco: Freeman, 1980, p. xii f.
4. Frederick Engels, **Dialectics of Nature**, Moscow: Progress Publishers, tr. Clemens Dutt, 2nd ed., 1976, p. 30f.
5. On this, see Michael Polanyi and Harry Prosch, **Meaning**, Chicago: University of Chicago Press, 1975.
6. Friedrich Nietzsche, **The Will to Power**, 666.
7. See Roy Willis, **Man and Beast**, Frogmore: Paladin, 1974.
8. Simone Weil, "Human Personality" in **Simone Weil: An Anthology**, ed. Sian Miles, London: Virago, 1986, p. 82.
9. Peter Singer, **Animal Liberation**, N.Y.: Avon Books, 1975, p. 94.
10. The best work on this is the four volume **Towards a Theoretical Biology**, ed. C.H. Waddington, Edinburgh: Edinburgh University Press, 1968-72.
11. Aristotle, **Nicomachean Ethics**, I, vii. 1098a 16.
12. Aristotle, **Politics** VII, i 1323b38.

About the Author: **Arran Gare** is a a faculty member of the Deparment of Humanities, Swinburne Institute of Technology, in Melbourn, Victoria, Australia. He is the co-editor, with Robert Elliot, of the anthology **Environmental Philosophy**, Penn State University Press, University Park, Pennsylvania, 1983.

FILM REVIEW

THAI FILM, "THE ELEPHANT KEEPER" ("KHON LIANG CHANG"), DIRECTOR: PRINCE M.C. CHATRI CHALERM YUGALA ("THAN MUI"), 1990, RUNNING TIME: 135 MIN, COLOR.

Review by Linda C. Ehrlich

This tale of the effects of illegal logging on Nature and the indigenous peoples of northern Thailand has been made into a courageous, and visually extraordinary, film. The opening narration reveals that two-thirds of Thailand was once covered with forest but now only about one-fifth of those original forests remain. Although set in a specific tropical locale, "**The Elephant Keeper**" also presents a universal warning of the consequences of deforestation on an entire ecosystem.

Based on a true story, "**The Elephant Keeper**" is a familiar allegory of good versus evil, although the "good guys" are not above being tempted, nor are the evil ones without their reasons. The film is set in a reminiscent story-telling mode. Seated around a small campfire, the narrator (a forest ranger named Chai) explains to his listeners why illegal loggers are afraid to cut down the trees in a particular teak forest. This tale of the confrontation, and eventual bond, between Boonsong, keeper of the elephant Tang-on, and Kamron, the hot-tempered but resolute Chief Ranger, is interwoven with an expose of petty corruption and greed. With a highly mobile camera that sweeps along the lush Thai forests, the film derives its power from its depiction of the destruction of three "levels" of life: the natural, the animal and the human. As a voice-over at the end of the film states: "If you cut off one part of the body, it can survive; but if your cut off too many parts, survival itself is threatened."

Well-cast and well-acted, the film skirts excessive melodrama and is interspersed with lightly comical moments. The most extraordinary "performance," however, may be that of the camera's vision of the elephant. The elephant Tang-on is shown as having the ability to distinguish between humans who are sincere and those who are insincere and prone to violence. He is also the enforcer of a primordial sense of justice.

Particularly painful are the scenes where illegal loggers, frightened off by the rangers' helicopters or jeeps, leave behind masses of half-hewn teak logs in what was intended to be a forest preserve. The camera pulls back, almost reluctantly, to reveal how these scenes of irreparable damage appear from the rangers' point-of-view.

Then again, the reasons why the villagers continue to desecrate the forest preserve are also frankly explained. These reasons include: exorbitant interest rates by poachers, like the local Chinese financier, Hok; peer pressure from others in the village engaged in this risky line of work; the need for rice paddies to supplement a meagre income, and insufficient work due to the fact that machines are replacing animal labour in the rapidly-disappearing forests. The more illegal loggers the rangers arrest, the more the corrupt officials allow to escape. This might appear farcical if it were not so tragic.

The thematic intermingling of natural/traditional and mechanical/modern in the film is reinforced on a soundtrack in which bird calls, the rumbling of chainsaws and a kind of minimalistic musical undercurrent are presented almost simultaneously. Close-ups of gibbons and water-fowl place the animals as observers in a human drama in which (as Boonsong's father reminds) the larger animals will eat the smaller ones.

In tight shots that reinforce the inter-generational bonds of Boonsong's family, the camera pulls back to show how fragile and exposed this family unit is, when faced with forces of evil in the more sophisticated society surrounding it. Then it turns again to the image of the elephant, larger still than these human attempts at manipulation and profit.

The camera, in a brightly-lit scene, pans down the charred, hacked-up trunk of a once-magnificent tree to the diminished forms of an elephant and rider revealed below. In a later night scene, Tang-on (shot through a blue filter) seems larger-than-life, when it pursues those who threaten its master's very being. The scream of a man and the elephant's angry bellow merge into one cry.

This film marks a departure from the more commercial nature of many contemporary Thai films. As an independent film producer, Prince Yugala's societal status helped him push through such a difficult project; nevertheless, it took ten years for the director to bring this film to public view. While filming on location deep in the forests of the Phrae, Tak, Lampang, Uthal- thani and Phitsanuloke provinces in northern Thailand, he was threatened not only by the dangers of working with wild animals, but also by actual threats to the lives of his crew by illegal loggers. One crew member was killed by these assailants. Eventually, his crew and cast required military protection to complete the work. "**The Elephant Keeper**" has also faced distribution problems in Thailand, partially due to its serious subject matter (**Bangkok Post**, April 12, 1990). Like many Asian films, it may have to find an audience abroad (with showings in Tokyo and Los Angeles) before receiving more recognition at home.

About the Author: **Linda C. Ehrlich** has published articles in **East-West Film Journal, Cinemaya, Post Script**, and **Literature/Film Quarterly**. She is currently co-editing an anthology on the impact of the visual arts on the cinemas of Japan and China. She has been active in the Honolulu Film Festival and in coordinating the Asia-Pacific Film Festival U.S. tour. She teaches courses on cinema at the University of Tennesee, Knoxville. She was in Bangkok last June on a research trip.

RECENT BOOKS — BRIEF NOTES

Renewing the Earth: The Promise of Social Ecology, A Celebration of the Work of Murray Bookchin, edited by John Clark, Green Print, 10 Malden Rd., London NW5 3HR, 1990. (U.S. Distributor: Bookpeople, 2929 Fifth St., Berkeley CA 94710.) This anthology explores the many dimensions of "Social Ecology," a fully developed and visionary expression of green thinking. S.E. traces the ecological crisis to the destruction of the organic fabric of both Nature and human communities, caused by systems of hierarchy and domination.

Simple in Means, Rich in Ends: Practicing Deep Ecology, by Bill Devall, Gibbs Smith, P.O. Box 667, Layton, Utah 84041, 1989 ($12.95 U.S.). This is a detailed work presenting a practical approach to daily living and political action which accepts the platform principles of the Deep Ecology Movement. Devall offers a philosophical framework to support the platform principles and suggests practices which promote its values and aims.

The Big Outside: A Descriptive Inventory of the Big Wilderness Areas of the U.S., by Dave Foreman and Howie Wolke, Ned Ludd Books, P.O. Box 5141, Tucson, AZ 85703, 1989 ($19 U.S.). This is a detailed description of the remaining areas in the U.S. (lower 48) which could constitute big wilderness areas. It offers clear definitions and criteria for big wilderness and the rationale for setting such areas aside. Wilderness preservation groups in other coutries would find the book useful.

Toward a Transpersonal Ecology: Developing New Foundations for Environmentalism, by Warwick Fox, Shambhala, 300 Massachusetts Ave, Boston, MA 02115, 1990 ($16.95 U.S.). The first article in this issue of **The Trumpeter** is representative of the clarity and careful organization of this book. An important contribution to ecophilosophy providing a valuable overview of the various approaches developed to date. Fox successfully brings together transpersonal psychology and ecophilosophy. He calls this synthesis transpersonal ecology.

To Care for the Earth: A Call to a New Theology, by Sean McDonagh, Bear and Co., P.O. Drawer 2860, Santa Fe, NM 87501, 1987 ($9.95). In search of a new theology the author offers a new story of creation consistent with contemporary knowledge. He finds inspiration for this new story in the works of Teilhard de Chardin and Thomas Berry. The new story enables him to reconsider interpretations of the Bible and Christian traditions. He highlights the richness of Benedictine and Franciscan spirituality as responses to the gift of creation. Theology must be based on appreciation for the Earth's sacredness.

Ecology, Community and Lifestyle: Outline of an Ecosophy, by Arne Naess, translated and edited by David Rothenberg, Cambridge University Press, 40 West 20th St. New York, NY 10011, 1990. This book approaches the environmental crisis by way of a new ontology which enables us to think, feel and act in terms of our real interconnections with each other and Nature. Once we deeply understand the ecology of the self, ethics and practical action spontaneously follow. Naess's ontology begins with primary intuitions about what there is. These came to him throughout a long life spent in Nature. He calls his approach Ecosophy T, which gives insight into the unity and diversity of life. Naess's work is free of dogmatism. He does not think that we should all adhere to the same philosophy. In identifying the platform principles of the deep ecology movement, he attempts to articulate principles the environmental movement can use as a basis for action.

Global Bioethics: Building on the Leopold Legacy, by Van Rensselaer Potter, Michigan State University Press, 1405 South Harrison Road, Suite 25, Manly Miles Bldg, East Lansing, MI 48823-5202, 1988 ($9.00 U.S.). Van Potter brings together medical ethics, ecological knowledge and Leopold's land ethics to provide a comprehensive vision for practical action directly related to the problems of the environmental crisis, from overpopulation to environmental diseases.

Home Place: Essays on Ecology, by Stan Rowe, NeWest Publishing, #310, 10359 Whyte Ave., Edmonton, AB T6E 1Z9, 1990 ($14.95 Can.). Rowe provides a lucid overview of our ecological context which emphasizes the relationships between humans and the ecosphere. He illuminates the ecological dimensions of technology, science, and human activities in relation to values based on this understanding of Nature. Rowe ranges from the philosophical to the practical, discussing environmental ethics and such practical activities as agriculture, trade and travel.

The Conquest of Paradise: Christopher Columbus and the Columbian Legacy, by Kirkpatrick Sale, 201 East 50th St., New York, NY 10022, 1990 ($24.95 U.S. HC). Sale approaches this study by means of ecological history. He portrays Columbus as a product of a sickly and dispirited Europe, with its history of environmental despoliation. European attitudes toward Nature transformed the vast, unspoiled continents of the New World. He tells how the Indian cultures lived on these continents in harmony and balance, achieving what the Europeans appreciated as a near-paradise. Carefully argued and well written. Two earlier books by Sale should be mentioned: **Human Scale**, an extensive investigation of the pathologies of largeness, and **Dwellers in the Land**, a study of the philosophy and practice of bioregionalism.

The Practice of the Wild, by Gary Snyder, North Point Press, 850 Talbot Ave., Berkeley, CA 94706, 1990 ($10.95 U.S.). This collection of essays makes a significant contribution to new cultural narratives and stories interwoven with place and our wild relations. Snyder combines a poet's sensibilities and a naturalist's knowledge with the meditative clarity of zen. A treasure for those wanting to find themselves once more at home with Nature and their place.

Home! A Bioregional Reader, Edited by Van Andruss, Christopher Plant, Judith Plant and Eleanor Wright, New Society Publishers, P.O. Box 189, Gabriola Island, B.C., Canada V0R 1X0, P.O. Box 582, Santa Cruz, CA 95061, 1990 ($14.95). This is an excellent anthology of some of the best contributions to bioregionalism and reinhabitation of home places. A fine book for those who want to sample the spectrum of reflections and activities of bioregionalists.

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