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Some Principles of Ecocriticism



Ecocriticism is a name that implies more ecological literacy than its advocates now possess, unless they know what an embattled course ecology has run during its history. *Eco* and *critic* both derive from Greek, *oikos* and *kritis*, and in tandem they mean “house judge,” which may surprise many lovers of green, outdoor writing. A long-winded gloss on *ecocritic* might run as follows: “a person who judges the merits and faults of writings that depict the effects of culture upon nature, with a view toward celebrating nature, berating its despoilers, and reversing their harm through political action.” So the *oikos* is nature, a place Edward Hoagland calls “our widest home,” and the *kritos* is an arbiter of taste who wants the house kept in good order, no boots or dishes strewn about to ruin the original decor.

I am toying with words, in the hope they will raise some questions about ecocriticism and its future. If its political agenda insists on an Us-Them dichotomy, then ecocriticism cannot be self-scrutinizing, only adversarial. Since ecology studies the relations between species and habitats, ecocriticism must see its complicity in what it attacks. All writers and their critics are stuck with language, and although we cast *nature* and *culture* as opposites, in fact they constantly mingle, like water and soil in a flowing stream. Living in an era of environmental crisis, we respond to the call of vatic, strident voices: Abbey, Berry, Dillard, Williams. If against nature’s enemies our favorite authors take righteous stands, who are we to question their ideas or ask if they produce good writing?

Consider a story by Barry Lopez, a writer I much admire as an artist and thinker. “Landscape and Narrative,” from *Crossing Open Ground* (1989), recounts a Nunamiut hunting tale about a man on a snowmobile who tracks a wolverine over rolling tundra. The animal now and then pauses to look back at its pursuer. As the hunter tops a rise, suddenly his prey bounds

straight at *him*, over the windshield and onto his chest, a nose tackle that overturns both hunter and vehicle. The wolverine does not bite or scratch, just fixes “the man with a stare” and then walks away. Lopez says the story is typical, “not so much making a point as evoking something about contact with wild animals that would never be completely understood.”

I find that statement misleading, since the story makes a point—not about the enigma of wildlife, but about the folly of human pursuit, especially on snowmobiles. A hunter on foot would be another story, and also with a different point. Earlier Lopez offers his own thoughts on wolverines, who “are seldom observed . . . easily excite the imagination . . . loom suddenly in the landscape with authority . . . have a deserved reputation for resoluteness.” Those dry abstractions echo the author’s training in scholastic philosophy, loading his essay with a didactic freight. Since the native story is paraphrased, it’s hard not to feel something got lost in translation. At the end Lopez says he passed the wolverine story to a friend, apparently a wildlife biologist who lives with Cree, to get their thoughts: “‘You know,’ he told me, ‘how they are. They said, ‘That could happen.’”

Lopez faithfully enters double quotes, which I should triple to indicate that I am citing what Lopez says his friend said about the Cree response to a Nunamiut story. The four levels of narration do not just repeat a tradition, but screen and filter it through layers of learning and bias about time, places, animals, and people. Yet Lopez’s essay is not about narrational complexity, or the fact that observers alter the conditions they are studying, but about his theory that we dwell always in two landscapes, internal and external, and that stories bring those two together. That’s not a bad theory, but the wolverine story fails to prove it. We’ll never know what the Cree thought, but let’s say “That could happen” expresses their confidence and agreement: yes, such an incident is possible. Why? Perhaps they know more about wolverines than Lopez does—or at least more than he chooses to tell us.

When I turn for assistance to Hartley H. T. Jackson and his *Mammals of Wisconsin* (1961), a wealth of meaning emerges. Common names for the wolverine are American glutton, devil bear, and skunk bear, owing to two factors: wolverines eat everything and they stink. They relish decayed, festering carrion and give off a sulfuric musk, secreted from anal glands. Solitary animals, they possess few social skills: they make rude dens, mate briefly and sullenly, push the kits out at five months to fend for themselves. Their ruthless ferocity is widely feared: bear and puma will retreat from

wolverines, and with good reason, for they can kill large animals, taking down deer and even moose. How? With efficient dispatch, they leap upon a fleeing victim and tear off its head. When the Cree say “That could happen,” they may mean that the Nunamiut on his roaring, stinking, gassified sled was lucky to get off with a warning. And the point is well taken: unlike hunters or writers, nature makes direct statements, without implication or analysis.

In reading Lopez or any other nature writer, I try to work within a set of informed, responsible principles, derived from four disciplines: ecology, ethics, language, and criticism. To me they offer combinations of theory and method that explore environmental literature. As an interdisciplinary science, ecology describes the relations between nature and culture. The applied philosophy of ethics offers ways to mediate historic social conflicts. Language theory examines how words represent human and nonhuman life. Criticism judges the quality and integrity of works and promotes their dissemination. Each discipline stresses the relations of nature and literature as shifting, moving shapes—a house in progress, perhaps, unfinished and standing in a field. In the following speculative account of these principles, I am looking for ways to help ecocritics sustain their role as *kritos* while assessing the literary *oikos* before them.

ECOLOGY AND ETHICS

Ecology is a science strongly connected to a history of verbal expression. In the medicine rites of early people, shamans sang, chanted, and danced stories to heal disease or prevent disaster, which they saw as states of disharmony or imbalance in nature. Classical scholars sustained that equity by reading or mapping the body and earth as analogous realms, using *theoria* and *investigium* (speculating and tracking), to define the limits of *scientia* (knowledge). Ancient science was dyadic because it portrayed nature as a composite, formed of opposite elements. Lucretius reasoned that matter and process are inseparable, with all substance—rocks, water, grain—made by actions that either join or sunder. This holism declined as knowledge grew in the Middle Ages, through the Islamic refinement of mathematics and the dividing of Christian universities into separate science-language curricula. Descartes’s rationalism further exaggerated that split, yet for centuries the natural, descriptive sciences remained bound to words of local,

vernacular origin. The biological names of species were quite haphazard until Carolus Linnaeus compiled his *Systema Naturae* (1734), a treatise that used Latin inflections to classify organisms into a categorical taxonomy, or naming system. This dead language was static and hierarchical, imposing on nature the fixed ranks of kingdom, phylum, class, order, family, genus, species.

After 1750 global exploration and colonization by Western powers promoted dynamic new ideas in the natural sciences, as major discoveries enlarged known space and time. Within a century, scientists charted ocean currents, traced the ice ages, found the site of Troy and the remains of Neanderthal and Cro-Magnon people. These events prompted new ways to read the earth, peering into "prehistory," the time before writing existed. Books about the travels of Humboldt, Lyell, Agassiz, and Darwin spread the recognition that time is deep and change constant. Their vision of the past as a linear, progressive advancement paralleled the work of philology, then seeking the prehistoric origins of Western and Eastern language (Aarsleff). The tendency to see words as organic, with branching roots and stems, coincided with the biological quest for naming species by form and function.

Darwin's theory of evolution took Linnaean taxonomy, the nouns of nature, and attached them to verbs, the actions that shape change. His key discoveries occurred on South Pacific islands, where he observed finches with variant beaks, according to whether they fed on seeds or insects (Weiner). This evidence of a relationship between habit and form led Darwin to plot evolution as three concurrent phases: heredity, what parents pass to offspring; mutation, what offspring may alter; and natural selection, what all generations must do to survive, adapt to circumstance. In this continual exchange of information nature functioned like a language, and in 1866 Gregor Mendel charted its syntax with genetics, the code of reproduction.

By this time Western nations were experiencing both rapid industrial growth and environmental loss. One historian sees that shift as dialectical, from Arcadian to imperialist phases of culture (Worster 1993), for ecology appeared when naturalists began to write about the detrimental impact of mass societies. Henry D. Thoreau traced the effect of woodlots on forest succession in 1860 (Howarth), and in 1864 George Perkins Marsh published *Man and Nature*, a study of erosion produced by land clearance and overgrazing. Credit for coining *ecology* in 1869 goes to Ernst Haeckel, a

German zoologist who taught at Jena. Haeckel wrote popular essays that earned his peers' disfavor, but today he is admired as a founder of biogenetics and author of the theorem, "ontogeny recapitulates phylogeny" (one organism's life repeats a species' history).

That concern for relating individual to mass echoed Haeckel's reading of Comte and Marx. *Ecology* inflected the Linnaean term natural *economy* (Worster 1985) from *oikonomia* to *oikologia*, house mastery to house study, a shift that changed species from resources into partners of a shared domain. Haeckel's science reflected his socialist convictions. In an era torn by violent nationalist strife, from civil war in America to clashes throughout Europe, Haeckel considered how organisms sustain complex social alliances that shape their number and distribution. Comparing data on the birth, death, and migration of species, he found that organisms replicate their native form in widening gyres, from organism to population to community. Each level of these surroundings, or "environments," creates complex, interrelated networks. Using statistical models, he traced patterns of flow and exchange between food and energy, the signs of an ecosystem's carrying capacity. Ecology thus absorbed Linnaean taxonomy, quantified Darwinian evolution, and revolutionized Mendelian genetics, creating what amounts to a vernacular and democratic science. Open to the common, everyday discourse of species, ecology ranged freely across many fields, dipping into evolution, behavior, and physiology—and earning the hostility of classical science.

Ecology became an accepted lingua franca not in Europe but on the fertile, level plains of mid-America. Passage of the Morrill Land Grant Act (1862) gave large tracts to Midwestern states for endowing agricultural and mechanical colleges. The schools had two goals, low-cost education and research as a public service, which encouraged the growth of applied, interdisciplinary study. Land Grant science was frankly bipartisan, supporting agricultural industry that converted prairie grassland into corn-wheat monocultures, but also recovering evidence of the region's lost biodiversity. The founding papers in modern ecology (1887–99) were by scientists from Illinois, Wisconsin, and Michigan who studied glacial lakes and dunes, those recovering zones where plants and animals rapidly form successional communities (Real). Where land had lain fallow for eons, the ecologists found a myriad of interactive species, a principle later dramatized in Aldo Leopold's popular celebration of Wisconsin marsh and prairie, *A Sand County Almanac* (1949).

As a vernacular science, ecology was widely adopted by many disciplines to read, interpret, and narrate land history. Rapid settlement and spoilage of American land after 1900 spurred the rise of resource conservation in forestry and fishery, as ecological concepts of association, climax, and niche arose to describe the biomes of eastern forest and western grasslands. Several ecologists wrote histories of regional land-use, linking biogeography to agronomy and sociology to examine natural and cultural interaction (Malin). This work enlarged the research community, leading to the founding of the Ecological Society of America in 1920 (Egerton). Not all scientists greeted the new trend warmly. Marston Bates objected to "ecology" replacing natural history because ecologists were too literary, using rhetoric and symbols instead of precise data. Behind these complaints lay a century of lexical growth, as the early languages of biology generated the broader discourse of ecological story.

The years of Depression and World War II turned ecology even more strongly toward public narrative, for in crossing boundaries it resisted the managerial aspect of conservation and challenged its support of resource-extractive industries. Many preservationists invoked ecological principles to save wilderness or protest military-industrial research, so by the 1960s some observers saw ecology as subversive, a vital component of leftist politics (Shepard). To radical ecofeminists, science became an oppressive, male-authored enemy that insisted on the biological necessity of sexual reproduction (Daly). These voices reflected how much ecology had become a medicine sung by modern shamans to heal a sick world.

Through social discourse ecology also defined ethical principles, as in Rachel Carson's landmark work, *Silent Spring* (1962), which aroused a sense of conscience about pesticides that poison ground water and destroy biodiversity. Eco-patriots in the 1970s attacked their enemies—military, political, technological, commercial—as greedy, anthropocentric forces that defamed the true course of evolution (Disch). The perceived decline of public ethics in the 1980s, when commerce began to profit from "green" policies, inspired Deep Ecology, a concept that spurned destructive ideology and called for recovering the "earth wisdom" of native American cultures (Devall). While some observers criticized the logic and biocentrism of Deep Ecology (Luke, Wright), at century's end ecology remained a popular model for understanding nature, and for relating places through biogeography and land history.

Over its long course of coming to power, ecology became a narrative mode because natural science never fully rejected vernacular language.

In geology today, the English names of land forms often reflect human sources:

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| foot, head, vein, arm, mouth | bodies |
| divide, joint, shelf, sill, column, vent | buildings |
| shield, spit, dike, fork, lock | tools |
| basin, pan, kettle, bowl, sink, trough | utensils |
| cap, mantle, belt, girdle | clothes |

This persistent attachment to cultural memory is why words in science have variable meanings. Ecology found its voice by studying the properties of species, their distribution across space, and their adaptive course in time. In tracing those relations, ecology often used metaphors: water is the sculptor of landscape, life is patchy, ecosystems build linking chains or webs (Tudge). This verbal felicity has attracted some writers who sentimentalize ecology, exaggerating its holism with mythic and romantic imagery (Oates). Such notions seem naive to modern ecologists, who find less evidence in nature of wholeness or stability than of nonlinear, discontinuous order (Hayles).

Ecology advanced from description to advocacy after 1960, as its stories presented ethical choices that affect land and people. Just as telescopes and satellite photographs provided new maps of the earth (Kepes, Hall), so did ecological study shape a new ethics in landscape history. This altered vision of land-use also revised histories of American culture, since most of its early myths (frontier, virgin land, garden) derived from the imperious natural science that drove European exploration and settlement across the New World. Once described as the conquest or "winning" of a continent (Goetzmann) the American experience is now increasingly seen as a series of questionable readings, their rhetoric of relentless progress emulating the investigative methods of early natural history (Regis).

Eco-historians of America thus regard the scenes of contact between natives and explorers as a clash of land and sea-based values (Hendrickson), or they see the early settlers as coastal dwellers who undertook to clear forests and so extend the frontier margin of civil order (Cronon, Harrison). Another view of the clearances: they repeat the settling of the Old World, once also called virgin land. Forests tutored the American colonials by promoting migration and development while teaching them to observe limits and sustain resources, the beginnings of earth management (Bechmann, Perlin).

In the early national years, settlers breached the eastern ranges and

spilled into open grasslands, creating on the prairie a settlement of northern Europeans (Looney). Upon this empty and enigmatic “blank page” men and women wrote lives that revised social traditions and adapted their homes and towns to regional resources (Hurt, Fairbanks, Eaton). Later on, sectional strife between North and South over slavery became a struggle between two bioregions, once economic partners but now devolved into deadly enemies (Cowdrey). The far West seemed to offer respite, for on the plains people could build frontier settlements, or cross the mountains in pursuit of silver and gold—all dreams that later failed, exhausting and emptying the region (Huseboe, Limerick, Matthews).

In the twentieth century, the American story is of limits reached and strained, a time of sobering recognition that human growth can destroy natural resources; but those losses also awoke a new sense of land and the intricate relations it supports. Remote and unpopulated places, from desert Southwest to the tundra of northern Alaska, aroused the passions of environmentalist defenders, who sought what Thoreau called “the tonic of wildness.” Open, unsettled land continues to raise ethical choices, testing the ability of human beings to learn from land. In the darker moments of history, ecology offers to culture an ethic for survival: land has a story of its own that cannot be effaced, but must be read and retold by honest writers (Murray).

A future source of cultural history may be landscape ecology, which avoids distinctions between natural and disturbed regions and uses a new spatial language to describe land by shape, function, and change. This dynamic view accepts chaos theory and its emphasis on diverse complexity. Landscape ecologists ask new questions about regions: where are they, what do they give or take, alter and influence? They also provide metaphors for land—such as mosaic, patch, corridor, matrix—that use a situational ethics, arguing that disturbance is inevitable, whether it comes from natural or cultural causes, and that landscape is a continuous history, never quite completed (Forman).

LANGUAGE AND CRITICISM

This account of ecology and ethics may explain why ecocriticism has won advocates but faces resistance in current literary studies. Connecting science and literature is difficult, for their cultures have grown widely apart.

As we have seen, classic disciplines are suspicious of new approaches and will dismiss them as flimsy. Perhaps the greatest obstacle to acceptance is that much-privileged species, *Professores literati*, who praise innovation but tend to preserve the status quo. Literary theorists will regard ecocritics as “insufficiently problematic” if their interests do not clearly match current ideological fashion. An ethical politics is welcome, yet not if it focuses on such nonhuman topics as scenery, animals, or landfill dumps.

Those problems seem to lie far afield from literary study, yet in fact texts do reflect how a civilization regards its natural heritage. We know nature through images and words, a process that makes the question of truth in science or literature inescapable, and whether we find validity through data or metaphor, the two modes of analysis are parallel. Ecocriticism observes in nature and culture the ubiquity of signs, indicators of value that shape form and meaning. Ecology leads us to recognize that life speaks, communing through encoded streams of information that have direction and purpose, if we learn to translate the messages with fidelity.

To see how far these values dwell from current humanism, we may turn to a Modern Language Association guide, *Redrawing the Boundaries: The Transformation of Literary Studies* (1992). As its title implies, this survey proposes a sweeping act of land reform in all literary *fields*, medieval to postcolonial, by using bold spatial imagery: ideas *intersect at odd angles*, disciplinary *maps* raise questions of *boundaries* (national, racial, sexual, political), *frontiers* project beliefs that shape imagined *spaces*. Yet this geography is only rhetorical, according to its mappers, because literature dwells Nowhere: “The odd thing, in fact, about literature as an imagined territory is that there are apparently no natural limits—and hence, it would seem, there are apparently no natural limits to the field of literary criticism” (Greenblatt and Gunn 6).

The dogma that culture will always master nature has long directed Western progress, inspiring the wars, invasions, and other forms of conquest that have crowded the earth and strained its carrying capacity. Humanists still bristle with tribal aggression, warring for dominion even though they spurn all forms of hegemony. The boldest new scholars have focused on 1500–1900, four centuries of global dominion, with such revisionist ferocity as to sustain what Leah S. Marcus astutely calls “a set of geographic metaphors . . . that suggest our continuing engagement on one level with a cast of mind we have rejected on another” (Greenblatt and Gunn 61). Many recent works of critical theory chart *borders*, *boundaries*,

frontiers, horizons, margins, but these tropes also have no natural or geographical reference (Marshall). Yet if current literary maps are devoid of content, postmodern geographers are not: several have used contemporary theory to re-examine the spatial, perceptual, and textual conventions of maps and land (Enrikin, Monmonier, Wood).

Ecocriticism seeks to redirect humanistic ideology, not spurning the natural sciences but using their ideas to sustain viable readings. Literature and science trace their roots to the hermeneutics of religion and law, the sources for early ideas of time and space, or history and property. Concepts of property and authority are central directives in science; hence its long service to Western expansion (Bowler). Today science is evolving beyond Cartesian dualism toward quantum mechanics and chaos theory, where volatile, ceaseless exchange is the norm. While some forms of postmodern criticism are following this lead, many humanists still cling to a rationalist bias that ignores recent science.

Postmodern critics now describe science as a culture, one with social and political impact, and as a language that possesses rare powers of definition (Beer, Hayles, Jordanova, Levine, Williams). Others have traced literary borrowings of science, as in Thoreau's use of botany or Twain's studies of evolution (Boudreau, Cummings); and readers of science fiction-fantasy recognize how literature raids science for utopic or dystopic imagery (Erllich). Science fiction views technology as either alien or brethren; it blazes trails into the frontier of outer space; it forecasts ecological collapse (Barter, Mogen, Rabkin). These narratives emulate the theories and experiments of science yet challenge its inherent faith in progress. Such an ironic, relativistic mode is comic and corrective, providing a rhetorical proxy for the ethics of ecology (Elgin, Wendlen).

Despite these interests, many humanists distort the nature of scientific inquiry. One literary historian describes changing canons in the mid-1980s as "competing verbal worlds" that evolve toward greater complexity and diversity (Elliott). That view misstates the Darwinian theory of natural selection, which holds that variance results not from competition but adaptation to crisis. Darwin's phrase, "survival of the fittest," means not strongest but most fit, best suited to change. Such misreadings suggest why today's cultural and biological ideas of diversity are at odds: minorities demand a right to their survival, while science fears a coming extinction. Ironically, that late phase in evolution generates the greatest cooperation among species (Wilson, *Diversity of Life*).

The humanistic critique of science advances on many fronts, attacking

its narrow cultural superiority (Gehlen) or its wide reach and willful obscurity (Medawar). A source of both hope and fear, science presents solutions that only generate new problems, as in the bioethical riddles spawned by genetic engineering: should we destroy all "defective" genes? To some critics, such questions suggest that scientists too often ignore the policy implications of their discoveries (Weissmann). Science also remains stubbornly male-dominant, excluding women from its "hard" disciplines and justifying the practice with specious logic (Hubbard). These discriminatory conditions offend humanistic values of distribution and integration, which ecocritics assume in principle.

Throughout the twentieth century, literary theory has often challenged the scale and verity of science. The "human sciences" of Dilthey asserted differences between scientific knowledge and human understanding, laying emphasis on consciousness and sympathetic insight as traits cultivated by civilization. War and genocide dimmed this optimism, yet among humanists the conviction endures that experience is mind-centered and free of reference to actualities of space and time. Literary critics still place an expansive trust in poetry and dreams, states they see as providing alternative relations to material substance. Hence the persistence of psychoanalytic criticism, despite recent advances in medicine that provide chemical aids for mental disease. As philosophers of mood and ego, humanists are inclined to trust "the talking cure" above pharmacology, finding lithium or Prozac less reliable than Freud and Kristeva.

Cultural critics share an attachment to ideology and a distrust of physical experience. Marxist theory has influenced environmental history, often by ignoring natural science. In Marxist readings, economics determines social history; hence capitalism becomes the source for all conflict, oppression, and environmental abuse (Crosby). Such views ignore many inconvenient facts: that disturbance is commonplace in nature; that aborigines and socialists often commit ecocide. Revolutionary theories tend to ignore natural constraints on production: as farmers have long known, floods and locusts can destroy years of rational planning. A more consistent approach examines how social systems change as rural agrarian life evolves toward urban industry (Benjamin, Williams). This emphasis on the interaction of place and work agrees with ecology, which charts how physical conditions may affect beliefs. Historians who accept such a teleology are anticipating ecocriticism, which shares the hope that flawed social conditions may be improved.

In the poststructuralist wave of discourse analysis, references to the natu-

ral sciences are almost entirely missing. Phenomena instead become cultural constructs, void of physical content and subject to cryptic readings. One cultural theorist describes climate and landscape as little more than political conspiracies (Ross, *Strange Weather*), a bias echoed in New Historical readings of culture as shaped entirely by race, gender, class, money, and other factors of material social life. While their political emphasis is welcome, these approaches foreground social conditions and minimize the natural forces that affect history (Thomas, *New Historicism*). For deconstruction, on the other hand, all notions of order and structure become anathema, since language is assumed to have no stable meaning. This view is seen as mainly hostile to authoritarian rule, not as a new idea about nature or culture (Argyros).

Ecocriticism, instead of taxing science for its use of language to represent (mimesis), examines its ability to point (deixis). More developed in Asian than European languages (Liu), deixis locates entities in space, time, and social context. Through deixis, meaning develops from what is said or signed relative to physical space: I-you, here-there, this-that. Common as air or water, deixis expresses relative direction and orientation, the cognitive basis for description (Jarvella). In learning to read land, one can't just name objects but point to what they do: pines live in sandy soil, oaks in clay, and thus their rates of water absorption differ. As one scholar of place notes, the landscape contains many names and stories, so that learning and writing them becomes a way of mapping cultural terrain (Ryden). A biogeographer works in similar ways, reading regional life and land forms, then using ecology to map their interactions (Brown).

In their autobiographical writings, biologists often assert that language helps them develop powers of assimilation and expression. For Lewis Thomas, the core of life is language, which he sees as both mechanical and organic, "and the principal way we transform energy" (Thomas, *Lives of a Cell*). Edward O. Wilson, firmly committed to science writing, also holds that poetry makes science "convergent in what they might eventually disclose about human nature" (Wilson, *Biophilia*). These are not nostalgic concessions to metaphor, but revelations drawn from lives of fieldwork, reading natural signs and finding ways to write them for readers. The earth sciences are "descriptive" because they explain natural forms through verbal composition. In the view of one scholar, Darwin achieved his synthesis of evolutionary theory through the act of composing, by writing out narrative and exposition that spurred larger inferences (Tallmadge). Geologists

often describe tectonic processes as "writing in stone," for that analogy recounts their task of learning natural history (Raymo).

The habit of description has made earth scientists conscious of how words shape their disciplines. An example is *Keywords in Evolutionary Biology* (1992), in which scholars of science, philosophy, and history explicate influential terms that have changed their meaning across time. The keywords, a noun coined by cultural historian Raymond Williams (1976), range from *adaptation to teleology*, and their evolving significance has shaped theory and politics in many fields. As the editors note, keywords reflect not just semantic debates but "a rough map of some of the territory of dispute and change" (Keller 6). That terrain is rugged, for scientific terms are affected by social and lexical change. Such instability opens science at least partially to metaphor, which enlarges meaning, just as ecocriticism seeks to examine how metaphors of nature and land are used and abused.

Ecocritics may detect more parity between literary and scientific writing than other postmodernists, but that view is not eccentric or unprecedented. The early formalists present systematic studies of language, so regular in Jakobson as to resemble genetic code. New Critics used close readings to explore the intricate diversity of words, insisting that they share an organic coherence (Krieger). Structuralism and semiotics focused on descriptive language, offering precise descriptions of the signs and signifying that form culture (Blanchard). Reader-response theory stressed the social, transactive nature of reading in "interpretive communities" (Fish). Studies of orality and literacy examined the evolution of language from internal to external forms, as writing objectified ideas but also conquered pre-literate cultures (Burns, Goody).

Also anticipating ecocriticism were structuralist critics of myth and anthropology who examined symbols, often from agricultural fertility rites, that explain natural conditions or try to prevent disasters, such as famine and flood (Blumenberg). Ethnic and postcolonial studies have a strong regional emphasis, but they dwell on political or cultural spaces rather than their physical environs. In time, ecocriticism may provide critics of race and ethnicity with a view of how those social constructions relate to larger histories of land use and abuse. As land is traded, people are degraded, moved to and from regions as mere chattel in an invidious property system (Dixon).

Ecocriticism finds its strongest advocates today in feminist and gender critics, who focus on the idea of place as defining social status. Of par-

ticular interest is "a woman's place," often described as an attic or closet, that contains yet sustains individuals until they locate a congenial environs (Gilbert and Gubar, *Madwoman in the Attic*; Sedgwick). Some feminists equate anatomy with geography, envisioning the female body/text as a "no man's land" aligned against a hostile masculine world, the patriarchal settlement (Gilbert and Gubar, *No Man's Land*; Pagano, Kolodny). But in this work most ideas of sexual difference still derive from Freudian theory, rather than recent biogenetics. Ecocriticism urges the study of gender to examine evolutionary biology, where communities are not just cultural spaces.

ECOCRITICISM: A BASIC LIBRARY

Having outlined a theory and history of ecocritical principles, I want in closing to describe some basic texts and the areas of culture they treat. After years of reading across several disciplines, from evolutionary biology and landscape architecture to environmental history and ethics, I've come to see that ecocriticism is evolving loosely because its authors share no sense of canon. Often they use similar rubrics, such as Landscape, Place, Region, Urban, Rural, Nature, and Environment, but since disciplinary biases remain strong, these studies rarely cross-fertilize. What follows is a brief account of thirty books I have found useful, grouped by fields. I have omitted essay collections and works cited above, focusing on major texts and examples of strong interdisciplinary analysis. All are readable, teachable, and practical examples of ecocriticism at work, reflecting the issues and genres that have attracted leading thinkers.

Natural Sciences

A fine guide to natural history is Peter Farb, *Face of North America: The Natural History of a Continent* (New York: Harper & Row, 1963), which describes the diversity of landscapes, from coasts to deserts, and how they are shaped by land-water, plant-animal processes. A good collection of natural history ideas and writings is William Beebe, *The Book of Naturalists: An Anthology of the Best Natural History* (Princeton: Princeton University Press, 1988). Pro-Darwin and anti-ecology, Beebe includes naturalist writers from Aristotle to Rachel Carson. For a history of ideas in modern

biology, see Ernest Mayr, *The Growth of Biological Thought* (Cambridge, Mass.: Harvard University Press, 1982), who focuses on the concepts of diversity, evolution, variation, and inheritance. The best introduction to ecology is Edward O. Wilson, *The Diversity of Life* (Cambridge, Mass.: Harvard University Press, 1992), an overview of biodiversity and why environmental stewardship is urgently needed. Wilson traces how new species appear and vanish, explaining that five previous extinctions were natural but the sixth and perhaps last is human-caused and potentially most destructive. Finally, Peter J. Bowler, *The Norton History of the Environmental Sciences* (New York: W. W. Norton, 1994), offers a comprehensive history and cultural critique of Western natural science, from antiquity to modern environmentalism.

Geography

Geography has emerged in recent years as a dynamic field that spans the natural and social sciences. A leading college text is James H. Brown and Arthur C. Gibson, *Biogeography* (St. Louis: C. V. Mosby, 1983), which explains how geological and ecological processes create the geographical distribution of plants and animals. William Norton, *Explorations in the Understanding of Landscape* (New York: Greenwood Press, 1989), examines how sociology, geography, and ecology study landscape by defining the physical and ideological structures that create patterns of human land-use and settlement. The geographical psychology of landscape is the concern of J. Douglas Porteous, *Landscapes of the Mind: Worlds of Sense and Metaphor* (Toronto: University of Toronto Press, 1990), which attacks the banality of modern urban life as a surface "landscape-only" view of the world, devoid of the sensuous freedom and playful exploration of childhood.

Social Sciences

An important early work on the sociopolitical aspects of place is Emma Bell Miles, *Spirit of the Mountains* (Knoxville: University of Tennessee Press, 1975), a "bicultural" study, first published in 1905, that offers a sensible, intuitive view of Appalachia and the importance of matriarchy in mountain cultures. The best account of land politics and economics is Peter M. Wolf, *Land in America: Its Value, Use, and Control* (New York: Pantheon Books, 1981), which studies land as means of wealth for public and private

owners. Wolf explains the history of land sales and profits, plus the arcana of taxes, valuations, zoning, development, and other forms of land regulation, including wilderness preservation. In his study of ecopolitics, Bryan Norton, *Toward Unity among Environmentalists* (New York: Oxford University Press, 1991), argues that the conservation-preservation split stems from two different languages, utilitarian and biocentric, that arose during the Hetch Hetchy controversy between Gifford Pinchot and John Muir. For ethics and policy studies, see Donald Van DeVeer, *The Environmental Ethics and Policy Book: Philosophy, Ecology, Economics* (Belmont, Calif.: Wadsworth Publishing, 1993), a reader that indicates how scientific beliefs often guide the moral assumptions behind economic and environmental policy. Key topics include preservation of biodiversity, relations with species, ecosystems and biospheres, decision making and conflict resolution.

History

Intellectual history maps the progress of ideas, often independent of natural or social evidence. An early example is Clarence J. Glacken, *Traces on the Rhodian Shore: Nature and Culture in Western Thought from Ancient Times to the End of the 18th Century* (Berkeley: University of California Press, 1967), which examines three major concepts, the designed earth, its influence on man, and man's effect on it. A more focused intellectual history is Donald Worster, *Nature's Economy: A History of Ecological Ideas* (Cambridge: Cambridge University Press, 1985), which argues that the historic progress from taxonomy to ecology arose from personal and cultural needs.

Landscape history, an aspect of architectural design, examines the relations between built and natural environments. Central to this approach is the idea of landscape as "shaped land," perceived and molded by the human presence. A fine survey of early history is John R. Stilgoe, *Common Landscape of America, 1580-1845* (New Haven: Yale University Press, 1982), which traces common or shared landscapes as they evolve from local into national forms. In Stilgoe's account, rural places strongly influence urban until the industrial revolution, when the old synthesis of land and design collapses. He has also written important studies of railroads, suburbs, and shorelines as historical landscapes. A work of major theoretical influence is John Brinkerhoff Jackson, *Discovering the Vernacular Land-*

scape (New Haven: Yale University Press, 1984), in which the vernacular, or everyday, materials form a "system of man-made spaces" on the earth, always artificial, synthetic, and subject to sudden, unpredictable change.

Social history has been dominated by Marxist economics, notably in the work of Raymond Williams, whose *The Country and the City* (New York: Oxford University Press, 1973) shaped a generation of scholars in environmental history. Williams argues that the relation between country and city evolved from pressures exerted by capitalism, and that images of those environs must be attached to a material continuum, in which they interact. The most comprehensive application of this theory to American history is William Cronon, *Nature's Metropolis: Chicago and the Great West* (New York: W. W. Norton, 1991), an account of how a city shaped the mid-continent landscape and economy through building commodity markets. Hence the frontier is an urban phenomenon, sustained by Swift, Armour, and Sears.

Postmodern history has adopted other cultural constructs as sources of revision. Paul Carter, *The Road to Botany Bay: An Essay in Spatial History* (Chicago: University of Chicago Press, 1987), defines the Australian past as not temporal but spatial; less a manifest destiny than a nonlinear, random filling of space, according to cultural priorities. Neil Evernden, *The Social Creation of Nature* (Baltimore: Johns Hopkins University Press, 1992) argues that nature is a social entity, evolving steadily and thus not a stable frame for environmental discussion. An outstanding reader that summarizes these and many other lines of historical inquiry is Carolyn Merchant, *Major Problems in American Environmental History* (Lexington, Va.: D. C. Heath, 1993). Using excerpts from historical documents and scholarly essays, plus maps, charts, and glossaries, Merchant presents a feminist and Marxist perspective but also attends to scientific and economic evidence.

American Studies

American Studies scholars work "between" disciplines and so often examine issues of placement as they affect regions and peoples. A significant work on native space is David Murray, *Forked Tongues: Speech, Writing and Representation in North American Indian Texts* (London: Pinter Publishers, 1991), which studies the ideology of translation in many documents, from early treaties to recent ethnography. Allen W. Batteau, *The Invention of*

Appalachia (Tempe: University of Arizona Press, 1990), argues that urban elites, mainly journalists and novelists, created romantic imagery that effaced the region's actual history and geography. Places affect both sides of a controversy, as in Ralph H. Lutts, *The Nature Fakers: Wildlife, Science and Sentiment* (Golden, Colo.: Fulcrum, 1990), which reviews the 1903-8 clash between sentimental and scientific nature writers to pose a larger discussion about the cultural rhetoric of wildlife ethics. In the same manner, Belden C. Lane, *Landscapes of the Sacred: Geography and Narrative in American Spirituality* (New York: Paulist Press, 1988), uses a background in theology to reflect on a hermeneutics of landscape; the sacramentalizing of mountains, deserts, and other locales.

Literature and Media

Work in literature has been quite mixed, often owing to its lack of interdisciplinary content. An example is Gillian Tindall, *Countries of the Mind: The Meaning of Place to Writers* (London: Hogarth Press, 1991), which is concerned not with actual but imagined landscapes, on the grounds that readers may thus see their own places without reference to the originals. On the other hand, Leonard Lutwack, *The Role of Place in Literature* (Syracuse: Syracuse University Press, 1984) preserves a sense of both actual and psychological realms in reviewing two opposed ideas about the earth: it is a hostile, alien place; and yet also man's true home, a schism that creates strong tensions between literal geography and its symbolic purposes. New forms of media promise to complicate that certainty; Joshua Meyrowitz, *No Sense of Place: The Impact of Electronic Media on Social Behavior* (New York: Oxford University Press, 1985), argues that television and computers have created cultures no longer shaped by physical location.

Other literary studies have compared genres to scientific paradigms of nature. A pioneering work, Joseph W. Meeker, *The Comedy of Survival: Studies in Literary Ecology* (New York: Charles Scribner's Sons, 1974) uses ecology to examine human-environment relations in various genres and how they may integrate, allowing us to live in a "comic mode" that is detached, ironic, forgiving about human frailty and dedicated to aligning with the natural order. Gillian Beer, *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot, and Nineteenth-Century Fiction* (Boston: Routledge & Kegan Paul, 1983) explores how novelists assimilated and resisted evolutionary theory, often to create "a determining fiction."

Only recently have scholars begun to define environmental texts, as in Frederick O. Waage, *Teaching Environmental Literature: Materials, Methods, Resources* (New York: MLA, 1985), which introduces the genre in its historic and pedagogic contexts, with practical examples of classes, field projects, and reading lists. The most ambitious effort yet to offer a critical history is Lawrence Buell, *The Environmental Imagination: Thoreau, Nature Writing, and the Formation of American Culture* (Cambridge, Mass.: Harvard University Press, 1995), which uses the figure of Thoreau as a prophetic center from whom radiate essays on such contexts as pastoralism, nature, seasons, place, and pilgrimage. Thoreau brings my account to an end, for he is the author who wrote, "Shall I not have intelligence with the earth? Am I not part leaves and vegetable mould myself?"

NOTE

My thanks to Harold Fromm, Cheryl Glotfelty, Anne Matthews, and Dana Phillips for helpful readings; to Sarah Churchwell, Kelly Flynn, McKay Jenkins, and Patrick O'Kelley for research assistance; and to Princeton University for funding support.

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