

**The Truth of Ecology:  
Nature, Culture, and  
Literature in America**

*DANA PHILLIPS*

**OXFORD UNIVERSITY PRESS**

# The Truth of Ecology

*This page intentionally left blank*

THE TRUTH  
OF ECOLOGY

*Nature, Culture,  
and Literature  
in America*

DANA PHILLIPS

OXFORD  
UNIVERSITY PRESS

2003

# OXFORD

UNIVERSITY PRESS

Oxford New York

Auckland Bangkok Buenos Aires Cape Town Chennai

Dar es Salaam Delhi Hong Kong Istanbul Karachi Kolkata

Kuala Lumpur Madrid Melbourne Mexico City Mumbai Nairobi

São Paulo Shanghai Taipei Tokyo Toronto

Copyright © 2003 by Oxford University Press, Inc.

Published by Oxford University Press, Inc.

198 Madison Avenue, New York, New York 10016

www.oup.com

Oxford is a registered trademark of Oxford University Press

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior permission of Oxford University Press.

Library of Congress Cataloging-in-Publication Data

Phillips, Dana, 1958—

The truth of ecology : nature, culture, and literature in America / Dana Phillips.

p. cm.

Includes index.

ISBN 0-19-513768-X; 0-19-513769-8 (pbk.)

1. American literature—history and criticism.

2. Natural history literature—United States—History. 3. Environmentalism—

United States—History. 4. Environmental protection in literature. 5. Environmental policy

in literature. 6. Ecology in literature. 7. Nature in literature. I. Title.

PS163 .P48 2003

810.9'355—dc21 2002030735

From “The Poems of Our Climate,” “The American Sublime,” “The Glass of Water,” and “The Man on the Dump” in *The Collected Poems of Wallace Stevens* by Wallace Stevens, copyright 1954 by Wallace Stevens and renewed 1982 by Holly Stevens. Used by permission of Alfred A. Knopf, a division of Random House, Inc.

From “For Harold Bloom.” Copyright © 1987 by A. R. Ammons, from *The Selected Poems, Expanded Edition* by A. R. Ammons. Used by permission of W. W. Norton & Company, Inc.

From “The Heaven of Animals” in *James Dickey: The Selected Poems* by James Dickey and edited by Robert Kirschten, copyright 1998. Used by permission of Wesleyan University Press.

From “James Alley Blues” by Richard “Rabbit” Brown. Copyright © 1927 Peer International Corporation. Copyright renewed. All Rights Reserved. Used by permission.

9 8 7 6 5 4 3 2 1

Printed in the United States of America  
on recycled, acid-free paper

## Acknowledgments

Some of the material appearing in chapters 1 and 4 of this book has been drawn from an article published in *New Literary History* in 1999. I'd like to thank the journal's editors, especially Herbert Tucker, for taking an interest in my work. I'd also like to thank my editors at Oxford, Susie Chang and Elissa Morris, for their support and excellent advice.

For encouraging me to write *The Truth of Ecology*, I'm grateful to Will Howarth, who has invited me to join him on conference panels and in his classroom at Princeton University, and who tolerates my apostasy, which makes him not only a good colleague but a valued friend as well. For listening to one of my earliest attempts to define my subject matter, I must thank the members of the English Department at Bryn Mawr College, where I spent two enjoyable years. For their conversation and companionship, I owe a debt of gratitude to the participants in the 1997 NEH summer institute on the environmental imagination held at Vassar College, especially Dan Peck, our host. For defending my (right to) work, my thanks go to Eric Cheyfitz of the University of Pennsylvania. And for making my two-year sojourn at Brown University especially pleasurable, I would like to thank the students there, and Nancy Armstrong and Jim Egan of the English Department.

For putting up with me during many expeditions in search of trout, I must thank my fly-fishing buddies Ed Johanningsmeier and Alan Powell; the knottier problems addressed in this book were reviewed in my head countless times while the three of us were at streamside. Because he often reminds me that culture is essential if nature is to be properly appreciated, and because he sends me the CDs and the news bulletins I need to hear, I'm pleased to be the friend of Michael Burri. For asking me the vital question "Do you know what a hawg is?" way back in 1989, I

must acknowledge Molly Mullin: she is my inadvertent muse. And for nurturing my interest in the thoughtful life many years ago, and for continuing to send me lists of all the birds he has seen (602 species at last count), I'd like to thank Jim Edwards, a genuine intellectual and a philosopher in the best sense of the word.

Finally, for listening to me when no one else was available to hear what I had to say, I must thank Rita Barnard. She set me straight on some theoretical issues, gave me the best editorial suggestions I ever expect to hear, kept me company, and made the sandwiches, too. It was only fair that I should have made the coffee.

## Preface: Nature, Culture, and Literature in America

*“Think like a mountain”: the task promises to be a bit  
tricky for some.*

Ferry, *The New Ecological Order*

We assume that the truth about nature is straightforward. Many of us still believe that ecologists can meet our need for a better understanding of natural processes simply by thinking “like a mountain,” as Aldo Leopold once urged them and all of us to do. “Only the mountain has lived long enough to listen objectively to the howl of a wolf,” Leopold wrote. “Only the ineducable tyro can fail to sense the presence or absence of wolves, or the fact that mountains have a secret opinion about them.”<sup>1</sup> Inspirational they may be, but these words understate the difficulty of the thinking we need to do. Luc Ferry is right to suggest that the task Leopold sets us “promises to be a bit tricky,” since even the best-educated among us fall short of rocklike objectivity and “can fail to sense the presence or absence of wolves.” When it comes to environmental matters, all of us are going to seem like tyros if we measure ourselves by the alpine, inhuman standards of objectivity and sensitivity that Leopold postulates.

In recent decades, increasing numbers of ecologists have realized that knowledge of nature of the sort imagined by Leopold is impossible to acquire, and have suggested that our vision of ecology, and our ideas about and attitudes toward nature, need to be much humbler and a lot more supple than they are. Unfortunately, the humility and suppleness that we need to cultivate seem to be ruled out by the cultural presumptions that shape our thoughts about nature. In the United States, these presumptions give rise to a peculiar contradiction: some of those who still believe that this is nature’s nation also believe that humans are alienated from the natural world by virtue of their enculturation, if not simply because of the bare fact of

consciousness. The two beliefs are incompatible: Americans cannot be natural and alien at the same time. And so round and round the mountain we go, trying to sense the presence of wolves and read the mountain's thoughts, yet secretly afraid we won't be able to do either.

We aren't alone, however, in our confused thinking about nature. Many less parochial conceptions of it, widely credited both in the United States and elsewhere, are also too pat, too vague, and more or less contradictory. For example, ecological research has shown that the ideas that nature seeks to establish balance and harmony and that everything in nature is interconnected are no better than platitudes. Ideas like these are belied by the natural world's tendency to chaos, competition, and continual evolution. Nonetheless, thoughtful and sensitive people, including many American environmentalists and Deep Ecologists, as well as Greens in other countries, still cherish the ideas of balance, harmony, and interconnectedness, and believe that the science of ecology has verified their truth.

Over the course of this book I will address misconceptions of and about both nature and ecology in a number of different contexts, though most often in the context of American literature and literary study. I focus on some attitudes toward nature long regarded as foundational to American culture, attitudes which can be traced back to Emerson and Thoreau, and still more distantly, to Crèvecoeur and Jefferson. My concern, however, is not with the development of these attitudes historically; in fact, I ignore Crèvecoeur and Jefferson altogether. And I have only a few things to say about Emerson and Thoreau, and say them more or less coincidentally, in connection with recent scholarly attempts to provide a genealogy for American nature writing that is rooted in transcendentalist thought. I am going to consider these attempts under the rubric of "ecocriticism," though I think this neologism is just as troublesome as it is helpful. Thus far it has been used to designate "a practice which is necessary," considering the growing importance of environmental issues, and yet "not accurate or coherent," as one British ecocritic has put it.<sup>2</sup>

While I have taken into account a number of issues and have covered a lot of ground in *The Truth of Ecology*, this book isn't meant to be a survey in the usual sense of the term. It doesn't pretend to be exhaustive, for one thing, and it is frankly argumentative for another; nor is it concerned to focus attention on and help create a canon of environmental literature. While writing it, I found myself less interested in establishing lines of descent and zones of influence, and more interested in calling things of that sort into question, especially as they have come to be regarded in ecocriticism. I also found myself concerned less with determining the true historical provenance of American attitudes toward nature than with the issue of whether these attitudes have shaped and continue to shape our thoughts about nature for good or for ill. By "our thoughts" I mean the thoughts of Americans in general, of American writers and critics, especially ecocritics, in particular, and of anyone else who might be interested in the motley interactions of nature and culture in relation to environmentalism.

To put the point another way, though much of the subject matter of *The Truth of Ecology* is American, its perspective is cosmopolitan and comparative, and it refuses to take the value of canons and canyons for granted, no matter how grand they may seem. While strictly speaking this book may be neither very cosmopolitan nor especially comparative, given its almost exclusive focus on American texts, in writing it I pursued a deliberate strategy of estrangement by adopting something like the distanced or comparatist's perspective described by Ursula Heise in her contribution to a recent forum on ecocriticism.<sup>3</sup> I also found myself relying (though not exclusively) on the insights of non-American critics, literary theorists, and philosophers at key junctures in my arguments, insights that on the whole tend to be more skeptical than otherwise. I believe that a skeptical approach to the culture of nature in America is both fully warranted and long overdue (skepticism about nature itself we have had already and in overabundance). As the environmental historian Richard White has noted, "Americans are constantly discovering nature, and through it, or so they think, themselves. But what they discover and how they discover it are hardly simple matters."<sup>4</sup>

*The Truth of Ecology* attempts to rediscover, to complicate, and hence to redefine ecocriticism, where despite the relative newness of the field, or perhaps precisely because of it, some creaky old traditions have found refuge and are giving off an odor of moldy fig, which is not the sort of green ambience ecocriticism ought to have. The first generation of ecocritics has embraced a curatorial model of literary scholarship and has spurned literary theory, apparently without having reaped the benefits of its close acquaintance. This has made ecocriticism seem overly devotional, and hostile to the intellect at times. And though the field has been described as an interdisciplinary one, ecocriticism has been lamentably under-informed by science studies, philosophy of science, environmental history, and ecology, subjects ecocritics cannot afford to ignore for reasons that should be obvious.

So far most of ecocriticism's efforts at being interdisciplinary have been limited to troping on a vocabulary borrowed from ecology, a limitation which is perhaps only to be expected given the traditional and quite belletristic conception of literature held by many ecocritics. It seems to me that to be interdisciplinary is to be plunged into the kind of uncertainty that calls traditional approaches like belletrism into question and creates a crisis, as Roland Barthes suggested some years ago, when the term first became fashionable. He wrote: "The *interdisciplinarity* which is today held up as a prime value in research cannot be accomplished by the simple confrontation of specialist branches of knowledge. Interdisciplinarity is not the calm of an easy security; it begins *effectively* (as opposed to the mere expression of a pious wish) when the solidarity of the old disciplines breaks down."<sup>5</sup>

With Barthes's observation in mind, I've argued in the first two thirds of this book that a satisfactory account of literature's relation to nature and culture can only be offered from a theoretically adventurous and conscientiously interdisciplinary perspective. In its last third, I've provided some examples of what ecocriticism writ-

ten from such a hard-won perspective might be like. In order to adequately address the most complex issues in ecocriticism, or rather in order to complicate the issues ecocritics face to the degree I think is needful, I must first review the history and current state of play in several fields of inquiry, principally ecology, science studies, and ecocriticism itself, with brief forays along the way into recondite subjects like evolutionary and cognitive theory, the history and philosophy of science, pragmatism, neopragmatism, semiotics, cultural studies, postmodernism, and poststructuralism, though with regard to the last items on this list I tread as lightly as I can to avoid setting off alarms and spending too much time lingering over ploughed ground. The need, as I see it, to broach all these topics means that the possibilities and pitfalls of thinking about nature and culture, in a space carved out (or more likely, left open) between disciplines not necessarily compatible with one another, is a central issue of this book.

Ambiguous spaces—desert wastes, barren shores, howling wildernesses—are said to inspire revelations, but interpreting revelations requires us to be as circumspect as possible, even if that means retreating behind closed doors so that we can mull things over in deep abstraction and giving free reign to our powers of doubt. It is interesting to learn, for example, that issues raised by its tendency to fall back on prophetic or literary means of suasion have been recurrent in the history of ecology, where an over-reliance on analogy and metaphor has posed an obstacle to the advance of theory and research. That it must struggle with rhetorical issues would seem to link ecology's misfortunes with troubles of a sort familiar to students of the humanities. They may feel tempted—and have been—to assert that improving our representations of nature and understanding the nature of representation are two aspects of a single philosophical enterprise, and that ecology is therefore on its way to being something literary and literature on its way to being something ecological (it just needs to be given a nudge in the right direction). To make these assertions is to indulge in lazy thinking: in many respects, the vagaries of ecological research and theory and those of literary and cultural studies are not in the least homologous, and it is important to recognize this dissimilarity. If we do, we will have to disagree with the British ecocritic Jonathan Bate when he writes, “Locked in the prison-house of language, dwelling in the *logos* not the *oikos*, we know only the text, not the land. Unless, that is, we could come to understand that every piece of land is itself a text with its own syntax and signifying potential.”<sup>6</sup> In point of fact, ecology offers no support whatsoever for the view, very tempting to a literary critic, that “every piece of land is itself a text.” Our motto, when it comes to judging these matters, should be Nietzsche's: “Seeing things as similar and making them the same is the mark of weak eyes.”<sup>7</sup>

However skeptical this book may be about the importance of questions having to do with the vitality of our representations, questions that a number of ecocritics have thought it essential to ask, by no means does it embrace the proposition that nature is socially constructed because our knowledge is solely representational

(and hence mostly unreliable). However attractive it may be when put to use polemically and deftly applied, which is a lot easier to do in some contexts than in others, as dogma the proposition that nature is socially constructed seems to me either nonsensical (patently false when applied broadly and by rote) or trivial (sometimes true, but in a sense which should prompt us to ask, "But so what?"). I think it is precisely as dogma that the theory of social construction has tended to function most of the time, except of course for those occasions when it has functioned merely as a fount of jargon.

I feel supported in my thoughts on this subject by the philosopher Ian Hacking, who writes, "Social construction has in many contexts been a truly liberating idea, but that which on first hearing has liberated some has made all too many others smug, comfortable, and trendy in ways that have become merely orthodox. The phrase has become code." Doctrinaire social constructionist arguments, Hacking says, are "dull—in both senses of that word, boring and blunted." They reduce the idea of social construction to "a dead metaphor."<sup>8</sup> One can see the potential for orthodoxy, dullness, and dead metaphor, and for triviality, too, in the carefully qualified statement that David Bloor makes about mathematics in his 1976 book *Knowledge and Social Imagery*, an important theoretical source for many social constructionists with an interest in science: "Such a statement sounds very odd, but if mathematics is about number and its relations and if these are social creations and conventions then, indeed, mathematics is about something social. In an indirect sense it therefore is 'about' society."<sup>9</sup> Not only does this sound odd, it also sounds empty.

Despite my lack of faith in the doctrine of social construction as a positive program for the understanding and interpretation of, say, mathematics, I do think that the doctrine can be useful polemically. There are brands of social construction that, if draughts of them are taken in the right measure and somewhat watered down, can help prevent and may even cure certain kinds of naiveté: some versions of realism, for example, though not all versions of it, and certainly not all versions of scientific realism, as devotees of strict social construction have claimed. Its embrace of (a version of) scientific realism notwithstanding, if this book expresses a single conviction most ardently, it is that the success of our efforts to discover whatever we can about the ecological character of the natural world does not hinge on the right representation of nature. And this means that satisfying our desire to value the natural world differently and more dearly than we do need not be thought to depend on the success of forms of representation that are both accurate and artful, and hence realistic in the literary sense of the term, *as opposed to* the scientific.

That satisfying our desire to value the natural world is so dependent has been one of the most frequent claims made to date by ecocritics. It assumes the ability of literature, in particular so-called nature writing, to go science one better by representing nature both with precision and with no sacrifice of literary quality, thereby heightening our perception of the natural world aesthetically while moving us to

greater environmental awareness and involvement, perhaps even revolutionizing our culture in the process. This claim about realism is being made by many ecocritics from what already can be described as an orthodox point of view (never mind all the talk of revolution), and it is based in large part on mistaken ideas about the antirealistic character of literary theory, for which a number of ecocritics have expressed considerable scorn. It is also based on mistaken ideas about ecology, which doesn't offer the support for their faith in realism that these ecocritics have assumed it does. In large part, their mistaken faith in realism results from their having taken popular ecological assumptions for granted. The environmental historian William Cronon writes: "Popular concern about the environment often implicitly appeals to a kind of naïve realism for its intellectual foundation, more or less assuming that we can pretty easily recognize nature when we see it and thereby make uncomplicated choices between natural things, which are good, and unnatural things, which are bad."<sup>10</sup> If the history of ecology teaches us anything, it teaches us that nature isn't so easily recognized.

In order to prepare for the trek across the larger cultural and philosophical landscapes this book traverses, I need to describe those landscapes and the theoretical gear that exploring them requires. Yet despite the metaphor I've just used, I should emphasize, before moving on to the debriefing conducted in chapter one, that I don't think the interdisciplinary study of nature, culture, and literature—or, in short, ecocriticism—will become convincingly theoretical simply by carrying a heavier toolbox, and by training itself to use the tools in that box in the approved manner and more ergonomically. Theories may or may not be like tools. To the extent that they are, their efficacy when we use them to perform the interpretive tasks for which they are designed may be less interesting than their usefulness when we need something handy to jimmy open a stuck concept or break up the hardpan of fixed opinion. I take it that this is why Nietzsche urged us to philosophize with a hammer.

## Contents

- 1 *Expostulations and Replies* 3
  - 2 *Ecology Then and Now* 42
  - 3 *The Science Wars, Ecology, and the Left* 83
  - 4 *Art for Earth's Sake* 135
  - 5 *What Do Nature Writers Want?* 185
- Epilogue: A Word for Wildness* 240
- Notes* 249
- Index* 289

*This page intentionally left blank*

*The imperfect is our paradise.  
Note that, in this bitterness, delight,  
Since the imperfect is so hot in us,  
Lies in flawed words and stubborn sounds.*

*Wallace Stevens, "The Poems of Our Climate"*

*Though I personally would be satisfied to spend the whole  
of eternity gazing at a blue hill or a butterfly, I would feel  
the poorer if I accepted the idea of there not existing still  
more vivid means of knowing butterflies and hills.*

*Vladimir Nabokov, "Prof. Woodbridge in an Essay  
on Nature Postulates the Reality of the World"*

*A thousand cultures, one nature. A hundred obsessions,  
one way to breathe. A hundred thousand social science  
books presenting millions of pieces of information; one  
knowledge and rare thought.*

*Michel Serres, The Natural Contract*

*This page intentionally left blank*

## The Truth of Ecology

*This page intentionally left blank*

# I

## Expostulations and Replies

*Books! 'tis a dull and endless strife:  
Come, hear the woodland linnet,  
How sweet his music! on my life,  
There's more of wisdom in it.*

*And hark! how blithe the throstle sings!  
He, too, is no mean preacher:  
Come forth into the light of things,  
Let Nature be your teacher.*

*William Wordsworth,  
"Expostulation and Reply"*

### *The World, the Text, and the Ecocritic*

Because American ecocriticism, as a movement, is only about a dozen years old, generalizations about it are hard to make and still harder to validate.<sup>1</sup> So I want to begin, not by describing the principles and practices of ecocriticism in any detail (in fact, that is something I want to delay, especially as regards the practices, until chapter four), but by looking at what seems to be, for many of its adherents, ecocriticism's moment of origin, which is threefold in its implications. This moment takes the form of an epiphany: of a discovery, or a renewal, of faith in all things green, just as the bewildered ecocritic emerges from the vale of all things black and white. The ecocritic's epiphany seems to make the newly enlightened student of literature and culture feel a lot better, at least for a moment, but it is actually an ambivalent experience and soon gives rise to a corrosive negativity. As interpreted by those who claim to have had it—and to judge from the evidence presented so far—the ecocritic's epiphany can be summed up by the propositions (1) that nature, which is refreshingly simple, is good; and (2) that culture, which is tiresomely convoluted, is bad; or (3) at least not so good as nature. And insofar as the ecocritic's epiphany inspires such thoughts, its implications are largely reactionary. This becomes increasingly clear as soon as one begins to view ecocriticism's moment of origin in its broader cultural and intellectual context (as I will do, more or less systematically, in the second half of this chapter).

The following passage, which I quote from Frank Stewart's book *A Natural History of Nature Writing*, can stand as a fair example of the more or less embittered way in which ecocritics interpret their epiphanies and begin their new careers as academic Jeremiahs and John Muirs:

On a morning several summers ago, as I glanced up from researching the postmodern poets and critics, through the narrow window above my head I saw that the brightening dawn had made my reading lamp unnecessary. A pale mist hung like a veil over the deep meadow outside, and the violet morning colors were tinting the ends of the long grasses.

Unlike Zarathustra, the author of this passage does not emerge at dawn after a restful, strength-restoring sleep. This nascent ecocritic has been up early wrestling with abstruse, difficult texts, and once he has seen the light of day and the Wordsworthian "light of things," these "postmodern" texts will figure not as part of the solution, nor as part of the problem, but quite simply as *the* problem he must resolve or, in a concession of defeat, push to one side. Only then can he answer the beckoning call of morning mists and tinted grasses, having decided that "literary theorists and academics" tend to "distance the humanities and the literary arts from the natural world outside their offices," something he no longer wishes to do.<sup>2</sup>

Not that resisting the temptation to theorize is going to be as simple a matter as getting up and walking outdoors into the sunshine: the coils of culture, ecocritics like to remind themselves, are not to be shuffled off with an easy shrug. As Stewart puts it, "What we always see when we look at nature is our own eyes looking back at us, filtering and altering what we choose to perceive, what we emphasize or ignore, what questions we ask and pursue."<sup>3</sup> Thus the ecocritic's epiphany initiates a process of reflection (of an implicitly and ironically theoretical character), which seems to give the pursuit of the ecocritical vision a certain moral and philosophical grandeur.

A crisis of conscience and of consciousness similar to Stewart's is described in many of the ecocritical essays and monographs published since the late 1980s. This suggests that for ecocritics, invoking their epiphanies has become a ritual by means of which they can display their professional bona fides and, at the same time, register their critical opinions not only of literature and culture but of the academy, too. Quite possibly this ritual has become a signature feature setting ecocriticism apart as a minor genre all its own; much that calls itself ecocriticism may strike outsiders as having more in common with the personal essay than with literary and cultural criticism as currently practiced in the academy, and for the good reason that escape from academic constraints is one of ecocriticism's central themes. For instance, the ecocritic Patrick Murphy writes: "One day, while I was attending a seminar on Menippéan satire, the whole literary-criticism game became transparently irrelevant to events in the world." It was many years, he says, before his realization of the

irrelevancy of “the whole literary-criticism game” got cashed out in the form of ecocriticism.<sup>4</sup> Another ecocritic, SueEllen Campbell, reports feeling pulled in different directions by her attraction to theory on the one hand, and to narratives of wilderness adventure and nature writing on the other. She claims to have reconciled the two kinds of texts by pursuing a vigorous program of reading—and an equally vigorous program of backcountry hiking in the Colorado Rockies.<sup>5</sup>

That the ritual invocation of the moment of epiphany is centrally important to ecocriticism is also borne out by the work of Lawrence Buell, who since the publication of his book *The Environmental Imagination* in 1995 has emerged as a de facto spokesman for the movement. Like Stewart and many others, Buell argues that engrained mental habits and the forces of institutional inertia must be overcome before an ecocritic can kick free of the shackles of academic training and university life. Otherwise the longed-for epiphany may not occur, or when it does occur, it may have a decidedly bookish flavor—as it does when, describing a dawning of insight similar to the one described in the passage from Stewart’s book that I quoted above, yet different from it in distinctive ways, Buell writes:

The grove of second-growth white pines that sway at this moment of writing, with their blue-yellow-green five-needle clusters above spiky circles of atrophied lower limbs, along a brown needle-strewn ridge of shale forty feet from my computer screen—this grove can be found in the pages of American literature also, but it is not the woods imagined by American criticism.<sup>6</sup>

As this passage illustrates, odd wrinkles tend to creep into the fabric of the quintessential ecocritical experience, which isn’t as decisive as ecocritics would like it to be. Here we are not confronted with a (relatively) clear-cut distinction between text and world—between postmodern poetry and criticism lit by electric lamplight, and pale mist and grasses illuminated by the morning sun. Instead, Buell presents us with a scenario in which an exemplary grove of white pines does not stand juxtaposed with and in indictment of the diminished and diminishing world of words, but is said to be in two places at once: forty feet from a computer screen, and “in the pages of American literature,” where literary critics have ignored it, culpably so.

Several pages earlier, anticipating the charge of negligence he is about to lodge against his fellow critics, Buell writes: “When an author undertakes to imagine someone else’s imagination of a tree while sitting, Bartleby-like, in a cubicle with no view, small wonder if the tree seems to be nothing more than a textual function and one comes to doubt that the author could have fancied otherwise.”<sup>7</sup> Well, small wonder indeed, or so it seems to me, since this view of the tree, which in this case is without doubt a purely imaginary entity (“someone else’s imagination of a tree”), is an eminently commonsensical one. The scenario Buell has sketched, both here and in the first passage I quoted, is much less scandalous than he seems to think it is, if it is scandalous at all.

I suspect that what really concerns Buell and his fellow ecocritics is the architecture and the interior design of the contemporary academy, where many of the rooms afford their tenants impoverished views of the extramural world. Ecocriticism has been eager to redirect its gaze toward this world, and understandably so. But its practitioners have been hasty in formulating their arguments about what it takes to shift the focus of our gaze, both individually and collectively, especially where the specifics of literary criticism and literary theory are concerned. The questions we need to ask of them, and of ecocriticism as a movement, with regard to those specifics, are these: We know you told us that it's a window, but isn't that actually a looking glass hanging there on your wall? Couldn't that explain why, when you try to look through it, what you see are your own eyes looking back at you, just as one of you (Stewart) has admitted?

To get a sense of the difficulties ecocritics will have when they try to answer these questions, it will help if we return to Buell's description of the vista he enjoys (as one of the lucky few) from his workstation. As I've suggested, the epiphany of the second-growth white pines is an odd one: in it, the pines figure as guidebook-perfect exemplars of their species. This is an impressive feat, given the vagaries of a pine tree's life in the open air and given the appearance of these particular pines "at this moment of writing," just when an apt illustration of the point being pressed is needed. Rhetorically, these are very convenient and uncannily obliging pines, "with their blue-yellow-green five-needle clusters above spiky circles of atrophied lower limbs." Most uncanny of all, I think, is their dual citizenship as inhabitants of the "brown needle-strewn ridge of shale" and of the pages of American literature. They are the ultimate screen saver for the writer eager to chastise his fellow critics, and fellow authors of criticism, for imagining that trees can serve literature only in the guise of textual functions.

Yet textual functions, in the form of words or phrases postulating an imaginary object, describing an imaginary setting, or suggesting a vaguely personified imaginary entity (such as the woods that we encounter in fairy tales), is surely what trees must be, and can only be, insofar as they figure "in the pages of American literature." It seems not so much naïve as occult to suppose otherwise. I wonder how we should regard trees that are *in literature* as something other than textual functions: I wonder what species of trees they might be, and by what right they will have acquired their unusual standing. Is Buell merely making a claim about the power of description or does he have something more iconic, or metaphorical and symbolic, in mind?

Given how his argument develops over the course of *The Environmental Imagination*, Buell seems to want there to be a relationship between trees in literature and trees in the world closer than a relationship of mere semblance would be, whether that semblance is descriptive, iconic, or metaphorical and symbolic. Such, at least, is the trend of his rhetoric, which throughout his book reveals an inchoate and perhaps not fully conscious desire for a literature of presence. This desire isn't nostalgic,

since in truth it is a desire for a literature the likes of which we've never seen before, however much it may have been intimated in the works of writers like Thoreau (whose admiration for white pines was unparalleled). If I follow Buell's arguments, this literature would be "environmental." It would evoke "the natural world through verbal surrogates," and would thereby attempt "to bond the reader to the world as well as to discourse." Most remarkably, it would enable the reader "to see as a seal might see."<sup>8</sup> But why environmental literature should be deputized to make the presence and reality of the natural world available to us by proxy, when that world lies waiting to be explored by bookworms and bold adventurers alike, is a question insufficiently mooted in *The Environmental Imagination*, and in ecocriticism generally speaking. Devoting our time and energy to the perusal of environmental literature would seem to be a roundabout way for us to secure a bond with the earth: it's as if we should spend our time poring over the personal ads, instead of striking up a conversation with the lonely heart next door.

In raising these questions about the status of trees and of the world in literature, questions about *mimesis* (and Buell does insist on using that term), I am broaching what has been a pivotal issue in American ecocriticism, one I would like to lay to rest, if I can, over the course of this book.<sup>9</sup> But first I should make my own position as clear as possible, since it is apt to be misunderstood: I am a sort of agnostic. I think we need to cure ecocriticism of its fundamentalist fixation on literal representation, and shift its focus away from the epistemological to the pragmatic. For a garden-variety pragmatist of the sort I think ecocritics ought to be, to assert the imaginary status of the things we find depicted in literature raises no issues of belief or of professional relevance. It's something we can do without posing anything controversial about either the world or the text, most especially the text, which if it is literary must be imaginative by definition and well-established convention. Otherwise the garden-variety pragmatist is perfectly happy to take the representational powers of language for granted, much in the same carefree way that the force of gravity is taken for granted. Not that the garden-variety pragmatist would deny that there are important questions to be asked about representation and gravity once we depart from the workaday realm of common sense: that's something we are compelled to do sometimes, if we happen to be literary critics, philosophers, physicists, or rocket scientists, who can't always be insouciant about such matters for professional reasons.

While lodging its complaints about the limitations of literary study, ecocriticism has regularly gone well beyond the realm of the plausible in its declarations about what literature can and ought to do. It needs to be reminded that the difficulty of making a case for mimetic representation is not solely a freakish by-product of the strange weather of recent academic debate over the latest theories: in certain quarters, mimetic representation has been regarded as a dubious idea all along. In a 1980 essay on the supposed "crisis of representation" in contemporary culture, Umberto Eco writes:

Even assuming that whoever speaks of it has a definition of representation (which is often not the case), if I rightly understand what they're saying—namely that we are unable to construct and exchange images of the world that are certainly apt to convey the form, if there is one, of this world—it seems to me that the definition of this crisis began with Parmenides, continued with Gorgias, caused Descartes no small amount of concern, made things awkward for everyone thanks to Berkeley and Hume, and so on, down to phenomenology. . . . Those who rediscover the crisis of representation today seem to have charmingly vague ideas about the continuity of this discussion.<sup>10</sup>

With the continuity Eco describes in mind, I think we are entitled to ask just how viable ecocriticism's rehabilitation of mimesis is likely to be. It may be possible to qualify the idea of representation-of-things-just-as-they-are so as to make it seem at least reasonable (as Eco argues). Then we might buy into the idea but at a steep discount, recognizing the relative efficacy of language in depicting some parts or even the whole of the world, in response to specific and clearly articulated needs—ordering lunch, for instance, or planning the launch of a mission to Mars. Should we choose to do this, however, we will have to gut the idea of mimesis of most of its content, consigning the strict sense of the term to the history of philosophy, which is where it belongs. As a result, mimesis will come to seem devoid of literary interest, and we will have gained nothing, except perhaps for a short-lived peace of mind and a meaningless rearrangement of our definitions.

I think this is precisely the quandary ecocriticism has put itself in with regard to mimesis, or the representation-of-things-just-as-they-are. Realistic depiction of the world, of the sort that we can credit as reasonable and uncontroversial, is one of literature's more pedestrian, least artful aspects. It comprises, for example, such basics of technique as description. Those who are sticklers for precision and conversant with the long traditions of literary theory and philosophy can see no good reason why we should use a highly contested and highly charged word like "mimesis" to talk about matter-of-fact depiction of the descriptive sort, since doing so raises hackles and inspires distrust. To these sticklers, the issue of mimesis simply does not seem to be a live one. And ironically enough, ecocritics do acknowledge that this is, in fact, a closed file whenever they describe ecocriticism as a revival of mimesis and a counterinsurgency. The romantic appeal of opening a closed file is difficult for others to see.

To make the assertions I've just made is to slight neither art nor the world, though it may suggest that literary criticism still needs to be brought to heel. Consider, by way of illustration of my argument, a case of "dual citizenship" that I think is parallel to the one described by Buell, even if in formulating it I have stacked the deck differently than he has, and even if I am dealing from the bottom of the deck, where things become more obviously fictional and where there are, perhaps, fewer trees. An expatriate American in Paris is an expatriate American in Paris, but if his

name happens to be “Jake Barnes,” he won’t need a visa, a passport, and a birth certificate in order to establish his true national identity. He won’t have one, however rounded his character may seem to Hemingway’s readers, because identities are things had only *in the world*, a place where the preposition at issue (“in”) seems unproblematic. By the same token, I think it is obvious that trees can never be, as Buell insists they are, *in literature*, and least of all *in a novel*, however much they may be “in” it figuratively and even if it is true that because books are made from paper, and paper from pulpwood, trees are in our books (and thus make up the sort of content more suited to chemical than literary analysis).

To insist that trees must be present *in literature*, just because they happen to be mentioned and described or even celebrated there, seems hostile to the very possibility of imagination, which pays its dividends in the coin of figuration, not representation. And to persist in thinking that trees might somehow be present in literature after all, despite the strictures of recent literary theory (and at least two thousand years of philosophy), is uncritical and, worse, hostile to criticism. If we cannot be imaginative, and we cannot be critical, then our only alternative, a poor one, is to be cryptic. Or sentimental, in a Joyce Kilmer-like way: as the reader may have surmised, the poet and author of “Trees” is one of the shadowy figures lurking in the background of this discussion. Another of those shadowy figures is the linguist Ferdinand de Saussure, who drilled his students in the arbitrariness of the sign and thereby helped to found much of what is now thought of as literary theory. It’s a nice coincidence that Saussure’s key example of the arbitrariness of the sign just happens to be the French word for tree (*le arbre*).

The critic and theorist who has put Saussure’s linguistics to the most interesting use may be Roland Barthes, who in his essay “Myth Today” explains the concept of the arbitrariness of the sign as follows: “Nothing compels the acoustic image *tree* ‘naturally’ to mean the concept *tree*: the sign, here, is unmotivated.” And in a passage even more directly relevant to the present discussion, Barthes writes:

Every object in the world can pass from a closed, silent existence to an oral state, open to appropriation by society, for there is no law, whether natural or not, which forbids talking about things. A tree is a tree. Yes, of course. But a tree as expressed . . . is no longer quite a tree, it is a tree which is decorated, adapted to a certain type of consumption, laden with literary self-indulgence, revolt, images, in short with a type of social *usage* which is added to pure matter.

Viewed in Barthes’s terms, Buell’s suggestion that trees can occur *in literature* as something more vital than textual functions must be regarded as an attempt to supply a motivation for literary trees other than a social one. To attempt something like this, Barthes says, is the essential technique of ideology. He writes: “The passage from the real,” by which he means the socially real, “to the ideological is defined as that from an *anti-physis* to a *pseudo-physis*.” The latter is precisely the hallucinatory

stuff that trees-in-literature would have to be made of (if, that is, they are not so to speak “made of” images, ideas, concepts, and the like, as I am arguing they must be). The logic of the passage from social reality to ideology (or to myth) is, Barthes says, tautological, as when one righteously insists, “A tree is a tree,” and means by that to include the tree even “as expressed.” “Tautology is a faint at the right moment, a saving aphasia, it is,” Barthes writes, “the indignant ‘representation’ of the *rights* of reality over and above language,” and it “testifies to a profound distrust of language.”<sup>11</sup> Barthes’s point isn’t that a critic should have no distrust of language whatsoever, but rather that this distrust should not be so extreme as to make the critic impatient with and dismissive of the niceties of language, oral or written, in particular those niceties having to do with verbal reference to things in the world. The critic needs to bear in mind a point that Barthes makes in his essay on “The Death of the Author,” a point consistent with the arguments about the representational function of language often made by pragmatists: “As soon as a fact is *narrated* no longer with a view to acting directly on reality but intransitively, that is to say, finally outside of any function other than that of the very practice of the symbol itself, this disconnection occurs, the voice loses its origin, the author enters into his own death, writing begins.”<sup>12</sup>

Clearly, only the kind of author who is also a critic and for whom writing truly never seems to end, so that it constitutes a sort of living death (here I speak advisedly), would spend time trying “to imagine someone else’s imagination of a tree,” to recall Buell’s sketch of the critic’s way of life. To spend time in this fashion already seems wasteful enough to those who think our turf ought to be literally turf, and who disapprove of the critic’s lifestyle. This lifestyle dictates a daily return to the desk in much the same way that the vampire’s ghoulish condition dictates a return, each dawn and for all eternity, to the coffin. I see no good reason to indict the odd-ball activity of criticism still further, on the additional grounds of its somehow being a slight to those splendid trees growing on that ridgeline over yonder—about which criticism probably has nothing pertinent to say, condemned as it is to approach to the world crabwise and confining itself to the shadows of print.

Confusing actual and fictional trees, or trying to conflate them (however rhetorically and provisionally), would seem to be a primitive error, both in the sense of its being the sort of error that perpetuates myth (or ideology) and in the sense that it occurs at a level of such fundamental philosophical importance as to lead anyone who makes it astray, sooner rather than later. In short, it is a critical error. To cite yet another observation made by Barthes, it overlooks the fact that while “the work is a fragment of substance, occupying a part of the space of books (in a library for example), the Text is a methodological field.” It is “held in language,” not “in the hand.”<sup>13</sup>

Ecocriticism has been staunch in its refusal to view the text in this light. Buell insists that “to posit a disjunction between text and world is both an indispensable starting point for mature literary understanding and a move that tends to efface the world.”<sup>14</sup> Frankly, I don’t see how the second of these assertions follows at all from

the first: the world isn't so easily effaced, unless one has very little faith in it to begin with. I think asserting that the text somehow contains the world or some selected portion of it is "a move that tends to efface the world," portion and all, albeit only *imaginatively*, and not *really*.<sup>15</sup> I can see no reason why the ecocritic should be filled with a burning desire to save the text before the world: texts are disposable, whereas the world is not. And I can see every reason why the ecocritic needs to have a perspicuous sense of the difference between words and things, if only to keep from bumping into the latter unexpectedly. To approach either text or world without a sense of this difference is to attempt the view through the looking glass, and we all know what you are going to see when you attempt this view. That is why the ecocritic's epiphany is more self-revelatory than revelatory of the world: the world, that is, of both words and things.

### *The Pastoral Is Another Country*

*Cause I was born in the country  
She thinks I'm easy to know  
Richard Brown,  
"James Alley Blues"*

What actually seems to be at issue in ecocriticism inspired by epiphanies about the paucity of the "postmodern" text, ecocriticism of the would-be realist variety, is something that the nature writer Barry Lopez has identified as the "interior landscape." In other words, the dynamic of such ecocriticism is, as I've already hinted, more personal than professional, since you don't have to be a geographer or an ecologist to develop what Lopez thinks of as a rich interior landscape. Though if you are neither of those things, it's going to be very difficult for you to grasp the subtleties that Lopez believes are crucially important. He writes: "I think of two landscapes—one outside the self, the other within. The external landscape is the one we see—not only the line and color of the land and its shading at different times of the day, but also its plants and animals in season, its weather, its geology, the record of its climate and evolution." The second landscape, Lopez argues, "is an interior one, a kind of projection within a person of a part of the exterior landscape." It "responds to the character and subtlety of an exterior landscape; the shape of the individual is affected by land as it is by genes."<sup>16</sup>

I have no wish to deny the rich inner lives of those attracted either to ecocriticism or to nature writing like Lopez's. But I can think of no compelling reason to accept the premise that we must establish and maintain firm connections between our inner and outer worlds, which is to say, in the final analysis, connections of likeness between those worlds, with likeness understood or rather misunderstood as identity. Granted, forging such connections might enable us (and I emphasize, *might*) to

go a considerable distance toward ensuring that culture becomes more like nature, and hence less “bad,” than it now seems to be, at least in the eyes of those observers who, rightly or wrongly, are disenchanted with the current status quo. But as humans, we just don’t have the “kinds of minds” that would permit us to make our culture more “like” nature than it already is. As the philosopher Daniel Dennett has argued, “We must be very careful not to think of the inner environment of a Popperian creature” (a creature capable of formulating hypotheses about or, unhappy usage, “representations of” the “external” world) “as simply a replica of the outer world, with all the physical contingencies of that world reproduced. In such a miraculous toy world, the little hot stove in your head would be hot enough to actually burn the little finger in your head that you placed on it!” As with minds, so with texts, those prosthetic extensions of our minds in which we higher “informavores” offload all the stuff we would find it too cumbersome to carry around with us inside our heads, such as warnings about hot stoves, or information about trees and landscapes: about all those things which, taken in sum, add up to our environment.<sup>17</sup>

To be fair to Lopez, he doesn’t say that the interior landscape corresponds to the exterior, but that the interior landscape should respond to, must be responsive to, the exterior. Does this not drive a wedge between his point and the point that I am making by citing Dennett? If so, it is the thinnest of wedges. How well it holds up depends on the construction one puts on Lopez’s emphasis on “perceiving the relationships” in the exterior landscape.<sup>18</sup> What degree of abstraction is such a perception meant to have: is it a matter of theoretical insight, or is it more of a direct apprehension and reproduction in the mind of what Dennett calls “physical contingencies”? Just what kind of perception is it, exactly? This question, or one like it, has been important for ecocriticism, and not coincidentally ecocritics have found Lopez’s ideas about landscape and narrative attractive.<sup>19</sup>

Unfortunately, Lopez himself makes it very clear that he thinks of “perceiving the relationships” in a given landscape as a simple matter of apprehending its many physical contingencies and storing them inside one’s head and heart. He writes:

If you walk up, say, a dry arroyo in the Sonoran Desert you will feel a mounding and rolling of sand and silt beneath your feet that is distinctive. You will anticipate the crumbling of the sedimentary earth in the arroyo bank as your hand reaches out, and in that tangible evidence you will sense a history of water in the region. Perhaps a black-throated sparrow lands in a paloverde bush—the resiliency of the twig under the bird, that precise shade of yellowish-green against the milk-blue sky, the fluttering whir of the arriving sparrow, are what I mean by “the landscape.”<sup>20</sup>

For Lopez, a landscape is something much more immediate and more discrete than the term usually implies: he focuses on the painter’s individual brush strokes, as it were, rather than on the completed canvas. Thus his use of the word “land-

scape” seems to reverse its meaning as a term of art. “Landscape” usually implies thoroughgoing composition on the part of an observer, and as a rule, landscapes do not encompass tactile or auditory phenomena (like the feel of sand beneath one’s feet or the flutter of a bird’s wings), only visual ones (like the yellowish green of paloverde against the milk-blue sky). I think Lopez’s use of the word “narrative” is equally eccentric. By “narrative,” he seems to mean description: the depiction and perhaps even the reproduction in a text of the relationships, or in Dennett’s phrase the physical contingencies, which make up an environment. And the word “narrative,” like the word “landscape,” also implies thoroughgoing composition on the part of an observer.

Narrative for Lopez is always best when delivered in oral form, but his treatment of storytelling also privileges description. “Landscape and Narrative,” the essay from which I’ve been quoting, begins with Lopez’s recollection of an evening he spent in Alaska’s Brooks Range, listening to Nunamiut hunters telling stories about their experiences with wolverines. When the evening was over, Lopez stepped outside and into the landscape, which, he says, “seemed alive because of the stories. It was precisely these ocherous tones, this kind of willow, exactly this austerity that had informed the wolverine narratives.” However, at the essay’s conclusion, he does suggest a less factual, more imaginative model of narrative’s power to engage us. “The interior landscape is a metaphorical representation of the exterior landscape,” he writes; “the truth reveals itself most fully not in dogma but in the paradox, irony, and contradictions that distinguish compelling narratives.”<sup>21</sup> Obviously there is a tension, unresolved in his essay, between Lopez’s treatment of narrative as a precise and authoritative means of representing “ocherous tones” and willow trees, and his treatment of it as a metaphorical means of representing a landscape that leaves space for paradox, irony, and contradiction. However, Lopez leans much more toward the former treatment than the latter—so much so that his use of the adjective “metaphorical” at the end of his essay may be specious.

But whether you plan to do so literally or metaphorically, in order to apprehend the landscape as Lopez characterizes it, you must be armed in advance with some theoretical insights, such as an understanding of the relationship between sedimentation and hydrological cycles. If you aren’t provided with insights of that sort, it will be impossible for you to “sense a history of water in the region.” Nor will you be able to “see” the region’s geology, or “the record of its climate and evolution,” without a fair amount of tuition in those difficult subjects. What needs to be remembered with regard to our perception of such things is that much of the evidence for what we now call geology and evolution lay scattered about the earth’s surface in plain sight long before anyone was able to see it, and describe it, for what it was, which suggests that narratives come before apprehensions and descriptions, just as hypotheses come before representations and are methodologically distinct from them.

I realize that the assertion that narratives come before apprehensions and descriptions, and that hypotheses come before representations, will strike some read-

ers as a very bold assertion, since making it appears to open up a metaphysical abyss at our feet. But I intend the assertion more pragmatically than otherwise: I am not asserting philosophical priority, in other words, only a matter of fact—of “natural history,” you might say. Nor am I suggesting that narratives and hypotheses are somehow deterministic of apprehensions, descriptions, and representations solely by virtue of preceding them. The former come before the latter only in the sense that recipes and cookery come before a fine meal, yet don’t guarantee good things to eat.

The natural history writer Sue Hubbell confirms the humble view of our powers of apprehension, description, and representation that I am proposing here. She writes:

The bits and pieces of life are so numerous that we need to order and classify them before we can think about them. Our sort of brain cannot handle the world in the raw. We have to arrange all the bits into piles, and if there are too many piles we arrange those into clusters. Without ordering systems, which is what taxonomies are, we can’t think, live, or work with our world.<sup>22</sup>

Recipes and kitchenware, it seems to me, are also ordering systems that help us cope with a world presented to us “in the raw” and difficult to digest. Such is life on the uncertain borders where nature and culture meet.

For these reasons, and more, our relationship to landscape is not and cannot be a determinate one, as Lopez seems to be saying it is. “The shape of the individual” may be “affected by land,” but not in anything like the way it is affected by genes. A landscape is either conjectural, an educated guess about the lay of the land, or it is an artifact that has been shaped by human hands, possibly for millennia (so environmental history teaches us). It isn’t “a gestalt that can impress itself on the mind or text” in a “fundamental and binding way,” as Buell, who is paraphrasing Lopez, insists that it is.<sup>23</sup>

The “interior landscape” thus seems to be a dubious idea, so very dubious as to force us to acknowledge that “the environmental imagination” should not be understood as a faithful copyist of natural relationships. The phrase “the environmental imagination” if it belongs to anyone belongs to Buell, who first used it as the title for his 1995 book. Yet he rarely uses it, to employ a dicey preposition, *in* his book. There the preferred terminology seems to be “environmental representation,” which seems to me to be a much less suggestive phrase and an altogether unsatisfactory idea. And I’m not alone in my sense of its limitations and of the unlikelihood of completing the agenda it sets for ecocriticism: Eric Smith, for example, has pointed out that ecocriticism tends to take “the distinction between ‘culture’ and ‘nature’” for granted. The inevitable result, he argues, is that any given answer to “the question of ‘what the land means’ carries only as much weight as the person arguing for it.” The interpretations generated by most attempts to answer this question are the

fruits, Smith adds, of a commitment to dichotomies like subject versus object and society versus nature, and these are “remarkably homogenous classifications for the amazing variety of entities and relationships in the universe.”<sup>24</sup>

If we don’t have the “kinds of minds” enabling us to make copies of and represent “the amazing variety” of our environment fulsomely, it is very unlikely that the kinds of texts we create are going to be any more representational than our minds are. Our minds and our texts are less than fully representational as a matter of practical necessity because we couldn’t do anything worthwhile with them if they weren’t. “The environment contains an embarrassment of riches,” Dennett writes, “much more information than even a cognitive angel could use. Perceptual mechanisms designed to ignore most of the flux of stimuli concentrate on the most useful, most reliable information.”<sup>25</sup> Most of this information will be visual, rather than auditory or olfactory (because of the way our sense organs are structured, because of the way they interface with or bypass the centers of consciousness in the brain, and because smells and sounds are of very low fidelity compared to sights). And most of this information will never find its way into our words: the verbal is not (merely) a handmaiden to the visual.

Ecocriticism, which has tended to take its cues from nature writers like Lopez, wants our sense of things, and our expression of that sense, to be more synthetic than it is, and even synesthetic. But our sense of things is, and will remain, analytic—ineluctably so, and not because of intellectual fashions that make too much of abstraction. Ecocritics who complain that representation has gotten a bad rap in recent decades are every bit as guilty of abstraction as those they chastise for being overly theoretical. They simply prefer a different variety of abstraction, and a more redoubtable one, which they hope will prove impermeable to further analysis. In other words, they want ideas to have the status of facts: they want the world to be in the text.<sup>26</sup>

Ecocritics who want the world to be in the text often describe environmental literature as a kind of writing, in the narrow sense of *inscription*, which bears little of the freight associated with traditional genres and forms. Their description of environmental literature implies that the category must be all but exhausted by so-called nature writing, of which Lopez’s work is a leading example, and which ecocritics are inclined to interpret as if it were veritably a form of writing degree zero, as indeed it often tries to be. Thus ecocriticism’s fretting about the otherwise unremarkable circumstance described by Buell, who points out that “writing and reading are acts usually performed indoors, unachievable without long shifts of attention from the natural environment.”<sup>27</sup> Personally, I find it hard to see why this should be viewed as anything other than a simple matter of practicality: writers and readers do need to seek shelter from cold winds and damp airs, and to concentrate on their texts, when they write and read.

Yet many ecocritics seem to feel that something culpable is going on here, particularly where the scene of reading is concerned. “It is easy to persuade oneself on the

basis of the average critical discussion," Buell complains, "that the literary *naturescape* exists for its formal or symbolic or ideological properties rather than as a place of literal reference or as an object of retrieval or contemplation for its own sake." And so it is; but are "its formal or symbolic or ideological properties" not the things that make a "*naturescape*" literary, as opposed to literal, in the first place? Description is not and need not be the same thing as documentation. The scandal that alarms ecocritics of the realist stripe only arises if one assumes that the fictional dimension of literature—of all literature, even the nonfictional, paradoxical as this may seem—is somehow the source of its faults. Only then will one seek to treat literature as no more than a kind of writing, and writing as no more than a form of bookkeeping. Only then will one seek to reign in what Buell refers to, scathingly, as "the power of imagination, textuality, and culture over the malleable, plastic world that it bends to its will," all of which he opposes to "thick description of the external world."<sup>28</sup> But without "the power of imagination, textuality, and culture" to enrich it, thick description may form only a hard crust of verbiage with little of literary or cultural interest at its center. It may be virtuous, yes, but it's also likely to be boring.

Because it needs to stave off the threat of boredom, propping up discredited theories of representation is only one of the strategies ecocriticism has adopted to offset what it sees as the problematic status of textual functions, and to compensate for the formal, symbolic, and ideological properties of works of literature, or all those things that damage literature's truthfulness. If the postmodernist poets and critics, not to mention the postmodernist novelists, playwrights, and journalists, along with their ugly cousins the poststructuralists and deconstructionists, are to blame for the constriction of the current academic and cultural purview, then the obvious thing to do is to find a reasonable alternative to their arcane complexities and sneaky sophistries. For many ecocritics, one of the oldest varieties of literary expression, the pastoral, has seemed to provide this reasonable alternative, not only as object of study but also as mode of scholarship. Buell, for example, suggests that his book, "in focusing on art's capacity to image and to remythify the natural environment, is itself a kind of pastoral project," and other ecocritics have made similar claims.<sup>29</sup> For the most part, however, ecocritics have used the word "pastoral" very broadly to mean "having to do with nature," while ignoring or dismissing as irrelevant its less convenient and more literary implications.<sup>30</sup>

That one might invoke a category like the pastoral without simultaneously activating its rules and imperatives, and without buying in to some, at least, of the theories elucidating its rules and imperatives, seems improbable, since these are the very things that make the pastoral a distinct category in the first place. Those who argue that ecocriticism should focus on the pastoral, and that it ought to be a version of pastoral in its own right, too, also must downplay the fact that the pastoral seems to be an ideologically compromised form because of its deployment, especially in British literature, in service of class and imperial or metropolitan interests. In varying degrees, ecocritics are of course aware of the pastoral's checkered past, and

hence of what would seem to be its diminished capacity at present. It is possible, however, that American ecocritics are less savvy than others when it comes to sensing just how problematic the pastoral is, considering the relatively minor role played by the pastoral in American culture, both as literary mode and as an alternative way of thinking about the development and preservation of land. And hence they resist arguments that challenge both the pastoral's worthiness and the possibility of its revival in something other than a watered-down and compromised form.

Given the pastoral's historical tendency to transmogrify and to splinter into different versions, many of which seem incompatible with each other because they serve radically different interests and purposes, I doubt whether ecocriticism will find the pastoral congenial over the long haul. Ecocriticism is impatient with versions—impatient, that is, with texts not tied discretely to referents of fairly specific latitude and longitude, like the white pines of New England or the arroyos of the Sonoran Desert. Buell suggests, however, that at the very least a case can be made for pastoral's "adaptability for ecocentric purposes" and for its capacity to be pressed into service "as something more than ideological theater," and this suggestion would seem to be a reasonable one. That it is so commodious is one reason pastoral is defined as a mode rather than as a genre: it can assume more than one form, and serve more than one master. However, Buell also suggests, much more problematically, that pastoral has the capacity "to register actual physical environments as against idealized abstractions of those," and to make this claim is to argue on behalf of a pastoral that has had its imaginative arc flattened out.<sup>31</sup> (Unless, of course, it is merely an attempt to give the generically and formally ambiguous texts of the nature-writing tradition a more distinguished label than the one they now bear, which seems to be only a list of ingredients—albeit a short one.)

To make the claim that pastoral can "register actual physical environments" is also to argue in the face of the best theories we have about pastoral, all of which stress the pastoral's tendency to treat physical environments idealistically and idyllically, and to wholly transform them imaginatively, too, if that suits its purposes. The most widely known of those theories is adumbrated in William Empson's *Some Versions of Pastoral*, which emphasizes pastoral's status as a "puzzling form" owing to its mutability. The pastoral, Empson argues, can twist itself into such unlikely shapes as the proletarian novel and *Alice in Wonderland*, in which shepherds and their flocks are few and far between, and where "idealized abstractions" are rampant. What makes this contortion and imaginative license possible is something Empson calls "the pastoral process," a process of "putting the complex into the simple."<sup>32</sup>

Applying this definition of the pastoral process to ecocriticism itself is helpful: the urge to do an end run around contemporary literary theory and culture seems to have found an outlet in attempts to put "the complex into the simple" and to restore our sense of the positive achievements and undiluted pleasures of the literary text. But Empson's definition of the pastoral process is distinctly unhelpful when one attempts to apply it directly to the objects of ecocritical interest: texts that engage, or

which are purported to engage, the natural world imaginatively. And this is true whether the engagement of those texts with the natural world is described in terms of their containing propositions meant to be representational, or in terms of their containing propositions meant to be merely speculative and hypothetical. In either case, but especially in the former, “putting the complex into the simple” is bound to fail, not only because we aren’t cognitive angels, as Dennett has pointed out, but also for reasons having to do with the character of the natural world. One of the limitations of the pastoral, quite apart from its tendency to project the preoccupations of a certain social class or a particular empire upon a countryside or a territory imagined as blank—its tendency, as it were, to citify the countryside and to colonize the territory—is the pastoral’s tendency to assume that the countryside and the territory are much *simpler* places than the city or metropolis, when in fact they aren’t.

Leo Marx addresses the assumption of exurban simplicity—the assumption that the country is easy to know—in his discussion of the “pastoral impulse,” which is, he writes, “a desire, in the face of the growing power and complexity of organized society, to disengage from the dominant culture and to seek out the basis for a simpler, more satisfying mode of life in a realm ‘closer,’ as we say, to nature.”<sup>33</sup> The quotation marks that Marx has placed around the word “closer” are telling: the pastoral impulse may lead us astray, away from the dangerous city and into the perhaps still more dangerous countryside.<sup>34</sup>

I think Marx is right to express misgivings about the pastoral impulse. Given what we know about the natural environment—given, that is, its inordinate complexity, about which we don’t know nearly enough—the pastoral impulse will surely lead us astray. The assumption behind the pastoral impulse or process, and not the impulse or process itself, is what we must regard as faulty. If anything, the city is the simpler place environmentally or, rather, ecologically, in light of the fact (the historical fact) of its having been made over into a greener and more pleasant space, and therefore a more “pastoral” one, or so we might argue. The city has been cleared of its native flora and fauna and drained of standing water to get rid of the effluvia and pesky bugs that make country living difficult to survive. It also has been plotted in a rational, easy-to-comprehend grid, then replanted in exotic shrubbery, grasses, and flowers, and then stocked with pigeons for retirees to feed and dogs for children to pet. Because the countryside has not been groomed quite in the same way and to the same exhaustive degree, to go into the countryside is to go *up* the scale of complexity, not *down*, despite the bright lights, noisy uproar, tall buildings, convoluted traffic patterns, and rich human mosaic of the contemporary city—all those things addressed by street smarts. It follows that the pastoral process is one in which ecocritics (and environmentalists) ought not to engage if they want to assert the importance of understanding the untamed natural world.<sup>35</sup>

The upshot of all this may be that ecocriticism should be *more* antirepresentational than other forms of criticism, not *less*, and perhaps more antipastoral and antihumanist as well. That is, it should be neutral with regard to representation, the

pastoral, and humanism, since those things, far from being elements of its purview, should be part of the domain it surveys critically. After all, to assume that literature can put nature right again—in the world, in texts, and in our hearts and minds—begs all of the questions ecocriticism has volunteered to try and answer. I think ecocriticism ought to cultivate an attitude of wary impartiality, which should be the best way to avoid what Buell calls the “environmentalist’s dilemma of having to come to terms with actual natural environments while participating in the institutions of a technological culture that insulates one from the natural environment and splits one’s allegiances.” This is a dilemma that Buell says the pastoral “anticipates,” and I agree, because I think it’s a dilemma that by anticipating the pastoral first helps to create, then sustains and exacerbates.<sup>36</sup> The pastoral does this when it buys wholesale the distinction between natural environments and “the institutions of a technological culture,” a distinction ecocriticism thinks it must overcome by making those institutions (beginning with literature) somehow more natural than, at present, they are.

To phrase the point I have been making in more theoretical terms, the pastoral process of putting the complex into the simple is a process of troping. It is, moreover, an extremely reductive process, however imaginative it might seem, if it is true that the essential trope of pastoral is metonymy.<sup>37</sup> As Paul Alpers argues, “Metonymy is a trope we associate with prose narrative and particularly with the realistic novel. But it is also appropriate to pastoral, in which . . . the ethos of cultivated sensibility produces a rhetoric of discretely apprehended pleasures.”<sup>38</sup> A good example of a metonymy that has been serving a pastoral function in the text of ecocriticism might be the use of the term “landscape,” as devotees of discretely apprehended pleasures like Lopez use it, to mean “environment.” Landscapes are more easily apprehended than the environments in which they are situated in space, for the simple reason that environments are not spaces but hyperspaces. Of course, to refer to environments is also to avail oneself of a trope (a synecdoche, perhaps, since the whole is made to stand for all of its parts), but we have got to call environments *something*, even if properly speaking “they” aren’t “things” at all and therefore should not be referred to as if “they” were. As for landscapes, I very much doubt whether we can make sense of them in the piecemeal fashion that Lopez advocates. Some tropes serve us better than others, and I’m forced to concur with Flaubert’s sardonic dismissal, in his *Dictionary of Received Ideas*, of landscapes on canvas as “always so much spinach.” Landscapes in words, it seems to me, are monocultural and monotone—and full of spinach—in just the same way. They also lack the complexity and biodiversity that make natural landscapes compelling, and thus they inspire a false confidence in fusty categories like the pastoral.

When I say that environments are hyperspaces, I have in mind the definition of the term “niche” preferred by contemporary ecologists: the niche is not an address, they like to say, but a profession. In other words, they try to correct for the mistaken impression one might get of the ecological niche owing to the spatial connotations of

the term “niche” in its original discursive context, which was architecture. An ecological niche is a multidimensional hypervolume, and not all of its dimensions are spatial: likewise, an environment.<sup>39</sup> In other words, relationships of contiguity, of mere juxtaposition in physical space (metonymic relationships, we can call them), may constitute a landscape without constituting an environment, which is an inestimably richer concept though not, for all its richness, a failsafe mechanism of ecocritical discourse. That discourse has yet to develop tropes enabling it to come to terms with the fractured (and fractal) realities of nature.

Having said the things I have just said, I have introduced several concepts and a term, “hyperspace,” which will allow me to move on and explore the issue of postmodernism. As we’ve seen, ecocritics have characterized postmodernism as the philosophy espoused by the opposition and hence as something to be scorned. A case, I think, of sibling rivalry, since postmodernism and contemporary pastoralism appear to be two expressions of the same set of assumptions, more alike than their superficial differences would lead one to believe.<sup>40</sup>

### *The Truth of Ecology in a Hyperreal World*

*The truth: what a perfect idol of the rationalistic mind!*

*William James, Pragmatism*

Near the end of his classic essay “Travels in Hyperreality,” Umberto Eco describes a visit he once paid to the San Diego Zoo. The zoo, Eco realizes, is a lofty undertaking, a living natural history museum famous for its wild animal habitats designed with ecological rectitude in mind. Yet the zoo is also a theme park, and hence a place where poignant forms of duplicity are on display. Its split personality prompts Eco to comment, “Of all existing zoos, this is unquestionably the one where the animal is most respected. But it is not clear whether this respect is meant to convince the animal or the human.” The ambiguity of the zoo’s intentions was underscored for Eco at the time of his visit by the behavior of one of its inmates, a brown bear known not by the scientific name *Ursus arctos horribilis* but by a less daunting given name, which was Chester. The bear’s behavior, like its name, had been modified: whenever one of his handlers tossed him a cookie, Chester would wave a friendly forepaw at passersby. Reflecting on Chester’s winsome behavior and affable demeanor in his 1975 essay, Eco writes: “This docility arouses some suspicions. Where does the truth of ecology lie?”<sup>41</sup> I believe that Eco’s question is still waiting for a good answer over twenty-five years later, and it seems to me that it’s likely to have to wait even longer, since its final word can mean more than one thing. I’d like to think, moreover, that the double meaning of “lie” is not a spurious trace of the translator’s art: I’d like to think that it is intentional, and that Eco is asking both where

the truth of ecology is located, and whether it isn't subject to domestication of the sort that leads to distortion and falsification.

Thanks to Chester and to the equally theatrical antics of a few of his fellow inmates, Eco's visit to the zoo did nothing to disperse the atmosphere of hyperreality through which he made his way during his American travels. In fact, it heightened that atmosphere, since given its undeniably alive yet tame animals, its natural yet manmade habitats, and its allegiance to both science and the entertainment industry—to exact knowledge, and to all the emotions aroused, but not clearly defined, by art—the zoo seemed to acknowledge the truth of ecology and yet, in good hyperrealistic fashion, it also seemed to make this truth into a lie, by dislocating and distorting it.<sup>42</sup> Thus the zoo was no exception to the pattern Eco discovered as he traveled back and forth across the United States.

In his essay, Eco suggests that America's avid pursuit of the real invariably gives rise to the hyperreal. The result of this strange dynamic is a national culture in which imitations, copies, and fakes are cherished and proliferate wildly, so much so that they become indistinguishable from the genuine article, the original. And this strange dynamic is at work, Eco discovered, even where one might expect it least. In zoos and in other wildlife parks like Marineland, the animals seem paradoxical because they are both authentic, placard-bearing members of their species and highly trained performers conditioned to interact with and imitate humans. This creates a situation in which "all is reality but aspires to appear sign."<sup>43</sup> The oddity of this situation is, of course, not limited to zoos, wildlife parks, and other tourist attractions. In fact, it typifies American culture as a whole, or so Eco argues. His essay is an exhaustive inventory of the hyperreal, and he makes it clear that hyperreality is much more than a form of poor taste endemic to the vacationlands of California and Florida. It is a full-blown cultural condition shared in equally by all Americans, not excluding literary critics. So no matter who or what you may be, you cannot escape hyperreality by wishing things were more authentic than they are. Hyperreality is too substantial to be dealt with that way, and it is epistemologically perverse, in that your wish for authenticity is one of its root causes.

The most peculiar thing about the hyperreal is that while it may not be genuine, it is real and forms a part of the actual fabric of things. This peculiarity is particularly frustrating with regard to a subject like ecology, an area in which the hyperreal has made still more inroads since Eco published his essay. To cite an apposite example, the San Diego Zoo recently featured a display of topiary rhinos in which the leafy pachyderms were portrayed as California surfers, a choice of stereotype inspired by and cross-marketed with a popular children's book. The display was, alas, only temporary, but those of us who failed to make it to San Diego to see "Rhinos Who Surf" in person didn't have to feel that we were missing something vital. We could do a little surfing of our own, visit the zoo's Web site, and have a look at the exhibit online. As we pondered the images of sportive rhinos and the associated text,

we had to concede that the implications of an exhibit like “Rhinos Who Surf” were difficult to sort out, as Eco realized years ago. Clearly the exhibit was pachyderm-positive, but its positive attitude toward the rhinos was purchased at the price of misrepresenting them, no doubt in order to make them more appealing to small children and parents than, truth be told, most large, slow-moving, leaf-munching herbivores are: in their natural state, rhinos can be as placid as horned cattle. Possibly the exhibit of topiary rhinos was intended to teach an important ecological lesson having to do with the food chain (“You are what you eat”) allegorically, albeit paradoxically, by being rigorously literal-minded about it. Perhaps the green medium was the green message, but I doubt it: the exhibit didn’t seem that clever.

Nonetheless, it would be a mistake for us to think the San Diego Zoo’s further ventures into popular entertainment and new media mean that it has abandoned, scaled back, or fatally compromised its educational, scientific, and conservationist missions. Its Web site also documents the zoo’s ongoing involvement in efforts to restore to sustainable numbers a number of species currently on the brink of extinction.<sup>44</sup> Such efforts are controversial, however, and like “Rhinos Who Surf” they tend to produce mixed results. A few once-endangered species have benefited from our attempts at animal welfare and their numbers have rebounded, while others, despite years of captive breeding and habitat preservation guided by the best theories and the most sophisticated techniques of applied science, still hover at or near the vanishing point. Some of our efforts to save endangered species seem to have had the unintended consequence of adding to their already considerable burden of stress.

In light of mixed results like these, and in view of the mounting evidence generated by research in the field, ecologists now acknowledge that nature is extraordinarily complicated and that it is therefore much harder to figure out than they once believed it would be. In fact, complexity itself, once thought to guarantee ecological stability, is now seen as, well, more complex than that. The difficulty of understanding nature is compounded still further by the fact that while it may be thoroughly implicated in culture, as Eco suggests, the reverse is also true: culture is thoroughly implicated in nature. Whenever we try to figure out nature, we are also trying to figure out ourselves; and we are creatures capable of inventing surfing rhinoceros topiary while earnestly expending enormous amounts of money, time, and effort to restore the same species we once tried, and in a few cases are still trying, to obliterate—including, not coincidentally, the rhinoceros.

What to think, then, about what Eco calls “the truth of ecology”? As another pioneering explorer of hyperreality, Guy Debord, once put it, “Within a world *really on its head*, the true is a moment of the false.”<sup>45</sup> Of course, if the radical point Debord makes is to be a self-consistent one, then it also must be the case that there are times when the false is a moment of the true. “But surely,” we may be tempted to protest, “appealing to nature will help us to cut through this kind of guff. Surely the epistemological quandary we find ourselves in at junctures like these is merely the result

of the cultural confusion engendered by hyperreality or, to use the more widely circulated and, indeed, almost hackneyed term, by *postmodernism*?"

The impatience that this protest expresses is another of the feelings lurking behind Buell's arguments in *The Environmental Imagination*. The book's third chapter ends with a brief attack on hyperreality, both as idea and as phenomenon instanced in such recent developments as the computer technologies we take advantage of when we do things like visit the San Diego Zoo's Web site. Buell takes Jean Baudrillard to task for arguing, sensationally, that virtual reality generates "an entire ecology." No doubt this claim is hyperbolic, as Baudrillard's claims tend to be, but I don't see how it differs in kind from the claims ecocriticism has made about the potential richness of the interior landscape, be it psychological or textual. It is hard to see why the interior landscape is not equivalent to "an entire ecology" as well, especially given the fact that Baudrillard cashes out his idea in terms of a "sensorial mimetics and tactile mysticism," terms and concepts very similar if not identical to those many ecocritics and nature writers assume and like to use.<sup>46</sup> What is the interior landscape's saving grace? And what makes environmental literature innocent of the hubris expressed in and by virtual reality?

Buell's answers to these questions are that the interior landscape knows its place, and that environmental texts unlike hypertexts are more self-effacing and less self-important when it comes to representing the natural world, since they recognize the "comparative impotence" of literary realism. In short, the difference between hypertexts and environmental texts is only a difference of degree. Environmental literature takes the Goldilocks approach to mimesis: it is realistic, but not too realistic—only just realistic enough. Thus it avoids being "a way station on the path toward total technological control over reality." "Environmental literature in particular has to defer," Buell argues, "to the authority of external nonhuman reality as a criterion of accuracy and value."<sup>47</sup> It therefore speaks in a still, small voice; it is not writ large; it charts the scaled-down topography of the interior landscape, the modesty of which makes it more virtuous than virtual.<sup>48</sup>

But as Eco argues, deferring "to the authority of external nonhuman reality as a criterion of accuracy and value" is no safeguard against hyperreality, which is engendered by what he calls a "reconstructive neurosis." In other words, once you start appealing to reality, it's as if you can't help yourself. Precautionary measures not only are bound to fail, they are bound, like all repressive measures, to exacerbate the very condition they are designed to address. Eco writes: "The frantic desire for the Almost Real arises only as a neurotic reaction to the vacuum of memories; the Absolute Fake is offspring of the unhappy awareness of a present without depth." He might as well have said that the Absolute Fake is the offspring of a pastoral impulse. If America is both the site and subject of a new pastoral, as some ecocritics have argued, and "a country obsessed with realism, where, if a reconstruction is to be credible, it must be absolutely iconic, a perfect likeness, a 'real' copy of the reality being represented," as Eco argues, then in order for American literature's pastoral

representations to be recognized as its marks of authenticity, as ecocriticism would like them to be, the textual and the factual simply must be brought into greater accord. This, Eco says, is precisely where hyperreality lays its trap: "To speak of things that one wants to connote as real, those things must seem real. The 'completely real' becomes identified with the 'completely fake.' Absolute unreality is offered as real presence."<sup>49</sup> So protests against hyperreality, when couched in the form of complaints about its unreality, can be unwittingly contributory to it. Hyperreality is rubber, and it is glue: what you say about it bounces off, yet sticks to both it and you.

With this thought in mind, we are in a position to notice something we haven't noticed before about those white pines that, according to Buell, are "present" both outside his office window and in the pages of American literature. Like the topiary "Rhinos Who Surf," the white pines are problematic entities, in that they, too, seem to be hyperreal, and not despite but precisely because of their guidebook perfection. They are flawless, and their tractability "arouses some suspicions," as Eco says of Chester the bear's friendliness, because it is compulsory. *Must we say what we see?* Ecocriticism has thought that we must.<sup>50</sup> It wants to flatten out the arc of imagination horizontally, in order to bind the imagination more securely to nature as "criterion of accuracy and value," whereas postmodernists see this arc becoming steeper and steeper as the imagination is bound ever more securely to the vertical axis of culture.

The postmodern idea about nature is that nature is largely irrelevant to today's culture both on philosophical grounds (grounds articulated by poststructuralism and similar schools of thought) and as a matter of historical fact, despite our continued interest in nature as evidenced by all those zoos, parks, books, Web sites, documentaries, and essays in ecocriticism. Postmodernists like to dismiss nature by tossing off a world-weary apothegm, implying that either you savvy nature's irrelevancy immediately or you do not, and if you don't savvy it you won't get to be a postmodernist. To the uninitiated, postmodernist discourse seems to be wholly a matter of rhetoric and style. It seems, that is, to be wholly a matter of retailing anecdotes and making aphorisms couched in the Hegelian, Nietzschean, and Heideggerian rhetoric of negation, paradox, and wordplay, and not at all a matter of making closely reasoned arguments. The conclusion that this impression is an accurate one is difficult to avoid when we review the coroner's reports certifying the death of nature issued by a number of prominent theorists and critics of postmodernism since the 1970s.

Only a few of the more choice passages from these coroner's reports need to be cited here. The medical metaphor is appropriate, given Jean-Francois Lyotard's breakthrough diagnosis of postmodernity as a terminal "condition," especially where nature is concerned, and in more than one sense of the word "terminal." "Data banks," Lyotard writes, "are the Encyclopedia of tomorrow. They transcend the capacity of each of their users. They are 'nature' for postmodern man."<sup>51</sup> Baudrillard makes essentially the same point about the epoch-making significance of

computers as Lyotard does, but he makes that point more epigrammatically and portentously, as is his wont, and with a less gracious bedside manner. "Digitality," he intones, "is with us."<sup>52</sup> Linda Hutcheon's gloss of the magisterial judgments of writers like Lyotard and Baudrillard captures both the full sweep of their dismissal of nature and the paradox they imply. She writes: "Even nature, postmodernism might point out, doesn't grow on trees."<sup>53</sup> Her recycling of the cliché about money is exemplary: it is axiomatic that postmodernist irony thrives on the salvaging of hackneyed language and familiar imagery.

Hutcheon may be guilty of trying to give an old saw new teeth, but it nevertheless seems to me that when she says nature "doesn't grow on trees," she sums up the postmodern consensus about the unnatural character of nature in today's world. To hardcore partisans of culture, certain gestures of affection for nature—tree hugging, for example—have begun to seem less than relevant, and even embarrassing. These partisans argue that nowadays everything belongs to culture, which explains why they dispense with nature summarily. From their certifiably postmodern point of view, nature is at best a remnant of what it used to be, and when culture looks at nature, it says, "Been there. Done that." As postmodernists tell the story, culture is very glib, even if it isn't very original.

Here, then, is the postmodernist scenario that ecocriticism finds objectionable: "When nature was still natural, it was analog, and we found its nuances difficult to capture. We had to hunt and gather or sow and reap, and we found nature hard to represent in anything other than schematic ways—myth and the pastoral mode, for instance—all of which were, like topiary, of disappointingly low definition. Now, thanks to the successes and excesses of modernity, nature is almost entirely a cultural phenomenon, and contemporary culture isn't at all analog. 'Digitality is with us.' All we have to do is point and click. We can forage electronically, not only for food and clothing when we 'go' home shopping but for data and imagery too. Tides and temperatures, storm fronts and stream flows, intimate views of wild animals, and of some which are not so wild, like the surfing rhinos, are captured by satellites, remote sensors, and Web cams, and made available to us instantaneously and at high resolution. Space is abolished. Time has become download time, measured not in hours, days, and seasons but in bauds and kilobytes. It follows that nature itself is no longer natural. We have conquered nature, even if our victory over it seems in many respects to be an object lesson in debilitating side effects like acid rain and global warming. Digitality, as Baudrillard calls it, is notorious for producing just that sort of irony: the archetypal form of digital technology, the computer, is a tidy little package of toxic compounds and heavy metals. So much for a sleek future brokered for us by our electronic brains! This is why there is a 'post' in 'postmodern.'"

One sign of the seductiveness of postmodernist discourse is that even its sharpest critics accept some of its least persuasive claims, especially if they happen to be claims about nature. For example, in a widely read 1984 essay, Fredric Jameson, whose critique of postmodernist thinking is among the most trenchant, wrote that

he was “tempted to speak” of a “new and historically original penetration of Nature” effected by what he called “the logic of late capitalism,” or in a word postmodernism.<sup>54</sup> Of course anything penetrated by capitalism, early or late, is likely to be badly shopworn thereafter, an implication borne out by Jameson’s subsequent statements regarding the fate of nature. In a 1991 book that massively expands upon the ideas he had expressed on the subject seven years earlier, he writes that postmodernism “is what you have when the modernization process is complete and nature is gone for good.” This last phrase should bring us up short: we have traveled a great distance in a very brief time if nature’s condition can be downgraded from poor in 1984 to “gone for good” in 1991. Why, one wonders, does Jameson say “nature is gone for good”? He takes others to task for expressing apocalyptic sentiments of this sort when he complains about the “inverted millenarianism” of postmodernist discourse. How is his hyperbolic suggestion that “nature is gone for good” not an example of the “inverted millenarianism” he dislikes? He writes that “the other of our society” is “no longer Nature at all,” “but something else which we must now identify,” and this certainly *sounds* apocalyptic.<sup>55</sup>

I think Jameson would respond to the questions I have raised by arguing that his statements about nature are not apocalyptic at all but, to use a term he favors, “historicized,” by which he would mean that his statements are historical *and then some*, or both factual and theoretical at once. So when he says nature is gone for good, he means that nature-as-anyone-who-is-steeped-in-Marxist-theory-might-view-it is gone for good, that nature as a resource to be exploited by whatever means of production are available is all but exhausted, or at the least, severely depleted.<sup>56</sup> Heavy industrial production on the grand scale of the nineteenth and the first half of the twentieth century is supposed to be winding down, at least in the west; thus Jameson favors a maximally sophisticated variety of Marxist analysis no longer attending so closely to the trade of gross commodities like sugar, wheat, coal, oil, iron ore, and the labor it takes to produce them. Neomarxist or postmarxist analysis à la Jameson will instead contemplate the less material and more refined, almost ethereal modes of production of multinational capital.

The new modes of production are primarily and splendidly electronic (or so Lyotard and Baudrillard once asked us to believe: we now have good reason, in the wake of the failed dot-com revolution, to suspect otherwise). Capitalism’s boldest endeavors no longer involve the extraction of raw stuff from the earth, but endless recycling. However, it isn’t the recycling of paper, plastic, glass, and other not-quite-consumables that interests venture capitalists, and is of concern to critics and theorists like Jameson, but the elliptical orbits of credit, debt, imagery, and information, the ever-returning flux of myriad simulations of what used to be called cash value. This flux now constitutes an entire economy, to paraphrase Baudrillard. As for use value, that once-cherished quality seems scarcely to exist anymore, and we are left to wonder what it was, exactly. Not that we ever really knew; as Jameson points out, use value “at once drops out of the picture on the opening page of *Capital*,” so that

for Marx, “henceforth value as such and ‘exchange value’ are synonymous.” All this happens despite the fact that, as Jameson puts it, capitalism has created conditions in which “the deep underlying materiality of things has finally risen dripping and convulsive into the light of day; and it is clear that culture itself is one of those things.” Yet it is equally clear to Jameson that the material isn’t what it used to be, and that “we have had to learn that culture today is a matter of media.” Matters of media have a knack for seeming wonderfully immaterial, existing as they do as pure notations of exchange. In this new atmosphere of immaterialism, and as some students of the so-called postmodern sublime have suggested, “the sacred and the ‘spiritual,’ which would seem to have been ruled out of court with the triumph of capital, may have gotten a new lease on life after all.<sup>57</sup> Where there is no television, the people perish; but where is there no television?”

To sum up, postmodernity is what one gets when modernity is forced to eat its own young. Or to put the point another way, postmodernity is what one gets when modernity, having run out of ideas and raw material, can no longer “make it new,” as Ezra Pound urged it to do, and must recycle everything, including its ideas, imagery, and metaphors.<sup>58</sup> When the arc of the imagination becomes too steep, it collapses, and culture can be relied on no longer, at least not in the old familiar ways. Culture may be gone for good, too; we begin to feel as nostalgic for it as we already do for nature.

You might think that postmodernists and their critics, too, would be less droll and less aphoristic when they bring us this bad news. But they often intimate that the disappearance of nature is not really news at all, which may be the truest measure of their attitude toward it. They regard nature’s disappearance as the predictable and necessary outcome of modernism, and as such, it isn’t altogether undesirable. The disappearance of nature is the price we have to pay for culture, which remains the highest value for postmodernists, just as it was for the modernists, even if postmodernists acknowledge that culture has been vaporized (decentralized, deconstructed, and digitalized). In other words, postmodernists are modernist in their values, but forlornly so, because they feel a nagging sense of having overrun the teleology of their favorite ideas. This is why they treat the metropolis as the cultural equivalent of an endangered species, and are panicked by the prospect of its disappearance. The classic statement of this theme is Debord’s: “Economic history, which developed entirely around the opposition between town and country, has arrived at a level of success which simultaneously annihilates both terms.”<sup>59</sup> The annihilation of terms and erosion of distinctions is a central motif of the postmodernist lament.

For just this reason, it seems clear that postmodernism is incapable of telling a coherent story, much less generating a *theory*, about the disappearance of nature. It simply has to take nature’s disappearance for granted. That is why its doyens like to tell the rest of us, “Of course we have gobbled nature up and destroyed it; you seem to have forgotten that’s what culture is *for*.” Not in the least bit concerned with nature, postmodernism is instead a theory about the increasing absence of high culture

in its traditional home in urban space, owing to its steady leakage into suburbia, exurbia, and the media, from whence culture sometimes returns in a form hard to assimilate with avant-garde modernist values. That another result of the steady leakage of high culture from the city center is the accelerated diminution of the natural world is, as postmodernism sees it, only a coincidence. It's an instance of what military strategists call collateral damage. One can be witty about it.

Obviously the claim that culture has subsumed nature, and may have eradicated it entirely, is unsupported by the available evidence and fails to take into account the actual state of the natural world today. Postmodernists make this claim anyway, in large part because they continue to try to understand nature using a Marxist model (however modified) in which nature and culture are opposed, and in which much of the evidence about nature is perforce obscured. Ecologically, Marxism is an inadequate model because not everything that humans consume can be counted as something they produce, as the environmental historian William Cronon argues:

What Marx labeled "relations of production" might in an ecological context better be seen as relations of *consumption*, since all human labor consumes ecosystemic energy flows in the process of performing physiological and mechanical work. This has the consequence of seriously undermining Marx's labor theory of value, in which commodities acquire their use value almost entirely from the human labor that workers contribute to their production.

Cronon's point is that what is called "production" is as much a matter of *taking* as it is of *making*. Production and consumption are therefore not two different moments of a dialectical process, but are interwoven with each other each and every step of the way. Cronon argues that schemes, like Marx's, which treat production and consumption separately and seek to describe all possible modes of production, do "violence to the diverse complexity of ecological (and historical) reality." "The phenomenon called capitalism," he suggests, is especially "hydra-headed."<sup>60</sup> Because they are unschooled in environmental history, many postmodernists, and their critics, too, conflate the cultural logic of late capitalism and its natural logic, making it difficult for them to assess capitalism's ecological impact and causing them to overlook the fact that, as the philosopher Michel Serres observes, "we receive gifts from the world and we inflict upon it damage that it returns to us in the form of new givens."<sup>61</sup>

Postmodernists also tend to rely on forms of reasoning based on the supposed primacy of representation in culture when they turn to consider the natural world, just as many ecocritics do. But relations of cause and effect cannot be reduced to relations of signifier and signified. Thus postmodernists fail to recognize that the efficacy of human designs for and intentions toward nature is sharply limited. This is precisely why coyotes have become common in the eastern United States, despite the volumes of discourse dedicated to establishing their status as varmints, and de-

spite decades of efforts to eradicate these creatures in their western homelands, where they have more than endured.<sup>62</sup> The New York state legislature can set aside Adirondack lands for a park, but the legislature cannot keep coyotes out of that park. Nor can the U.S. Fish and Wildlife Service ensure that the endangered whooping cranes, Florida panthers, red wolves, blackfooted ferrets, and green-backed cutthroat trout entrusted to it will survive, even if it preserves the habitats in which those creatures are known to have evolved, no matter what cultural resources it employs. Many endangered animals may be living in too diminished a gene pool to increase their populations effectively, and their habitats may be too fragmented to serve their needs. Even if every other factor works in their favor, these animals may have a run of bad luck as a result of harsh weather during their first breeding seasons back in the wild, in which case coyotes will be only too glad to scavenge the carcasses of the last survivors. When they do, it will be a sad day, but it won't be the end of nature. Coyotes have been playing the role of scavengers for millennia.

### *It's a Real World After All*

*Here they are. The soft eyes open.  
If they have lived in a wood  
It is a wood.*

*James Dickey,  
"The Heaven of Animals"*

In an intellectual and cultural atmosphere of hyperreality and in a natural environment like the troubled one I've just described, it isn't surprising that the concept of truth should seem to have suffered some grave damage, beyond repair, and to have become infected with falsity, so that some truths now seem to be lies. There is something missing, however, from the picture of hyperreality's relationship to postmodernism, and of the relationship of both to the natural world, that I have sketched thus far. When Eco asked his question about the whereabouts of ecology's truth in his 1975 essay, he did so in wonder and in a spirit of intellectual adventure. However distorted by hyperreality he thought it had become, he had not given up on ecology's truth altogether, as some postmodernists appear to have done. I think this is the case because of the fact that Eco, since he is not only a semiotician but a literary critic and a novelist, too, is not given to metaphysical turns of mind, as many postmodernists are, despite their belief in the end of philosophy. To his great credit, Eco always keeps his wit and his wits about him: he is an extremely subtle student of contemporary life.

Eco is also a funny sort of pragmatist.<sup>63</sup> There may not be any other kind, given William James's definition of the "radical pragmatist" as "a happy-go-lucky anar-

chistic sort of creature.”<sup>64</sup> Like James, Eco realizes that the distinction between truths and untruths has never been quite so sound as we would like to believe: that “the truth” has been worshiped as a false idol. This means that it also may be possible to be a happy-go-lucky postmodernist, a creature of lively paradoxes, and to agree with Paul Feyerabend when he writes, “As regards the word ‘truth’ we can at this stage only say that it certainly has people in a tizzy, but has not achieved much else.”<sup>65</sup> It is crucial to recognize that Feyerabend wrote these words as a skeptical philosopher of science, but as a great admirer of science nonetheless. As happy-go-lucky anarchistic sorts of creatures, we should understand that being in less of a tizzy about truth means treating the distinction between the true and the false as less than essential, yet still extremely important.

Other distinctions, and not least of all the distinctions between reality and hyperreality, modernity and postmodernity, nature and culture, will need the same kind of treatment. In order to come to grips with this new breed of distinction we are going to need, among other things (like good luck), not the reinvigoration of time-honored categories like the pastoral or the realistic, but a greater sense of irreverence toward our own received ideas and a willingness to improvise—a willingness, as it were, to philosophize with a hammer. In his book *We Have Never Been Modern*, Bruno Latour addresses this need. He suggests that what makes the contemporary world particularly difficult to understand is the fact that in it, “all of culture and all of nature get churned up again every day.” The evidence of this churning up of culture and nature is to be found, he says, all around us. In our daily newspapers, for instance, where we can read the latest stories about genetic engineering, AIDS, tropical deforestation, global warming, and so on. Reacting to a story about the hole in the ozone layer, Latour writes:

The same article mixes together chemical reactions and political reactions. A single thread links the most esoteric sciences and the most sordid politics, the most distant sky and some factory in the Lyons suburbs, dangers on a global scale and the impending local elections or the next board meeting. The horizons, the stakes, the time frames, the actors—none of these is commensurable, yet there they are, caught up in the same story.

All of these incommensurable things might be described, and have been, either as cultural or as natural. Yet intentionally or unintentionally, human hands have re-fashioned even the most natural of them, so that they also seem intensely cultural. At the same time, many phenomena that seem fully cultural are bound up and run together with things and events in the natural world. The effect of this multiple causal heritage, shared by everything that we touch and everything that touches us, is the confounding of our basic categories. Things are too richly determined: our categories cannot cope. We live in a mongrel world, a world tinged with unreality but fatally real for all that. Latour puts the point this way: “The ozone hole is too so-

cial and too narrated to be truly natural; the strategy of industrial firms and heads of state is too full of chemical reactions to be reduced to power and interest; the discourse of the ecosphere is too real and too social to boil down to meaning effects."<sup>66</sup>

In his reflections on our current state of confusion, Latour doesn't say what his critics, who accuse him of being a postmodernist, as well as his admirers, who welcome him to the fold as a fellow postmodernist, might expect him to say. He doesn't say that "the ozone hole" is evidence of the fact that for the first time in our history, culture has supplanted nature altogether. Instead, he says that the power of technology to churn up culture and nature is nothing new; therefore, the contemporary world cannot be literally a postmodern one, and no one, or at least no one who wants to keep their wits about them, can be a dyed-in-the-wool postmodernist. Uncompromising postmodernism is impracticable, Latour argues, because its view of nature is both impoverished and impossible to maintain. Latour writes: "No one has ever been modern. Modernity has never begun. There has never been a modern world." He adds that this explains "the hint of the ludicrous that always accompanies postmodern thinkers; they claim to come after a time that has not even started!"<sup>67</sup> By insisting on the absurdity of such claims, Latour does not mean to imply that he thinks the earth is flat and flying machines are only a silly pipedream. His point is that while the discovery that the earth is a sphere and the Apollo landings on the moon are real achievements of genuinely historic importance, they do not entail the total conquest and liquidation of nature by culture, contrary to what modernists, postmodernists, and antimodernists, too, may have thought.

Scientific discovery and technological achievement do not mark our final alienation from nature: they mark our ever-greater involvement in it. Once upon a time, Latour writes,

Nature seemed to be held in reserve, transcendent, inexhaustible, distant enough. But where are we to classify the ozone hole story, or global warming, or deforestation? Where are we to put these hybrids? Are they human? Human because they are our work. Are they natural? Natural because they are not our doing. Are they local or global? Both.

Postmodernist thought has a hard time accounting for the hybrid, monstrous phenomena created by contemporary environmental disasters and maladjustments, Latour argues, because it only juxtaposes the "three great resources of the modern critique—nature, society, and discourse—without ever trying to connect them."<sup>68</sup> Unlike most historians, critics, and philosophers, Latour resists epoch-making distinctions, like that between the premodern and the modern, or that between the modern and the postmodern. He also resists what Barthes calls "that inveterate emblematicism which has us turn every word into a watchword against its opposite (creativity versus intelligence, spontaneity versus reflection, truth versus appearance, etc.)."<sup>69</sup> Latour suggests that watchwords are something to watch out for, and that

epoch-making distinctions obscure as much as they reveal. More discerning diagnoses and subtler physicians are needed in the treatment of our contemporary condition, whatever name we choose to call it by.

Most postmodernists are, as Latour would point out, intellectuals of the literary sort, and the fact that some of the most noted of them (like Lyotard and Baudrillard) have been French philosophers, rather than mere *litterateurs*, doesn't alter the case at all, though it does deepen its peculiarity. But perhaps it also helps to explain why they seem content to deal in large abstractions and don't bother to expound a definition, much less a philosophy, of nature: they simply feel no need to do so. Their turf isn't natural but cultural, which means that they are content to take for granted much if not most of what culture has bequeathed them, and to define nature solely by means of example and by negation. Postmodernists point to the disappearance of nature, all those vanishing acres of rainforest and all that dissolving atmospheric ozone, and describe it as a triumph of culture, a triumph some of them seem, perversely, to relish.

As Latour suggests in his remarks about the inherent limitations of contemporary intellectual culture, the puzzle posed by postmodernism has its source in an unacknowledged indebtedness to the very traditional ways of thinking that postmodernism claims to overthrow, but in fact only reaffirms. Just as philosophy used to do, and no doubt in some precincts still does, postmodernism aspires to be a theory-in-general by virtue of achieving the equivalent of "the view from nowhere."<sup>70</sup> Its adherents represent themselves as intellectuals without portfolios, wandering the cultural landscape at large and speculating about it freely. Because they take a generic approach to things, they often rely in their books and essays on the house style of modern philosophy, which presumes to offer us the generic view of things par excellence. Postmodernism is rife with philosophical language despite its disavowal of both the argumentative procedures of philosophy and philosophy's habit of making truth-claims (or claims about the possibility of making truth-claims).<sup>71</sup> And using philosophical language leads postmodernists to make statements about the natural world more hyperbolic and more gnomic than need be.

Notoriously, "nature" is one of philosophy's least precise and most contested terms.<sup>72</sup> Philosophers working in the modern metaphysical tradition tend to treat "nature" like the other terms they use in their arguments, terms like "being," for example. When philosophers speak about nature, they are concerned not with the biosphere but with something else, and just what this something else might be, if it "be" anything at all, is hard to say. The result is that in philosophical jargon "nature" functions as a catchall term whose referent is a poor sort of *Lumpenphänomenon*: nature is everything that culture is not, and it gets treated (thought of and written about) as if it were nugatory, a trifle. And while nature may be everything that culture is not, this does not mean that nature is admitted to be "something," if I may borrow the word Eco uses to define "being."<sup>73</sup> To stipulate that nature is something, and not just something else (who knows what?), would be to concede more ground

to common sense than either philosophy of the modern, metaphysical kind or postmodernism is willing to give up.

From an environmental as well as an ecocritical point of view, to think that nature is merely a resource for humans or a backdrop for their activities is unsatisfactory. Thinking of nature this way tends to rule out in advance any form of argument that might with justification be called environmental or ecocritical. If the extreme forms of the postmodernist argument were correct, environmentalism and ecocriticism would have no proper subject matter. The problem with postmodernism, however, is not so much in its conclusions as in its initial assumptions, which insofar as nature is concerned are all hand-me-downs from the philosophical tradition. This is an amusing circumstance, since postmodernism is supposed to mark the abrogation of that tradition; but many postmodernists still belong to the same old unhappy tribe in which the *a priori* is worshiped as the reigning god, even if they suspect that the Great God A Priori has absconded.<sup>74</sup> Postmodernists are the kind of relativists who become relativists because they begin life as absolutists and grow unhappy when things don't work out as promised by tradition. As Richard Rorty has noted, with regard specifically to Lyotard, postmodernist "end-of-philosophy thinking sees the philosophical tradition as an extremely important failure."<sup>75</sup> If it seems to postmodernists that philosophical argument is inadequate and that nature has disappeared, it only seems that way because they once held unreasonably high hopes for the adequacy of philosophical argument and the resourcefulness of nature.

Postmodernists, Latour says, are "disappointed rationalists" who continue to accept modernism's "way of dividing up time." Postmodernists "feel that they come 'after' the moderns, but with the disagreeable sentiment that there is no more 'after.' 'No future': this is the slogan added to the moderns' motto 'No past.' What remains? Disconnected instants and groundless denunciations."<sup>76</sup> If Latour is right, postmodernists must lack a sense of mission. They must be discouraged by the tedium of discovering (*a posteriori*, of course) what the philosopher Max Black calls the "regularities and irregularities of experience," since they have no taste for the kind of work such discovery involves. They are disappointed to learn that there are "inexorable limits" placed on our desires, especially our intellectual desires, and specifically our hopes for language, since "no roads lead from grammar to metaphysics," as Black says.<sup>77</sup> The curious thing, and it is an enduring curiosity, is that anyone ever should have thought that there might be such roads. Baudrillard notes that "the objectivity of the fact does not check" what he calls the "vertigo of interpretation."<sup>78</sup> True enough: interpretation does tend to run wild and make one dizzy. But why should that count as an original, "postmodernist" observation? Or are we once again witnessing the ironic, "postmodern" refurbishing of a stale insight?

I agree with Latour that we can argue entirely on *a posteriori* and therefore not on philosophical grounds (relatively speaking, of course) that postmodernism offers us an inadequate account of the contemporary world. All we need to do is pick up a newspaper, as Latour says. Or we might try conducting one of the thought experi-

ments described in *We Have Never Been Modern*, where Latour argues that contemporary intellectuals need to come to terms with the fundamental continuity of human life throughout history and of “nature, society, and discourse.” To help us grasp these continuities, Latour sketches the following scenario: “I may use an electric drill, but I also use a hammer. The former is thirty-five years old, the latter hundreds of thousands.” Having offered this image of himself with both ancient and contemporary tools in his hands, he then asks, “Would I be an ethnographic curiosity?” The answer is no, because electric drills and hammers aren’t categorically different kinds of objects. Both are hand tools, as are tools involving so-called high technology—like computers, for that matter. By the same token, even things as apparently novel as the hole in the ozone layer are nothing new under the sun: the earth has a long history of global environmental maladjustments. As Latour says, “We have never really left the old anthropological matrix behind,” and “it could not have been otherwise.”<sup>79</sup> The old anthropological matrix is our necessary context, in which we evolved and will continue to evolve as a species, or not (in which case the coyotes will be happy to scavenge our remains). If there is an ethnographic curiosity to be explained with regard to the truth of ecology, presuming for the moment that there is such a thing, it is the frequent denial by humans of the continuity of their life in nature and on earth.<sup>80</sup>

To restore our sense of the richness of the anthropological matrix, and to jar us out of stale habits of thought by exposing and exploding them, Latour constructs puzzles like that of the hammer and the electric drill, and then he disassembles those puzzles in fresh, unexpected ways. He argues that “the intellectual culture in which we live does not know how to categorize” the “strange situations” produced by the interaction, combination, and recombination of nature and culture because they are simultaneously material, social, and linguistic, and our theories are poorly adapted to them. Our theories take no cognizance of what Latour likes to call “nature-culture.” He writes: “The great masses of Nature and Society can be compared to the cooled-down continents of plate tectonics. If we want to understand their movement, we have to go down into those searing rifts where the magma erupts.”<sup>81</sup>

Venturing into this uncertain space, where the *terra* is not yet *firma*, will mean giving up or at least loosening our grip on the “distinction between objective fact and something softer, squishier, and more dubious,” as Rorty phrases it.<sup>82</sup> It also will mean becoming more comfortably doubtful, and being in less of a tizzy about truth. We will have to think differently and from a different perspective, one less coolly objective than the one we have been imagining. And we will have to heed John Dewey’s observation about the way in which we acquire our knowledge:

Empirical facts indicate that not error but truth is the exception, the thing to be accounted for, and that the attainment of truth is the outcome of the development of complex and elaborate methods of searching, methods that while

congenial to some men in some respects, in many respects go against the human grain, so that they are adopted only after long discipline in a school of hard knocks.<sup>83</sup>

Soft, squishy, dubious, error-ridden, and hard-won knowledge is not solely the subject matter of cultural critics and philosophers like Latour, Rorty, and Dewey. Scientists, too, are intimately familiar with it, and so are artists. In fact, we all are familiar with that kind of knowledge (there isn't any other), even if we don't always like to admit it, especially not when our veracity, our accuracy, or our expertise is challenged.<sup>84</sup>

That knowledge should be soft, squishy, dubious, error-ridden, and hard-won reflects the fact that sometimes the "social construction of nature" (to recall that ill-considered phrase) is efficacious and sometimes it is not. This is the case both for ecological reasons and, more broadly, for reasons having to do with the fact that, as Eco has said, "there are lines of resistance." Some lines of resistance are ecological, but many are not, because they are physical or chemical or geological or broadly natural in some other respect, and needless to say lines of resistance can be social or cultural, too. Because there are lines of resistance, "being, even if it appears only as an effect of language" (a proposition that Eco, as a semiotician, is willing to entertain for technical reasons, which needn't concern us here), "is not an effect of language in the sense that language freely constructs it." Being, it must be remembered, really is something. Eco points out that however formless and in flux being may seem, it has a habit of refusing our terms:

Being says no to us in the same way a tortoise would say no if we asked it to fly. It is not that the tortoise realizes it *cannot* fly. It is the bird who flies; in its own way it knows it can fly and does not conceive of not being able to fly. The tortoise proceeds on its earthbound path, positively, and does not know the condition of not being a tortoise.<sup>85</sup>

The ability to tell a tortoise from a bird is a minimal requirement of environmental proficiency that most postmodernists and all ecocritics should be able to meet after a little study. There are no borderline cases, no creatures of either bird or tortoise kind presenting the careful student with anomalies of the sort literally embodied by ill-assorted creatures like the duck-billed platypus, the echidna, or the lungfish. Such being the case, we need not be unduly alarmed about the reliability of our knowledge of nature, and can try to move forward on our own earthbound path

This, however, is something ecocriticism has been slow to realize, which confirms that it has a lot more in common with postmodernism than it recognizes.<sup>86</sup> Like postmodernism, ecocriticism also assumes that we have become modern. The bulk of its efforts to trace the connections between culture and nature have been devoted to attempts to imagine what it must have been like in the good old days before

we were drawn into conflict with nature, conquered it, and then severed our connections with it, inaugurating modernity as “a new regime, an acceleration, a rupture, a revolution in time.”<sup>87</sup> No wonder, then, that when they fight the good fight against postmodernism, ecocritics tend to backslide. Unless the proper discipline is maintained, such apostasy is probably inevitable. Ecocriticism, as an interdisciplinary enterprise, has had a hard time maintaining the proper discipline—a hard time remembering that, as Eco says, there are lines of resistance.

Consider what happens in SueEllen Campbell’s “The Land and Language of Desire,” one of the few essays to attempt a rapprochement between ecocriticism and postmodernism. Campbell argues that ecology (by which she means a form of environmentalism, specifically Deep Ecology) and contemporary literary and cultural theory are very much alike: “Old beliefs, old relations of power, old oppositions—ecology, like theory, would restructure them all.” Citing Gary Zukav’s New Age classic *The Dancing Wu Li Masters* (a study of what are supposed to be the deeply significant connections between Zen Buddhism and quantum physics), Campbell adds: “Theory and ecology agree: our perceptions are always subjective and we are always involved.” Having established the idea of the theory-laden and relational character of our perceptions as a key principle, she applies it to the natural world:

A deer, for instance, has no being apart from things like the presence or absence of wolves, the kind of forage in its environment, the temperature and snowfall of any given winter, the other animals competing for the available food, the numbers of hunters with licenses, the bacteria in its intestines that either keep it healthy or make it sick. Theory and ecology agree that there’s no such thing as a self-enclosed, private piece of property, neither a deer nor a person nor a text nor a piece of land.<sup>88</sup>

This might seem like good intellectual doctrine to some, and the impulse behind it, the desire to see how things hold together in the natural world, is admirable. And yet Campbell’s view of deer is flawed. She encourages us to treat deer, real live ones, fur, antlers, and all, as functions of the environments they inhabit. And on her view, these environments, along with everything in them (wolves, forage, snowfall, hunters, bacteria), must be subject in their turn to the same processes of qualification that effectively eliminate deer from consideration as beings that really are something. Considered at a certain remove and a high level of generality, Campbell’s view may be persuasive as theory: as I pointed out earlier, environments are in fact entities that we have posited but have never observed in the wild, and never will. But deer aren’t like that, and Campbell’s view is nonsense as biology. No ecologist would agree with her that because they are caught up in ecological relationships larger than themselves, “there’s no such thing” as a deer, or a piece of land.

Campbell makes an error complementary to the one made by antitheoretical, realist ecocritics who argue that texts are like the world: she argues that the world is

like a text. She fails to recognize that deer are beings who can, in effect, say no even to ecology, and have said no to it more than once, on the many occasions when their behavior and population dynamics have failed to conform to ecological models. The view Campbell urges may be fine insofar as environments, which are merely supposititious, theoretical entities anyway, are concerned, but it isn't a practical view to take of deer.<sup>89</sup> Fortunately for them, deer can mount some resistance to our perceptions of them, as well as to wolves, hunters, microbes, and bad weather. Deer like tortoises are inveterate refuseniks, positively so; and if they have lived in a wood, it is a wood.

### *Loose Shoes*

*The features of objects reached by scientific or reflective experiencing are important, but so are all the phenomena of magic, myth, politics, painting, and penitentiaries.*

*John Dewey, Nature and Experience*

Before we begin exploring nature-culture and the continuity of our lives in it, and before we begin probing “those searing rifts where the magma erupts” and the hard crusts of Nature and Society are first formed, it will behoove us to ponder a remark jotted down by Wittgenstein in one of his notebooks: “Philosophers use a language that is already deformed as by shoes that are too tight.”<sup>90</sup> With this remark in mind, the questions we need to ask first, in our efforts to become more comfortably full of doubt, might be these. Do we need to discard the tight shoes our philosophical and cultural heritage has forced us to wear? Do we need to coin terms not already misshapen by prior application to nature or culture—to one or the other, that is, but rarely if ever to both? Are we going to need to gear up differently than we have in the past, so that in our thinking we are prepared to cover more arduous because more ambiguous terrain—metaphorically speaking, of course?

Yes and no. Such questions make the proposition implied by Wittgenstein's remark sound more dramatic than it really is. When Wittgenstein implies that we need a language not already deformed by its previous speakers, he isn't suggesting that we need *a new language*. For ecocriticism, this new language might take the form of an ecological Esperanto, which in all likelihood would devolve very quickly into a meaningless ecobabble. All Wittgenstein, who thought Esperanto was disgusting, is suggesting is that we come to terms with our language differently, not that we find new terms.<sup>91</sup> He thinks we should tell ourselves new and different stories with, in, and about the language we already have.

Rorty, who as a philosopher is very much influenced by Wittgenstein, argues that in order to “keep faith with Darwin” we must “think of the word ‘language’ not as naming a thing with an intrinsic nature of its own, but as a way of abbreviat-

ing the kinds of complicated interactions with the rest of the universe which are unique to the higher anthropoids.”<sup>92</sup> For ecocriticism, which certainly should try to keep faith with Darwin, this means that restoring the world does not have to mean restoring the word.

One of the new and different, and more Darwinian, stories told by ecocritics will have to be a tale about how odd some of our old stories were, a tale about how they constrained us to make assumptions by which we were too tightly bound. In another of his notebook jottings, Wittgenstein reacts to a snippet of this tale, one pertinent to the subject matter of this book:

It is very *remarkable* that we should be inclined to think of civilization—houses, trees, cars, etc.—as separating man from his origins, from what is lofty and eternal, etc. Our civilized environment, along with its trees and plants, strikes us then as though it were cheaply wrapped in cellophane and isolated from everything great, from God, as it were. This is a remarkable picture that intrudes on us.<sup>93</sup>

This “remarkable picture” is, I think, yet another version of pastoral. Wittgenstein described it in 1946 and, as Eco and Latour have demonstrated, it remains very much the picture on which we rely in most, if not all, of our thinking about environmental crisis and the intellectual tools we need to develop in order to cope with it. Most of those tools have been designed to punch through the cellophane and other cheap wrappings in which culture seems to us to have isolated itself from nature. We should consider Wittgenstein’s suggestion that the cellophane is not really there, his suggestion that a picture, a *false* picture of our language and, by extension, of our culture, has held us captive.<sup>94</sup>

Philosophers and literary intellectuals are by no means the only ones among us who are susceptible to the seductions of this false picture of our world. Consider the environmental historian Donald Worster’s outburst: “What is *truth*, what is *fact*, what is *health*, what is *beauty* in such a world? What can those words possibly mean? Total skepticism, total cynicism is the intellectual future offered by this industrial culture and its institutions.”<sup>95</sup> Granted, I am quoting Worster’s words here without regard to their context, but his despair seems overwrought. This makes it illustrative of my point, which is that we have no reason to assume that breaking the spell cast upon us by the picture Wittgenstein describes will be easy (as he knew only too well). Intellectually, breaking this spell involves a “refusal to draw a philosophically interesting line between nature and culture, language and fact, the universe of semiosis and some other universe,” according to Rorty. Such a refusal becomes possible, he says, once “you stop thinking of knowledge as accurate representation, of getting the signs lined up in the right relations to the non-signs.”<sup>96</sup>

I realize that Rorty makes our difficulty sound like a technical issue of concern only to intellectuals. While it’s no secret that intellectuals often need recalibration, a

larger, more broadly cultural readjustment must be made as well, because Worster's despair is widely shared in the community at large. We therefore need to reconsider the tissue of our ideas not only about nature and culture, but also about what Latour would like us to call "nature-culture," and to recognize that "our ideas" is a phrase to be understood in the broadest sense: it must comprehend the high-minded, the lowdown, and everything in between, "all the phenomena," as Dewey puts it, "of magic, myth, politics, painting, and penitentiaries."

Encouraged by Dewey and others, I am persuaded that the truth of ecology must lie somewhere, if it lies anywhere at all, in nature-culture, a region where surprising monsters dwell. In order to adapt itself to the vagaries of nature-culture, ecocriticism needs to be more willing to hybridize than it has been: it needs to have a heart and a brain as well as arms and legs, and as many of each as possible, and it should not hesitate to borrow additional body parts here and there as the need arises. To approach nature, culture, and literature equipped in this makeshift way may seem anarchic, but as Feyerabend notes, "*anarchism*, while perhaps not the most attractive *political* philosophy, is certainly excellent medicine for *epistemology*." In my view, this is just the kind of medicine ecocriticism needs to take in order to avoid the "comparative impotence" (as Lawrence Buell phrases it) brought on by dosing itself with a watered-down brand of realism. It ought, in other words, to use whatever "rags of argument" (Feyerabend's phrase) seem most helpful, without trying to coordinate and unify them as an ensemble and without binding them all to a particular point of view, since particular points of view are likely to be fraught with the metaphysics and received ideas ecocriticism needs to avoid.<sup>97</sup>

A hybrid blend of theoretical and philosophical insight, awareness of scientific method, and a thorough acquaintance with the facts (who knows what they will turn out to be?) is necessary if we want to address nature-culture in tandem and as a singular phenomenon, as a two-for-one, while also addressing, as need be, nature and culture as two things not quite one in some important respects, which will have to be identified, of course. Then and only then can we hope to trace the connections between nature, society, and discourse that Latour characterizes as comprising the anthropological matrix of nature-culture, while also recognizing the disconnections that put us in jeopardy environmentally. And then and only then can we hope to determine the ways in which those connections are strong or in need of maintenance, if not actually broken.

Of course, exploring the matrix of nature-culture should raise several questions for ecocritics of a more particular import. These questions are: What is the truth of ecology, insofar as this truth is addressed by literature and art? and How well—how ably, how sensibly, how thoroughly—do literature and art address this truth? Both questions have usually been ruled out of court in literary and cultural studies, thanks to a widespread skepticism about and blasé attitude toward the natural world. I share with other ecocritics a negative feeling about this blasé attitude, and I understand their scorn for what sometimes seems to me, too, to be a cheap skepti-

cism. However, I think a more effective counter to cheap skepticism than the renewal of belief in the veracity of the text is a skepticism that does its fair share, earns its keep, and pays its way, while never lapsing into indifference. So I would like to add another question to the ecocritical agenda, a question inspired by Umberto Eco. Does the truth of ecology lie “in” literature and art? Of course, the word “lie” should have the same ambiguity when ecocritics use it that it had when Eco used it or its Italian cognate twenty-five years ago. And they ought not use the word “in” without bracing it between a pair of quotation marks.

By taking a more skeptical approach, ecocriticism might avoid the dilemma posed by the rejection of theory, on the one hand, as needless abstraction, and by theory’s rejection, on the other hand, of nature as a mere social construct or, still worse, as “gone for good.” Rejecting theory leaves ecocriticism without a rationale for supporting its own assertions and minus the tools required to develop such a rationale: it can’t get started. Meanwhile, the treatment of nature as something insubstantial by literary and cultural theorists bears us away from the shores where, despite all the things we’ve done to ruin them, we still must live.

I submit that the choice between theory and nature is a false one, since neither comes to us with its pristine character intact. Nature is not pristine for obvious reasons: we live in an age of overpopulation, hourly abuse of the natural world, and mass extinctions, and thus in an age of global environmental crisis. Theory is not pristine for the reasons cited by Joel Kovel, in his contribution to the notorious 1996 issue of the journal *Social Text* devoted to the “science wars” (about which I will have a few things to say in chapter three). If we can, for the moment, allow ourselves to conflate theory with postmodernism (not an unreasonable thing to do, if we put aside Latour’s objections to the latter term), then a remark Kovel makes in his essay can help us begin to discover a way to bring theory and nature together more fruitfully than either the most hidebound theory or the most earthbound ecocriticism have managed to do. Kovel writes: “What might be oxymoronically called classical postmodernism”—or theory—“is now as obsolete as the high modernism”—and here we might fill in the blank in a variety of ways—“it punctured. Given the gathering threat, the postmodern critique of foundationalism clearly has to be rethought.” He continues, “The postmodernist critique of science is true, and necessary, but also reductive insofar as it fails to recognize the material dimensions of the ecological crisis. And being reductive, it reveals its own false totalization, in this case, a crypto-idealization.”<sup>98</sup> One way to translate Kovel’s complaint about the false totalization or crypto-idealization of postmodernism is to put it into imperative form: postmodernism must be turned against itself. Its critical resources must be brought to bear on its own assumptions and presumptions. Or, in other words, theory itself must be subject to still more theory, and to some fact checking, too, the squishiness of the facts notwithstanding.

With these imperatives in mind, it’s time to disenchant ecocriticism. We can do that by deploying theoretical, philosophical, and scientific insights in the develop-

ment of a rationale for describing and interpreting the multifarious relations of culture and nature in the present day, as well as in the recent past. The difficult thing will be doing all this while avoiding the cryptic and totalizing tendencies, as well as the pastoral ones, that lead us astray, lest the deer start to look like less substantial beings to us than they once did, in olden days when we weren't as sophisticated as we are now. Attempting to disenchant ecocriticism also will encourage us to acknowledge that the work we do needs to involve argument. It needs to involve both vigorous internal debate and the painstaking working out of new insights that might make ecocriticism's argument more persuasive to outsiders and to insiders, too, than it has been thus far.

## Ecology Then and Now

*As a word, ecology has been so debased by recent political usage that many people employ it to identify anything good that happens far from cities and without human interference.*

*Stephen Jay Gould, An Urchin in the Storm*

### *Ecology as Point of View and as Science*

In the 1960s, ecology began to be popularized in the United States as one of the many utopian discourses for which the decade was both a watershed and, in the end, a burying ground. But the discourse of ecology was luckier than others: its credibility was strengthened both as the sixties wore on and in the decades to follow, despite the rise of neo-conservatism, which was quick to dismiss all things associated with the sixties as nonsense, and notwithstanding a general atmosphere, in the culture at large, of reaction and retrenchment. As a result, ecology has come to be identified in the popular mind with such values as balance, harmony, unity, purity, health, and economy. It's fair to say that many people regard these values, however utopian they may be, as all but indisputable and as all but synonymous with the very word "ecology." Few laypersons dare to question these values publicly, and imagery expressing our collective devotion to them, and indeed to everything green, pervades our daily lives. For those who applaud the apparent improvement in our attitude toward the natural world over the past forty years, the thought that the values of balance, harmony, unity, purity, health, and economy have something other than a transcendental basis—the thought that, unlike other utopian values, they are supported by ecology, which is to say, by all the authority of science—is a source of comfort and confidence.

In this chapter, I am going to violate what amounts to a taboo: I am going to argue that our confidence in ecology has been misplaced, or rather misjudged, and that we have been overly credulous when listening to its popularizers. The values to which ecology dedicated itself early on—especially balance, harmony, unity, and economy—are now seen as more or less unscientific, and hence as "utopian" in the pejorative sense of the term. And they are seen that way not only by critics who have a vested interest in distracting our attention away from a deteriorating natural envi-

ronment, and who like to dismiss all ecological concepts as so much moonshine (lobbyists for oil companies, American automobile manufacturers, their bootlicking government apologists, and the like), but by a growing number of ecologists as well, who are, needless to say, in a position to know whereof they speak. Precisely because the values in service of which ecology was founded in the late nineteenth century were utopian, no one was certain of their meaning, and so they either gave rise to endless debate and speculation, or were abandoned as utterly impractical by dissident ecologists sometimes branded as heretics by their peers. I am going to try to show that the dissidents turn out to have been right all along.

To complicate these matters still further, another aspect of the story of ecology needs to be highlighted before I begin telling that story in proper chronological order and in detail. For it isn't just ecology's core values that have been cast into doubt and rejected as unfeasible: the situation is much more dire than that. Because its original objects of study—supposititious entities such as, for example, the *climax forest*—were not only poorly defined and poorly described but were also of debatable reality, ecology's history has been marked by conflicts growing out of a lack of consensus about the parameters that should guide the statement of hypotheses and the conduct of research. In other words, ecologists have not been able to agree about what actually counts as ecology. *Basic ecology*, that is, not cutting-edge or revolutionary ecology, but the sort of workaday science a Kuhnian would describe as "normal."<sup>1</sup> Ecological theories have tended to arise and flourish only very briefly, before their flaws are exposed by poor experimental results and by the keen eyes of critics.

These critics have pointed out, with almost monotonous regularity, that (1) ecologists need to define and describe their objects of study in terms unlike those used by other scientists, so that their own research will have a distinctly ecological content and a unique fund of core concepts on which it can draw; that (2) ecologists also need to find out how to work with the things they study experimentally, in a fashion that will help make ecology truly distinct from other kinds of biology; and that (3) both of these things have proved very hard for ecologists to do, and not for lack of effort. Ecologists have been forced, time and again, to borrow the terms and concepts of other sciences, as well as their objects of study and methodologies. Ecology's chronic indebtedness to other sciences has had the effect of making it appear overly metaphorical to outsiders, who often have regarded it as a fuzzily defined and value-ridden "point of view," rather than as a coherent scientific enterprise in its own right.<sup>2</sup>

So it was that beginning in the late nineteenth century, and for a long time thereafter, ecologists tried valiantly—and in many cases, vainly—to give their discipline a foundation of well-established facts and agreed-upon theories of the sort enjoyed by other sciences, especially physics, which seemed, rightly or wrongly, to be the very standard of objectivity and theoretical probity. Ecologists wanted to join in the family business of science without having constantly to review their intellectual pedigrees and capital resources. They knew that shoring up a scientific discipline's

foundations always means discovering and coming to terms with the fundamental forces, processes, entities, and mechanisms on which the discipline's efforts to understand nature, whether only in part or as a whole, must focus. Thus they found themselves struggling with awkward problems of scientific methodology, and asking difficult questions, first about what it really means to identify nature's cogs and wheels, and second about how one might, having identified them, then go on to describe the workings of those cogs and wheels. For starters, many ecologists wondered if mechanistic language of the sort I've just used should not be rejected out of hand as an implicit betrayal of everything that the word "ecology" implied. They thought organic metaphors might be more appropriate to the study of nature; in fact, many of them thought such metaphors really might not be that metaphorical after all, since they felt sure that nature itself was one vast organism, the parts of which formed a seamless whole.

Because there are a number of respects in which the discipline still struggles to define itself today, even if it no longer feels quite so abashed in the presence of an all-mastering, apparently all-powerful physics as it used to feel, in the pages that follow I am going to be especially concerned to explore the gap between ecology as a "point of view" and ecology as a science. Exploring this gap is a task incumbent upon anyone seriously interested in environmentalism and natural history, a task that in my view ecocriticism has put off for far too long. Further delay will mean that ecocriticism also continues to fall between two stools, and whether this will confirm its claim to be interdisciplinary or will cast doubt on it is unlikely to require a judgment call. As things now stand, ecocriticism is open to the charge that it, too, is no better than a "point of view," and a second-order one to boot, since in order to support its own assertions about how the green world is structured and functions, ecocriticism must appeal to and look over the shoulder of another discipline, which it supposes to be situated much closer to the action (to nature, that is).

In situations like this one, in which one discipline wants to piggyback upon another, an academic version of the tragedy of the commons transpires, as the space between disciplines gets treated as if it abounded in exploitable resources and as if it were infinitely divisible; and before long, range wars begin to erupt. Still more fundamentally, something like Zeno's Paradox comes to be in effect, so that assertions made by those working in one discipline never really connect with their targets in another, all appearances of good will and acquaintance with the facts to the contrary. To put the point I am making in yet another way, in interdisciplinary work of the kind that ecocriticism purports to be, the gaps between disciplines, especially the infamous gaps between the arts and the sciences, are apt to be papered over rhetorically. All too often, little or no effort is made to confront these gaps directly and to bridge them argumentatively, where that is plausible (sometimes, of course, the gaps are simply unbridgeable, and the disciplines may have little, if anything, to say to one another). The inevitable result is that basic errors of fact and interpretation, especially of the latter, are perpetuated under the banner of interdisciplinarity.

For ecocriticism to be of substance as an interdisciplinary field, it needs to realize that ecology is not a slush fund of fact, value, and metaphor, but a less than fully coherent field with a very checkered past and a fairly uncertain future. I suspect that many ecocritics would be dismayed to learn that despite ecology's heroic popular image, it has been characterized as a relatively lightweight science by informed observers whose criticisms of it cannot be dismissed as mere carping, even if those criticisms have sometimes been too harsh, above all when other biologists less taken with fieldwork than ecologists are have held the floor.<sup>3</sup> In point of fact, ecology has not enjoyed as great a record of success as the other life sciences have. Nor has it always been entirely in line with the ethos prevailing in those other sciences, and this maverick quality has proved to be much less of a virtue than it once was assumed to be.

The divergence of ecology from what is widely regarded as the scientific norm becomes especially clear when it is compared to molecular biology. As a macrobiological science, ecology appears to be fundamentally at odds with microbiology, which has provided the dominant model, both theoretically and methodologically, in the life sciences since the late nineteenth century, owing in no small part to its tremendous successes, of which it should suffice to mention only the discovery of DNA as a leading example.<sup>4</sup> By bucking the trend toward reduction in biology, ecology has found itself in the unhappy position of seeming to disrupt the unity of the sciences. This is an especially embarrassing circumstance for a discipline in which a great deal has been made of unity as the supreme value established by nature itself. In light of this circumstance, it is clear to me that ecocriticism will have to abandon its rather mystical view of ecology as the binding force holding together not only all of the sciences, but nature and culture as well. Ecology sparks debates about environmental issues, it doesn't settle them; and it also sparks debates both about what should and shouldn't count as science, and still more fundamentally, about what should and shouldn't count as nature.

In all fairness, however, one has to note that ecology's reputation as a maverick science actually rests largely on a number of overstatements made by its popularizers, of which there has been no shortage, and hence on a series of false impressions. In fact ecology is not so radically different from other sciences as has been thought and said.<sup>5</sup> To point this out is not to gainsay ecology's differences from other sciences; it is, instead, to make those differences seem appropriately relative. Ecology's reputation as a science wholly unlike others is largely an artifact of its being still in the early stages of development after more than a century. Its rather halting progress toward maturity has gone mostly unnoticed, except in specialist journals and monographs, and this oversight has contributed greatly to a general misunderstanding of ecology's character, especially on the part of those who have wanted to procure its blessings for political purposes—or merely to credit themselves with some of its graces, as ecocritics arguably have done.

Given the abuses to which ecology has been subjected by its admirers and its detractors alike, it is crucial to understand that despite the popular image of its prac-

titioners as easygoing, nature-loving outdoor types with an eccentric affinity for newts, shellfish, algae, lichen, prairie grasses, and other life forms lacking in charisma, ecology is in many respects an extremely difficult science. That it is so difficult does much to explain its slow and uncertain advancement. Newts, shellfish, algae, lichen, prairie grasses, and the like aren't necessarily easy to know: docile and even immobile though they may be, they lead inordinately complicated lives.<sup>6</sup> This fact alone makes our misapprehension of ecology's true character very important to recognize as such. We want ecology to simplify things for us, and that is something it really cannot do.<sup>7</sup> Nonscientists often demand that science serve us as an augury of our collective fate. But this is a service science is usually unable to provide honestly and in the unambiguous terms that we nonscientists would like it to use.<sup>8</sup>

The distortion of popular ecological rhetoric reflects something more, however, than just the allure of utopian thinking and prophetic posturing. It also expresses a widespread distrust of science, which more often than not can be measured in units of ignorance, and which may very well mark the site of a massive cultural contradiction. We all want science to tell us what to expect in the future, but at the same time most of us really don't like to hear what science has to say. Many people believe that ecology is a science unlike others because by embracing holism it is supposed to have avoided the pitfalls of mechanistic reduction. Yet few if any practicing ecologists share the distrust of science attributed to them by those who glamorize and misrepresent their work. The same institutions that train physicists and molecular biologists, often vilified as the most reductive scientists of all, also train ecologists, who imbibe assumptions about methodology similar to if not identical with those that their peers in other disciplines are weaned on. Ecology's research agenda is increasingly directed toward making it look more like the harder, more mechanistic and reductive sciences, not less: and inevitably so, since it seeks "the same kinds of explanation as are sought in the other sciences."<sup>9</sup>

In pursuit of explanations that will stand up under the scrutiny of other scientists, the claims of ecologists about the natural world have become both much more specific and a lot more tentative over the past forty years, which explains the whiff of paradox that seems to hang about the more startling of their claims. Those claims tend to cast doubt on the practical importance of values like harmony, balance, unity, and economy in the day-to-day functioning of actual natural systems; in fact, they even call into question the very idea that nature contains anything so self-regulatory and so thoroughly integrated as to justify the use of the word "system" to describe it in the first place. The increased modesty of ecology, both in theory and in practice, also explains why and how its utopian impulse has been muted, if not rooted out altogether. Utopian yearnings are best expressed in glittering generalities, and ecologists have learned to be extremely wary of those; hence their current willingness to be more "reductive" than they were in the past. Curiously, their new-

found willingness to be “reductive” also has had the rather surprising and possibly quite liberating effect of making ecologists more adventurous, where some cutting-edge ideas like chaos theory are concerned.

In any case, one can assume that the utopian aspect of their science always seemed less prominent and less promising to most ecologists than it did to conservationists, environmentalists, and other onlookers from outside the field. But as it so happens, the lay celebrants of ecology as a utopian discourse have included a number of people in a position to know better. They have tended, however, to ignore or downplay the cautionary statements made by practicing ecologists, when they haven't rejected them outright. One of the most prominent of these people, the environmental historian Donald Worster, is very much a case in point: he continues to exaggerate the scientific credibility of an old-fashioned variety of ecology that he finds more congenial than the skeptical variety that replaced it years ago.

I realize that for me to take issue with Worster may seem, to those who are familiar with his work, like hubris. For that matter, for me to try and tell the tale that I relate in this chapter also may seem like hubris, lacking in the relevant credentials as I am. And it may seem unnecessary as well, since Worster and other environmental historians have reported the story of ecology since its beginnings in the late nineteenth century already, and have done so in detail and very ably for the most part. They have focused on the development of ecological theory, on the genesis and growth of schools of research, and on the application of ecological science to questions of agricultural policy and to watershed, forest, and wildlife management, a roster of topics that might seem to exhaust the subject matter. This subject matter is one about which environmental historians are very keen, since they tend to be committed environmentalists in their own right, making their interest in ecology more than academic—as no doubt it ought to be.

However, for my purposes and for the purposes contemplated by ecocriticism, the stories that environmental historians have told about ecology need to be given a different and a less celebratory emphasis, so that the peculiar intellectual difficulties ecology faces, which have cropped up in all stages of its development as a science, can be underscored and addressed as frankly as possible, and in a more philosophically probing way than they have been in the past. This is particularly true, in my view, of the stories that Worster has told about ecology: his book *Nature's Economy*, which approaches the development of ecology from the vantage point of intellectual history, is often the only source that ecocritics cite in support of their claims about the natural world and the growth of our understanding of it.<sup>10</sup> That they should rely on Worster's book to the exclusion of others may be only natural, if you'll pardon the expression, since Worster is widely acknowledged as the dean of environmental historians—indeed, as one of the founders of the field of environmental history itself, in which the initial publication of *Nature's Economy* in the late 1970s was a seminal event.

However, to my way of thinking, Worster's influence on ecocriticism is unfortunate, and while some, at least, of the template I have relied on in telling my own story about ecology is borrowed from my reading of his work, I've also tried to incorporate in that story both the views of other environmental historians and of philosophers of science, and as much direct testimony from ecologists themselves as I could digest in an intelligible way. I've found this hands-on and ambidextrous approach to the history of ecology necessary in order to compensate for the distortions of those ecocritical statements on the subject that are quite purely and simply naïve, and with regard to cases where such statements have been better-informed, in order to counterbalance the influence on ecocriticism of Worster's work.

Worster's remarks about the increase in theoretical modesty in ecology since the 1960s demonstrate that he has little sympathy for the scruples ecologists increasingly feel. In fact, he expresses a prickly disdain for those ecologists who have pointed out the stumbling blocks strewn across the path of the discipline's progress as a science, and treats their misgivings as symptoms of intellectual timidity and a loss of faith in the ecological vision. Worster even goes so far as to hint that their expressions of doubt about such classic ecological concepts as, for example, the ecosystem may be politically motivated. "For some scientists," he writes, "a nature characterized by highly individualistic associations, constant disturbance, and incessant change may be more ideologically satisfying than Odum's ecosystem, with its stress on cooperation, social organization, and environmentalism."<sup>11</sup> Because of passages in which he makes insinuations like this one, Worster's work strikes me as biased, and in fairly obvious ways.

There is no doubt that the trend of recent ecological science toward revision makes life more difficult for the environmental historian, since it's harder to hit a moving target than a still one. But this doesn't mean that ecology has become ideologically suspect or is asleep at the switch, as Worster alleges.<sup>12</sup> He seems to think that the difficulty environmental historians face in constructing their accounts of ecology's development is not a historiographic difficulty, but is to be explained in terms of the changed character of the science since the 1960s. In other words, he seems to think that the object of study is to blame for the difficulty the historian of ecology faces when he or she tries to describe it accurately.<sup>13</sup> What Worster dislikes most about contemporary ecology is, essentially, that it is too much prey to the vicissitudes of science—that it is overly influenced by the evidence presented to it, evidence which runs contrary to some of the classic assumptions of the field. Worster thinks contemporary ecology ought to be more stouthearted ideologically, and ought to resist falsification more strenuously than it does. Environmental history, he writes, now has to contend with a science "caught in the middle of a revisionist swing that has left in some disarray the notion of what an ecosystem is and how it works, that has even cast doubt on such old intuitive notions as 'the balance of nature' and the role of diversity in promoting ecological stability."<sup>14</sup>

Such is Worster's fondness for those "old intuitive notions" that he actually understates the extent to which doubt has been cast on them and has left them in disarray.<sup>15</sup> He does so, I think, because he wants ecology to provide something more than sustenance for environmental historians hungry for fresh subject matter. He wants ecology to provide guidance, too, and not just guidance of a scientific kind. He would like to be able to depend on ecology as a moral compass, and he makes it clear that he is disappointed in "the new ecology" because its "lessons" are "not at all clear."<sup>16</sup> The new ecology, in Worster's eyes, is morally as well as politically suspect, since it is more value-neutral than the old, and therefore less socially and politically useful in the short term. As one of his colleagues, Richard White, has argued, "Worster's account of environmental history is as much a prescription as a description." White thinks Worster's influence on the field of environmental history has been less than entirely healthy: "Having defined the field, Worster outlines what might be called its methods. Here, however, under the guise of stating conventional wisdom, he is trying to create it, or rather to impose a much older construct on the field."<sup>17</sup>

Environmental historians have tended to be hopeful, and a little prescriptive, in their appraisals of ecology, White argues, because they have tended to be hopeful and a little prescriptive about environmentalism. He writes:

Environmental historians once thought that they had a firm basis for their morality and causality. Historians read the science of ecology as both detailing basic natural processes and yielding certain moral verities: complexity is good, simplicity is bad; natural systems seek equilibrium and battle disruption; there is an ideal balance in nature that, once achieved, will maintain itself. Those verities gave historians standards against which to measure and evaluate the repercussions of human action.

Now that the verities of ecology have been shown to be less than wholly veritable (or less than wholly verifiable), White suggests that environmental historians also have been plunged into uncertainty: "Historians thought ecology was the rock upon which they could build environmental history; it turned out to be a swamp." White also suggests, on the other hand, that it is possible to overreact to the apparently dramatic change in ecology's character. He reminds his reader that although in popular usage the term ecology is used loosely to refer to "nature," its referent "is, in fact, only an academic discipline."<sup>18</sup>

Ecology of the holistic sort that, like other environmental historians as well as many ecocritics, Worster still idealizes, has passed out of fashion largely because of the poor results it generates when put to the test experimentally. Many ecologists now see concepts like cooperation and social organization, when applied to the natural world, as ambiguous at best and irrelevant at worst. These ecologists are still very much committed to environmentalism, even if they don't express their com-

mitment in the glowing, uplifting terms that environmentalists would prefer them to use. Ecologists have begun to hold themselves accountable to more exacting standards in recent decades, which has made them less available and less pliable as spokespersons for the environmental movement.

Like many members of the American environmental movement, Worster is a sort of populist. On his view, all kinds of things—certain religious beliefs and rituals, for example, not to mention any number of literary texts—can be counted as “ecological” even if they have no bearing whatsoever on our scientific understanding of the natural world. This explains the great attraction of Worster’s work for ecocritics, who are also populists of a sort, and who therefore would like to think that ecology is readily accessible to anyone who is able to read certain primary texts, to appreciate certain kinds of symbolic behavior, and to savor both pastoral and pristine landscapes. Especially in *Nature’s Economy*, which is regarded as a classic of environmental history largely as a result of its being one of the first synoptic accounts of the subject, Worster construes the history of ecology very broadly—so broadly that he conflates it with the history of cultural movements like Romanticism, when its resemblance to those movements is much more apparent than real. Worster argues that the “Romantic approach to nature” is “fundamentally ecological” because it is “concerned with relation, interdependence, and holism.”<sup>19</sup> In effect, Worster concedes the main point to its critics by treating ecology as if it really were no more than a “point of view,” one that can be adopted more or less readily by those gifted with a modicum of imagination.

The ecologist Robert McIntosh has noted that because Worster overlooks some of the stark realities of the historical record, he grossly overstates the importance of literary natural historians like Gilbert White of Selborne and Henry David Thoreau to ecology. McIntosh suggests that “retrospective views of ecology” often produce little if any evidence that the work of writers like White and Thoreau, however intuitive those writers may have been about natural history, actually “was connected with, or led to, that of later workers. That brilliant ideas have been amply studied, elegantly expressed, and even published without having influenced the work of contemporary scientists is familiar in the history of Gregor Mendel’s lonely efforts.”<sup>20</sup> The fact that the great majority of ecologists did not and do not read either White’s or Thoreau’s work as being ecological, if they read it at all, and the fact that they did not and do not regard White and Thoreau as fellow workers in the field, should be decisive. Curiously, Worster doesn’t take these facts into account, nor do those ecocritics who have been following his lead in constructing their own narratives about ecology, narratives in which White, Thoreau, and their ilk play a central role.<sup>21</sup>

While a few of the stumbling blocks strewn across the path of ecology’s progress as a discipline have surely been ideological, much as Worster alleges, most of them have been—and are—all too real. They cannot be wished away, or made to vanish

by a change in attitude and outlook or “point of view,” no more than the gap between literary natural history and ecology can be eliminated simply by conflating the two in a sweeping narrative of intellectual history focused on ostensibly Romantic ideas. The misgivings that ecologists first began to express in the 1960s originate in a struggle with problems grave enough to call into question, yet again, ecology’s status as a science. If ecology has been a success as a science, it has been a very qualified one: research in the field continues to advance and retreat along a wavering, uncertain front. What previous generations of ecologists regarded as black-letter scientific truths, or “laws of nature,” the current generation treats as so much wishful thinking. More or less out of necessity, many ecologists have become quite sophisticated about the theoretical and philosophical difficulties with which their discipline is beset. These ecologists use words like “truth” and “law” only very tentatively and somewhat apologetically, if they use them at all. They have ceased to be students of the absolute and the unchanging, and have become students of the probable and the ever-evolving.<sup>22</sup>

Notorious as the perils of disciplined, undisciplined, and interdisciplinary academic work are, it nonetheless is puzzling that the overstatements, misstatements, and misinterpretations I have described should have been perpetrated so often. Why assume that ecology is what the slogans of the environmental movement say it is? Why treat a writer like White or Thoreau as an ecologist, when history clearly demonstrates otherwise? In other words, why premise the value of their writing on its anticipations of what may or may not come to be counted as ecological principles, especially since such anticipations can only be, in the nature of things, vague at best? Historical and literary scholars are much too easily tempted to tell seamless stories about the things that interest them by discovering family likenesses and postulating common points of view where none exist.

Like other scientists, ecologists have to acknowledge the difficulties they face sooner rather than later, and as forthrightly as they can. They also have to find practical ways of overcoming those difficulties. Thus there is a danger that those who, like myself, are interested in ecology, but whose training is not scientific and who must cope with an entirely different set of difficulties, will gloss over or minimize the significance of the problems ecologists face in understanding the natural world. Ecocritics have seized upon ecology as an accessory and complement to their own brand of professional discourse because of their commitment to environmentalism, and because they have thought that ecology offers scope for the vibrant depiction of a natural world conceived of organically. The latter is something that literature used to offer, until theory had its way with it—or so it is said. But not all of the workings of the natural world are organic, and most of them are far from obvious. The truth, as I hope to demonstrate, is that the history of ecology has been one of discovering how much unlike an organism and just how nonobvious the natural world can be.

## *From Analogy to Algebra*

*The world . . . is never simple; it doesn't even provide apt metaphors.*

*Stephen Jay Gould, An Urchin in the Storm*

The German morphologist Ernst Haeckel coined the term *oecologie* in 1866, but without ever doing any actual research in the field. Unfortunately—or so it seems from the environmental historian's perspective—this means that the origins of ecology cannot be traced solely to Haeckel.<sup>23</sup> Nor, for that matter, can they be traced to any other single theorist and researcher. The murkiness of ecology's origins is a reflection of the fact that substantive existence as a science proved very difficult for it to come by. For instead of being founded on new discoveries that opened up original avenues of research (on a so-called Copernican revolution), ecology was inspired by misgivings about reduction as a central tenet of scientific theory and methodology. It was thought that by being reductive in such a thoroughgoing way, scientists were running the risk of breaking the butterfly upon the wheel, hence of traducing the very vision of nature that gave science its grandeur and nobility as a human endeavor, not to mention its moral and philosophical sanction.

Given its origins in a reaction against an entrenched status quo, it was inevitable that a few researchers found themselves doing ecology almost before they were aware that this might be the proper name for what they were doing. Casting themselves, implicitly or explicitly, as a new breed, these ecologists-in-all-but-name insisted that important biological processes were at work at levels other than that of the individual organism, population, or species, and they proposed that these processes should be investigated *in situ*—in the field. Both by default and by design, their research agenda was at odds with the general trend of the biological sciences toward greater specialization and a narrowing focus on smaller and smaller entities easy to experiment with in a controlled setting, such entities as monkeys, rabbits, mice, fruit flies, microbes, single cells, and (eventually) strands of DNA. Ecologists were beginning to do macrobiology and fieldwork at the very moment when other scientists had become convinced both of the primacy and, more important, of the practicality and greater utility of microbiology and laboratory experiment. To other scientists, ecologists appeared to be taking a step backward, and were simply mistaken to think that they had found a new way of understanding the natural world.

The distinguished evolutionary theorist and ornithologist Ernst Mayr explains that the origins of ecology involved a departure from older ways of doing natural history through the adoption of more up-to-date assumptions about scientific method: "Natural history had to become explanatory. It continued to do what natural history had always done—observe and describe—but by applying other scientific methods to the observations (comparison, experiment, conjectures, testing of explanatory theories), it became ecology."<sup>24</sup> But in its early years and for many years

thereafter, the new science's departure from natural history was probably more apparent than real. Despite the trappings of improved method with which it had adorned itself, ecology continued to cling to some of the bad habits that other forms of science were struggling to give up, including "observation, description, and an inductive approach."<sup>25</sup>

In the United States, ecology did not begin to be recognized as such until three decades after Haeckel first coined the term, which botanists were the first scientists to use. As a result, many of the earliest ecological concepts to be developed and disseminated in the United States were limited in application by their botanical bias.<sup>26</sup> Botanical concepts of ecology emphasized static, visually obvious features of the natural world at the expense of others. Simply by virtue of the fact that plants are stationary and are usually the first living things that we see when we enter an unfamiliar landscape, they are, quite literally as well as figuratively, much easier to grasp than animals are, both as individuals and collectively.

Early work on so-called plant communities was dominated by the idea of *succession*. According to this idea, the order in which plants colonize the newly barren ground of a disturbed site follows a standard script and is coordinated between species to a high degree. So powerfully attractive was the idea of succession that ecologists assumed its order must be determinate, which meant that if the relationships governing it could be discovered and precisely described, succession might be treated as a predictable process—and as a platform for experimentation in the field. Ecologists also assumed that succession, being determinant, was teleological: that it would continue to unfold until a dominant plant or group of plants became established, in habitats favorable to the dominance of that plant or group of plants (clearly, a certain amount of circular reasoning help to make the idea of succession seem plausible). The "ecology" of each habitat was therefore identifiable, and could be expressed in terms of the dominant vegetation, which would persist in a relatively stable state (called "homeostasis") provided that it wasn't disturbed or destroyed by drought, flood, wildfire, disease, parasitic infestation, human intervention, or a catastrophic change of climate. Until and unless one or more of these things should befall it, a habitat could be labeled a "pine forest," an "oak savanna," a "tall-grass prairie," or what have you, and managed (i.e., left to fare as best it could) accordingly. Most importantly, ecologists insisted that the value of these descriptive labels was more than pragmatic, which meant that they were not to be regarded as mere place-markers, since they denoted actual living things. A pine forest, an oak savanna, or a tall-grass prairie wasn't just a coincidence of natural history. Each of these habitats could and should be treated with all possible rigor by researchers as a single entity: as an organism, and even as a species.

One of the earliest attempts by an American botanist to describe the ecology of a particular habitat can be found in Henry Chandler Cowles's 1899 article, "The Ecological Relations of the Vegetation on the Sand Dunes of Lake Michigan." Also to be found there is one of the earliest American definitions of ecology, a definition in

which the botanical bias is evident. "The province of ecology," Cowles wrote, "is to consider the mutual relations between plants and their environments." The best way "to consider the mutual relations between plants and their environments," he suggested, was to "study the order of succession of the plant societies in the development of a region" and to "endeavor to discover the laws which govern the panoramic changes." He summed up by characterizing ecology more abstractly and more philosophically as "a study in dynamics." Sand dunes are in fact among the most dynamic and changeable of landforms; as Cowles admitted, "The dune-complex is a restless maze."<sup>27</sup> This means that the "plant societies" of the sand dunes are also much more dynamic and changeable than vegetation seems to be elsewhere (in an old-growth forest, for example). For this reason, Cowles was tentative in his conclusions about the ecology of "plant societies," a lot more so than other botanists were at the time. He realized that panoramic changes, or gross alterations in the visual appearance of ensembles of plant species, might not have an inherently *biological* meaning. They might reflect instead such nonbiological factors as, for instance, catastrophic soil erosion brought on by floods or high winds.

Perhaps the least tentative of early plant ecologists was Frederic Clements, whose career began when he was a graduate student studying botany at the University of Nebraska in the 1890s. Clements was a leading figure in American ecology before the Second World War. Two of his ideas, *climax* and *the organismal concept*, were accepted widely by other scientists at one time, and remain part of the popular conception of ecology today (regrettably so). The two ideas are really one: according to Clements, the climax is "a complex organism inseparably connected with its climate and often continental in extent." The climax has "visual unity" because of "the life-form of the dominants, which is the concrete expression of the climate." In other words, the climax is hard to overlook. It tends to be obvious, much in the same way that mountain ranges are obvious. The climax might take the form of a great hardwood forest in which the beech tree seems to be the predominant species, or it might take the form of a boreal forest in which one or two species of conifer far outnumber other kinds of tree, in a wide belt of vegetation almost circumpolar in extent. Such climax forests constitute superorganisms, Clements argued, not only by virtue of their tremendous size and vast biomass, but also because they have developed in the same way that a single organism develops both ontogenetically (i.e., during its own life span) and phylogenetically (i.e., from its ancestor organisms).<sup>28</sup>

Clements didn't treat the organismal concept as an analogy, though that is what it was. Nor did he treat it as a metaphor, though that is how it tended to function in his theories. He regarded forests, grasslands, and the like, especially if they had reached the stage of climax, as organisms strictly speaking and as evolutionary units, because in his view they just *were* those things; in fact, in his view they were, to all intents and purposes, distinct species. Clements's theories appealed to other ecologists, one suspects, chiefly because they seemed to give ecology an especially firm grip on the natural world. A Clementsian ecologist did not hesitate to treat a

particular forest or grassland as a separate species, rather than as a unique instance or coincidence of vegetation. To such an ecologist, isolating a single quadrat (of, say, ten square meters) in an area (of, say, ten square kilometers) where climax had been reached seemed to be an entirely reasonable procedure, rather like taking a tissue sample (ecologists have always found it hard to resist physiological analogies). Counting the species within a quadrat, multiplying by the appropriate factors, and comparing the resulting data with data generated by the study of another quadrat located in a similar area of forest or grassland nearby, possibly one disturbed by fire or abnormally intense grazing due to an overpopulation of deer, also seemed like reasonable procedures. Clementsian ecologists were sure that their methodology was both theoretically sound and pragmatically grounded, and that the results it generated were wholly reliable. For within a given climax, one quadrat was as valid a sample as another, *by definition*; and it was assumed that forests and grasslands all followed similar orders of succession.<sup>29</sup>

But Clements's enthusiasm for the organismal concept led him to gloss over or deny its inconsistencies, of which a few, at least, of his contemporaries were fully aware.<sup>30</sup> In its strongest, most metaphorical, indeed almost mystical and hence most vulnerable form, the form in which Clements actually promoted it, the analogy between the climax and the mature organism was said by his critics to be a false one.<sup>31</sup> It ignored the many important and quite obvious differences between mature grasslands or forests, and adult animals or plants. Grasslands and forests aren't really very similar to organisms at all, much less identical to them. But Clements was dogmatic: despite the glaring defects of the organismal concept, he built an elaborate structure of explanation centered on the idea of the climax. He also identified a number of stages of development leading up to and following the climactic stage, and devised a cumbersome Latinate vocabulary in order to keep track of them all.<sup>32</sup> His theory was bound to collapse of its own weight eventually.

It's worth noting that Worster, who clearly sees Clements's theory as an instance of the visionary, Romantic ecology he most admires, has explained its fate rather differently than I have here. Worster suggests that the climax concept was directly in competition not only with scientific orthodoxy (which in this case was truly on the side of righteousness) but also, and more importantly, with Frederick Jackson Turner's Frontier Thesis and the epic of nation building described by James Fenimore Cooper in his Leatherstocking novels. In Worster's view, the climax concept has something crucial in common with both Turner's and Cooper's ideas about America's growth and development. He suggests that Cooper, Turner, and Clements shared a similar intellectual disposition, and points out that all three attempted to define the basic character of historical processes in terms of the unfolding and eventual fulfillment of grand narrative designs. He also notes that all three men enjoyed thinking about the American countryside as a vast stage on which events of historic importance could take place: that there is a spatial as well as a temporal dimension to each man's thinking. But Worster argues that, all similarities

aside, Clements's views were fundamentally in conflict with those of Turner and Cooper, and therefore had to yield under pressure of national necessity:

According to the Turner-Cooper view of national development, a mature and complex civilization must emerge out of the pathfinding exploits of a ruder culture; Clements and the mainstream of Anglo-American ecology offered a similar view of the evolution of the biotic community. But the two processes were fated to meet, it seemed, in irreconcilable conflict. One would have to give way to the other; it was not possible to have both a climax state of vegetation and a highly developed human culture on the same territory.<sup>33</sup>

Worster is right to note that the Leatherstocking epic, the Frontier Thesis, and the concept of the climax state are each ways of giving progressive shape to what otherwise might seem like anarchic or chaotic processes. Superficially, at least, the three are similar. That, however, is probably the merest coincidence, and Worster is mistaken to argue that the concept of the climax state was bound to be rejected, not because of its weaknesses as a scientific concept, but because it was ideologically unpalatable and could not compete with what had become a central tenet of the orthodox view of American history.

Worster treats both the superficial resemblances between the concept of the climax state and the "Turner-Cooper view of national development," and the differences between them, as more meaningful and less coincidental than they actually are. I would argue that this demonstrates the inherent weakness of the "history of ideas" approach to understanding ecology. (I think it also demonstrates the inherent weakness of any strategy that involves carving out new territories for interdisciplinary work by filling in the spaces between disciplines with spurious analyses and interpretations.) The concept of the climax state did have "to give way," but not because it was in ideological conflict with the views of Turner and Cooper; to be that, it would have had to be more in contact with them than it is likely to have been. In the event, things were much less dramatic than Worster would have us imagine: the concept of the climax state had "to give way" because of its inconsistency as a scientific concept and because of its great impracticality, neither of which were immediately apparent to Clementsian ecologists for a variety of reasons, not least among them the fact that these were still early days.<sup>34</sup> Clementsian ecology was not overcome on the field of ideological battle; it just petered out, through increasing lack of interest in its ideas.

The plant "community" and the "organismal" climax forest are only two examples of the charm that analogy held for the first few generations of ecologists, and perhaps it is to be expected that the key concepts of a new science will be of an essentially analogical character. Theorists and researchers know that they need to develop a distinctive approach to nature if their work is to be recognized as innovative science, and one way to begin developing such an approach is by suggesting some

original and striking analogies, preferably ones that play off one another in a more or less integrated fashion. In the late nineteenth and early twentieth century, ecologists realized that they needed to treat nature in terms and using tools other than those used in taxonomy, which emphasized the identification and description of individual species, and the collection of numerous specimens of those individual species. In principle, taxonomy was never-ending and never cumulative, at least not in a way that satisfied ecologists. They hoped to discover the broader categories in terms of which nature was organized and structured biologically, and to devise practical ways of demonstrating the functional reality of those categories experimentally. In attempting that discovery and demonstration, ecologists tended to emphasize the similarities between things, and between different orders of things, more than their differences. Analogies helped them do so.

Focusing on the similarities between natural phenomena seemed to offer early ecologists a means of extending their understanding of a few relatively well-explored aspects of natural history into new areas of research. They assumed that to extrapolate from one discipline to another (say, from botany to ecology) and from one level of biological functioning to the next (say, from the individual plant to the plant community) would be a reliable procedure because it was a reasonable one. They felt sure that the biology of individual species provided ample information about the ecological relationships obtaining between species, and between whole groups of species and their habitats. They also felt sure that these ecological relationships tended to emerge uniformly whenever and wherever plants and groups of plants evolved in company. Ecologists therefore argued that once the necessary fieldwork had been done, it would be possible to treat associations of plants much in the same way that botanists had long treated the many individual plants whose life histories were known to be influenced by factors such as climate and soil chemistry. It would be possible, for example, to manage entire forests as singular ecological entities living in a wild state, instead of selectively cultivating only a few species of trees on biologically impoverished farms and plantations. While working to extend the range and application of their research in this bootstrapping fashion, early ecologists often forgot that they were relying on the analogy of the individual organism as the key to understanding all biological relationships, including numerous relationships that were presumed to be organismal without being located, bizarrely enough, in particular organisms. And so they began to regard their analogies as more reliable than, in fact, they were.

One sees the process of reasoning by analogy at work in a fairly primitive and quite obvious way in a classic paper published in 1887, Stephen A. Forbes's "The Lake as a Microcosm." Self-consciously or not, Forbes borrows the idea of the microcosm from the theater, and applies it to what many ecologists still regard as a clearly defined, relatively easy-to-study natural system. Forbes writes that a small lake "forms a little world within itself—a microcosm within which all the elemental forms are at work and the play of life goes on in full, but on so small a scale as to

bring it easily within the mental grasp." The small lake can be treated as a microcosm because, like the ideal Classical drama, it preserves the Aristotelian unities. "All the elemental forms are at work," Forbes says, on a scale sufficiently small that the life of the lake falls "easily within the mental grasp." He uses yet another term from aesthetics to sum up the advantages of the study of lakes: "Nowhere can one see more clearly illustrated what may be called the *sensibility* of such an organic complex." And he doesn't hesitate to make an "application on a higher plane," or to point up the moral, of "the play of life" in lakes. "Out of these hard conditions, an order has been evolved which is the best conceivable without a total change in the conditions themselves; an equilibrium has been reached and is steadily maintained that actually accomplishes for all the parties involved the greatest good which the circumstances will at all permit."<sup>35</sup>

Forbes favors lakes as objects of ecological study because of the lessons they teach about earthly order. Equilibrium "actually accomplishes for all the parties involved the greatest good," and helps preserve the biotic *demos*. But whether or not the microcosmic expression of sensibility is an adequate concept of what transpires in the theater, it is a vague way to characterize what goes on in a lake, so vague as to be less than useful. The reach of the metaphor of sensibility exceeds the limits of the theatrical analogy's grasp. If we are unmindful of this overreaching, we may begin to take the metaphor, and the analogy, literally, and as the philosopher of science Mary Hesse has argued, by "taking a metaphor literally we turn it into a myth."<sup>36</sup> Any scientific hypothesis that conceals an analogy tends to devolve into a metaphor and to wind up as a myth, at which point it can be said to have come full circle: it has returned to science's point of departure.

It would be easy for us to make a great fuss about ecology's initial dependence on analogy, metaphor, and myth, and to dismiss the work of men like Forbes and Clements as literary rather than scientific in character. Something like this condemnatory approach is the route often taken by radical critics of science, whose assumption seems to be that an idea's cultural origins must determine its destiny (Worster makes the same assumption, but sees it largely as grounds for celebration).<sup>37</sup> However, I think it is more productive, and more properly historical, to understand the development of ecology as a struggle to divest itself of analogical, metaphorical, and mythological thinking, and of literary means of suasion (including narrative). Ecology can then be seen as an ongoing inquiry into the practical value of the analogies proposed by theorists like Forbes, Clements, and others, whose colleagues were willing to point out their errors and to remind them of the crucial differences they had overlooked. On this view, as analogies prove out practically, they in effect become less and less analogical, which means that their discursive origins also become less and less relevant (hence the tendency of historians of ideas and specialists in cultural studies to get things backward, as it were, where science is concerned).

Mary Hesse suggests something like this charitable way of viewing the case in her discussion of scientific models, which she distinguishes from poetic metaphors.

Poetic metaphors, because they are meant to be ambiguous and thus stimulating to the imagination, are “peculiarly subject to formal contradictoriness,” Hesse writes. Scientific models, on the other hand, “may initially be unexpected, but it is not their chief aim to shock; they are meant to be exploited energetically and often in extreme quantitative detail and in quite novel observational domains; they are meant to be initially tightly knit by logical and causal interrelations.” And should “models of the same primary system” appear to be “mutually inconsistent, this is not taken,” Hesse adds, “to enhance their effectiveness but rather as a challenge to reconcile them by mutual modification or to refute one of them. Thus their truth criteria, although not rigorously formalizable, are at least much clearer than in the case of poetic metaphor.”<sup>38</sup>

It must be admitted, however, that Hesse’s analysis applies imperfectly to ecology, since she assumes that energetic exploitation of models will ensure continual scientific progress of a sort that ecology has yet to enjoy. Ecological analogies have been persistent largely because they haven’t been “initially tightly knit by logical and causal interrelations,” as Hesse argues scientific analogies must be in order for them to develop into reliable models. This shortcoming is one that ecologists have had to confront more than once since the days of Forbes and Clements. Frank Golley writes: “Analogical thinking is valuable to establish new hypotheses to follow in research in an area where little is known. It is less valuable when the research plan is clear.”<sup>39</sup> In ecology the clarification of research plans has been hampered by the fact that if you scratch them, you tend to find models underneath. Scratch the models, and you come upon a layer of metaphors. Scratch the metaphors, and you discover analogies of the sort that the research plans were supposed to supplant definitely and finally.<sup>40</sup>

Analogies are both an asset and a liability to science, according to the philosopher of science Max Black, who writes:

The remarkable fact that the same pattern of relationships, the same structure, can be embodied in an endless variety of different media makes a powerful and a dangerous thing of the analogue model. The risks of fallacious inference from inevitable irrelevancies and distortions in the model are now present in aggravated measure. Any would-be scientific use of an analogue model demands independent confirmation. Analogue models furnish plausible hypotheses, not proofs.

Achieving “independent confirmation” of their “analogue models” has been difficult for ecologists to do. Ecological analogies, especially those that have been popularized successfully, have had a remarkable longevity. And they have lacked what Black calls a “capacity for analogical development.” This has sometimes made them indistinguishable from metaphors, which operate, according to Black, “largely with *commonplace* implications” that can be teased out by anyone who has “proverbial

knowledge.” Black argues that scientific models are more demanding: “The maker of a scientific model must have prior control of a well-knit scientific theory if he is to do more than hang an attractive picture on an algebraic formula. Systematic complexity of the source of the model and capacity for analogical development are of the essence.”<sup>41</sup>

It is precisely because Forbes’s 1887 article on the lake as a microcosm relies on relatively “commonplace implications” and is uninformed by “a well-knit scientific theory” that those of us who are nonscientists are able to understand it and to profit from reading it. At the same time, there is a substantial body of more recent and much more esoteric ecological theory and research that seems to consist of little more than attempts to “hang an attractive picture on an algebraic formula,” despite its being informed by a relatively “well-knit” theory. However, Black does propose a more generous way to view this apparent stalemate, and happily for us, he couches his proposal in ecologically suggestive if not in environmentally appealing terms. “Clearing intellectual jungles,” he writes, “is also a respectable occupation. Perhaps every science must start with metaphor and end with algebra; and perhaps without the metaphor there would never have been any algebra.”<sup>42</sup> With our equilibrium somewhat restored by this thought, we now are ready to review what might be called the algebraic phase of ecology.

### *Poking Holes in Wholes*

*Ecology traffics in differential equations, complex statistics, mathematical modeling, and computer simulation. I haven't seen a picture of an animal in the leading journal of evolutionary ecology for years.*

*Stephen Jay Gould, An Urchin in the Storm*

Much of the theoretical confusion of early ecology may have stemmed from an over-reliance on analogical reasoning, but it also had its source in holism. Ecologists embraced holism in reaction to the virulent strains of reductionism that, as they saw it, were infecting science, but holism was a poor alternative to reductionism in at least two respects. Methodologically, it was a muddle; philosophically, it derived from dubious sources.<sup>43</sup>

The most determined varieties of ecological holism were probably reflective of personal inclinations, and not the products of careful scientific reasoning. As critics liked to point out, holism had such a strong grip on the imaginations of some ecologists that it led them to overlook the sheer heterogeneity of nature and to underestimate the importance of biological diversity. Critics also liked to point out the lack of agreement among holistic ecologists on a single, unambiguous standard of unity. One ecologist’s whole was likely to be another ecologist’s part. This led H. A. Glea-

son, in his 1926 article on “The Individualist Concept of the Plant Association,” to argue that concepts of unity having nothing to do with biology were being smuggled into ecology from elsewhere—chiefly, from the hyperactive imaginations of ecologists themselves. As Gleason put it, “Our various theories on the fundamental nature, definition, and classification of associations extend largely beyond the bounds of experiment and observation and represent merely abstract extrapolations of the ecologist’s mind.”<sup>44</sup>

As a corrective to the unscientific habit of proceeding from an assumption of the wholeness and integrity of plant associations instead of first discovering some evidence that they might actually possess such qualities, Gleason made a daring proposal entirely counter to the sentiments of ecologists like Clements.<sup>45</sup> Gleason asked, “Are we not justified in coming to the general conclusion, far removed from the prevailing opinion, that an association is not an organism, scarcely even a vegetational unit, but merely a coincidence?” He thought the answer to this question must be yes because, as he put it, “every species of plant is a law unto itself.”<sup>46</sup> Such being the case, all attempts to construct a typology of plant associations must founder: either the heterogeneity of natural habitats undermines efforts to characterize them as of one sort or another, or natural habitats exhibiting a typical character do so coincidentally. The species living in those habitats have come to be associated with one another more or less by accident, and not as an expression or consequence of a “law of nature.”<sup>47</sup> The “typical” character of habitats is not determined by fixed correlations of climate and plant biology, or by succession in the unacceptably teleological sense of the term, but by extremely variable local conditions, including as a leading factor the evolutionary history of individual plant species. As Gleason argued, “Every species of plant is a law unto itself.” The apparent orderliness of nature is everywhere transected by vectors if not of anarchy then at least of a stubborn independence amounting to a sort of unruliness. And this means that succession is never a single linear process: its causality is multiple, as are its effects.

The logic of Gleason’s argument against holism is impeccable, but holists weren’t swayed by it, at least not immediately.<sup>48</sup> Holism would come to be associated even with the ecosystem, a concept originally intended as a corrective to the philosophies of holism and organicism that pervaded ecology in the first third of the twentieth century. A. G. Tansley, a British ecologist, first proposed the concept of the ecosystem in his 1935 paper on “The Use and Abuse of Vegetational Concepts and Terms.” Tansley pointed out that the organismal concept of ecological communities was at odds with the standard scientific definition of the term “organism.” “The modern biologist,” he wrote, “means by an organism an individual animal or plant, and would usually refuse to apply the term to anything else. At the most we may be able to get the average biologist to admit that plant (or biotic) communities have *some* of the characters of organisms, and that it may be permissible to apply to them some such term as quasi-organism.”<sup>49</sup> In effect, Tansley was urging ecologists to recognize that the organismal concept was only an analogy. It should not guide

research because it tended to color not only the interpretation but also the very gathering of ecological data in the first place. In other words, it created a bias.

Tansley also argued that the plant community isn't the fundamental ecological unit, since many inorganic ecological factors cannot be comprehended if one focuses solely on organic entities (at whatever scale). He meant that ecological research, in order for it to be as comprehensive as it claims to be, must take into account hydrological and geochemical as well as biological phenomena. Tansley wrote: "Though the organisms may claim our primary interest, when we are trying to think fundamentally we cannot separate them from their special environment, with which they form one physical system," the "ecosystem" as he suggested it should be called.<sup>50</sup>

The important point to grasp about this initial formulation of the ecosystem concept is that it doesn't eschew holism entirely. In fact, Tansley's ecosystem concept embraces a wider whole than the organismal concept. But its holism is more formal and less organic than that advocated by Clements and others, and it might be regarded as nothing more than an artifact of the way in which ecosystem ecologists were to organize and conduct their research. The ecosystem is a congeries of organisms and of hydrological and geochemical cycles linked by a number of different mechanisms. Many of these mechanisms are not organic in character, although they do have a tremendous impact on numerous organisms (as when soil erodes, exposing the roots of plants along with the microscopic animals that live among them). So while it greatly broadens the scope of both theory and research, the ecosystem concept also partakes of the reductionism that has come to be seen as one of the hallmarks of modern science.<sup>51</sup> It actually makes ecology more like other scientific disciplines, not less.<sup>52</sup>

The ecosystem was given more formal and, apparently, more precise definition in an influential article published posthumously by Raymond Lindeman in 1942. In "The Trophic-Dynamic Aspect of Ecology," Lindeman defined the ecosystem as "the system composed of physical-chemical-biological processes active within a space-time unit of any magnitude, i.e., the biotic community *plus* its abiotic environment."<sup>53</sup> Armed with this new definition of the functional unit of ecology, ecosystem ecologists from the late 1940s through the 1960s enjoyed a sense of increasing disciplinary power and success, along with increased funding of their research by public agencies.

Perhaps the most prominent of the new ecosystem ecologists was Eugene Odum, a professor at the University of Georgia who helped start the university's field station at the Savannah River Site in South Carolina.<sup>54</sup> Odum authored *Fundamentals of Ecology*, a standard textbook used in many undergraduate ecology classes.<sup>55</sup> He also proselytized for the ecosystem concept, which he interpreted broadly: his published work amply demonstrates his willingness to extend ecological modes of thinking into the provinces of sociology, social policy, and social engineering. At the height of his career, Odum took advantage of the fact that ecology had begun to attract popular interest and was beginning to have political cachet in order to prom-

ulgate views that extended well beyond questions having to do with the finer points of ecosystem dynamics.

Odum's willingness to editorialize on such issues as overpopulation and pollution reflected his confidence in modeling as a basic tool of ecological research. Although it may include visual representations at a certain primitive level, modeling should not be understood simply in terms of the creation of ecological look-alikes, as anyone who studies the illustrations in Odum's textbooks and articles, which can be very confusing, soon realizes. Many of these illustrations are elaborate diagrams full of arabesques, which variously represent such arcana as feedback loops, food webs, and the like: it's clear that they are a poor sort of visual shorthand with which to convey some extremely recondite ideas. But in fairness, they are probably meant to do no more than hint at the character of ecological relationships, which are orders of magnitude more complicated than anything that can be captured adequately on the page. Odum's illustrations are best regarded as mnemonic devices and pedagogical aids, and not as "realistic" depictions of the natural world.

Whether this is the light in which Odum regarded the illustrations in his textbooks and articles is open to question, however, since he seems to have been persuaded of the essential validity of modeling as a means of generating an accurate account of the world. Modeling, he wrote, "proceeds logically from pictures to circuit diagrams to mathematical equations." This is taking a sanguine view, but Odum was an optimist. He also suggested that modeling could proceed in the opposite direction, as it were, from reduction of the ecosystem concept to mathematical equations to expansion of it as the basis for an all-encompassing worldview (this would be the ultimate rejoinder to those critics who once dismissed ecology as a mere "point of view" and therefore a pseudoscience). Odum argued that modeling was a wonderfully empowering technique. It made it possible for ecologists to proceed, in a completely rational fashion, from pictures of the ecosystem to pictures of society. "The social science concept of different cultural units functioning together as a whole," Odum wrote, "is, of course, parallel to the ecologist's concept of the 'ecosystem.'"<sup>56</sup> The question to be raised is whether or not this parallelism is only a product of happenstance—of the convergent evolution of intellectual trends, or conversely, of the influence of figures like Herbert Spencer on otherwise divergent schools of thought. If it is only a product of happenstance, then we know what to say to those who argue that descriptions of ecosystems are viable as prescriptions for social change.

That society might be reorganized in accord with ecological principles was in fact a possibility that Odum, like most environmentalists, was eager to entertain. He argued that dynamics similar to those of the ecosystem operated at all levels of life, and he liked to discuss society as if it were structured and functioned like an ecosystem. "The development of ecosystems has many parallels in the developmental biology of organisms," he wrote, "and also in the development of human society." He suggested that a healthy human society, like a healthy ecosystem, would eventually

develop into a “stabilized system” of the type he still referred to as “the *climax*.” But Odum also suggested that overpopulation and technological innovation had taken human society beyond the carrying capacity of its environment, to the point where the very character of the earth was being altered for the worse. And he phrased his solution to the human-engendered environmental crisis in the vocabulary of cybernetics: “It is man the geological agent, not so much as man the animal, that is too much under the influence of positive feedback, and, therefore, must be subjected to negative feedback.”<sup>57</sup>

The charitable way to interpret “negative feedback” is to assume that it means birth control, which, I believe, is all that Odum had in mind when he used the phrase. His assertion of the necessity of applying negative feedback to “man the geological agent” shouldn’t be taken as evidence of his inhumanity. It bespeaks the sense of urgency he felt about the environmental crisis, a sense of urgency widely shared in the 1960s and 70s, a time when many ecologists were led to make doomsday pronouncements they otherwise might not have made.<sup>58</sup> Nevertheless, the phrase “negative feedback” does suggest other, less benign means of reducing human numbers, which underscores the potential dangers of modeling one kind of system on another.<sup>59</sup>

Arguably, Odum’s descriptions of ecology as a discipline have a figurative dimension and a Clementsian flavor at odds with his professed allegiance to the ecosystem concept, as when he characterizes ecology in terms of the study of “the gross anatomy and physiology of nature.”<sup>60</sup> Odum’s explanation of ecological succession, despite being couched in a vocabulary borrowed from physics and cybernetics, also remains essentially Clementsian. It is teleological, holistic, and organismal, and is premised on the reality of the climax. Odum defined ecological succession in terms of three parameters. The first parameter betrays the teleology of his concept of succession: “It is an orderly process of community development that involves changes in species structure and community processes with time; it is reasonably directional and, therefore, predictable.” The second betrays its holism: “It results from modification of the physical environment by the community.” And the third, its dependence on a belief in the climax: “It culminates in a stabilized ecosystem in which maximum biomass (or high information content) and symbiotic function between organisms are maintained per unit of available energy flow.” That “terminal stabilized system,” Odum wrote, “is known as the *climax*.”<sup>61</sup> Because he tried to preserve the most attractive and inspiring features of the older ecology in combination with the less enchanting and more reductive features of the new (its mundane conception of energy flow and its reduction of biomass to “information content,” for example), Odum’s work demonstrates how stubbornly persistent analogies can be.<sup>62</sup>

Analogies can inspire modes of thought that don’t seem very figurative at all, yet remain so at the core. In the third edition of *Fundamentals of Ecology*, Odum wrote: “The concept of the ecosystem is and should be a broad one, its main function in

ecological thought being to emphasize obligatory relationships, interdependence, and causal relationships, that is, the coupling of components to form functional units." He also described ecosystem ecology as "the formalized approach to holism."<sup>63</sup> Given its basis in biological relationships of interdependence, the ecosystem, Odum thought, was a good candidate for the application of techniques of modeling borrowed from the new science of systems analysis. Using those techniques would help ecologists to preserve their holism intact without lapsing into pseudoscientific speculation.

But Odum's enthusiasm for systems analysis may have been mistaken: it doesn't seem to have translated into ecological practice as smoothly as he thought it would. Robert McIntosh observes that it is hard to tell if systems analysis "is a method, philosophy, or an ideology."<sup>64</sup> Paul Colinvaux is more briskly dismissive of the systems or "information theory" approach, especially when it is applied to so-called food webs. He writes: "The information theory description of a food web sees each individual as a channel at a crossroads through which food freely passes, but real individuals are in fact road-blocks through which food gets with difficulty. It is this fact that makes the model not only unreal, but absurd."<sup>65</sup> In other words, the model fails to treat individual organisms as biological entities: it reduces them to switches in a network, each of which "behaves" in exactly the same way.

Frank Golley, one of Odum's colleagues at the University of Georgia, is unwilling to concede that the systems approach was absurd. But Golley does admit that the rhetoric of ecosystem ecology was always at odds with its practice, and that "successful applied ecosystem work followed the procedures of normal scientific work." That is, "the same process of observation, hypothesis, testing, and interpretation" followed in other biological sciences was also followed by ecosystem ecologists, including Odum himself. Golley notes that regardless of their theoretical claims, ecosystem ecologists still had to "proceed piece by piece, step by step toward a deeper understanding of the mechanisms responsible for an observed pattern."<sup>66</sup>

Even holistic thinkers must put their pants on one leg at a time and first thing in the morning. Such being the case, Worster is probably mistaken when he argues that holism is somehow essential or fundamental to science—to all of science, moreover, and not just to ecology. He writes: "Take away the assumption that the world is an orderly whole whose parts all work together toward a self-regulated stability, that there is an arrangement and coherence to things that can be understood, and science would cease to exist. I now see that science, and every branch of it, had to begin with some holistic ideal. It is a bedrock assumption."<sup>67</sup> Here Worster is once again making a philosophical declaration in the guise of an historical observation. In fact, "the assumption that the world is an orderly whole whose parts all work together toward a self-regulated stability" can be abandoned without its abandonment having any impact on the view "that there is an arrangement and coherence to things that can be understood." We don't need holism and stability in order to have arrangement and coherence. The problem with holism is that we can get along

piecemeal just fine without it, and aren't able to move beyond the piecemeal with it. It is a burdensome ideology.

Yet Worster argues that contemporary ecology, having rejected holism, "has become so imbued with historical consciousness" that it "runs the risk of total relativism."<sup>68</sup> But this is a very strange complaint for a historian to make; and "total relativism" is something the good relativist would have to reject as an empty phrase and a self-contradiction. Perhaps all Worster really means to say is that contemporary ecology has become more relativistic than he likes. If ecology is "the study of patterns in nature, of how those patterns come to be, how they change in space and time, why some are more fragile than others," as another environmental historian, Sharon Kingsland, has suggested, it is hard to see how it can avoid a certain degree of relativism.<sup>69</sup> That, it seems to me, is quite simply the price ecology must pay for its historicism, a historicism with which all of biology, after Darwin, has been saturated.

Given what I've said about it so far, the rise to prominence of ecosystem ecology in the 1960s obviously didn't mean that converts to the ecosystem concept had succeeded in bringing what had been a wayward, ill-defined science under control. The ecosystem concept failed to unify ecology, once and for all, though it did seem sounder than the organismal concept it displaced, which has come to be regarded "as quaint at best, mumbo jumbo at worst."<sup>70</sup> But like their organismal antecedents, ecosystem ecologists also relied on ideas borrowed from other disciplines, especially physics, systems analysis, and cybernetics, none of which have anything directly to do with biology. The "physical or engineering approach to systems," according to Golley, "tended to deemphasize the significance of biological differences." Or, he adds, to cancel it out altogether: "In the ecosystem model, species acted abstractly, like robots."<sup>71</sup> This suggests that ecosystem ecology may have overcompensated for the shortcomings of organismal ecology.

Perhaps the greatest weakness of the ecosystem model is owing to the fact that actual ecosystems "have bewilderingly large numbers of moving parts."<sup>72</sup> "Bewilderingly large numbers" are hard to account for in even the best models, and naturally it is difficult to demonstrate that anything with so many "moving parts" is as coherent and systematic a phenomenon as the ecosystem is supposed to be. "An ecosystem," Ernst Mayr observes, "does not have the integrated unity one expects from a true system."<sup>73</sup> Significant numbers of the living creatures found in any given habitat are likely not to be integral participants in whatever large-scale phenomena may be occurring in their habitat day after day. They are, in effect, antisocial dropouts. The natural historian Sue Hubbell writes: "Individuals within species of the profligate natural world are many, selfish, greedy, pushy, excessive, filling up all available space, taking all the resources to their own advantage, and not all of them may be 'necessary' to the function of an ecosystem. Some may be extras, spare parts, or, to use the currently fashionable word, redundant." But as Hubbell points out, the great difficulty for ecologists lies in determining which species are

the redundant ones and which are vital to the continued health of their habitats: "In our great ignorance of the life histories of even those animals we have identified and named, let alone those we have not, we are a long way from being able to pin the label 'spare part' on any of them."<sup>74</sup> What looks antisocial to one organism may be just another organism's way of biding its time.

So while it is distinctly more robust, in that it embraces inorganic as well as organic environmental factors, the ecosystem concept has one major defect in common with the organismal concept. It does not clearly identify an entity or a process, or a collectivity of entities and a bundle of processes, as the primary object or objects of ecological study. The ecologist R. H. Waring writes: "The ecosystem concept is dimensionally undefined. An ecosystem may be a pond, a catchment basin, or the Earth's biosphere." This lack of dimensional definition is not altogether damning: Waring thinks that the ecosystem concept has been "useful heuristically," and Joel Hagen, who calls it a "flexible abstraction," agrees.<sup>75</sup> But other ecologists and historians of ecology have been less sanguine. McIntosh notes that the ecosystem concept places on scientists trained as biologists the additional burden of becoming competent in aspects of physics, chemistry, geology, meteorology, and other disciplines before they can conduct the difficult interdisciplinary research that the concept entails. Ecosystem ecologists also have to master complicated new instruments that they may not have encountered during their basic training in biology, such as the apparatus of the chemistry lab. "One of the difficulties of following the development of ecosystem ecology," McIntosh writes (making a point also made by Golley), "is to match practice with the rhetoric accompanying the new ecosystem ecology in its several variants."<sup>76</sup> Ecosystem modeling seems to be essentially rhetorical, in that the persuasive power of model ecosystems tends to be more important than the accuracy of their details. And of course even models that do manage to be predictive, and thus seem to be very persuasive indeed, can be misleading. Frank Egerton makes a pertinent point: "As we all know from the history of Ptolemaic models of planetary motion, workable models do not guarantee that one is explaining correctly the phenomena the model describes and predicts."<sup>77</sup>

An even graver difficulty than those associated with modeling has long been a great bother to ecologists. It has to do with quantification. Quantification is essential to modern scientific practice, but obviously it cannot proceed without the prior recognition of entities: scientists have to have something to count before they can generate any data.<sup>78</sup> Unfortunately, as McIntosh points out, ecological entities—plant communities and ecosystems, for example—all too often have been described off the cuff, "on the basis of subjective judgments," without their first having been established definitively as entities by prior biological research.<sup>79</sup> Too many ecologists have tried to identify plant communities and ecosystems merely by getting out of doors and having a look around. They have seen the forest in terms of only a minority of its trees.

Colinvaux argues that what early ecologists “were describing with their elaborate lists” of plants was habitats, and not plant associations or communities. The lists were evidence of the fact that the habitat in which the plants on the lists were found just happened to be hospitable to those particular plants. Like strangers in a bar, they were there at the same, but they weren’t really there *together*. Just as skeptics have always insisted, appearances are deceiving. Early ecologists, Colinvaux suggests, were fooled by a trick of the light, as it were, into thinking that they had discovered a pattern in nature when no pattern was there: “Distinct bands of color in a rainbow are an optical illusion, a convenience for memory and expression. The same is true about the belts of vegetation on a mountain; they do not exist as discrete zones of vegetation.” It isn’t that the tendency some species of plants have of gathering together in association with one another is wholly devoid of biological meaning. It’s just that the meaning of such associations is other than was supposed by early ecologists. “Association,” Colinvaux admits, “can be a loose form of what biologists call ‘symbiosis.’” But symbiosis is comprehensible without making any specifically *ecological* assumptions, and “it encompasses few species rather than many.”<sup>80</sup> It doesn’t require the sort of large-scale and all-inclusive relationships implied by notions like association or community.

These worries and potential sources of contradiction have sometimes not been recognized at all or dismissed as unimportant by ecologists. Having decided that a forest is of a particular kind, they will set about counting its component species, usually ignoring the great majority of them in the process (since this majority will consist not only of very small plants, bugs, insects, spiders, fungi, seeds, and spores, but of any number of microorganisms as well, some of them incredibly tiny). Then they will massage the data they have gathered into shape. From roughly the 1940s onward, the most popular means of massaging data into shape has been the logistic equation, which when successfully applied generates data graphs with a characteristic *S*-shape. Statisticians seem to find this *S*-shape pleasing, though it is a flattened and rather conjectural *S*, which only emerges after the data points are plotted and then cleaned up a bit by someone with a knowing eye and a practiced hand.

The logistic equation was taught in introductory courses in ecology for many years, but a number of ecologists find its continued use problematic. For one thing, it depends on a prior judgment, often an intuitive one, of the character of a particular object of study, which might be a population of, say, either trees or animals. Data about this population are collected as if the object of study had not been defined in an ad hoc manner (“all the members of species *X* living within the quadrat *ABCD* plotted last week by our research team of first-year graduate students”). Then the logistic equation is applied to this data and depending on the quality of the resultant graphs (depending, that is, on their shapeliness), predictions about the future may or may not be made, and policies set accordingly. Bag limits on deer, game birds, or trout may be raised, lowered, or kept the same, or a forest may be sprayed with in-

secticide. And if the deer, the game birds, the trout, and the forest are lucky, the extrapolations from raw data made by their managers won't be too far off the mark.

As a research and management tool, the logistic equation has a signal failing, according to Daniel Botkin. Although "the logistic is supposed to be an ecological formula," he observes, "the environment of a population does not appear in it in an explicit way." The environment has been factored out of the equation, quite literally. The logistic can be perniciously reductive: it ignores the random changes to which all organic life is fated, such as, in the case of white-tailed deer and game birds, an unusually heavy crop of mast, or no mast at all, two autumns in a row. In the case of stream-bred trout, the random changes might take the form of an unchecked growth of aquatic vegetation during a mild winter and a resultant banquet of caddis and mayflies come spring; but then again it might take the form of floods and ice jams that scour a streambed and drastically reduce both aquatic vegetation and invertebrate life for a season or two. And in the case of woodland pests like southern pine beetles, the random changes might include genetic mutations making some of the beetles highly resistant to insecticides. The logistic equation ignores both the vagaries of the environment and the genetic variability and adaptability of biological entities, whether they are plants or animals. Botkin writes: "A logistic moose responds instantaneously to changes in the size of the population; there is no history, no time lags, no seasons; a logistic moose has no fat."<sup>81</sup> A logistic moose is therefore no proper sort of moose at all. "One of the major criticisms of mathematical-theoretical approaches in ecology," McIntosh writes, "is that they commonly rest on simplifying assumptions, often unstated, that make them tractable mathematically but nonsense biologically."<sup>82</sup> The charge that they have produced biological nonsense isn't one that ecologists can shrug off lightly.

Applying the logistic equation to ecological problems is appealing because it seems to fulfill the old promise of ecology to deliver something like the whole truth about nature. But to rely on this equation may be to purchase holism at too great a price. Using the logistic equation means treating animal and plant populations as if they were members of mathematical sets rather than members of species, with all the genetic variability membership in a species implies.<sup>83</sup> In the worst-case scenario, applying mathematical techniques to natural populations in order to give one's data about those populations a comprehensible shape means ecology without biology: without genetics and evolution, that is.

The choice between systems analysis and mathematics on the one hand and biology on the other is not a choice many ecologists would want to make in favor of systems analysis and mathematics. Ecologists have had to concede that summing all the parts of an ecosystem, even if it were possible to identify and count them all, doesn't necessarily tell one something meaningful about the whole, however elegant the math involved. They've begun to wonder whether the old maxim about the whole being greater than the sum of its parts is really all that wise a saying.

## *Summa Ecologica*

*Ecology is not yet ready for its Copernicus or its Kepler, much less its Newton or Einstein . . . because ecology has yet to develop even the consensus about what observations are interesting. . . . We are closer, perhaps, to a lonely priest of Ur, scanning the night skies for patterns and crudely calculating the future course of the heavens, despite gross misconceptions and uncertainties.*

R. H. Peters, *A Critique for Ecology*

Because it faces unusually intense difficulties of self-definition, ecology seems to replicate on a small scale certain features of the broader debate about the unity of the sciences in general. The broader debate assumes the internal coherence of the various scientific disciplines, but in ecology's case, this assumption is unwarranted.<sup>84</sup> Ecology is heterogeneous: there are few ecological concepts that aren't in dispute.<sup>85</sup> As McIntosh suggests, the discipline's heterogeneity reflects the fact that early ecologists were fond of inventing new vocabulary and of defining their terms in an overly imperious fashion. He compares them to Humpty-Dumpty, since like Lewis Carroll's quarrelsome egg they tended to use a word "to mean just what they chose it to mean with little regard for what others said it meant. This tendency," McIntosh adds, "has not disappeared." Idiosyncratic and forceful definition of his terms may have worked for Humpty-Dumpty, but ecologists have found it necessary to pad their own definitions with uncertainty.<sup>86</sup>

Perhaps it is only to be expected that among the most uncertain of ecological terms are those that have been most widely popularized. Consider, for example, the term "niche." The niche is popularly understood to have a spatial reference: in their niches is where the wild things are. For those who believe in the value of finding one's niche, it is heartening to learn that it is "axiomatic that no two species regularly established in a single fauna have precisely the same niche relationships," as Joseph Grinnell observed in his classic 1917 paper on "The Niche-Relationships of the California Thrasher."<sup>87</sup> A niche for every species, then, and every species in its niche: thus the natural order is maintained, and likewise the social, if only metaphorically. Yet for all the apparent tidiness of the concept, and for all its metaphorical appeal, the niche has proved extremely difficult to define with precision.

And yet one might, with equal justification, say that ecologists have defined the concept of the niche to a fare-thee-well, and that the meaning of the word "niche" is in danger of vanishing in a cloud of qualification. Ecological concepts, like all scientific concepts, tend to undergo a process of rarefaction. For ecologists, the word "niche" has lost much of its intuitive sense of spatial location (they borrowed the word from architecture: niches are the nooks in a building in which statues are placed). *Niche* has become, in effect, an esoteric term: it now refers to the *n*-dimen-

sions that a given species utilizes in the full range of its ecological interactions throughout space and time.<sup>88</sup> It is much more difficult nowadays to derive tidy little truisms from the niche, given how ecologists have formalized and refined the concept since Grinnell's day.

However, this seems to be one of those cases in which subtlety and formality have produced not greater precision but increased confusion and unintentionally comic results. According to the ecologists Leslie Real and Simon Levin, the niche "is a central concept of ecology, even though we do not know exactly what it means." Real and Levin report that the equally vague concepts of complexity, diversity, and stability, which also have migrated to the popular discourses of ecology and environmentalism, have generated both semantic confusion and "diametrically opposed results."<sup>89</sup> As Golley explains, "Simple systems may be stable, and species-rich communities may be unstable. No universal pattern holds. Nevertheless, the environmental movement of the late 1960s and 1970s used the diversity-stability hypotheses as a central tenet supporting conservation action, and it is still being taught as a common sense relation." Golley says it is possible that "ecosystems are never stable but are always in a process of change."<sup>90</sup> There is, in fact, some dramatic research suggesting that this is more than a possibility: tropical rainforests are perhaps the most diverse of all terrestrial habitats, and yet they are nowhere near as stable as they once were assumed to be. And one ecologist working in an old-growth forest in Oregon discovered that this forest is unstable, not only over time as he had expected but in space as well. The old-growth forest actually moves: "many of the towering trees have traveled, sprawling root system and all, several feet during their centuries-long lives."<sup>91</sup> Discoveries of this kind have fostered a much more skeptical but at the same time a more open-minded theoretical climate in contemporary ecology.

Colinvaux argues that stability should never have been thought of as an ecological phenomenon in the first place. He writes: "Stability and balance are not so much functions of life acting on life as they are reflections of the underlying stability of physical systems. Perhaps the greatest error recurrent in ecological thought is that which claims stability as a function of biological complexity."<sup>92</sup> In other words ecological stability is a product not of biological forces but of geological and climatic stability. And of course geology and climate only *seem* stable to us because of our limited ability to appreciate the vast amounts of time involved in geological and climatic change, which can have and often does have cataclysmic effects.

Ernst Mayr agrees with Colinvaux that ecological stability cannot be taken at face value, but he is dubious about the concept for a different reason: "No matter how relatively stable a community may seem to be, it actually reflects a balance between extinction and new colonization."<sup>93</sup> Such a balance is, in effect, a statistical artifact. It reflects evolutionary good fortune rather than the healthy diversity of the community, and evolutionary good fortune tends to be quite fleeting if not altogether ephemeral. R. C. Lewontin, a prominent evolutionary scientist and a sharp

critic of flabby thinking in science, argues that “there is nothing in our knowledge of the world to suggest there is any particular balance or harmony. The physical and biological worlds since the beginning of the earth have been in a constant state of flux and change, much of which has been far more drastic than anyone can now conceive.” “*The environment*,” Lewontin adds, “has never existed and there has never been balance or harmony.”<sup>94</sup> Lewontin’s approach to ecological concepts is to rarefy them with a vengeance.

Those who believe that ecology has expanded the purview of the sciences have overlooked the fact that a more tough-minded and reductive approach to nature seems to be enjoined upon ecologists sooner or later, and not because nature is simply like that—not because it is atomistic, mechanistic, and deterministic—but because a tough-minded and reductive approach to nature appears to be the most effective one. We have to get on with nature as best we can without succumbing to the allure of all-or-nothing propositions, even if that means sacrificing our hopes for unity on the altar of expediency from time to time. In science, the “diametrically opposed results” described by Real and Levin usually cannot be reconciled, except in very limited and extremely painstaking ways—as they are, for example, in quantum physics. And such reconciliation is not the work of a day; quantum physicists have had to erect a formidable edifice of theory and experiment in order to reconcile seemingly irreconcilable results, and to reduce them to something that only the gifted few and the highly trained can understand.

In ecology, the failure of stability to correlate positively with complexity and diversity, as it once was expected to do, has been a genuine disappointment, since it has made us realize how hard it is to understand complicated, diverse habitats and thus how difficult it is to figure out how to preserve them effectively. I’ve noticed that such disappointments are rare in the humanities, where contrary “results” or rather interpretations can be reconciled with our expectations with relatively little effort, and I think this is especially true in literary criticism. Literary critics all know how to reconcile incommensurable conclusions about particular objects of attention. It helps tremendously that the majority of these objects of attention—such things as inscription, writing, the work, the text, the intertext, textuality, intertextuality, literature, and “literariness” itself, along with media, genders, cultures, nationalities, and so on, almost *ad infinitum*—tend not to be well-defined and clearly described in the first instance. It also helps that most of these objects of attention cannot be regarded as realities, certainly not in the same way that rainforests and wetlands can be. Taking advantage of the more or less speculative nature of most of the entities that they study, literary critics may treat a colleague’s interpretation of one of them as a spirited polemic seeking to change notions about what is acceptable in literary study, and will welcome it as a contribution to the field but without agreeing with it in the least. Failing this sort of canonization by default, another, more ironic sort of canonization—by exasperation, as it were—is still possible. An interpretation may be acknowledged by all parties to be completely and even glaringly wrong-headed

and irresponsible. Yet it nevertheless can be treated as an amusing and instructive “strong misreading,” and may become canonical despite, if not because of, its very invalidity.

There is even a sense in which the invalidity of interpretations is essential to literary criticism. The literary affection for metaphor is premised on metaphor’s ability to generate “diametrically opposed” readings and incommensurable conclusions. New schools of interpretation are founded, more often than not, when a literary critic makes a few quirky, original assumptions and formulates a novel metaphor (the “homosocial” text is a good recent example; so, for that matter, is the “environmental” text). Never mind that on a first, second, and perhaps even a third inspection these assumptions and this metaphor may seem invalid, and patently so, to those who find it unjustified by textual evidence or unpersuasive on other grounds (e.g., because it’s distasteful or too counterintuitive or unhistorical or what have you). This is precisely why wit still plays an important and somewhat nefarious role in literary criticism. That it both tolerates and welcomes misreadings, invalid interpretations, incommensurable conclusions, and just-so stories justifies Ernst Mayr’s assertion that literary criticism “has virtually nothing in common with most of the other disciplines of the humanities and even less with science.”<sup>95</sup>

Literary critics can agree to disagree happily (I don’t mean to imply that they always or even often do). They would welcome Humpty-Dumpty to the fold as one of their own, and give him tenure, too. For ecologists, on the other hand, the fact that “a general synthesis is not currently available at any ecological level” is a cause for deep concern.<sup>96</sup> “Few of the major controversies in ecology, if any, have been decisively settled,” according to Mayr, and the unsettled state of the discipline represents something more than just the sort of challenge that young and ambitious scientists are supposed to welcome.<sup>97</sup> It may be a symptom of deep confusion, or still more fundamentally, of outright impossibility.

In his book *A Critique for Ecology*, the ecologist R. H. Peters argues that the theoretical and methodological woes of ecology reflect “the vagueness of ecological constructs.” “So much of the science,” he writes, “is phrased so ambiguously that the meaning of most constructs is open to reinterpretation by both critic and defendant.” Peters has some caustic things to say about ecologists whose work is not directed toward problem solving. He argues that by attempting to synthesize insights from a diversity of scientific fields, such ecologists promulgate tautologies rather than theories. One difference between a tautology and a theory, Peters suggests, is that “a tautology is certain whereas a theory is hypothetical, risky, and dubious.”<sup>98</sup> Assumptions about the necessary interrelatedness of all ecological phenomena, or blanket statements like Eugene Odum’s assertion that to understand the ecosystem, “the whole as well as the part must be studied,” have an *a priori* quality at odds with the empirical character of scientific research.<sup>99</sup> They cannot be tested, since they are not predictive of anything specific. They are platitudes that have yet to be worked up or scaled back into scientific propositions—into hypotheses, that is.<sup>100</sup>

Peters maintains that its preoccupation with model building suggests that ecology has become “a new scholasticism, interminably debating the fine points of unobservables and formalisms.” Because the terms on which they rely are not made “operational,” which would require that “the range of phenomena that a concept or term represents” be specified, “many influential works in the literature do not contain testable theory, but are only propaganda for developing concepts.”<sup>101</sup> Peters explores the flaws of a wide range of ecological concepts in his book, and much of what he has to say about them is surprisingly harsh.<sup>102</sup>

Consider what Peters says about the concept of *environment*, quite possibly the most popular and (therefore) the most mystified ecological concept of all. Its “vagueness,” he notes, “has long been recognized by ecologists.” *Environment*, Peters argues, is a nonconcept, a word without a definition and lacking a referent. In ecological practice, the environment can be defined only by “stipulating what it is not.” Peters writes: “The environment is that which is not the object of investigation. Thus the environment of an entity is everything outside that entity. This sweeping definition of environment introduces a number of operational difficulties.” These operational difficulties include the problem of determining where the boundary between the inside and the outside of a given entity is located. This problem will be less easily resolved for some entities than for others, and it is exacerbated by considerations of scale. Many microorganisms have permeable cell membranes and thus have extremely fluid physiological boundaries. Their relationships with things “outside” them tend to be ambient in a way that makes models based on exchanges between internal organs and the external environment less than perfectly applicable to them. Microorganisms are, in a very real and specific sense, always a part of the environment they inhabit and are “at one” with it. They are less like switches in a circuit than they are like free-floating filters that have come loose from their fittings. Using the term *environment* thus introduces a high degree of relativity and ambiguity into ecological research. Peters argues that the same can be said of related terms like *habitat* and *ecosystem*.<sup>103</sup> Of course many ecologists still use these terms, but fewer and fewer of them assume that when they use them they are designating specific entities. This is perhaps the chief reason the concepts attached to these terms seem less viable than they used to.

Peters has little patience for the attempts made by some ecologists to salvage vague concepts for the sake of their heuristic value. He insists that ecological theories need to be predictive, and explains that this doesn’t mean that they need to be *true*: “Scientists are never entitled to conclude that successful theories are true. They can only make the modest claim that the theories which worked in the past are more likely to do so in the future than theories which failed in the past.”<sup>104</sup> If Peters is correct, we shouldn’t go seeking for the truth *of ecology* without first taking into account the limited role of truth *in ecology*.

Peters insists (and ecocritics who want to restore representational art to its former glory ought to take notice) that the goal of ecology, especially at a time of global

environmental crisis, should not be to generate a correct picture, complete in all its details, of the workings of ecosystems, but to explore ways in which particular environmental problems can be more effectively addressed and redressed. Aside from the urgency of solving these problems, Peters argues that the more theoretical approach to ecology, while it may be more alluring intellectually, has not been very compelling otherwise: "Ecology compounds its single failings. Operational impossibilities spawn tautological discussions that replace predictive theories with historical explanations, testable hypotheses with the infinite research of mechanistic analysis, and clear goals for prediction with vague models of reality."<sup>105</sup> Ecology could use better techniques and methodologies, and an epistemological housecleaning, too. And it was ever thus: in ecology, the need to put Humpty-Dumpty together again, like the need to define his terms, has been perennial.<sup>106</sup>

One might argue that the fault of many ecological theories is their immodesty, the way in which their explanatory reach consistently exceeds the grasp of research and experiment. Such excess is usually what we mean, after all, when we use the term *heuristic* to justify our use of vague ideas. To be heuristic is to jump-start an interpretation by making a few convenient but otherwise unwarranted assumptions (as when psychoanalysts assume that the unconscious is structured and functions like a language). "'Explanatory' concepts and theories that satisfy a widely felt need for plausible, causal descriptions of nature," Peters writes, "hide the shortcomings of our theories under prose that explains away rather than explains." Ecological theory "must be judged on the evidence," he insists, and not on the "plausibility of the prose in which it is couched."<sup>107</sup>

One source of the plausibility of ecological prose has been the seductiveness of the analogies on which many ecological theories have been founded. Consider the analogy of the "web of life," which has become one of the pet notions of environmentalism and popular ecology. Several generations of ecologists found the idea that "every phenomenon sits in a web of interacting, multiple factors" an appealing way to characterize ecosystem dynamics, but the idea hasn't been a fruitful one. "Attempts to describe this web," Peters notes, "lead one back to a mechanistic approach to ecology and to an infinite research program." That is, one becomes preoccupied with discovering and describing the various interstices of the web in the absence of any concrete evidence of the existence of the web as a whole, and still worse, in the absence of any concrete evidence that the web *is* a whole. Peters concludes that because they tend to encourage unfocused research of this sort, "analogies are too undependable to serve as theories."<sup>108</sup> They keep returning ecology to somewhere very near square one.<sup>109</sup>

Another marker of the boundary between the humanities and the sciences is the disparity in the relative weight each assigns to similarity and difference, and hence to analogy, in constructing their accounts of the world. Historians—particularly historians of ideas, which tend to be extremely plastic—may be led to treat similarity as more vital than difference by the hardships that arise whenever one tries to

forge a coherent narrative. In a coherent narrative, similarity takes shape in the form of repetition: something early is judged by the narrator to be analogous to something late, and by focusing on this analogy a vast amount of time can be tamed and history brought to heel.

Literary critics favor similarity over difference with even greater zeal than historians, perhaps because they write with fewer constraints on the claims they allow themselves to make. Playing hunches, despite the inroads of theory, still seems to be essential to literary criticism as practiced, if not quite as professed. As practiced, literary criticism remains more or less intuitive. Thus literary critics are twice removed from science, and are likely to have a correspondingly impaired sense of difference. By virtue of their training, a point of view is all the Archimedean equipment literary critics need in order to interpret the world, including the natural world, which some of them regard as a text that they, too, are qualified to read.

Because scientists cannot overlook the difference between texts and the natural world without causing outbreaks of contagious disease, uncontrolled genetic mutations, catastrophic climate change, mass extinctions, and loss of their funding, they have to learn how to use analogies with rigor and precision, if use them they must. They also have to learn how not to confuse analogies with metaphors. In literary criticism, rigor and precision play a much less prominent role, and the distinction between analogy and metaphor is frequently ignored. Arguably, this is a serious dereliction of professional duty, since attending to the workings of rhetorical figures is something a literary critic is supposed to do *ex officio*.

One consequence of ignoring the distinction between analogy and metaphor in ecocriticism has been a gross misunderstanding of ecology, in which analogy has played a central but controversial role, and a correspondingly gross overestimation of the nearness of ecological thinking to poetic and other modes of essentially comparative thought. But it may be the peculiar fate of analogies, no matter who handles them, to become metaphors and when imaginations run amok, as they are prone to do, symbols. An analogy may begin as an illuminating comparison in which the differences between terms are preserved and clearly understood even if not explicitly stated, and end up as a metaphor, or an obfuscating equation in which the differences between terms have disappeared completely. If the new metaphor is allowed to stand, the emotional appeal of the vehicle will displace the tenor almost entirely, ultimately resulting in a symbol open to the most disparate interpretations. And all this can happen even when the original analogy is a dry one that would seem to have very little symbolic promise—as when the ecosystem concept, with its borrowings from cybernetics, is taken to imply a mysterious interconnection of one and all. Of course, some ecocritics have complained that discovering mysterious interconnections by way of analogy, metaphor, and symbol is simply what poets do, and they blame literary theory for trying to debar such discoveries. However, literary theory is an attempt to check not poetic but critical license.

*Patchwork*

*How have we come to believe things about nature that are so untrue?*

*Stephen Budiansky, Nature's Keepers*

In order to comprehend the intellectual difficulties that ecologists face, it helps to consider the history of their discipline not in philosophical context, as a reaction against reduction and in favor of holism, but in the context of the development of the theory of Darwinian evolution. Much of what has passed for ecological theory has been at odds with Darwin's insight into the role of natural selection in evolution.<sup>110</sup> This conflict is one I've hinted at before, and it tends to arise whenever ecologists try to extend their understanding of the natural world much beyond the life history of a single species or small groups of closely related species. But to say this may be to say that ecologists run afoul of Darwin just as soon as they set up shop, because the very notion of the ecological seems to be at odds with Darwinian theory. "A commitment to the evolutionary world view," Richard Levins and R. C. Lewontin write, "is a commitment to a belief in the instability and constant motion of systems in the past, present, and future; such motion is assumed to be their essential characteristic."<sup>111</sup> As I've tried to show, ecology has had a difficult time comprehending phenomena like instability and constant motion.

To pursue an ecological line of research, as classically described by theorists like Frederic Clements, may be to court every step of the way a contradiction of Darwin and, after the so-called and highly successful modern synthesis of the Darwinian theory of natural selection and the Mendelian theory of inheritance, of the demonstrated facts of genetics as well. For this reason, the schools of thought known as "population ecology" and "conservation biology" are now two of the more vital of ecological subdisciplines, not coincidentally because of their Darwinian perspective on ecological phenomena, a phrase that would have struck Frederick Clements and his peers as oxymoronic.<sup>112</sup> Stephen Jay Gould explains that population ecology embraces "the central Darwinian postulate that nature manifests no higher principle than the struggle of individual organisms to maximize their own reproductive success. Notions of community and natural harmony, however illuminating as metaphors, do not reflect nature's primary evolutionary unit, the population of individuals within a species."<sup>113</sup>

Ecology in the traditional sense of the term still popular with environmentalists and ecocritics, ecology that seeks to demonstrate the reality of plant and animal communities and of natural harmony, is hamstrung by its inability to pursue its goals using the most effective tools of biological research. Historically, ecology has had a pronounced tendency to leave the realm of biology altogether, in pursuit of somewhat ethereal if not entirely metaphysical entities. The inherent tensions of ecological thought are neatly demonstrated in Colinvaux's discussion of the ecosys-

tem concept, which he calls “an idea, a people-made thing” and “a way of looking at nature. It is an admission that there is no super-organismic thing out there made by some masterly designer. There are only Darwinian species.”<sup>114</sup> On this account, the ecosystem concept is only a way of organizing one’s thinking about groups of species that one otherwise treats as individuals. If so, then *ecology* is a catchall term used to describe a science more diverse in theory and method, and more free-wheeling and unconstrained, but less finely tuned and less productive of definitive results than microbiology or physics, and we seem to be right back where we started. Ecology is just a “point of view.”

Yet despite what I have reported so far, and despite some of the more polemical points that I have made or have quoted others making, critics like Colinvaux, Peters, McIntosh, Egerton, Mayr, and Botkin aren’t entirely negative about ecology’s prospects. After all, they are ecologists themselves. Each of them suggests that ecology has certain strengths, even if it doesn’t exist in a state of grace or a definite form, but has fragmented into a variety of closely allied subdisciplines. The things that ecology does well tend to involve areas of applied science like forest, wildlife, and fisheries management, or the restoration of degraded habitats to something approximating a pristine state (even if that pristine state is, for historical reasons, more or less conjectural). Ecology’s success stories have grown out of research projects of relatively modest scope, the results of which have shown a gratifying tendency to rebound upon the formulation of theory, correcting, adjusting, and reshaping it in positive ways.

The fact of the matter is that ecological research is extremely difficult. The grand sweep of many ecological theories is a response to the vastness and complexity of nature: comprehending this vastness and complexity on an appropriate scale and in meaningful detail is hard to do well, assuming that it can be done at all. The intellectual and methodological challenges of ecology are further compounded by a host of very basic technical problems. Ecologists cannot take comfort from and refuge in a well-equipped laboratory purchased right off the shelf and marked “for the use of ecologists only.” They often have to improvise on the spot. And in any case, it is entirely possible that the laboratory’s artificiality “may simply swamp processes of ecological relevance,” as Peters has suggested.<sup>115</sup> The laboratory tends to cancel out the very factors that we think of as ecological.

As if all this weren’t handicap enough, fieldwork, which appears to be the bread and butter of ecology, can be just as problematic as lab work. The quadrat method, in which a researcher stakes out plots of a standard size in a given habitat in order to study, say, the patterns of succession of native versus alien plants or the foraging habits of feral hogs, may be invalidated by the patchiness of that habitat, particularly if an awareness of this patchiness isn’t accounted for theoretically and designed into the research beforehand. But this, too, is a difficult thing to do, since patchiness and the quadrat method are inherently hard to reconcile. An environment—*any* environment, though some more than others—is patchy because plants and animals

aren't distributed in it evenly, but in a randomly variable (or *stochastic*) fashion. To risk an analogy, one bite of an apple may not have a worm in it and another bite may, but no prediction of the outcome of any one bite is possible since the distribution of worms in apples is wholly unpredictable (let us assume). Caution is advised when we bite apples, but it won't ensure that we never bite any worms inadvertently.

By the same token, habitats vary, and not just over time, as we have long realized (we call that realization "geology"). Habitats also vary from point to point and place to place; they differ, not only one from another, but internally as well. In a sense, what patchiness really means is that the idea that habitats are composed as all-encompassing "environments" is false. Patchiness, random variation, pattern, or grain—ecologists use these words interchangeably, but call it what you will, patchiness frustrates our attempts to identify and understand natural systems as, well, natural *systems*.<sup>116</sup> It threatens to reduce ecological research to patchwork. The irony, however, is that reducing ecology to patchwork may strengthen its claim to scientific validity in the eyes of its critics.<sup>117</sup> Ecology falters; its subdisciplines, all of them in varying degrees heretical, thrive.

Patchiness has made a very strong impression on contemporary ecologists, and they have begun to characterize ecosystems in a much less idealized and more neutral fashion than they used to do, in large part because they now recognize that random change is "intrinsic and natural at many scales of time and space in the biosphere," according to Botkin. To some extent, this new view of nature as prone to disturbance owes something to a general change in the scientific temperament over the last century. Chaotic phenomena like turbulence now seem much more attractive and interesting to us than they did in the past, and no longer figure in the scientific imagination as something to be explained away so that our sense of an orderly universe can be preserved. Once physicists became aware of quantum phenomena, the order of nature began to be regarded as a much more open question in general, as Botkin points out: "The profound philosophical arguments that arose from the development of quantum theory in the 1920s opened up the possibility of a very different perception of the physical universe: the universe as fundamentally stochastic to some degree."<sup>118</sup> Of course, one could argue that if ecology has become more like other sciences than it used to be, it is partly because other sciences have become less positivistic—and hence more like biology—than they used to be.

In recent decades, the elaboration of chaos theory has been of particular importance both for ecology and in it. The theory hasn't been imported wholesale from other disciplines, as systems analysis was, but is something to which ecologists have made original contributions. This doesn't mean, however, that ecologists now feel stymied by a world at last admitted to be fundamentally indeterminate and wholly chaotic, and that they have conceded the main point to the harshest, most antinomian critics of science. That the world is fundamentally indeterminate and wholly chaotic, a swirling vortex of sheer disorder from which order only arises provisionally—that the appearance of order is only an illusion—isn't what chaos theory ar-

gues.<sup>119</sup> And yet the fact that ecologists have embraced a less determinate view of nature does mean that they have had to distance themselves from the rosier varieties of environmental thought, to resist their own positivistic impulses, and to refrain from open-ended theoretical speculation, or at the least to speculate more parsimoniously than they once did.

After more than one hundred years of research, ecology is not yet a fully mature science, but is still discovering its subject matter and elaborating its key concepts and basic methods. Golley's wistful description of ecosystem ecology in the mid-1960s still resonates, and might be applied with some justice to the discipline as a whole today. He writes: "The condition of ecosystem studies at this time might be characterized by Claude Levi-Strauss's term *bricolage*, which refers to the construction of an object or a theory from a variety of unrelated, found materials. The *bricoleur* arranges these and creates something new and unexpected from the disparate materials."<sup>120</sup> Ecology continues to be a makeshift affair. No doubt this is precisely why it seems attractive to the kind of scientist who enjoys poking around outdoors and tinkering with things to see how they work.

### *Disturbing Nature*

*In most ecosystems the interval between disturbances—  
fire, frost, flood, windstorm—is almost always less than the  
life span of an individual member of the dominant species.  
So much for balance.*

*Stephen Budiansky, Nature's Keepers*

In his 1899 article on "The Ecological Relations of the Vegetation of the Sand Dunes of Lake Michigan," Henry Chandler Cowles seems to anticipate the theoretical bashfulness and cautiousness of many present-day ecologists when he discusses the patchiness of plant societies and notes that ecological terms are semantically ample for good reason. Cowles writes: "The term patch or zone has a value like that of variety in taxonomy. Authors disagree, here as everywhere, upon the content and values of the terms employed; this disagreement is but an expression of the fact that there are few if any sharp lines in nature." He adds that in field biology, terminology "is largely arbitrary and adopted merely as a matter of convenience." The question a contemporary ecologist must ask, however, and must ask more forcefully than Cowles could have done, is how much convenience there is in terminology as arbitrary as some ecological terminology seems to be. A contemporary ecologist would have to note that the homely comparison Cowles makes of the sand dune complex to "a river with its side currents and eddies at many points, but with the main current in one direction" is no longer a comforting thought, in light of the things we have learned about the chaotic nature of the turbulence that accompanies a river's

“main current in one direction.”<sup>121</sup> Are the phenomena of ecological interest out in the channel with the unidirectional flow of the main current, or are they tucked away in the contrary side currents and whirling eddies? Or are they to be discovered in the complex interaction of the river’s many and braided currents with the surrounding geography of its watershed as a whole, shaped as that watershed has been by the larger forces of nature, and perhaps by human hands as well?

These seem to be increasingly difficult questions to answer, even as their urgency grows. The environmental crisis is frustratingly manifold. “We are hybridizing the planet,” the science writer Jonathan Weiner warns. “We may be creating conditions in which evolution is running at its maximum rate.” Insects reproduce so often that our use of insecticides has acted on them as a novel form of selection pressure. In a number of cases, this has had the effect of improving the breed, so to speak, in a very short time. According to Weiner, “every postmodern, well-equipped house fly” is now the bearer of a “mutant gene” making it immune to pesticides by limiting its uptake of them from the environment. The creation of postmodern insect pests reflects the perverse dynamics of our treatment of nature: “We bring strangers together to make strange bedfellows, and we remake the beds they lie in, all at once.”<sup>122</sup>

But Weiner’s point about human hybridization of the natural environment may be made in too dramatic a fashion, at least in one respect. Far from being solely a postmodern phenomenon, hybridization is nothing new. “The man with the axe is an integral part of nature,” the natural historian Marston Bates once observed, “and the consequences of his activities make an interesting and important, though dismal, field of study.”<sup>123</sup> The man with the ax is not a wholly different figure from the man with the insecticide sprayer strapped to his back or hitched to the rear of his tractor. Both men are engaged in a process of rearrangement, restructuring, and redefinition of the natural world and the creatures in it.

An awareness of the long-term human manipulation of the environment ought to be fundamental to ecology, Stephen Budiansky argues: “After ten thousand years of breaking the soil, after a hundred thousand years of setting fire to the forests and the plains, after a million years of chasing game, human influence is woven through even what to our eyes are the most pristine landscapes.” He suggests that ecologists have done a poor job of taking into account the less than pristine condition of nature. In fact, the central claim of Budiansky’s book *Nature’s Keepers* is that ecologists have been charmed, just like the rest of us, by the idea of an Edenic natural world. “The entire modern conception of nature,” he writes, “depends upon denying her checkered past.” Realizing that this has been the case for too long, some restoration ecologists have set about their work in a new way in recent years, taking into greater account than they used to the long-term human presence in and its effects upon the landscapes they attempt to restore. “The artificial,” Budiansky suggests, “is more natural than the natural.”<sup>124</sup> Humans play a central role, for example, in the ecology of fire: many habitats long thought to be entirely natural are now recognized as the products of deliberate and not always carefully controlled fires set by humans. Fire,

in other words, can be an important management tool (albeit one that needs to be wielded very carefully nowadays, considering the density of human populations in or near many tracts of otherwise wild land and the buildup of immense stockpiles of fuel thanks to the longstanding practice of fire suppression by forestry and other agencies).

Budiansky's arguments derive in part from the school of thought known as "the ecology of natural disturbance." But he is impatient with academic ecology ("a perusal of the present-day scientific literature in ecology reveals an almost neurotic degree of guilt and self-doubt"), despite his enthusiasm for many of the conclusions reached by the revisionist thinking characteristic of the discipline since the early 1970s. What Budiansky does admire is the hands-on attempts of restoration ecologists and managers of wild lands less interested in refinements of theory than in repair and maintenance of damaged habitats: "Restoration experiments are a way to figure out how natural ecosystems work; they are also a way to figure out what went wrong in natural systems that are no longer working properly."<sup>125</sup> Some of these experiments involve nothing more elaborate than conducting controlled burns, and then waiting to see what happens next.

Given the alarming situation described by Weiner, and the undermining of what long has been thought to be ecological wisdom and the subsequent faltering of the discipline described by Budiansky, it is no wonder that a critically engaged ecologist like R. H. Peters should make the claim that "the problems that ecology should solve are not being solved. They are worsening, growing more imminent, more monstrous."<sup>126</sup> Yet very little of the anxiety of ecologists over the travails of their discipline has been communicated to the wider audience interested in ecology and in environmental issues. Many members of this audience still engage in freewheeling speculation of the sort ecologists are now trying to avoid, though not always successfully: "Armchair, and bar stool, ecology continues to be alive and well, despite its bad press."<sup>127</sup>

In the next two chapters, I will discuss the armchair and (for all I know) barstool views of ecology held by those who, for political reasons, are suspicious of science, and conversely, the views of ecology held by those who, for aesthetic reasons, are charmed by what they regard as its scientific sanction, its truth. Neither party seems to realize how keenly aware ecologists are of the shortcomings of their own work. Those who are wary of ecology simply because it is a science do not realize how much intense scrutiny the field has given its own imperfections, but then they are too suspicious to give the testimony of scientists the benefit of doubt. Those who celebrate ecology as a latter-day revelation of truth do not recognize its shortcomings, either, because they put too much trust in what the bumper stickers say. They also fail to give the testimony of scientists the benefit to be had from doubt, preferring instead to take the truth of ecology for granted.

### 3

## The Science Wars, Ecology, and the Left

*Take away the world around the battles, keep only conflicts or debates, thicken with humanity and purified of things, and you obtain stage theater, most of our narratives and philosophies, history, and all of social science: the interesting spectacle they call cultural. Does anyone ever say where the master and slave fight it out?*

*Michel Serres, The Natural Contract*

### *On the Late Unpleasantness in Science Studies*

The major battles of the so-called Science Wars have been fought over the past three decades, give or take a few years. However, it is likely that the roots of this conflict actually lie at least five centuries in the past, in the bitter disagreements about the nature of reality that arose during the Renaissance, when the authority of the Church began to be questioned, both directly and indirectly, by scientists (as they were only much later to be known).<sup>1</sup> In the 1980s, these old disagreements, albeit in altered forms and long after they appeared to have been resolved in favor of science, began to attract the interest and stoke the ire of a new breed of cultural authority. Because those who belong to this new breed are steeped in both the humanist and the posthumanist traditions of transcendental thought (as the strategists who define their battle lines insist they should be), they have no vested interest in the maintenance of the status quo, to which they are as a rule very much opposed, unlike the churchmen of a half-millennium ago. In fact the dispositions of the new breed of cultural authority are strikingly contrarian and anti-authoritarian. This makes them especially eager to provoke and participate in a fresh reassessment of science on behalf of culture and society. After all, that the tables have been turned in science's favor in the modern era is undeniable: science has become a powerful institution in its own right and plays a central role in determining the character of our lives, both culturally and socially.

To put the point made near the end of the previous paragraph in other words, the contemporary critique of science is not conservative but radical, and it fully intends to be that way. I realize that the epithet "radical" may sound abusive, at least

to some; I resort to it in order to capture the political flavor of the present-day critique of science, and so that I can begin to separate the goats from the sheep. For in contrast to scientists themselves, who do science, there are those who only study it—sheepishly, as it were, and from a distance. Among the latter group, there are a few who claim to study science armed with little more than a battery of theories about culture and society, and without having had any training in the field of science studies (training that is widely available). Those few might be said to study science from a great distance, and to represent yet another breed of cattle entirely. They have declared their variety of science studies to be the most radical of all, and have attracted a great deal of attention since the Science Wars began to be noticed by the public at large.

Despite the intensity of the disagreements it involved, the war over science was almost exclusively an academic affair until 1996, when the journal *Social Text* published a special issue on the subject. This issue included an essay by the physicist Alan Sokal that he intended as a parody of the radical critique of science. The essay was taken seriously, however, by some members of the journal's editorial collective, who were glad to receive a submission from a trained scientist that confirmed their own ideas about the issues at the center of the Science Wars. When Sokal revealed that his article was meant to be a travesty of the radical critique of science and, furthermore, that many of the statements he made in it about physics were deliberately and wildly absurd, a sensation was created. "The Sokal Hoax" inspired a flurry of commentary, much of it acrimonious, and no small amount of it directed at Sokal himself. He was accused, for example, of violating academic protocol by submitting a phony article and thereby crassly taking advantage of *Social Text's* willingness to push disciplinary boundaries. A number of the attacks on Sokal were simply *ad hominem*: for instance, one scholar associated with *Social Text* described him as "ill-read and half-educated."<sup>2</sup> For the record, here is how Sokal, not long after publishing his hoax essay, described the aspects of the radical critique of science that he found most objectionable: "First of all, one has meaningless or absurd statements, name-dropping, and the display of false erudition. Second, one has sloppy thinking and poor philosophy, which come together notably (though not always) in the form of glib relativism."<sup>3</sup>

About the glibness of the radical critique of science there can be little doubt. Since they have no long-term professional commitment to the field, radical critics of science can follow a scorched-earth policy without worrying about what will happen, in seasons to come, to science studies in general. In fact, if they were to have their way, science studies might no longer have anything to study. Many of them like to envision a day when the institution of science will have withered away to such an extent that it will wield much less power than it now does, with the possible exception of certain branches of ecology. For reasons that I hope to make clear later in this chapter, radical critics of science tend to view ecology in a favorable light, even if they do seem to take hold of ecology only in order to turn it upside down and

“shake the ideology out of it,” as Paul Shepard put it nearly thirty years ago.<sup>4</sup> How their professed fondness for ecology squares with their pronounced distaste for science as a whole makes for an interesting story.

An equally interesting story can be told about the relationship of the work done by radical critics of science to that done by scholars in the mainstream of science studies. Not surprisingly, many of the radical critics are interlopers who have wandered into the field of science studies from other disciplines; they are often caught out in error, into which they are prone to wander, lacking in the relevant training and credentials as they are. Of their brand of science studies, Philip Kitcher writes:

There’s no denying that there are loony ventures styling themselves as contributions to Science Studies, that introduce fanciful pieces of terminology, play verbal games, and show an astonishing degree of incomprehension about aspects of science that high school students usually understand (the blunders are often accompanied by fervent denunciations of the evils of science).<sup>5</sup>

Mainstream practitioners of science studies, on the other hand, have been trained in the field as graduate students and belong to academic departments and programs in which standards of responsible and informed scholarship are upheld. Their approach to science is more balanced, more circumspect, more painstaking, and less controversial than news bulletins about the Science Wars have acknowledged.

The bad publicity generated by the Science Wars has led many noncombatants, who are unaware of the precise *causis belli*, to assume that everyone who participates in science studies is committed wholeheartedly to the attack upon science. On the contrary, many of those who now work in the field were attracted to it in the first place because they admired science, even if they eventually did begin to find it hard to accept the idea of scientific objectivity at face value. But that is less than scandalous, and not nearly as contentious as it sounds, since objectivity is an idea many scientists also find questionable—some of them actually dismiss it, at least in its extreme forms, as unscientific.

Critics of scientific objectivity, radical or otherwise, are therefore in much better company than one might think. Even the anarchist philosopher of science Paul Feyerabend, however much he complained about rigid conceptions of the scientific method and hence about the idea of objectivity, was a celebrant of the scientific imagination. Likewise, Bruno Latour, a favorite target of those who don’t care very much for science studies, no doubt partly because of the sardonic flair with which he makes his points, is far from being an outright unbeliever where the objectivity of science is concerned. In fact, Latour is one of the most interesting challengers of the reigning dogmas to which many radical critics of science, as well as some specialists in science studies, are dedicated.

As a recent primer on the subject puts it, science studies assumes both “that there are ways of developing sound criteria for evaluating opposing theories and inter-

pretations” and “that there are ways of finding the agendas sometimes hidden behind a rhetoric of objectivity.”<sup>6</sup> The Science Wars have been fought largely as a result of the second assumption, which has been overemphasized by radical critics of science. They seem to be much more attracted to searching for agendas “behind a rhetoric of objectivity” than to “developing sound criteria” of evaluation. Searching for hidden agendas is exciting; it’s also relatively easy to do, since it can take the form of a purely rhetorical analysis of scientific discourse. This, it seems to me, is a form of analysis in which you can say whatever you like, so long as you are careful to keep the onus of proof squarely on the shoulders of your opponent and to disavow any desire to make a rival claim about the nature of reality of your own.

Five hundred years ago, the nature of reality seemed to be an issue worth fighting about using more than words, since it involved not only points of religious, philosophical, and scientific doctrine but fundamental and pressing questions of institutional power and individual freedom as well. Those who dared to ask those questions aloud, and who accompanied their words with actions (by performing dissections of human cadavers, for instance), were sometimes declared to be heretics and punished accordingly, unless they recanted. Although the combatants on both sides can be extremely cantankerous at times, the current battles over the nature of reality have yet to result in the impanelment of a tribunal with the power to penalize the overzealous for their violations of standards of fair play. To judge from the majority of the attacks mounted in the Science Wars thus far, nowadays the nature of reality seems to be an issue involving fairly recondite points of doctrine, most of it sociological in character, and very little else. As a result, the Science Wars have been fought entirely on verbal grounds, and for the most part the dialogue of the disputants has failed to rise to the level of debate. The Science Wars have provided many targets of opportunity irresistible to those who enjoy attitudinizing and grandstanding (of which there is no shortage in either of the warring parties), and have occasioned much name-calling and bashing of reputations, displays of the worst kind of one-upmanship, and the continual drawing and redrawing of political and disciplinary boundaries, including some wholly imaginary ones.

Nevertheless, something of true importance is at issue in the Science Wars, and that something, as I see it, is an *attitude toward knowledge*. For most radical critics of science, knowledge, especially scientific knowledge, is to be equated with power. In their eyes, this equation renders knowledge, and hence science, fundamentally suspect because of the abuses to which power, especially political power, always has been and continues to be subject. While I don’t want to deny the proposition that knowledge brings with it power, I do want to deny that when we utter this proposition we utter the last interesting word, much less the most interesting one, on the subject of knowledge, which is an elusive and wonderfully variegated thing. I also want to deny the simplistic conflation of knowledge with power, since all too often the assertion that *knowledge is power* is taken to mean that if you have power, that’s all that is required for you to give the impression of being knowledgeable. If we ac-

cept that knowledge simply is power, the knowingness that knowledge must entail, if the concept is to remain vital, will be effaced. To know something will become almost meaningless, except insofar as the possession of knowledge is accepted as an effect, no doubt illusory, of power.

In addition to embracing the thesis that knowledge creates or, more simply, is power, radical critics of science have also taken a fancy to the theory of social construction. Frequently, they deploy this theory in so heavy-handed a fashion that they seem to be less interested in mounting a plausible critique of science than in pursuing a strategy of Mutually Assured Deconstruction. This makes it hard to say whether social construction is truly a theory or merely a flamboyant and provocative but ultimately self-defeating pose. Its adherents maintain that all facts, not excepting the facts of nature, are “constructed” more or less at will by society, in forums ranging from the desultory conversation of two neighbors over a backyard fence to the exchange of sophisticated ideas about the origins of the universe in a journal filled with articles written by the foremost cosmologists of the day. “In its extreme version, constructivism,” as this theory is also called, “refers to a social idealism in which there is no material reality that constrains or structures sensory observations.”<sup>7</sup> Obviously, the extreme version of social construction or constructivism leaves little room for further conversation about the facts once they have been identified as having been constructed. It reduces every fact to a *fait accompli*, since the social is the ideal fact, the one fact, the fact of facts, and is therefore impossible to encounter and take in hand, so to speak, as such. The social is to the theory of social construction what ether, caloric, and phlogiston once were to physics; it seems to be a purely supposititious entity.

That the facts purportedly discovered by science, the so-called facts of nature, are constructed socially is easy to credit, however, once you accept the premise that the questions asked in scientific inquiries predetermine the answers. This means that science is caught up in hermeneutic circles of the sort familiar to social and cultural critics, and can be treated as if it were (only) a discourse, which is all that some social and cultural critics believe science actually is anyway. As just one discourse among many others, science is easily cut down to size. It is merely another text, and can be illuminated by the same considerations that have been shown to illuminate other kinds of texts, no matter how occult—or difficult—they may be. I realize, of course, that in social and cultural studies, *discourse* is regarded as a peculiarly rich concept, since it is supposed to comprehend all sorts of social and cultural practices in addition to the knowledge that lends authority to practice, knowledge which can be redacted and recorded in textual form. But it seems to me that in the heat of argument, discourse almost always gets treated reductively, and that most social and cultural practices are discussed and analyzed as if they were, in effect, only texts.

When the discourse in question is scientific, the temptation to simplify matters by treating it as a text that lends itself to interpretation in social and cultural terms

appears to be all but irresistible to radical critics of science. One such critic, Steve Woolgar, writes: "The social study of science embraces the nominalist position with respect to the efforts of others to specify what counts as science, but tends to follow an essentialist line in its own practice." "This," he adds, "is a significant problem." But it must not be a terribly significant problem, since Woolgar argues that "objects in the world are inescapably textual constructions" and that nature and reality "are the by-products rather than the predeterminants of scientific activity." This argument would seem to put him in some danger of tapping an essentialist line of sociological thought of his own. Woolgar's chief precaution against doing just that is to apply the same caveats he applies to science to his own discourse. "Representation sustains not only science but also the attempts of social scientists and others to analyse science," he writes, adding that science and social science are equally subject to "the methodological horrors."<sup>8</sup>

If Woolgar is right, then we must regard scientific and sociological discourse as equally unintelligible, and the theory of social construction has led directly to the Mutually Assured Deconstruction of all parties with a stake in the Science Wars, just as I suggested it might do above. But as another critic of science, Steve Fuller, argues, the word "social" in "social studies of science" refers to a "general metaphysical commitment to 'sociologism.'"<sup>9</sup> Such a commitment seems to demand very little of those who undertake it, beyond philosophical skepticism and the doubter's rhetoric that goes along with it: clearly, a "general metaphysical commitment to 'sociologism'" doesn't require them to do any actual sociological research (which might be tainted, after all, with traces of the empirical). It does enable them to spin theories, however, and the intelligibility of these theories isn't meant to be their most important feature. Or so one is forced to conclude.

As the philosopher of science Paisley Livingston argues, treating science as discourse, even when one manages to resist the temptation to be reductive, simply takes too much for granted:

Critics ask how a particular work "reflects" or "contests" some social totality or dominant discourse, but they fail to reflect sufficiently on the ontological status of the latter, endowing it with dubious causal powers. Moreover, such critics typically fail to confront the difficult epistemological problems that are raised by this kind of sociological holism, which typically begins and ends with some set of untested speculative theses about the nature of global structures, moments, systems, and sets of institutions.<sup>10</sup>

But as social constructionists, radical critics of science tend to be confident in their own powers of speculation and skeptical about the value of empirical research. At times, their skepticism amounts to a dismissal not only of the philosophy and methodologies of empiricism but, much more problematically, of the very notion of the empirical itself. Of course, this raises several questions that ought to be answered,

if social construction is to be taken seriously: What is it, exactly, that society is supposed to be constructing when it constructs the facts? How do you make a “metaphysical commitment to ‘sociologism,’” when the sociological isn’t a metaphysical category, but—or so one would presume—an ontological one? And why is it that social constructionists seem to regard the things that are supposed to have been constructed by society with such corrosive skepticism, as if they were purely illusory?

Something—presumably, nature in the raw—has to be fed into the machinery of social construction before it can do its work, and some finished product has to come out the other end once its work has been done; otherwise, we members of society would all be gripped by a collective loathing of the horrible vacuum in which we live. But radical critics of science, who are perhaps the most committed of all social constructionists, take the position that anything we choose to say about this issue—and about nature in the raw—will be purely a matter of personal taste and cultural predilection. The theory of social construction is the basic stuff that they work with in study after study, if “study” is still the right word to use here. As for other kinds of stuff, they have nothing to say. Of course, this ensures that the theory of social construction will never be put to the test, as it would be sooner or later and one way or another in the physical sciences (though this difference is one that social constructionists are forced to deny). Given its premises, how could such a theory be put to the test?

For dedicated social constructionists, theories are the very crucible in which all things are formed. It would be tautological, therefore, for them to test their own theories against the things whose existence they posit; positing is both the beginning and the end of all theorizing, so far as they’re concerned. And far from regarding the fact that the theories to which they subscribe cannot be tested—the fact that only circumstantial evidence, in the form of the internal coherence of their vocabularies, can be produced in their support—as a flaw, dedicated social constructionists regard it as a sign of the great virtue and robustness of these theories. They are comfortable living in a purely speculative and hence wholly “social” universe.

I realize that all this makes it sound as if the Science Wars were being waged as a rear-guard action by a band of hapless Neoplatonist holdouts, who are unable to accept the defining and, as they see it, most vulnerable features of modernity, despite having had a half-millennium to get used to them. In fact, this impression is not far off the mark: it seems to me that the Science Wars have been largely a one-sided and reactionary affair, for all the regalia of radicalism in which some of the combatants have been clad. Given their assumptions about the nature of knowledge, and about a host of other things as well, most radical critics of science, notwithstanding their own statements to the contrary, are working in an old-fashioned humanist mode. As I suggested earlier, many of them claim to be antihumanist or, more accurately, posthumanist; but I believe there are good reasons to doubt this claim, and to argue that the deeper philosophical features of their work belie whatever antihumanist or posthumanist sentiments radical critics of science may express. As humanists of all

persuasions and prefixes tend to do, they mount most of their arguments on a transcendental basis, and proceed to build their case against science on assumptions about the nature of humans in society and about the character of culture. They treat these assumptions like first principles, which it seems to me is a very quaint thing for them to do.

At this point, I'm sure that the reader is growing impatient for a sustained examination of a specific assertion about science made by one of its more radical critics. It's time to name a name; I will begin by naming two. The first is that of a scientist who is fed up with what he perceives to be the unfair and, more to the point, the uninformed comments made about his chosen line of work by nonscientists. The second is that of someone whom the scientist believes—rightly, it would seem—is an extremist insofar as his views of science are concerned.

Michael Weissman is a physicist who says that while he is sympathetic to the idea that science should be open to public scrutiny and complaint, he is exasperated by the gross misunderstanding of science evinced by many intellectuals who really should know better. In a 1996 review in *Tikkun*, Weissman offered several examples of the views espoused by radical critics of science, views he regards as absurd. I will borrow just one of the more egregious of his examples, and work out some of its implications in my own way. In response to a direct question from Weissman, the sociologist Andrew Pickering asserted “that the claims that the Earth circles the Sun and that it rests on a stack of turtles were of equal validity.” Can any sense be made of this assertion, or is it merely the product of a “crazed anti-realist philosophy,” as Weissman argues?<sup>11</sup>

I think some though not a lot of sense can be made of Pickering's assertion by putting it in theoretical context. His response to Weissman's question seems to be in line with the policy of deliberate estrangement recommended by Shapin and Schaffer in their book *Leviathan and the Air-Pump*, which is often cited as a model of science studies. They write:

If we pretend to be a stranger to experimental culture, we can seek to appropriate one great advantage the stranger has over the member in explaining the beliefs and practices of a specific culture: the stranger is in a position to *know* that there are alternatives to those beliefs and practices. The awareness of alternatives and the pertinence of the explanatory project go together.<sup>12</sup>

But whereas Shapin and Schaffer recommend estrangement as a heuristic device and a methodological contrivance, Pickering—to judge from the account Weissman gives of their exchange—takes it much more seriously. As one of its more radical critics, he wants to do more than just pretend to be a stranger to science.

Apparently, Pickering espouses a fashionable form of relativism, which holds that the beliefs or “representations” of different cultures, no matter how incommensurable and incompatible they might seem, each must be accorded the same

measure of respect and granted the same measure of validity. You therefore should defer to the beliefs of other cultures, while declining to be overly vigorous in defense of the beliefs of your own culture, as if you were a stranger to it, too. On these grounds, the theory about the stack of turtles supporting the earth is as “valid” as the Copernican theory, so long as it satisfies the needs of the culture that formulated it, no matter how weird those needs may seem to Copernicans. They’ll have to keep mum about their doubts, should they permit themselves to have any.

I suspect, however, that this form of cultural relativism isn’t really what Pickering has in mind philosophically, although he might credit it for other reasons. That is something he should find it easy to do, since it’s almost certain that he will never have to choose between two cosmologies, radically incommensurate though they may be. Pickering’s cultural relativism is of the polite, conversational variety, and isn’t designed for practice, where some hitches might arise were he to try honoring different points of view simultaneously and in the same way. In the case I have been describing, since the one view is religious and the other is scientific, and since other cultural differences are also in play here, there never will come a judgment day when the Turtle Fundamentalists and the Copernicans get sorted out (which doesn’t rule out the possibility that one group might manage to silence the other, perhaps through the mechanisms of cultural imperialism and assimilation).

The importance of cosmology in shaping our evaluations of the natural world is easily overstated. We all might believe that the earth rests on a stack of turtles without it making a great difference in our daily lives, putting off our religious vestments when it comes time to don our lab coats for a few hours of benchwork, or to venture into the field and spend the day conducting herpetological research.<sup>13</sup> A difference in cosmologies, no matter how stark it may seem, will be damped out by ecological imperatives, which cannot be ignored or interpreted in radically incommensurate ways without placing someone—and quite possibly, everyone—in peril. The Turtle Fundamentalists and the Copernicans may not agree cosmologically, but so what? That’s no reason why they cannot agree that the turtle is an animal of mild aspect; that it carries its home on its back in the form of a shell, and is not fleet of foot; even that it can be good to eat, since there always will be, especially in times of famine, a few lively heretics around who are willing to sample the proscribed turtle soup, should some patriarch have decided, back in the mists of time, that the turtle is an unclean beast.

Or, to illustrate my point another way, if no turtles are available an agreement across cultural boundaries may be had (and is, perhaps, most likely) with regard to plant life. The ecologist E. O. Wilson is one of the favorite targets of radical critics of science owing to his ideas about sociobiology. He is, however, a more than reliable source of information about ecology, and he writes:

The Amerindian tribes of the Amazon and Orinoco basins have an intimate knowledge of the plants of the rain forest. A few shamans and tribal elders

are able to put names on a thousand or more species of plants. Not only do the botanists of Europe and North America generally agree with these species distinctions, but they have learned a great deal from their Amerindian colleagues about the habitat preferences, flowering seasons, and practical uses of the different plants. . . . In all cultures, taxonomic classification means survival.<sup>14</sup>

There is no leeway for cultural relativism where the taxonomic classification of plants is concerned. Many plants are toxic, though not necessarily less useful to human beings as a result, and knowing which plants are poisonous and which aren't is something to be worked out pragmatically or from the bottom up, and not cosmologically or from the top down (the stack-of-turtles model notwithstanding, cosmologies are always more or less hierarchical). Plant toxicology cannot be finessed by making an appeal to culture; the appeal has to be to nature. At some point, somebody somewhere has to ingest each plant and see what happens. Of course, it doesn't necessarily have to be a human somebody: it can be a guinea pig, or a squirrel, or a howler monkey. Or it can be a snowshoe hare, or a moose, or a black bear. No one, in short, is truly "a stranger to experimental culture," at least no one who is observant of things in the world.

Pickering sees the Copernican and the Turtle Fundamentalist cosmologies as competing with one another because he believes they are equally and similarly informed with cultural values. Ian Hacking suggests that this view confuses two kinds of realism: "If realism about theories is a doctrine about the aims of science, it is a doctrine laden with certain kinds of values. If realism about entities is a matter of aiming electrons next week, or aiming at other electrons the week after, it is a doctrine much more neutral between values."<sup>15</sup> The Copernican view, it seems to me, is underwritten by "realism about entities," not by "realism about theories," and the same can be said about Amerindian plant toxicology, which to paraphrase Hacking is a matter of eating plants this week or the next.

It is easy to overestimate the difference of "savage thought" from our own, and "savage thought" must be just what Pickering had in mind when he asserted the equal validity of views of our solar system other than the Copernican one. Cultural relativism is often patronizing in this backhanded way. Pickering is a Copernican who cannot imagine actually having a Turtle Fundamentalist as a colleague. His relativism only goes so far: it fails to take into account the porosity of culture, which keeps interactions between cultures fluid. The same goes for interactions between culture and nature.

Philosophically, however, Pickering must have had in mind something with more far-reaching implications than cultural relativism and the indulgent but patronizing attitudes that go with it. An interlocutor, particularly a scientific interlocutor, might want to respond to Pickering's assertion of the equal merit of the claim about turtles and the claim about the earth's revolution around the sun by ap-

pealing to the evidence we have for the latter view, evidence which has been accumulating (in scientific form, at least) for half a millennium, more or less. The earth's revolution around the sun, so far as science is concerned, is a "black box," "a closed file, an indisputable assertion."<sup>16</sup> Having gestured toward this closed file, the scientific interlocutor also might point out to Pickering that photographs of the earth taken from space have failed to turn up a single turtle, much less a stack of them, under the earth, wherever that is supposed to be. The claim that turtles support the earth therefore seems to be unsupported by the facts, insofar as we have been able to find them out. It is an "open box."

I think Pickering's response to this view of the case would go something like this: "While it's true that there seems to be abundant evidence that the earth revolves around the sun, and while it's also true that photographs of the earth seem to demonstrate that there are no turtles holding it up, neither the photographs nor a half-millennium of astronomy afford an epistemological basis for our beliefs of the kind that would justify *certainty* about either view. A lack of photographs showing turtles bearing the earth on their backs is just that, a lack. It's of no consequence. The evidence supplied by astronomy is open to interpretation and is impossible to verify in any ultimately satisfactory manner, in no small part because it is reliant upon a technology designed to produce and reinforce the worldview urged upon us by astronomy. It is, therefore, an artifact, and is also of no consequence." When Pickering makes an assertion about validity, he is thinking in the first instance not of scientific nor of cultural but of philosophical validity, about which most scientists are unconcerned (and for good reason). Any claims Pickering makes about culture or science must flow from the assumptions he makes philosophically. With regard to philosophical validity, Pickering is less a "crazed anti-realist" than a skeptic of the familiar kind: he confuses the absence of complete certainty with the presence of complete uncertainty. He will always be unimpressed by evidence. What the advantages of his view—which can be summed up as a compound of cultural relativism, philosophical skepticism, and social construction—might be, apart from enjoying the distress it enables one to cause others, is something of a mystery.

Compare Karl Popper's functional version of relativism, skepticism, and social construction (not terms with which his name is associated, I should note) to the more dramatic but in truth quite barren version apparently subscribed to by Pickering and other radical critics of science. Popper offers a sketch of the foundations of science in which he actually describes, albeit only by analogy, the process of the construction of scientific facts step by step. "The empirical basis of objective science," he writes, "has nothing 'absolute' about it."

Science does not rest upon solid bedrock. The bold structure of its theories rises, as it were, above a swamp. It is like a building erected on piles. The piles are driven down from above into the swamp, but not down to any natural or "given" base; and if we stop driving the piles deeper, it is not because we have

reached firm ground. We simply stop when we are satisfied that the piles are firm enough to carry the structure, at least for the time being.<sup>17</sup>

This is a foundational view of scientific truth, but it is one in which the foundations of science are imagined as subject to being swept away from time to time by a spate of new theories and discoveries. Their potential impermanence notwithstanding, the relative stability of the foundations of science gives us sufficient reason to dismiss radical attacks on science's objectivity as irrelevant. Moreover, many of the piles that science drives do seem to have an enduring quality, as Ian Hacking points out. He writes: "A great deal of modern science is stable. Maxwell's Equations, the Second Law of Thermodynamics, the velocity of light, and lowly substances such as dolomite are here to stay." Hacking argues that at present there is little or no point in calling these things "constructed."<sup>18</sup>

No doubt Pickering would have a different reading of Popper's analogy, despite its affinities with the "turtles all the way down" view sketched by the Turtle Fundamentalists. Ironically, Popper seems to be the better social constructionist and relativist, if only by default and in virtue of having provided us with the analogy of science as a process of pile driving in a substrate of muddy ground.<sup>19</sup> His analogy also has affinities with the account of scientific knowledge that Foucault offers in *The Order of Things*, one of the most important sources of social constructionist ideas. But Foucault is careful not to suggest that simply because scientific knowledge has roots in discourse, its validity must be called into question. "What I would like to do," he writes, "is to reveal a *positive unconscious* of knowledge: a level that eludes the consciousness of the scientists and yet is part of scientific discourse, instead of disputing its validity and seeking to diminish its scientific nature."<sup>20</sup> Radical social constructionist arguments are less balanced: they treat the "unconscious" aspect of knowledge negatively and, as a result, are unable to give an account of how it is that things get constructed bit by bit and in a coordinated way by society. Construction is made to seem like something that must occur in the blink of an eye, abracadabra-fashion. The term "construction," or a synonymous term, is used metaphorically.<sup>21</sup> On close inspection, the metaphor proves to be an empty one.

Despite the rhetoric of relativism and social construction in which it is couched, Pickering's brand of postmodernism (so Weissman identifies it) is actually a form of traditionalism. The epistemological radical is a closet conservative when it comes to his philosophical views, all of which depend on an absolutism and an idealism never acknowledged as such.<sup>22</sup> Take away certainty as the measure of validity, even if that measure is adduced for purely negative reasons, and skepticism fizzles. It is beside the point in a world bereft of absolutes, just as relativism is beside the point in a world filled with highly malleable cultural differences. In such a world, skepticism and relativism have no tone because they have nothing to strike against. I think that a world bereft of absolutes, a world of soft differences, not hard ones, is precisely the kind of world scientists inhabit, though most radical critics of science and perhaps a

lot of scientists, too, would be surprised by this thought. In science, confidence is much more important than certainty.

Philosophical obtuseness like Pickering's is taken to task in one of the better-known attacks on the radical critique of science published to date, Gross and Levitt's *Higher Superstition*. Predictably, those who were discussed in the book assumed it was the product of a conservative backlash, yet that they are conservatives is something both authors have denied. No doubt the assumption that they were conservative was strengthened by the incisiveness of their observations and the astringent tone of their prose. When Gross and Levitt turn to examine the specific arguments that radical critics of science have made, they cut close to the bone, exposing many fallacies and outright errors. Their characterization of the effect of theory on the radical critique of science is particularly insightful. "‘Reality’ is effaced as a meaningful term," they write, and "representation, rhetoric, and discourse are the only allowable phenomenological categories."<sup>23</sup> Of course, for scientists like Gross and Levitt, any theory guilty of effacing reality as a meaningful term hardly deserves to be called a theory at all because theories are meant to be used for facing reality, so to speak. Using theories that way is what keeps them from becoming whimsies.

Gross and Levitt are not alone in having the doubts they express. Several of their concerns are shared even by many of those who would otherwise count themselves among science's critics. George Levine, for example, has noted that radical critics of science have embraced "a complacent and dogmatic antirealism that rather comfortably underestimates science as imaginative and intellectual achievement and immediately connects a commitment to constructivism to antirealism and relativism. At the same time," he continues, the radical critique of science "fails to recognize or come to terms with its own strong metaphysical implications. The tendency to argue as though ‘constructivism’ allowed for the reduction of all languages, including scientific languages, to various disguises for ideology often threatens to turn debate into ideological posturing." This problem is exacerbated, Levine suggests, by the fact that staunch constructivists "seem not to talk to anybody but like-minded theorists."<sup>24</sup> The philosopher Arthur Fine is more scornful than Levine (who is a literary critic) or, for that matter, Gross and Levitt, as concerns the constructivist fascination with antirealism and relativism. "To put it bluntly, constructivists write a great deal of nonsense on these topics," Fine declares. He points out that "constructivists tend to rely more on polemics than on careful argument. Their rhetorical style, moreover, is at once romantic and apocalyptic" (a point I will return to more than once below).<sup>25</sup>

The shortcomings of social constructionist thinking may be especially noteworthy in the United States, where the repackaging of theories imported from overseas and from other disciplines (Foucault's theories, for example) has become central to the intellectual enterprise of the humanities and social sciences. Repackaged theories often have their wrinkles ironed out and their corners rounded off in the process of

translation, losing the nuances they might have had in their original context, or conversely, and perhaps more typically, too, coming to seem a lot more nuanced in their new context than they did before. Think, for example, of the continuing credence given to psychoanalysis in American departments of English and Comparative Literature, and of its almost total neglect in departments of psychology.

Sometimes theorists are imported along with the theories they spin. In the remainder of this chapter, which is devoted to an account of the development of the radical critique of science in the United States, and of its spin-offs into American versions of radical or social ecology, I am going to focus on some critics of science who have worked or are working in an American context, though they were not and are not all Americans. All of them either were and are theorists in their own right, or at least were and are strongly influenced by theory. For the most part, they have paid scant attention to theoretical and philosophical approaches to science of American origin such as pragmatism, toward which their attitude generally has been one of scorn. They also have had a number of political convictions in common. But in this case, the political is not to be distinguished from the theoretical as I have described it above. In this case, theories *are* politics, irrespective of the practical uses that theories may or may not have in actual political life.

*In theory*, then, the critics of science that I will be discussing in the following pages have identified themselves with the Left, or, in some cases, have identified the Left with themselves, a much bolder, hence more radical move. On the Left, the critique of science is a longstanding tradition, especially in more talkative circles. This tradition of talk about and against science is largely Marxist: over the past fifty years, it has been refined by theoretical contributions from the Frankfurt School (Horkheimer and Adorno in *Dialectic of Enlightenment*), from sixties and seventies neo-Marxists (Marcuse, also a Frankfurt School associate, in *One-Dimensional Man*), and more recently, and with particular regard to radical and/or social ecology, from eco-feminists (especially Carolyn Merchant) and from some cultural critics who have come to be associated with the radical critique of science, including several interlopers of the sort I mentioned earlier (most notoriously, Andrew Ross). It seems to me that the inheritors of this legacy of talk are the aggressors who started the Science Wars, though they have claimed, indignantly, that they are the ones who have been misunderstood and attacked unjustly, and have characterized themselves as the innocent victims of a conservative backlash sponsored by the entrenched institutions of science, both academic and otherwise.

It should be obvious, from what I've said so far, that in this context the adjective "conservative" tends to be applied to anyone who dares to defend science against the claims made by its radical critics, no matter how extreme those claims may be. The assumption seems to be that scientists have no right to fight back when they find themselves caught in a crossfire of cultural criticism (as E. O. Wilson, for example, has done). But cultural criticism is not the privileged form of speech that radical critics of science imagine it to be. If some cultural critics have been misunderstood

when they talk about science, the misunderstanding has a lot to do with their unwillingness to support their arguments with evidence and their refusal to pursue less obscure refinements of style in their writing, which cries out to be parsed and probed in a spirit of skepticism equal to its own.

### *The Domination of the Earth*

*The information given by social science remains banal, for it repeats what everybody knows about everybody; the information given by natural science, on the other hand, can be calculated and is proportional to rarity, and we call it knowledge.*

Michel Serres, *The Natural Contract*

Horkheimer and Adorno's *Dialectic of Enlightenment* is a high moment in the Marxist tradition and a founding text of Critical Theory. The book is remarkable for its cultural pessimism, especially for its apocalyptic belief in the inevitability of Fascism, given the Western tradition of enlightenment as a starting point. Enlightenment, according to Horkheimer and Adorno, simply is "totalitarian."<sup>26</sup> This judgment epitomizes a set of negative assumptions about and attitudes toward science (for Horkheimer and Adorno, "enlightenment" and "science" are more or less synonymous), and it continues to be definitive for many radical critics of science.<sup>27</sup>

Horkheimer and Adorno object to modern science for a variety of reasons. To begin with, they share the doubts about science commonly entertained by humanist intellectuals, who are inclined to argue that scientific discoveries will turn out to be relatively unimportant when it comes time to decide the fate of humanity, since values always trump facts in the end.<sup>28</sup> Horkheimer and Adorno also object to the growing influence of science in daily life because less room is available for critical reflection. "The great discoveries of applied science are paid for," they insist, "with an increasing diminution of theoretical awareness." They regard science as a circular process in which scientists go around and about confirming the prejudices of their kind like preprogrammed drones. "Science itself is not conscious of itself; it is only a tool," they write. "Science is technical practice, as far removed from reflective consideration of its own goal as are other forms of labor under the pressure of the system." Science is merely one wing of the factory of facts, and in a world crowded with manufactured things, the facts have begun to exercise an unchecked tyranny over consciousness. Consciousness cannot get the elbowroom it needs to subject things and facts to a critical scrutiny informed by "theoretical awareness." This sort of scrutiny might disclose an unwelcome truth: the facts, including the so-called facts of nature, are "molded" by "the system"—and by "science, commerce, and politics," just as so many things are molded, quite literally, by industry.<sup>29</sup>

For Horkheimer and Adorno, all facts are cultural artifacts of one sort or another, and as such they cannot be trusted. Naturally, Horkheimer and Adorno found this disposition of the facts to be a particularly unhappy circumstance during the Second World War, when they were writing the essays collected in *Dialectic of Enlightenment* and when Western culture, which given their intellectual backgrounds they regarded as more or less coextensive with German culture, seemed to be at its nadir. This meant that *things* couldn't have been worse—that things, especially things that had been mass-produced, were infused with all the woes of the time. It therefore would seem that the despair Horkheimer and Adorno felt over the events that culminated in the Holocaust was not due solely to those events being unthinkable aberrations and crimes against humanity. Their despair was also of a piece with their distaste for modernity in general, a distaste that the rise of German Fascism seemed to confirm. In other words, Horkheimer and Adorno felt sure that the tradition of enlightenment was to blame for the darkness that had descended over Europe and the rest of the world. “The fully enlightened earth,” they were compelled to say, “radiates disaster triumphant.”<sup>30</sup>

It may seem that in the last few paragraphs I have managed to reduce what must be a subtle argument about the course of modern history to moral posturing, and to some extent, that's just what I have done. But the argument presented in *Dialectic of Enlightenment*, in addition to being informed by the authors' loathing for German Fascism (which it goes without saying is justified), is informed by a view of knowledge and of science that is no better than a caricature. Horkheimer and Adorno put this caricature before their reader's eyes every chance they get. For example, in a discussion of science after Bacon, they write: “What men want to learn from nature is how to use it in order wholly to dominate it and other men. That is the only aim.” Their confidence in this claim leads Horkheimer and Adorno to make a statement that, as I have already pointed out, has come to be regarded as foundational to the radical critique of science: “Power and knowledge are synonymous.”<sup>31</sup> And in order to make this statement seem plausible, they have crudely epitomized a period of hundreds of years, and have overlooked a number of important historical differences. Most important, they have failed to note that contemporary science is thoroughly unlike the deterministic science of Bacon and of the Enlightenment proper in many respects. Deterministic science was premised on natural law and the assumption of an orderly universe, whereas contemporary science is probabilistic and assumes that the universe is continually subject to random changes. In light of this assumption, any thought of wholly dominating nature that we may have entertained in the recent or remote past must be regarded as woefully naïve.

Because Horkheimer and Adorno overlook the fact that contemporary science has shifted its attention away from the determinate and the certain in order to focus on the less determinate, the merely probable, and the relatively random, they also take no notice of its diversity. They seem to think that all of contemporary science is more or less like physics, and that physics provides the binding force holding all the

sciences together ideologically, if not in fact. Despite themselves, they seem to believe in the unity of science, a controversial notion in which many critics of science are heavily but unhappily invested. Horkheimer and Adorno scoff at philosophy's desire to articulate the unity of the sciences (fulfilling this desire was a pet project of the logical positivists), but for all their scoffing, they also need to believe in the unity of science, if only because it gives them something potent to argue against. After all, a unified science is more likely to be "totalitarian" than a science that just can't pull itself together.

Horkheimer and Adorno's description of science as an imposing monolith of reified prejudice begins to seem especially overwrought when one compares it to an alternative description of science like that offered by Ian Hacking, who writes: "There is no set of features peculiar to all the sciences, and possessed only by sciences. There is no set of necessary and sufficient measures for being a science. There are a lot of family resemblances between sciences. Importantly there are quite different sets of 'unifiers.'" One of those unifiers, Hacking notes, is very obviously mathematics. "But," he adds, "there are many mathematics that unify." He observes that the unity of the sciences is of little concern to most scientists; he also observes that "global reductionism" is far from being science's sole motive. "Contrary to what is commonly made out," Hacking writes, "global reductionism is not of great interest in scientific work—it is something that philosophers read into scientific work." He insists, however, that the lack of unity and of interest in global reduction in science doesn't mean that the sciences taken all together form "a wodge of indiscriminate plurality."<sup>32</sup> It seems to me that Horkheimer and Adorno were prone to see things as wedges of indiscriminate plurality if things didn't appear to be unified. But seeing science that way would leave them with very little to say, and so in their view science is unified after all, even if its unity is unhappy and "totalitarian."

That science is totalitarian and wants to dominate the whole world is the basic premise of many of the views expressed in *Dialectic of Enlightenment*, and it continues to be taken for granted by radical critics of science. Clearly *domination* is not a neutral term: to say that science is a form of domination is to say that science is *bad*—unless, of course, the person who says so is happily totalitarian and heartily approves of domination. Horkheimer and Adorno took the opposing view, but their argument in support of this view reduces all science to the crass exploitation and consumption of natural resources and men's lives. They envision a Faustian scenario, in which the scientist is driven to acquire knowledge of nature's secrets, a knowledge he would be much better off without, by a prurient combination of intellectual ambition and primitive lust.

In order to maintain their vision of science, Horkheimer and Adorno have to ignore definitions of knowledge less contentious than their own. But a less contentious definition of knowledge would enable them to make much better sense of a science like biology than they do. Biology came into its own after the Enlightenment era that they treat as the intellectual watershed for all science, and it is much

less positivist than their arguments about the character of knowledge make allowance for.<sup>33</sup> Consider, for example, what the natural history writer John Hay has to say about knowledge: “Knowledge is the motion by which the human animal may come closest to another in the family of living things.”<sup>34</sup> The merit of Hay’s definition (which admittedly is a poetic one, and therefore needs to be interpreted) is that it raises limber possibilities ruled out by the rigid concept of knowledge as power, and these are possibilities of the sort I think we should entertain. But Horkheimer and Adorno won’t let us entertain them because they are persuaded by the very image of science that frightens them, and because as devotees of the higher forms of consciousness, they would find it hard to accept a phrase like “the human animal.” Their pessimism about enlightenment is an ironic continuation of the tradition of enlightenment: they are struggling to overcome their cultural heritage from within, using the vocabularies that it has provided against it.

What is amusing about *Dialectic of Enlightenment* is the blindness of Horkheimer and Adorno where the contradictions of their own arguments are concerned. These contradictions can be considerable. For example, even as Horkheimer and Adorno offer a scathing account of the reductive character of contemporary science, they manage to be extremely reductive themselves. They write: “Representation is exchanged for the fungible—universal interchangeability. An atom is smashed not in representation but as a specimen of matter, and the rabbit does not represent but, as a mere example, is virtually ignored by the zeal of the laboratory.”<sup>35</sup> Horkheimer and Adorno seem to assume that the scientific method of reduction is underwritten by a metaphysics of reduction, which sanctions the method philosophically. They are mistaken: “Not all reduction involves ontology.”<sup>36</sup> If it did, “the entities of biology,” according to Peter Galison, “would turn out to be nothing but the entities of physics suitably arranged.”<sup>37</sup> Rabbits would be composed not of rabbit-stuff, like flesh, fur, big feet, upright ears, and wiggly noses, but of atoms. There would be no real rabbit-stuff, only the appearance of rabbit-form. There also would be no biology, only physics. But there is biology, which explains why rabbits aren’t smashed as atoms are, but carefully dissected in the laboratory—or observed in their natural habitat and allowed to reproduce like, well, bunnies.

Since no one has proposed in earnest that rabbits might be understood as atoms “suitably arranged” in rabbit form, Horkheimer and Adorno’s complaint about the reductive treatment of rabbits and atoms seems contrived. The laboratory dissection of individual white rabbits isn’t a comment on the species-being of all members of the family Leporidae everywhere and at all times, nor is the smashing of uranium atoms a comment on all of matter per se. Dissecting rabbits and smashing uranium atoms are not ways of making philosophical arguments by other than verbal means, as humanists and sociologists are inclined to think all scientific experimentation must be.

Radical critics of science, whether they have read *Dialectic of Enlightenment* or not, continue to characterize the experimental treatment of animate and inanimate

objects as biased and circular, and as a form of commentary about the nature of being. Consider the following passage from Woolgar's *Science; The Very Idea*, which also illustrates how empty social constructionist arguments can be:

The discourse of the natural sciences tends to deny its objects a voice. Although electrons, particles and so on are credited with various attributes, they are *constituted* as incapable of giving opinions, developing their own theories and . . . producing their own representations. The natural science discourse thus *constitutes* its objects as quintessentially docile and can act upon them at will.<sup>38</sup>

Unfortunately, scientists couldn't afford to wait until electrons found their own voices, discovered that they had their own opinions, and began to produce "their own representations" in order to see if those were any better than the theories about electrons that had been worked out by physics. Scientists had to experiment, and as Hacking argues, it would scarcely have mattered how electrons were "constituted" by scientific discourse if they had not, in fact, turned out to have some of the properties attributed to them in theory when the relevant experiments were conducted. Moreover, Woolgar's argument cannot be broadened to include all of science: he would be wrong were he to assert, for example, that wildlife biologists "constitute" brown bears as "quintessentially docile" and regard them as "objects" to be acted upon "at will." Being the sort of creatures that they are, brown bears yield to "reduction" and submit to experiment only very grudgingly, which is precisely why so much vital information about their lives remains to be found out.

If experimentation is not the point of science, but a fairly pedestrian and yet extremely complicated aspect of scientific practice—if, in fact, science doesn't really have a single, simple point—then the perennial debate about reductionism would seem to be uncalled for. Stephen Budiansky writes: "It makes as much sense to denounce a scientist's use of mathematics to build up a picture of nature as it would to criticize Beethoven for having composed a symphony out of individual musical notes."<sup>39</sup> This commonsense view has had a hard time getting a hearing from critics of science, perhaps because reductionism, in the words of the evolutionary theorist Richard Dawkins, "is one of those things, like sin, that is only mentioned by people who are against it. To call oneself a reductionist will sound, in some circles, a bit like admitting to eating babies."<sup>40</sup>

If you wished to take account of a rabbit or an atom as representative, as Horkheimer and Adorno imply you ought to do, you would have to acknowledge its individual qualities—its "personality," as it were. You couldn't limit yourself to taking an interest solely in the quantitative properties of the rabbit or the atom. A qualitative appreciation of the rabbit should be well within your reach, however, since people do sometimes adopt bunnies as pets and find them to be interesting, even lovable companions, and since they express their feelings about their bunnies

by treating them well—like babies, you might even say. That is, they don't eat their bunnies or make them the subjects of experimentation. And you could, should you so desire, do much the same very easily. You would run into trouble, however, when you turned your attention, and your affections, to the atom. What do Horkheimer and Adorno think it would mean for you to approach the atom in the same way that you have approached the rabbit? It might mean that you would start urging other people to stop smashing atoms because you had found out that you wanted them to stop doing any science whatsoever.

Horkheimer and Adorno argue that we need to have a greater appreciation for the natural world unconstrained by the regimented mentality and technological apparatus of science. Yet they often describe our culture's attempts to overcome its antipathy to nature as if each of these attempts were doomed to failure. They write: "Nature is viewed by the mechanism of social domination as a healthy contrast to society, and is therefore denatured. Pictures showing green trees, a blue sky, and moving clouds make these aspects of nature into so many cryptograms for factory chimneys and service stations." Culture or, to be precise, "the culture industry" always functions cryptically for Horkheimer and Adorno: it is at its most hermetic whenever it appears to be least disingenuous. Enlightenment, excoriated elsewhere by Horkheimer and Adorno for its literal-mindedness, for being reductive, is also to be regarded, they argue, as "mass deception."<sup>41</sup>

I find it hard to see how enlightenment can be both literal-minded or reductive, and deceptive at the same time. But Horkheimer and Adorno are willing to accept the validity, or at least the plausibility, of the cryptic logic of mediation and "mass deception," even though it causes them to despair. In fact, they often echo the shifty logic of mediation in their own formulations. For instance, the word "therefore" in the first of the sentences I quoted above—"Nature is viewed by the mechanism of social domination as a healthy contrast to society, and is *therefore* denatured" (my emphasis)—conceals an argumentative shuffle obscured by the rhetorical force of that frightening phrase, "the mechanism of social domination." Such sleight of hand seems essential to Horkheimer and Adorno's variety of "dialectical" thinking, which is the mirror image of mediation: when mediation swerves right, "dialectical" thinking swerves left. The difference between the two kinds of thought is that mediation is willing to let you have it both ways (or willing to let you believe that you can have it both ways), while "dialectical" thinking as Horkheimer and Adorno practice it doesn't let you have it either way—you are damned if you don't, and equally damned if you do—but you are allowed to complain, especially about mediation. This, I believe, is supposed to make "dialectical" thought more *critical* than other forms of thought. In this light, *mediation* might be defined as any "dialectical" maneuver that you don't care for very much. To put the point another way, the despair felt by Horkheimer and Adorno with regard to totalitarianism (which is perfectly genuine) is too easily stereotyped. And stereotyping converts despair into a form of cynicism.

Horkheimer and Adorno are apt to see the mechanism of social domination as an invincible juggernaut capable of reducing everything to a brute essence, even as it simultaneously turns everything into something wholly other than itself, or in other words, mediates it. Our culture treats nature as nothing more than raw material, and yet nature also serves our culture as the ultimate metaphor by means of which it identifies itself. According to Horkheimer and Adorno, having the sort of culture that we do ensures that we dwell in contradiction. This is why some of their most memorable formulas have a dispirited, crabbed quality (Horkheimer and Adorno apparently felt pinched on the one side by a chronic case of *Kulturpessimismus*, and on the other, by an equally debilitating case of *Naturpessimismus*). Consider the grim alternatives that they sketch in their essay “On the Critique of the Philosophy of History”:

Anthropomorphism contains a measure of truth in that natural history did not reckon with the play of chance which led to the development of men. Their destructive capacity risks becoming so great that a clean sweep will be made if the race is ever exhausted. Either men will tear each other to pieces or they will take all the flora and fauna of the earth with them; and if the earth is then still young enough, the whole thing will have to be started again at a much lower stage.<sup>42</sup>

The despair expressed in this passage has its philosophical origins in Marxism, which holds that capitalism is the foul-tasting medicine we must take before the cure of socialism can occur. Hence the despoliation of the earth and the enslavement of its inhabitants are thought by Marxists to be necessary preludes to the redemption of the earth and of humankind. Whether this scenario is utopian or dystopian is hard to say: it all depends on how much confidence we allow ourselves to have in Marxist predictions about history (in the wake of the apparent failure of those predictions, it would seem that we can't allow ourselves to have any confidence in them). Horkheimer and Adorno's own faith in the possibility of utopia seems to have been at low ebb when they wrote *Dialectic of Enlightenment*.

While reading *Dialectic of Enlightenment*, one senses that the book's authors are making a plea for the liberation of men and nature in a voice tinged with antidemocratic and antinatural sentiment. Viewed from a certain angle, Horkheimer and Adorno seem like mossy-backed conservatives defending an elite cultural tradition from the growing threat of mediocrity. Their inability to see the forest for the service stations and the blue skies for the factory chimneys is intimately connected to their disgust at the leveling effects of democratic culture, especially in the United States, where democratic culture often produces aesthetic and intellectual revulsion in both native and nonnative observers of the American scene.

The contradictions that Horkheimer and Adorno had flirted with two decades earlier are frankly acknowledged by Herbert Marcuse in his 1964 book *One-Dimen-*

*sional Man*. Marcuse is more openly skeptical about both men and nature than Horkheimer and Adorno were. In addition to the terrors of the Holocaust, his book is haunted by the specter of the Bomb, and he is less concerned with the mixed legacy of enlightenment than with the contradictions of postwar consumer society. As intellectuals, Horkheimer and Adorno were, in many ways, very traditional; Marcuse is considerably less so, and when he discusses science, philosophy, and mass culture, he draws on and reacts to a much more eclectic mix of thought than his two predecessors did. Nevertheless he remains fully committed to their idea that domination is a basic fact of human existence and that nature, altered as it has been by human hands, reflects the fact of domination in its very textures.

However, Marcuse doesn't discuss domination as if it were merely a bad habit that men, having been misled by the tradition of enlightenment, have managed to acquire in stubborn continuation of the error of their ways, like children aping the sins of fathers. He thinks domination is deeply ingrained in the human character, and regards it as the fundamental structuring principle or essence of society, especially in the modern period. "The technological society is a system of domination," he writes, "which operates already in the concept and construction of techniques."<sup>43</sup> Domination is both a social fact and, more importantly, a social *factor*: it is what makes the founding and development of "technological society" possible in the first place.<sup>44</sup> Like Horkheimer and Adorno, Marcuse argues that such a society must be an oppressive one. He also argues that because all modern societies are adopting technology more or less wholeheartedly, there will come a day when totalitarian rule will be the norm globally.

Marcuse insists that even ostensibly democratic countries like the United States are being ground under the bootheels of de facto totalitarian regimes. Everywhere "in advanced industrial civilization," he says, "a comfortable, smooth, reasonable, democratic unfreedom prevails." How the adjectives "comfortable", "smooth", "reasonable," and "democratic" can modify the neologism "unfreedom" is something Marcuse needs to explain. I think his explanation is both ingenious and disingenuous, and in equal parts: he insists that the apparent contradiction of "comfortable, smooth, reasonable, democratic unfreedom" doesn't reflect a flaw in his analysis, but marks one of the many fault lines that run through contemporary society. Totalitarianism no longer requires the establishment of totalitarian rule as an actual form of government: more subtle ways to achieve complete domination have been discovered. Marcuse suggests that technological society has figured out how to combine the commodification of values, as described by Marx under the rubric of *reification*, with the limited mechanisms of gratification, as described by Freud under the rubric of *repression*. And this means that the people are given what they want, but what they want has been determined for them by a society that has eliminated certain options from consideration altogether. The result is that for the first time in history, the cash economy no longer operates at the expense of the libidinal economy. Man becomes one-dimensional, Marcuse suggests, but not so

much because he has what he wants, as because he wants what he has. Thus “domination, in the guise of affluence and liberty, extends to all spheres of private and public existence, integrates all authentic opposition, absorbs all alternatives.”<sup>45</sup> We live in the best and the worst of all possible worlds: it’s a paradise, but only a consumer paradise.

Historically, authentic opposition to the forces of domination has been provided, Marcuse argues, by “higher culture,” especially by the idealistic traditions of philosophy. Ironically, the triumph of mass democracy spells the end of all idealistic traditions for Marcuse, who explores this paradoxical aspect of enlightenment with more candor than Horkheimer and Adorno were able to muster. Yet this is the weakness just as much as it is the strength of his approach because it forces the contradictory character of his own thinking much more into the open. He writes: “The progress of technological rationality is liquidating the oppositional and transcending elements in the ‘higher culture.’ They succumb in fact to the process of *desublimation* which prevails in the advanced regions of contemporary society.”<sup>46</sup> Marcuse links “the oppositional and transcending elements” of higher culture to philosophical notions like the Platonic Ideas. He insists that far from being a mere metaphysical fantasy, Platonism expresses a keen dissatisfaction with the status quo and is profoundly historical and revolutionary, even if its ideas can never be realized in practice. Marcuse suggests that the fact that so many ideals are unattainable is just what makes them sublime.

In his reading of the intellectual tradition stemming from Plato, Marcuse rotates the metaphysical axis ninety degrees, so that transcendental philosophies positing a realm of value vertically related to present-day society—as in the idea of heaven above—can be read in their true relation to society, which is a horizontal or rather a historical one. By reading the Platonic intellectual tradition from this angle, Marcuse claims to have revealed its political dimension: when heaven is historicized, it is radicalized; it becomes utopia. That he interprets them in this fashion makes Marcuse’s treatment of philosophy and of scientific theory, if not of scientific practice, seem recuperative—to put it mildly: “The stuff of thought,” he writes, “is historical stuff—*no matter* how abstract, general, or pure it may become in philosophic or scientific theory.”<sup>47</sup> Obviously Marcuse is asking a lot of history, if only by default: history is expected to turn the dross of thought into better stuff by and by, after refining it in the mill of politics.

Bruno Latour has rejected the distinction that Marcuse makes between scientific theory and practice as invalid. Latour writes, “As soon as a divide is made between theories and what they are theories *of*, the tip of technoscience is immediately shrouded in fog. Theories, now made abstract and autonomous objects, float like flying saucers above the rest of science, which by contrast becomes ‘experimental’ or ‘empirical.’”<sup>48</sup> But the fact that theory, scientific and otherwise, is a sort of unidentified flying object of consciousness is precisely what leads Marcuse to value it as highly as he does. He argues that theory’s otherworldly quality makes it transcen-

dental and gives it critical force, if only by virtue of theory's ability to breed and lend dignity to the expression of discontent.

Marcuse admits that by raising the level of general economic prosperity to new heights and by making many pleasurable experiences and commodities widely available, technological society has conquered in fact much of the ground that transcendental higher culture could conquer only in imagination. Thus technological society "desublimates" higher culture. "The achievements and the failures of this society invalidate its higher culture," Marcuse writes. "The reality surpasses its culture. Man today can do *more* than the culture heroes and half-gods; he has solved many insoluble problems."<sup>49</sup> Marcuse has a knack for detecting the failure in what otherwise would seem to be a success story, and for turning his vocabulary against itself. "Desublimation" might be regarded as a synonym for "liberation," but in Marcuse's treatment of Freudian terminology, the two words become antonyms. Desublimation makes the transcendental more real, but at the cost of making it less ideal and thus less potentially productive of change (precisely because it has already produced a modicum of change, spending its energy without bringing about the revolution and ushering in utopia). The immediate pleasures of desublimation are a cost-effective way for technological society to foreclose on the potentially subversive effects of continued sublimation and the frustration it engenders.

A hybrid blend of Marx and Freud allows Marcuse to posit and explore what Fredric Jameson was later to identify as "the political unconscious."<sup>50</sup> It also gives Marcuse the tools he needs to take so-called ordinary-language philosophy to task for its rejection of metaphysics and to accuse it of positivism—and thus of colluding in the domination of men and nature that is the hallmark of technological society. He argues:

Positivism is a struggle against all metaphysics, transcendentalisms, and idealisms as obscurantist and regressive modes of thought. To the degree to which the given reality is scientifically comprehended and transformed, to the degree to which society becomes industrial and technological, positivism finds in the society the medium for the realization (and validation) of its concepts—harmony between theory and practice, truth and facts.

Because ordinary-language philosophy asserts the existence of harmony between thought and its objects (in that it insists on the adequacy to human needs of thought in which no recourse is made to metaphysics), Marcuse argues that "philosophic thought turns into affirmative thought; the philosophic critique criticizes *within* the societal framework and stigmatizes non-positive notions as mere speculation, dreams or fantasies."<sup>51</sup>

I think it will be worthwhile to pause here in order to call attention to certain features of the language in which Marcuse's indictment of ordinary-language philosophy is couched. Marcuse suggests that all ordinary-language philosophers (and they

are a varied bunch) are guilty of a mindless affirmation of contemporary society: that their “positivism” is of the boosterish as well as the logical sort.<sup>52</sup> Hence they are the unwitting collaborators of a social order they ought to oppose. In short, it is the connotations of the word “positive” that carry Marcuse’s argument. Those connotations have little to do with the views actually held by ordinary-language philosophers, whether they are actually “positivists” or not, as many of them aren’t.

Given his conception of Critical Theory as a rigorously and rather doggedly negative enterprise, Marcuse is forced to work in something of a vacuum argumentatively and to connote rather than denote the meaning of his terms. He writes: “The unscientific, speculative character of critical theory derives from the specific character of its concepts, which designate and define the irrational in the rational, the mystification in the reality. Their mythological quality reflects the mystifying quality of the given facts—the deceptive harmonization of the societal contradictions.”<sup>53</sup> Marcuse seems to be saying that scoring points by innuendo must be the method of Critical Theory by default. This is why the Critical Theorist has to oppose mystification with mythology, which as oppositions go is a conspicuously weak one. Perhaps this is also why Critical Theory sometimes seems less notable for its conceptual coherence than for the hectoring style in which its indictments of society, its “negations,” are made.

Not at all coincidentally, Marcuse is very much concerned with style in *One-Dimensional Man*, and cites aesthetic movements like surrealism as exemplary instances of the proper sort of negativity much more often than he cites philosophical or political movements. Of course, he does argue that even aesthetic movements as outrageous to common sense as surrealism are vitiated by “the absorbent power of society,” which “depletes the artistic dimension by assimilating its antagonistic contents.” Hence the Critical Theorist must disapprove of pluralism. Pluralism’s “harmonizing” powers enable “the most contradictory works and truths” to “peacefully coexist in indifference,” and this makes pluralism politically suspect. Art can no longer glory in *alienation*, a privileged term, and a positive one, in Marcuse’s lexicon. The “works of alienation” that once belonged to high culture, and which encouraged resistance to the seductions of the status quo, have become commercials, Marcuse argues: “they sell, comfort, or excite.”<sup>54</sup>

Marcuse claims that the abandonment of all transcendental aspirations in contemporary philosophy and the increasing inanity of contemporary art are by-products of the domination of nature, which is treated, abusively, as “mere stuff.” To abuse nature is to disturb the symbolic order, to the detriment of both philosophy and art. Marcuse writes:

Obviously, the physical transformation of the world entails the mental transformation of its symbols, images, and ideas. Obviously, when cities and highways and National Parks replace the villages, valleys, and forests; when motorboats race over the lakes and planes cut through the skies—

then these areas lose their character as a qualitatively different reality, as areas of contradiction.<sup>55</sup>

Several things about this passage are worth remarking. Most remarkable is the adverb “obviously” placed at the beginning of each sentence; what follows this adverb is, in each instance, less than obvious to me. The villages, valleys, forests, lakes, and skies may be “qualitatively different” realities today, but when were they ever “areas of contradiction”? Marcuse seems to think that the hills and the villages, valleys, forests, lakes, and skies can be counted as “areas of contradiction” by simple virtue of their continued existence as spaces apart from the mainstream of technological society. But he treats such spaces more like logical categories than like actual places. This is why he regards the presence in them of cities, highways, national parks, motorboats, and planes as a fatal form of contamination: all those things provide the *wrong kind* of contradiction.

Marcuse’s schematizing of the contemporary landscape, natural and otherwise, is almost entirely impressionistic. He makes “domination” seem like something that one becomes aware of only by means of intuition, something that therefore does not have to be explained. Does the motorboat really dominate the lake? Is its presence there really fatal to the lake’s character? The answers to these questions depend on a set of circumstances Marcuse does not and probably could not specify: how big the motorboat is; how large the lake is; why the motorboat is racing across the lake, other than to get to the far shore; and so on.

Many of the examples of the domination of nature in *One-Dimensional Man* amount to little more than shaggy dog stories. In this respect, one passage stands out as the most noteworthy in the book. In this passage, Marcuse portrays the flabbiness of mind of those of his contemporaries who acquiesce in what he calls “harmonization,” the “absorption of the negative by the positive” which gets “validated in the daily experience” and which “obfuscates the distinction between rational appearance and irrational reality.” He writes:

I take a walk in the country. Everything is as it should be: Nature at its best. Birds, sun, soft grass, a view through the trees of the mountains, nobody around, no radio, no smell of gasoline. Then the path turns and ends on the highway. I am back among the billboards, service stations, motels, and roadhouses. I was in a National Park, and I now know that this was not reality. It was a “reservation,” something that is being preserved like a species dying out. If it were not for the government, the billboards, hot dog stands, and motels would long since have invaded that piece of Nature. I am grateful to the government; we have it much better than before.<sup>56</sup>

I don’t think that Marcuse is seriously interested in portraying himself here as Critical Theory’s resident nature-lover. This passage is meant to be an ironic indictment

of the addled thinking produced by technological society, which is why it sounds like the easy sarcasm of an American teenager who's just discovered that nowadays everything is bogus. But even though it is parodic, the passage is premised on the validity of the distinction between "rational appearance and irrational reality." This distinction is very important to Marcuse: he thinks that it hasn't held up, and he wishes that it had. Like the American teenager, he finds the proximity of the national park and all those tacky billboards, service stations, motels, and roadhouses grotesque because it creates a "contradiction" of more than one kind. For Marcuse, categories like "real" and "unreal" have an imperative quality: they *ought* to be kept distinct, though the likelihood that the distinctions on which they depend will remain valid in a technological society is small.

Another reason Marcuse's little scenario of environmental degradation is a shaggy dog story is that while he is capable of voicing outrage over the domination of nature, he is far from being a convert to conservationist and environmentalist causes. He still understands the domination of nature in Marxist terms, which means that he sees it as the historically necessary prerequisite for nature's liberation. Marcuse argues that nature needs the redemption of culture, needs to have "the cognitive and transforming power of Reason" applied to it. Otherwise it will remain mired in "its own brutality, its own insufficiency, its own blindness."<sup>57</sup> How seeing nature in these terms squares with Marcuse's contempt for technological society's habit of seeing nature as "mere stuff" is something he doesn't explain.

Marcuse rejects conservationist and environmentalist thinking for much the same reason he rejects ordinary-language philosophy. He thinks that as reformist movements, conservationism and environmentalism collude with a society against which they should be struggling:

All joy and all happiness derive from the ability to transcend Nature—a transcendence in which the mastery of Nature is itself subordinated to liberation and pacification of existence. All tranquility, all delight is the result of conscious *mediation*, of autonomy and contradiction. Glorification of the natural is part of the ideology which protects an unnatural society in its struggle against liberation.

One of the enduring legacies of Critical Theory is a contradictory attitude toward the natural world of the sort that Marcuse displays here. As Critical Theory has it, nature must not be dominated, if we can avoid doing so, and yet science is wrong to suggest that the natural world provides us with information relevant to our pursuit of the good life, or failing that, with some timely warning signals whenever we court environmental disaster. Society always comes first: to think otherwise is to ignore what Marcuse calls, in his discussion of analytic philosophy, "the struggle for existence."<sup>58</sup> This is a striking phrase for him to have used, since it suggests that the marriage of Freudian and Marxian concepts in *One-Dimensional Man* is bro-

kered by a Darwinian concept of nature. Such a concept would enable Marcuse to interpret class struggle and the struggle between the Id, the Ego, and the Super-Ego as separate but related expressions of a more general “struggle for existence.” But when he emphasizes “the struggle for existence,” Marcuse privileges the aspect of Darwin’s theory most attractive to and most distorted by Darwin’s Victorian contemporaries, which suggests that Marcuse’s thinking, as timely as it seems to be in certain respects, remains trapped in the conceptual universe of an earlier era.

### *The Domination of Mother Earth*

*We doubtless learned or invented sciences in inverse proportion to the ancient mode of being informed: the less we busy ourselves with others, the better we like them; the less we gossip, the more we know the world. The less we know of what’s banal, the better we grasp what’s rare.*

Michel Serres, *The Natural Contract*

Keeping faith with Horkheimer, Adorno, and Marcuse, and with the tradition of dialectical reasoning in which they worked, forces their successors to approach science in terms that are so generic, and so biased by a misunderstanding of physics, as to make their views of science fundamentally erroneous in many respects.<sup>59</sup> It’s possible, of course, that radical critics are unable to abandon their mistaken views of science without also giving up on the negativity that makes those views seem radical in the first place. However, some of them do try to offset their own negativity by arguing—incorrectly—that ecology offers a viable alternative to the reductive way of knowing the natural world typical of science as a whole.<sup>60</sup> But *to offset* is not the same thing as *to overcome*, and revisionists among radical critics of science face a steep uphill climb when they attempt to enrich Critical Theory, and to make it less rigid conceptually, by grafting onto it new vocabularies and new ideas that encourage greater acceptance of and increased affection for the natural world.

Consider the model of environmental history proposed by Carolyn Merchant. Merchant’s work as an environmental historian is shaped by an attitude toward and an understanding of nature less constrained than Critical Theory in the classic Frankfurt School mode allows, owing in large part to her allegiance to a form of feminism premised on the identification of women with nature.<sup>61</sup> As both an ecofeminist and a postmodernist, Merchant argues that in the aftermath of the long interregnum of modernity, during which the earth and women, too, were greatly devalued, the image of a maternal earth can be reclaimed and revived. Instead of denying it, as feminists have been wont to do, contemporary women should play up their identification with nature and take pride in it, too.

Yet despite her allegiance to ecofeminism, Merchant has a tendency to apply Critical Theory by rote and unimaginatively, especially when she wants to drive a point home and needs to borrow some rhetorical thunder from elsewhere. Thus her work can be said to raise a couple of important questions, or so it seems to me. The first of these questions is this: to what extent can we fuse radical politics with radical environmentalism? The second question is related to the first: what is the relationship between political radicalism and epistemological radicalism of the sort that environmentalists like Merchant are eager to adopt? To phrase these questions another way, and in simpler terms, what do we need to know, and how do we need to know it, in order for environmentalism, radical or otherwise, to be politically effective?

As a writer of environmental history, Merchant relies on the repackaging of material drawn from the archives of the history of ideas in a wrapping of Critical Theory, a Neomarxist wrapping made more attractive by the addition to it of ecofeminist and environmentalist motifs. Her most important book, *The Death of Nature*, was published in 1980. It addresses a variety of fairly recondite subjects in both environmental history and the history of science, delving deeply into the complexities of such things as alchemy, which from the point of view of Whiggish history would seem to have been a decidedly marginal enterprise. And yet, the complexities of her subject matter and the riches she discovers in it notwithstanding, the argument that Merchant presents in *The Death of Nature* is single-minded and simplistic. Minutiae loom very large in her eyes, and so in each of her chapters she sandwiches extremely detailed accounts of specific historical episodes, interludes, and movements between introductions and conclusions all sharing the common character of sweeping indictment and breathtaking generalization.<sup>62</sup> As a rule, these introductions and conclusions reiterate and reinforce the claim Merchant first makes in the introduction to her book as a whole: "Between the sixteenth and seventeenth centuries the image of an organic cosmos with a living female earth at its center gave way to a mechanistic world view in which nature was reconstructed as dead and passive, to be dominated and controlled by humans."<sup>63</sup>

Merchant argues that the shift from an organic to a mechanistic worldview was just as bad for nature as it was for women, but she undermines this argument whenever she makes snap judgments like the following, which she offers to her reader just a few pages later on in her general introduction: "The weather forecaster who tells us what Mother Nature has in store for us this weekend and legal systems that treat a woman's sexuality as her husband's property are equally guilty of perpetuating a system repressive to both women and nature."<sup>64</sup> Merchant's perception of science and her sense of moral outrage both need to be adjusted. By equating a local broadcaster's prediction of the weather with the legal repression of women, she makes meteorology seem like a more positive science than it really is, while trivializing the inequities to which women have been subjected under the law by suggesting that they are on a par with the misfortune of a rainy weekend. Even if weather

prediction were 100 percent accurate, 100 percent of the time—even if it were *certain*—that wouldn't make it in the least "repressive" of nature, much less of women, too. Worldviews don't hang together in one piece, not in the thoroughgoing, deterministic way that Merchant imagines they do. Meteorology and the law are, in great measure, disjunctive, except where they come together for particular reasons, which have to be specified by lawmakers, the Coast Guard, departments of public safety, insurance companies, and the like. To claim that weather prediction and the institutions of the law contribute to the repression of both women and nature in equal measure therefore makes no sense, not even as a rhetorical fling. Merchant's more fundamental mistake, however, may lie in her attempt to portion out guilt between science and the law in the first place. Doing so forces her to compare things, like women and the weather, which have nothing in common on which a comparison might be based. It also forces her to dismiss the possibility that all of humanity irrespective of gender, class, race, tribal identity, or profession must assume at least some of the burden of guilt for the abuse of the earth.

As an ecofeminist, Merchant is just as eager to celebrate the identification of women with nature and of nature with women as she is to lament the unhappy social consequences of this identification under modernism: thus her claim that the pre-modern, pre-Renaissance era affords a model of an organic society with a maternal earth at its center, and that this is a workable model to which we ought to consider returning in order to make it the basis of our society. The merit of this as a historical or a feminist claim is debatable (it is the sort of claim about women often dismissed as essentialist by feminists themselves), but what interests me is its merit as an environmental and an ecological claim. And that, I think, is so negligible as to be nil.

Merchant often uses ecological terms imprecisely, and as metaphorical window dressing for her arguments. For instance, she says that her focus in *The Death of Nature* is "on early modern Europe as an ecosystem." Her use of the term "ecosystem" is certainly unobjectionable if all she means is that she will be taking up for consideration a variety of ecological issues that were important in early modern Europe. It is also unobjectionable if all she means is that in the course of her analysis she will be concerned with the many diverse ecosystems that, taken collectively, may be said to have constituted the landscape of early modern Europe. But neither of these things is all that she means. Like Donald Worster, and not unlike many ecocritics, Merchant assumes that "ecology" is largely a matter of perspective. "An ecosystem model," she writes, "presents an earth's-eye view of history."<sup>65</sup> The ecosystem functions for Merchant as the metaphorical embodiment of a certain historical point of view, and she is relatively unconcerned with the precise meaning given to the term "ecosystem" by ecologists, many of whom are very much unsure of its validity whether it is precisely defined or not.<sup>66</sup> What an ecosystem model actually "presents," insofar as these ecologists are concerned, is a number of theoretical and methodological conundrums, which are unlikely ever to be resolved in a wholly satisfactory way.

Yet that there are entities called ecosystems is something Merchant takes for granted, and that they may have feminine qualities is a possibility she likes to toy with. Assuming that there are ecosystems, and assuming that they have the sort of social and political import she imagines them to have, Merchant can freely apply to history what she calls an “ecosystem model of historical change.” Such a model, she says, “looks at the relationships between the resources associated with a given natural ecosystem (a forest, marsh, ocean, stream, etc.) and the human factors affecting its stability or disruption over historical time periods.”<sup>67</sup> But in this model of history, the ecosystem functions largely as a master trope, just as such abstractions as the gods, the nation, the race, and the people, or great men and the women who stand behind them, sometimes do in other versions of history.

That Merchant relies on a merely intuitive concept of ecology is demonstrated in the third chapter of *The Death of Nature*, where she presents a thumbnail sketch of twentieth-century ecology in which she describes the organic (or “organismal”) approach to ecology popular in the early decades of the twentieth century. She praises this approach not for its scientific validity (which has proved to be nonexistent, as I reported in chapter two), but for its political appeal. She asserts that organic ecologists had disappeared from the scene by the late 1940s, not because their research programs failed to thrive but because “the emergence of fascist tyranny based on a centralized organismic model glorifying the father as absolute dictator undermined the evolutionary hierarchical component of their argument, and ecology turned in a mathematically reductionistic direction.”<sup>68</sup> That the Nazi ecologists were the spiritual forerunners of today’s ecologists is a notion that, like a bad penny, keeps turning up in books and essays by radical critics of science. They abhor biological determinism, especially if it is couched in numbers or in the language of genetics; and yet they yield to historical determinism without flinching.

Their susceptibility to historical determinism causes many radical critics of science to assume that once an idea has been put to a bad use by one group or another, that idea, no matter what its strengths and virtues may be otherwise, will be tainted morally and politically. This is fallacious reasoning. As the environmental historian Peter Bowler observes, “The connections between scientific theories and moral or social issues are manufactured to suit a particular set of circumstances.”<sup>69</sup> They aren’t like connections of the kind we call “necessary,” which follow logically from a set of premises. Nor are they like connections of the kind we call genetic, by means of which certain traits may be passed on to future generations—or not, as those who favor the genealogical approach to intellectual history always seem to forget.

Like other radical critics of science, Merchant is committed to teasing out deeply buried historical meanings, especially if they appear to have social and political implications. At times this commitment leads her to exaggerate these meanings and implications, and to distort the terms of her argument. Her explanation of the values associated with different concepts of nature during the Enlightenment is noteworthy for the way in which it maps more recent cultural categories onto earlier

philosophical and scientific distinctions that they have little or nothing to do with: “Conservative ideas, such as the passivity and manipulability of matter conducive to the domination and control of nature, were appropriated into the new philosophical framework, while the more radical vitalistic and animistic ideas were subjected to severe criticism and rejected.”<sup>70</sup> When making assertions like this one, Merchant often ignores the historical context of the ideas she is discussing in favor of focusing on their philosophical context as she sees it. In the historical context of the Enlightenment, surely it was the “vitalistic and animistic ideas” that seemed dated and therefore “conservative.”

Because researchers turned to less vitalistic and more mathematical models of the ecosystem after the Second World War, so-called radical ecologists like Merchant try to insulate their use of the word “ecology” from any connotation of the scientific. Yet they seem perfectly happy to trade on the word’s aura of authority, which must derive from its scientific origins. For radical ecologists, ecology isn’t a science but a “philosophy of nature” with its roots in a body of lore that Merchant calls “organicism.” When she claims that “holistic presuppositions about nature are being revived in ecology’s premise that everything is connected to everything else and in its emphasis on the primacy of interactive processes in nature,” Merchant does not have foremost in mind the science of ecology (in which those ideas aren’t being revived at all, but questioned anew).<sup>71</sup> She has in mind popular ecology. The telltale sign of this is her approving use of the word “holistic,” perhaps the single most abused term in the history of ecological thought, popular and otherwise.

In *The Death of Nature* the ground of Merchant’s argument shifts constantly, in response to the vague character of her appropriation of ecological concepts. The categories in which she invests so much rhetorical energy have a tendency to fail her in argument: they simply aren’t as distinct as she would like them to be. In one chapter, she says, correctly, that the ecosystem is a mathematical model of nature. And since she finds that model attractive, she has to confess that “organic and mechanical philosophies of nature” should not be “viewed as strict dichotomies.”<sup>72</sup> This balanced perspective is at odds, however, with Merchant’s ambition to be radical, and it is vitiated by her rhetoric elsewhere in her book.

There is a very good reason why the reach of Merchant’s book exceeds its grasp: *The Death of Nature* relies too heavily both on the maxims of popular ecology and on a minimally reconfigured version of Critical Theory’s concept of domination. Merchant gives more weight to the domination of women than they do, but otherwise she preserves the assumptions about domination made by Horkheimer, Adorno, and Marcuse wholly intact. Their ideas provide her with most of the standards in terms of which she measures history, and help her to stake out some moral and philosophical high ground, but her narratives of domination tend to read like just-so stories. For instance, in a passage from an essay published much more recently than *The Death of Nature*, a passage in which she paraphrases an argument made by Horkheimer and Adorno, Merchant writes:

Tribal societies pursued their needs through the imitation of nature. Human beings became as much like the animals they hunted as possible. Power over nature, hence self-preservation, was achieved through imitative magic. Enlightenment thinking disenchant nature by removing that magic and turning the subject into an object, and that process of objectification distances subject from object.

Merchant treats threadbare anthropological categories and distinctions as if they still had great explanatory power. As she tells the story, the current environmental crisis is the result of a conflict between the two halves of the divided human character, one "tribal" and the other "enlightened" (read "civilized"), and each struggling to turn "subjects" into "objects" or "objects" into "subjects" by its own preferred means. Those means appear to be limited to a choice between magic and heavy industry. The conflict between magical and industrial apprehensions of the world ought to be fraught with great dramatic potential, but the story Merchant tells about it is much too pat. Nor do the distinctions on which she bases her story hold up to scrutiny. And so the conflict would seem to be an imaginary one, but not according to Merchant. "So powerful is the mystique of reason as instrument in the control of nature and human bodies that it banishes other modes of participating in the world to the periphery of society," she insists. "Describing the world through logic and mathematics in turn leads to prediction and hence to the possibility of controlling nature. Instrumental reason and enlightenment are thus synonymous with domination."<sup>73</sup> Merchant is convinced that tribal power is good, and enlightenment power bad.

Reflecting on Merchant's claims about the differences between tribal and enlightened sensibilities, one is moved to question the implied propositions that prediction was something humans only attempted once they had logic and math, and that humans made no concerted efforts to control nature at any time prior to their supposed and rather sudden enlightenment in the modern era. Merchant's air of argumentative finality and her use of the language of logical demonstration ("in turn," "hence," "thus") cannot conceal the fact that she is making simplistic, flat declarations about what she calls "the mystique of reason." Taking Horkheimer and Adorno at their word encourages her to adopt a strategy of overstating the power of the things she doesn't like in order to make a plea for those she does, a polemical strategy poorly adapted for purposes of historical interpretation.

Merchant often writes as if historical interpretation of our relationship to nature were simply a matter of adding one idea to another, summing up the results, ordaining what has been and is to be, and recording the appropriate merits and demerits. "Domination is one of our century's most fruitful concepts for understanding human-human and human-nature relationships," she explains in the essay I quoted from above. "When the domination of nonhuman nature is integrated with the domination of human beings and the call for environmental justice, Critical

Theory instills the environmental movement with ethical fervor.”<sup>74</sup> Clearly domination can be regarded as a “fruitful” concept only if you are interested in just the one kind of fruit, as Merchant seems to have been throughout her career as an environmental historian. Moreover, the integration of interests that she describes may not be as easy to bring off as she makes it sound. She implies that the environmental movement will lack ethical fervor unless it embraces Critical Theory, but Critical Theory is not the only source of ethical fervor; the environmental movement has always had its share, and then some, of that commodity.

By “ethical fervor” Merchant obviously means more than just moral outrage and staunch commitment. She suggests that in order for it to be truly fervent, ethics must be given counsel and pointed in the right direction by the heightened political consciousness one gains from reading Critical Theory. Ethics cannot be allowed to feel and think its way to success on its own: it needs to be armed with a new vocabulary, which it can acquire by going back to school with Horkheimer, Adorno, and Marcuse. As radical critics of science often do, Merchant makes politics—and life itself, for that matter—subservient to theory.

What seems most lacking in Merchant’s work is a healthy skepticism about the assumptions on which contemporary intellectuals have been nurtured, particularly the sort of assumptions that Bruno Latour has called into question for giving rise to the belief, in his view insupportable if not actually nonsensical, that we have become modern.<sup>75</sup> Merchant credits a host of received ideas about what is and is not masculine as opposed to feminine, about what is and is not natural as opposed to cultural, and about what is and is not modern as opposed to premodern or postmodern. I take this as evidence that her radicalism only goes so far and that it may be merely nominal. Merchant is so taken up with interrogating domination as a flaw in the human character that she fails to question the validity of the (conservative) master narratives and the (radical) antinarratives in which the story of domination has been couched. Most unfortunate of all, in my view, is the fact that Merchant’s understanding of ecology is formed almost entirely in reaction against science. Her treatment of ecology (like Donald Worster’s) is largely romantic and literary: a romantic, literary perspective makes the alliance between ecology and Critical Theory a more comfortable fit, and it prepares the ground for rhetorical strategies of overstatement. It enables Merchant to repeat popular simplifications and distortions of ecology while translating them into feistier, more contentious terms.

“The revolt of nature,” Merchant asserts, is “contained within the enlightenment project. Internal nature rebels psychically, spiritually, and bodily. External nature revolts ecologically. Here Critical Theory and the ecology movement intersect.”<sup>76</sup> The “ecology movement,” as Merchant conceives of it, is relatively uninterested in the things that interest professional ecologists, such as determining the ratio of diversity to stability in correlation with area (which I admit does sound dull unless one understands how essential it is when the time comes to make informed decisions about the preservation of endangered habitats and species). But the “ecology

movement” doesn’t care very much for ratios because ratios are insufficiently radical and not at all revolutionary.<sup>77</sup>

Luc Ferry addresses the sort of ecology favored by Merchant in his book *The New Ecological Order*, where he argues that the “revolutionary” paradigm of environmental struggle hasn’t paid off. He acknowledges that this is something of a disappointment: “After two centuries of messianic utopias, the conversion to reformism seems rather unexalted, too tame, too flat to seduce militants.” But reformism, he argues, is “the only position consistent with leaving the world of childhood.”

Not only is it the only attitude compatible with the democratic rejection of partisan lines and dogmatic authority, not only does it cease to hold out the mystical hope of fighting for something beyond the real world, but unlike revolutionary ideology, which is oriented toward a final goal, it opens an *infinite* space for reflection and action.<sup>78</sup>

Ferry would have us shelve certain kinds of issues as inherently irresolvable and abandon certain goals as unattainable, not only by default but also, and more crucially, by definition. He would have us do so in order to open up “space for reflection and action.” Ferry isn’t suggesting—nor am I—that there is something wrong with seeing environmental concerns as vitally connected with other moral, social, political, and philosophical problems. However, he is suggesting—and so am I—that to insist that the integration of environmental concerns with others has been predetermined by domination, and to take domination for granted, as if it were a basic fact of human experience and a part of human nature, is to do bad history. It is to enroll in the “something went horribly wrong, *and it was bound to*” school of historiography. Because Merchant has enrolled in this school, she treats most of environmental history as if it were a foregone conclusion.<sup>79</sup>

### *Can There Be a “Properly Social” Ecology?*

*What is nature? The city’s or culture’s hell.*

Michel Serres, *The Natural Contract*

Andrew Ross’s 1994 book *The Chicago Gangster Theory of Life: Nature’s Debt to Society* is a virtual compendium of themes common to the radical critique of science. The book’s compendious quality is a reflection of the fact that its author is something of a scavenger and a detritivore: Ross likes to venture abroad and into fields like science studies, where he can clean up behind others and convert their complicated arguments into a rich humus of the sort in which his peculiar variety of cultural commentary seems to flourish. Reading his work is like holding a dowsing

wand, so reliably do Ross's claims indicate the philosophical and theoretical well-springs of his arguments. In *The Chicago Gangster Theory of Life*, those arguments run the gamut: Ross touches on Polynesian cultural survival, the 1993 bombing of the World Trade Center, the Gulf War, the men's movement, genetic research, sociobiology, and a number of other topics too miscellaneous for me to inventory all of them here. So heterogeneous is his book that it seems to have been designed as an orphanage for the foundling topics Ross happened to come across in his daily rounds in New York City, where he teaches cultural studies, and during trips to academic conferences. However, all appearances of heterogeneity to the contrary, Ross claims that each of the issues he writes about has something to do with "ecology" in one way or another. Since it isn't immediately clear just what he means by "ecology," his reader must be patient, must grant him a lot of leeway, and must try to patch together an understanding of why Ross thinks he has something to say about nature, despite his manifest impatience with anyone who dares to regard nature as anything other than a social construct.

Ross calls himself a "social ecologist." As such, he insists that it is legitimate to use the word "ecology" without intending any reference, not even an oblique one, to ecological science or, for that matter, to the natural world. His book's cheeky subtitle—*Nature's Debt to Society*—is meant to suggest that the concept of nature is one fashioned by humans acting in social concert, which means that the word "nature" signifies in a purely recursive way. All that the social ecologist really needs to consider are the concept and its meaning-effects; the referent, *if there is a referent*, can be left to one side, and should be grateful (as it were) for whatever attention we can spare it. For Ross, "nature" means culture, and he argues that this is all that it means for the rest of us, too.

I'm afraid that the main part of Ross's title—*The Chicago Gangster Theory of Life*—requires a somewhat more laborious explanation, since his own explanation of it is disingenuous, if not downright dishonest. "The Chicago Gangster Theory of Life" refers to a passage in Richard Dawkins's book *The Selfish Gene*, in which a complicated theory of life, a theory of which Ross disapproves, is put forward. Dawkins describes the gene as "the basic unit of selfishness," and by way of fleshing out his point, suggests that the gene has the ethics of a Chicago gangster.<sup>80</sup> Ross pretends to be shocked and offended by this suggestion. He ignores the fact that Dawkins's comparison of the gene to a Chicago gangster is meant to be illustrative of a technical point: genes are "replicators" solely dedicated to reproducing themselves. They aren't nice guys, but wise guys, *so to speak*. It is obvious—at least, it is so to me—that Dawkins doesn't mean for his reader to imagine genes wearing fedoras and pinstriped suits, with marinara sauce splashed all over their wide lapels; nor does he mean for his reader to think of genes as sociopaths seething with contempt for John Q. Public and the forces of Law and Order. Having studied genes closely, Dawkins knows they aren't really that colorful. The point of his comparison of the gene to a Chicago gangster is that the gene works individually and "selfishly," with-

out regard to the consequences of its actions for life as a whole: for the gene pool, which each gene tries to fill with copies of itself not intentionally but by following a blind imperative dictated by its chemistry.

Ross ignores Dawkins's argument about genes so that he can focus his critical attention on the terms in which it is couched. He suggests some alternative stock personalities to whom genes might be compared, such as robber barons and junk-bond traders, but his suggestions are very much off the mark. Robber barons and junk-bond traders are (or rather were) creatures of, by, and for the system, working to preserve it in its present shape, on which they are dependent, no matter how much they may exploit and manipulate the system in their own selfish way. Their own selfish way, unlike the gene's, ensures that they have no interest in replicating themselves. The sort of monopoly robber barons and junk-bond traders crave is not the sort of monopoly the selfish gene would "like" to have, since they want a monopoly of one and the selfish gene "wants" a monopoly of many (the many just happen to be copies of the one).

Undaunted by the fact that none of his suggestions and comments are addressed to the point at issue, Ross defends the figure of the Chicago gangster against what he regards as Dawkins's slander by arguing that Prohibition was "a eugenicist-style backlash by WASPs against immigrants who controlled the booze trade," and that the gangster therefore should be seen as a hero of ethnic resistance. Ross justifies this interpretation of the gangster, which while it may or may not be valid is certainly irrelevant, by taking Dawkins to task for not thinking of it himself: "To abstract the selfish, atomistic figure suggested by Dawkins's Chicago gangster from the social and quasi-institutional environments in which the gangster functioned is dishonest, but not unusual if one is trading in types. Dawkins himself makes no effort to flesh out a social profile for his Chicago gangster." Presumably Dawkins didn't want to waste his reader's time, something Ross doesn't seem to mind doing in the least. He continues to misrepresent Dawkins's intentions, and to give him a lesson in the ABCs of cultural studies, for several more pages, before admitting that he has been flogging not so much a dead horse as the wrong horse: "There is no point, finally, in saying that the Chicago gangster is not a good metaphor for the selfish gene. To do so one would have to accept the hokey idea that genes can be selfish." It would be as foolish, Ross adds, to think that genes resemble any of the other civic stereotypes associated with the Windy City, "the Chicago blues musician, or the Chicago activist-preacher, or (a longer shot) the Chicago architect."<sup>81</sup> I regard this as Ross's admission that we have just witnessed a performance in the high art of deliberately missing the point.

Dawkins's comparison of the gene to a Chicago gangster is an analogy, not a metaphor. By regarding the gene as if it were an agent of sorts, an entity with a will of its own, Dawkins has adopted what Daniel Dennett calls "the intentional stance," which is "a method that exploits similarities in order to discover differences—the huge collection of differences that have accumulated between the minds of our an-

cestors and ours, and also between our minds and those of our fellow inhabitants of the planet.” Dennett adds that the intentional stance must be taken up with care, and “used with caution; we must walk a tightrope between vacuous metaphor on the one hand and literal falsehood on the other.”<sup>82</sup>

It seems to me that the alternatives Ross urges on Dawkins, while they may be just as colorful as the Chicago gangster with the added advantage of being more appealing, at least to certain tastes, would result in precisely the sort of comparison Dennett says is a “vacuous metaphor.” It also seems to me that failure to recognize and honor the difference between analogy and metaphor is one of the main reasons radical critics so often seem to misunderstand science. As an analogy, Dawkins’s comparison of the gene to a Chicago gangster is a lot more circumscribed in its applicability than Ross allows. Its circumscription leaves no room for the extended unpacking of the analogy that Ross performs.<sup>83</sup>

Ross’s misreading of Dawkins demonstrates one of the signal differences between genetics and cultural studies. In genetics, you aren’t supposed to let yourself become too excited by the connotations of words like “selfish,” “Chicago,” and “gangster,” should they ever come up in conversation with a colleague. In cultural studies, you are free to become as excited by those connotations as you like, since the more excited you get the more your colleagues are going to admire the ingenuity of your interpretations. Ross has claimed that the “narrowness of scientific expertise” is a limiting factor, and “poorly qualifies its practitioner for the broad exercise of social reason” of the sort at which specialists in culture studies may be overly adept, to judge from his own empty displays of interpretive skill.<sup>84</sup> As a Chicago blues musician might put it, Ross can interpret like his back ain’t got no bone.

This lack of backbone means that as a critic of science, Ross performs under very loose constraints intellectually. I’m aware that limberness is a virtue in interpretation, but Ross is a contortionist. He turns a blind eye to inconvenient facts, and seems to feel no obligation to address the subtleties of arguments he dislikes and misrepresents as utterly inflexible.<sup>85</sup> He overlooks Dawkins’s arguments concerning a possible genetic basis for “limited altruism,” and he also overlooks Dawkins’s emphatic statement of his own intentions. Dawkins writes, “I am not advocating a morality based on evolution.”<sup>86</sup> Dawkins makes this statement in the paragraph of *The Selfish Gene* immediately following his comparison of the gene to a Chicago gangster, but perhaps Ross didn’t read this paragraph with sufficient care.

At the very least, Ross’s treatment of Dawkins has the virtue of consistency. He completely ignores the arguments Dawkins makes about “phenotypic effects,” which aren’t deterministic, and which arise out of the gene’s interactions with its environment and involve both natural selection and sociocultural influences, at least in the case of humans. However, Dawkins makes these arguments not on page two, but on a different page of his book altogether, and many chapters later.<sup>87</sup> I think we can be reasonably confident that Ross never read the other pages and the later chapters of *The Selfish Gene* at all. As a result, he is unable to imagine that a biologist like

Dawkins might have any feeling for what Ernst Mayr calls the “richness of factors and causations that is the fascination and beauty of the living world.” These words conclude Mayr’s description of developmental biology, in which the aspects of genetic science that Ross is unwilling to acknowledge are emphasized. Mayr writes:

This discipline is highly analytical (often misleadingly called reductionist), with the goal of determining the contribution that each gene makes to the developmental process. At the same time, it is conspicuously holistic, since viable development depends on the influence of the organism as a whole, reflected by the interaction among genes and tissues. The decoding of the genetic program represents the proximate causation of ontogenetic processes, while the contents of the genetic program are the result of ultimate (evolutionary) causations.<sup>88</sup>

Ross’s unwillingness to grant that genetics is not a monolith of determinism suggests that he is guilty of precisely the thing he charges Dawkins with having done. He trades in types, and exploits the negative images of genetics and sociobiology in order to gain a rhetorical advantage. Like other radical critics, Ross misconstrues the point of science and downplays its intellectual flexibility, pursuing and exterminating bugbears as if there were a bounty on them.

*The Chicago Gangster Theory of Life* is deliberately and, at times, maliciously impertinent. However, Ross isn’t advancing bold new ideas and playing the spoiler in the book, so much as he is laying claim to a tradition of disgruntlement running back at least to the Frankfurt School. Like his predecessors and peers among radical critics of science, Ross wants to recast ecological and environmental concerns, and science as a whole, in social terms. Also like them, he espouses an extreme form of the sociological determinism with which science studies, rightly or wrongly, has come to be identified. His book is punctuated by assertions of and appeals to the socially constructed character of nature, which he takes for granted as something already conclusively demonstrated by other critics and theorists. But it seems to me that they also took the social construction of nature for granted; that for them, too, it was a point of departure: something to be assumed and asserted, and appealed to, rather than something in need of the support of plentiful evidence and painstaking argument. Ross doesn’t take this shortcoming of the tradition in which he writes into account. *The Chicago Gangster Theory of Life* made a splash when it was published, as did Ross’s earlier book on similar subjects, *Strange Weather*, because he was willing to say what others had said about science and nature in a more brazen way than they had said it, with little or no expression of any second thoughts.

Ross needs to tap the vein of social constructionist thought because he is unqualified to comment on nature and science directly, thanks to his ignorance of natural science (which he cheerfully confesses) and his residence in New York City (which seems to be essential to his self-image as a cultural authority). In the introduction to

*The Chicago Gangster Theory of Life*, he writes: "Why not begin, as ecology has ordained, with a local environment? As a city dweller who does not regard himself as much of a nature-lover, it is important to start with the stores in my neighborhood."<sup>89</sup> This antipastoral gesture is clever: it allows Ross to research nature-as-culture (which isn't at all the same thing as nature-culture) without exposing himself to the elements and without having to don a pair of hiking boots. All he has to do instead is browse through the Greenwich Village boutiques where natural soaps and tribal artifacts made from rainforest materials are on display. Adopting a city slicker's approach to his subject matter enables Ross to discuss ecology not as a science but as a marketing strategy and a politics, which he can do by charting the use of the term by green manufacturers and environmental activists. Thus he can treat ecology as a profoundly ideological discourse not necessarily concerned, either in the first instance or in the second, with the natural world. If it is simply axiomatic that nature is a social construct, then the borough of Manhattan and the charmed circle of cultural studies probably offer as good a perspective on it, if not a better one, as anywhere else and any other school of thought.

As a "social ecologist," Ross is more concerned with the fair and equitable distribution of goods and access to high technology, especially media technology, than with conservation of resources and preservation of threatened habitats and species, about which he really isn't very concerned at all. In fact, he treats the vocabulary of scarcity and endangerment favored by the mainstream environmental movement with contempt, and likes to suggest that this vocabulary is composed entirely of buzzwords used to further intimidate an already cowed citizenry. This is why Ross has commandeered the word "ecology," wresting it away from scientists and environmentalists and using it as a savvy label for the social practices he likes, which seem to boil down to culturally sensitive versions of consumption, especially the consumption of "images." Otherwise ecology is taboo: as a subdiscipline of biology, and as a catalyst for conservation and environmental activism, it is something Ross must abhor, or at least something he must pretend to abhor. Thus his attempt to distinguish between "ecologists whose priority is social justice, and those whose priority is wilderness."<sup>90</sup>

But the distinction Ross makes won't hold up: those "ecologists whose priority is social justice" may not be "ecologists" in any meaningful sense of the term, since they may be suspicious of and even hostile to environmental concerns. There may be, and are, social activists who are environmentally concerned, but that doesn't make them ecologists: they might recognize a dangerous landfill when they see one, yet have only a limited understanding of ecological science, which means that their activism will have a hit-or-miss quality. By the same token, those ecologists "whose priority is wilderness" are much better described as preservationists, since they may be more or less indifferent to the ecological character of wilderness and interested chiefly in its cultural and recreational values. Or they might be Deep Ecologists actively hostile to the scientific approach to nature, or old-school conser-

vationists who believe in the value of wild lands for economic reasons. The essential difficulty here is that social and environmental issues are notoriously difficult to reconcile and to resolve in concert. This is a difficulty that Ross either denies or downplays.

Ross's sense of the political import of environmental issues suggests a false dichotomy. For purposes of analysis, he is happy for culture to subsume nature almost entirely; otherwise he wants to preserve the distinction between the two categories, and in a hierarchical fashion, with culture on top. He ignores contexts in which an interest in wilderness and an interest in social justice are not mutually exclusive. For example, Exxon's having been held responsible for a massive oil spill in Alaska's Prince William Sound might be seen as an instance in which a concern for social justice and a concern for wilderness merged, or at the least came within hailing distance of one another (since Exxon has not lived up to its responsibility as fully as environmentalists had hoped the company might). But Ross apparently thinks that because white men like John Muir and Teddy Roosevelt were prominent leaders during the early years of the conservation movement, America's wild lands are to be regarded as bastions of white male privilege.<sup>91</sup> He sees officially designated wilderness areas as monuments to the social injustices he feels most strongly about, the various "forms of social domination related to gender, race, class, and age" that are, he suggests, the evolutionary forerunners of a more general "domination of nature."<sup>92</sup>

Thanks to his thorough schooling in cultural studies, Ross sees domination wherever he looks, and even in some places where, in all probability, he has never looked. He describes America's national parks as "strictly policed territories," and in a sense this is true: National Park Service rangers do spend a lot of time cleaning up after campers and warning them about bears, cougars, raccoons, skunks, snakes, Lyme disease, and "beaver fever" (giardiasis). Rangers also rescue lost backwoods adventurers who contact them on their cell phones, and they give the hapless adventurers first aid, too, if need be. They make traffic stops, and they even have to cope with the perpetrators of numerous misdemeanors and the occasional serious felony. But none of this is police work of the kind Ross has in mind. When he says national parks are "strictly policed territories," he means that they are the ecological equivalents of the Soviet gulags, places in which nature is sent to Siberia and locked up tight. He slants his case against ecology, conservation, and environmentalism by such rhetorical ploys as referring to Hawaiian volunteers who spend their time "helping to pollinate plants in remote spots, fencing off rainforest areas for conservation, and scientifically surveying the underwater volcanic formations of new islands in the Hawaiian chain" as collectively constituting "some informal eco police corps."<sup>93</sup> Ross seems to think that all wilderness advocates are totalitarians at heart, but the resemblance of the activities of the Hawaiian volunteers to actual police work of either the civil or the secret variety is in fact negligible. Ross implies that anyone who knows when to pollinate endangered cliff-dwelling plants, or anyone

who can tell a new island from a coral reef, is politically suspect, perhaps because “knowledge and power are synonymous,” just as Horkheimer and Adorno said. Weekend gardeners are also very knowledgeable people: does this mean that anyone who has a green thumb hankers after a brown shirt to go with it?<sup>94</sup>

Ross likes to suggest that the science of ecology is a devil’s workshop. If he is right, the specialists in the restoration of wetlands and the experts on the dynamics of animal populations who work as ecologists today are a lot more dangerous than they seem, and maybe their ideas should be kept under quarantine. Because a few environmental groups have made extreme statements, like Earth First!’s notorious suggestion that AIDS may be nature’s way of offsetting the human tendency to overpopulate the planet, for Ross all environmentalists and all ecologists are to be suspected of having hardened their hearts against humankind. He gives credit to ecological ideas and environmental values of the familiar sort only very grudgingly.

When Ross uses the word “ecology” most positively, it is to indicate the richness of detail and complexity of relationship that characterize not nature but culture, as when he writes of the “political ecology” of culture in Polynesia, of “the social ecology of a metropolis like New York” and “the social ecology of urban life,” of “the ecology of urban redevelopment in Lower Manhattan’s CBD,” of “the current shape and future of media ecology” and “the ecology of image production,” and so on.<sup>95</sup> In short, Ross tends to use the word “ecology” rhetorically in order to make his interests seem greener than they are. He is willing to tap the positive connotations of the word, but his use of it amounts to malapropism. He apparently knows this, since he tries to defuse the complaint I am making in advance. “The term ‘ecology’ itself,” he notes, “has a much broader, public meaning today than its traditional definition within the natural sciences as the study of the relationship between species and habitat” makes allowance for.<sup>96</sup> This is certainly true, but to appeal to it as justification of a still broader and even less well-defined use of the word is special pleading. I suspect that the “public meaning” of “ecology” to which Ross appeals is in fact only the meaning of the word as it is used in certain quarters of the academy, in order to gesture vaguely at relationships of such overwhelming complexity that one can do no more than hazard a guess at their actual arrangement. In any case, the question is whether Ross’s use of the word “ecology” adds anything of substance to his argument, and, more important, whether it does not serve to devalue and even deny insights formulated according to the “traditional definition” of ecology “as the study of the relationship between species and habitat.” To use the word “ecology” metaphorically is one thing. To use it to deny the integrity of nature in a book claiming to be about nature, as Ross does, is something else, and seems extremely disingenuous. It recalls the hypocritical tactics of the “wise use” movement, which pretends to be “conservationist” in order to open up wild lands to unchecked development.

As Ross sees it, “ecology” correctly practiced has little to do with the biological science that goes by that perhaps unfortunate name, and still less to do with nature.

Add up what Ross means by phrases like “political ecology,” “social ecology,” “human ecology,” and “media ecology,” and what you get is a formula for an especially broad variety of cultural studies. According to this formula, other kinds of ecology must be excluded from serious consideration, since “a properly social ecology” is “a social theory of nature that presents itself as such, rather than masquerading as zoological theory (sociobiology), economic theory (environmentalism), or moral theory (deep ecology). First and foremost, a social ecology recognizes *the similarity and the differences* of humans from other species in the natural world.” But this recognition would have to be a mere formality, since social ecology refuses to listen to the testimony of biology about “*the similarity and the differences* of humans from other species in the natural world,” preferring to conceive of such matters in terms of the social “as such.” Why, one wonders, should the social “as such” be the only court of appeal? What keeps Ross’s approach to “ecology” from being circular? And more important, what good luck charm or propitiatory measure, apart from ritual invocations of the social “as such”—apart, that is, from its own vacuity—keeps social ecology from collapsing into a form of sociobiology in its own right? Ross expresses the basic assumption of social ecology this way: “If the domination of nature evolved out of forms of social domination related to gender, race, class, and age, then it must be combated in the context of these other inequalities.”<sup>97</sup> The legitimacy of social ecology therefore depends on just how big an “if” this is, and there would seem to be no way to find out whether or not the things that Ross lists did in fact provide the context out of which the domination of nature “evolved” (to me, the reverse seems much more likely).

Ross is put off by the fact that ecologists are not only scientists but biologists, too. He seems to think that biologists are misguided and extremely dangerous people who all believe in “biologism.” He describes dark visions of their thirst for knowledge, and hence power, in language so melodramatic that one is forced to wonder if he hasn’t borrowed most of his ideas about science from old horror movies. Lapsing for a moment into the language and mindset of the policy wonk, Ross writes: “It is not only possible that portions of the Cold War arms treasury will increasingly be converted into cleanup operations, but also likely that a paramilitary environmental-industrial complex with new ties to some transnational security bloc of states will emerge from the primitive military-industrial complex of the Cold war era.”<sup>98</sup> Ross combines “not only possible” with “but also likely” in order to forge a conveniently ambiguous bit of shifty syntax. This grammatical monster is meant to inspire fear: by animating it, Ross is warning us that we had better watch out or the environmentalists will get us. I think it is instructive, to say the least, to witness someone with Ross’s credentials as a left cultural critic echoing the anti-environmental rhetoric of the far right and trying to conjure up visions of civil repression enforced by a fanatical corps of Green Troopers.

Ross poses as a defender of individual and group freedoms against the inroads of a nonexistent environmental superpower. Just as many policymakers have

done, he overlooks the fact that most people favor policies mandating more restraint in the way we treat nature because they understand the need for environmental reform. However, as someone working in “higher intellectual circles,” as he puts it, Ross is much more interested in ideological than in other kinds of reform.<sup>99</sup> He wants our understanding of environmental problems to be expressed in terms of a thoroughgoing critique of late capital and state power. It isn’t enough to be clear about why a dam ought not be built in this drainage, or to be able to explain why an incinerator does not belong near that elementary school. Nor is it enough to have a general understanding of why the construction of dams or incinerators may be a bad idea wherever and whenever it is proposed. This isn’t the kind of knowledge that produces the sort of power of interest to Ross: by his lights, both the particular and the general case against dams and incinerators are insufficiently theorized. The real issue, he insists, is the “social ecology of domination,” and the reader should note how deftly Ross has turned “ecology” into a term of abuse.<sup>100</sup>

For Ross, radical ecology is to be conceived of as a form of consciousness-raising directed by intellectuals adept at theory and relatively disengaged from practice. Practice, since it tends to be a repository of common sense and unthinking prejudice, may be ideologically tainted. Ross makes fun of Deep Ecology, but he actually shares its distrust of the “shallow” and reformist mainstream environmental movement. Deep Ecology is hands-off ecology, whereas mainstream environmentalism is hands-on ecology. Hands-on ecology requires understanding, or as Ross and the Deep Ecologists would have it, consciousness-raising, but it also requires know-how. It involves the use of tools other than those of the theoretical kind: not only shovels, pickaxes, and wheelbarrows, but also lawsuits and court orders, or the sort of hand tools that are also head tools. Environmentalists have discovered through trial and error that the Army Corps of Engineers and the Environmental Protection Agency are unlikely to be swayed by arguments against dams and incinerators couched in the form of theoretical analyses of the “social ecology of domination,” though they might enjoy hearing about “nature’s debt to culture.”

Not long after the publication of *The Chicago Gangster Theory of Life*, Ross insisted that “we really are witnessing the wholesale revival of biologism.”<sup>101</sup> But the evidence for the wholesale quality of this revival is scanty: “biologism” does not seem to be a clear and present danger. Although most Americans support environmental reforms, many of them say they don’t believe in evolution. Many of those who say that they do believe in evolution must do so vaguely, since they seem to be ignorant of the basics of biology and the details of natural processes. Obviously, there is a big difference between the popular influence wielded by some of the cruder purveyors of sociobiology (those who assert the hereditary determination of intelligence, for example, like the authors of *The Bell Curve*) and the influence enjoyed by their colleagues in other scientific fields: the former loom larger in the pub-

lic eye only because their sensational claims are designed to attract notice. This is yet another important point that Ross ignores.

For these reasons and more, I think Ross is indulging in hyperbole when he sounds the following alarm in *The Chicago Gangster Theory of Life*: “As the language of environmentalism becomes a language of power, if not government itself, nature’s laws are invoked once again as the ground of judgment and the basis of policy. Arguments taken from natural science are employed to lend substance to social and cultural policies. Descriptions of the physical world become prescriptions for our daily lives.”<sup>102</sup> Ross likes to treat twentieth-century concepts of nature and ecology as if they had more in common than they do with older notions of what is and is not natural in a moral sense (as do many ecocritics, though they do so approvingly and gladly).

If at present judgments are being made and policies formed through appeals to “natural law,” this tells us more about our judges and policymakers than it does about our scientists, who no longer believe in anything so simplistic, as Ross is surely aware. But there is a constant slippage in his argument from “nature” as the word is understood by ecologists to “nature” as the word is understood by politicians, for whom it means immutable moral and social orders: to wit, the status quo. Ironically enough, this is also what the word “nature” has tended to mean for radical critics of science. A cynical reader might be excused for thinking that they are willing to cede the main point to conservative politicians, just so they can continue to voice their opposition to it. Of course, many radical critics of science rely on a demystificatory model of nature like that described by Barthes in *Mythologies*, but it seems to me that the suspicion of nature that Barthes urges “mythographers” to adopt is not down on all fours with the suspicion of nature expressed in most radical critiques of science. Barthes is concerned with attempts to pass off cultural practices, images, and texts *as if they were natural*, not with attempts to identify and acquire some knowledge of entities that are natural in a much less debatable because literal sense of the term.<sup>103</sup> Ross is thinking of nature as the status quo, and in terms of cultural practices, images, and texts, when he writes, “We may soon be engaged yet again in the struggle to prevent nature becoming the referee of our fate.”<sup>104</sup> He may be right, given the durability of conservatism, and yet I don’t think we have to worry about ecologists arguing for the preservation of nature because wetlands or old-growth forests are the referees of our fate.

Ross gives his arguments an epistemological twist whenever he suggests that science is largely a matter of representation and discourse, of formulating “descriptions of the physical world.” He doesn’t ignore scientific experiment, but he is inclined to treat it as yet another form of discourse, as when he describes the laboratory as a space in which “social interactions between/among scientists and their instruments” can occur, and insists that “these interactions are mediated by the conceptual apparatuses created in order to frame and interpret the results.”<sup>105</sup> Ac-

According to Ross, these are important ideas in the Sociology of Scientific Knowledge or SSK, a version of science studies practiced in Great Britain. And it's true that back in the 1970s when SSK was founded, its innovation was to focus "on the content of science," unlike the older sociology of science associated with the American Robert Merton, which limited itself to describing the institutional settings of scientific work.<sup>106</sup> The sociology of science did not "open the black box." SSK did. Some practitioners of SSK thought opening the black box was one way to call into question the objectivity of scientific discoveries, even those universally accepted as valid by scientists (such as the existence of the atom). Adherents of the so-called *strong programme* insisted that all scientific discoveries are man-made artifacts. That is, such discoveries are the products of social consensus and of standardized scientific technologies, and thus are something less than "discoveries" in the richest sense of the term: they are *made*, not *found* or *found out*. In order to demonstrate that such was the case, adherents of the strong programme were willing to venture into what Latour calls "the world of the laboratory, that repugnant kitchen in which concepts are smothered with trivia," a world which traditional "philosophers of science and historians of ideas would like to avoid."<sup>107</sup>

But "opening the black box" was never quite the demystificatory gesture it was assumed to be. In some branches of biology, much of the laboratory apparatus is taken for granted by the scientists who use it. They are unconcerned about its inner workings, and not particularly interested in the assumptions it may or may not embody. They will order kits for testing the pH of water samples (let us say) from scientific supply houses, and will use them in the manner prescribed by chemists. For the biologists, treating these kits as "black boxes" has proved to be a comfortable arrangement. But for other scientists with different research agendas, such as high energy physicists, "opening the black box," or not being reliant on black boxes in the first place, is the essence of what they do. According to Sharon Traweek, "High energy physics detectors are not black boxes with unquestioned assumptions hard-programmed into them. In high energy physics inventing machines is part of discovering nature."<sup>108</sup>

Because the strong programme didn't prove to be as demystificatory as was hoped, in recent years SSK seems to have backed away from it and to have become much less contentious. SSK is now described as "part of the project of science itself, an attempt to understand science in the idiom of science." The authors of this description add: "The sociological analysis of knowledge can and must proceed on the assumption that at the basis of knowledge there lies a causal interaction between the knower and reality." They argue that sociologists "would do better to accept the autonomy and stability of sense experience," since evolution favors "a *passive* perceptual system rather than an *active* or *creative* one."<sup>109</sup>

Causal interactions are just what one would expect to witness in a laboratory equipped with the proper equipment and competently staffed. Social interactions between and among scientists and their lab equipment are another matter. It's diffi-

cult to have a social interaction with a scientific instrument if, despite the richness of its social provenance, the instrument simply isn't very sociable. I think Ross confuses the *social* with the *sociable*: I think he imagines the existence of "interactive kinds" (the phrase is Ian Hacking's) where in fact there are none.<sup>110</sup> Ross seems to be convinced that the social character of scientific instruments is on an equal footing with that of the scientists who use them, so that instruments and scientists can "interact." Something of this sort might happen in a Disney film featuring affable Pyrex beakers and chatty Bunsen burners instructing a pair of bespectacled and incompetent young chemists; but outside the realm of fantasy, I doubt much "social interaction between/among scientists and their instruments" occurs.

Ross is reluctant to acknowledge the stubborn materiality of scientific instruments. In effect, he treats them as ephemeral projections of consciousness and thus as virtual persons, contributors to a "discourse" entirely open to question by other persons who are neither scientists nor instruments of science, but who are fully qualified agents of inquiry nonetheless.<sup>111</sup> Ross makes no distinction between things having some social meaning and sociological interest despite being mere objects, and those kinds of things called persons who are sociable, as well as socially meaningful and sociologically interesting, because they are subjects as well as objects. To put the point another way: his adoption of the "intentional stance" described by Daniel Dennett tends toward empty metaphor.

The word "social" does all of Ross's heavy lifting, just as it tends to do for other radical critics of science. "Social," like "ecological," is a word that seems to mean whatever Ross needs it to mean in order to get past a rough patch in an argument or interpretation. Unmindful of contradiction, he puts the word to double duty: at one moment in *The Chicago Gangster Theory of Life*, for example, he warns us against science because it is socially determined. Given the current state of society, this can only mean that science is not our friend, that it must reflect and help to reproduce all the social inequities that plague us. At another moment, and in a more recent essay, Ross insists that "the remoteness of scientific knowledge from the social and physical environments in which it will come to be measured and utilized is as irrational as anything we might imagine, and downright hazardous when it involves materials that can only be properly tested in the open environment."<sup>112</sup> Of course he is right to argue that science must bear a lot of the blame for the effects of industrial pollution, and that research and development has been too insulated from the world where its products eventually get deployed. But how can science be both socially determined *and* remote from society, as Ross seems to think it is?

It's no accident that some scientists have reacted with hostility to Ross's arguments: his arguments are *ad hominem*. All that holds them together is an image of the scientist as a freakish combination of Dr. Jekyll, Mr. Hyde, and the Nutty Professor. Despite his air of respectability, the scientist as Ross describes him is a monster who doesn't know how twisted his soul has become through the dehumanizing effects of his own creations. At the same time, he is an ineffectual nerd who needs to

get out of the lab more and to realize how the powers that be (and his own instruments!) have been manipulating him. Ross condemns science and scientists if they do take some interest in social matters and do attempt to have an effect on social policy, and he condemns them if they do not.

Given his belief in the essential duplicity of science, for Ross all questions about the state of nature must become questions about social justice. Such questions, if not wholly independent of questions about the health of ecosystems, are sufficiently disjoined from them for analysis to proceed without too much worry about things biological. Because Ross thinks that it is possible to have ecology without biology or “biologism,” nature gets pretty short shrift in *The Chicago Gangster Theory of Life*. On its penultimate page, Ross writes: “For a critique so focused on the natural world”—a very inaccurate description of the book—“it may seem ironic that I should be advocating an ecology that looks first and foremost to the task of social reorganization and cultural innovation for its cardinal principles.” I’ve been arguing that it isn’t so much ironic as it is dishonest for Ross to call what he advocates an ecology. However, he claims that “judgments, models, and arguments from nature are usually always derived from society,” and the upshot of this claim seems to be that one might just as well find a way to factor notions of nature out of the equation entirely, without asking whether those notions are only “usually” or in fact “always” social derivatives.<sup>113</sup> But it has to make a difference, and it may make an enormous one.

The presupposition that every statement we make about nature is “derived from society” saves Ross a lot of tedious work, both at home and in the field. He can treat nature as a metaphor for culture or society, and ecology as a metaphor for politics: not only the words, but the things themselves, too, since he assumes that there is nothing that is not cultural, social, and political through and through. Whatever a thing’s natural qualities may be, they are displaced by its cultural, social, and political qualities and fade into irrelevance. For purposes of understanding the world, a thing’s natural qualities—in a word, its *nature*—can be treated as null and void. A revealing passage in *The Chicago Gangster Theory of Life* makes fun of another writer, Bill McKibben, whose taste in television differs from Ross’s own. Ross mocks McKibben for preferring “the mating dance of cranes to semi-naked club kids shaking their Lycra-clad booties on MTV.” I think his mockery of McKibben makes it clear that Ross’s real interest is in the “ecology of images,” a notion he borrows from Susan Sontag. He argues that “images of ecology” are “produced, consumed, and used in ways that can help to counteract the destruction of the natural world.”<sup>114</sup> But Ross’s faith in “images of ecology” is betrayed by his impulse to make light of images of things like the mating dance of cranes and by his preference for club kids, Lycra-clad booties, and MTV: it seems obvious that in the ecology of images, images of ecology may not have the value that Ross says they have. His recycling of Sontag’s idea is yet another instance in which his use of the word “ecology” is spurious.

## *What Happens When Worldviews Collide*

*Global history enters nature; global nature enters history:  
this is something utterly new in philosophy.*

*Michel Serres, The Natural Contract*

Those who are convinced that science is mechanistic and reductive, in both its methods and in its worldview, often imply that all biologists are sociobiologists at heart. They ignore the rejection of sociobiological ideas by scientists like Richard Levins and Richard Lewontin, who have taken sociobiology to task for its faults of logic and lack of evidentiary support. Both Levins and Lewontin are Marxists, so they cannot be dismissed as ultraconservatives out to defend the values of a hide-bound scientific institution. In their jointly authored book *The Dialectical Biologist*, they criticize sociobiology for its overweening reductionism, and invoke a distinction between method (actual experimental procedure) and theory (the forming of hypotheses). They write: “Cartesian reduction as a method has had enormous success in physics, in chemistry, and in biology, especially molecular biology, and this has been taken to mean that the world is like the method.”<sup>115</sup> Levins and Lewontin don’t make this point, but sociobiologists aren’t the only ones who assume “that the world is like the method.” So do radical critics of science, if only by way of bolstering their complaints about a scientific culture in which reductive methods flourish, and where one sometimes encounters scientists whose worldviews match those methods.

I think that the intensity and shrillness of complaints about the role played by reduction in the sciences can be explained by the fact that in the humanities, and to a great degree in the social sciences as well, the world is indeed “like the method.” The humanities and social sciences lack methods distinct from their theories. To be a humanist or a social scientist is to create a new text couched in a language different from but still synonymous with the language used in the original text or texts that the new text is supposed to interpret. Humanists and social scientists like to call the vocabularies informing their interpretations “theories,” but their use of the word “theory” is not isomorphic with the use of the same word in science. For humanists and social scientists, “theory” suggests something confirmatory and demonstrative rather than something hypothetical and predictive; thus they tend to misunderstand what happens when scientists theorize.

In the humanities, and especially in literary and cultural studies, one theory may be thought less interesting than another and may begin to lose ground against its rival, but it won’t be overturned, nor will it be rejected until and unless its staunchest adherents also lose their faith in it. Many humanists will remain loyal to the theory no matter what, since in their view to feel such loyalty is the essence of what it means to be a humanist. In the sciences, on the other hand, it is possible for the interest of a theory to be exhausted entirely, once it has been shown to be

wrong—or nonpredictive, to use a less contentious term. This possibility is often said to be essential to science. The biologist Michael Soulé writes: “Science, as an institution, is self-corrective. Science episodically but ultimately undermines the interests and even the beliefs of its own adherents” because scientific theories can be challenged in other than verbal ways.<sup>116</sup>

The humanities and the social sciences lack this self-corrective institutional character, which is embodied in the laboratory. Humanists and social scientists have to rely instead on things like polemic, academic fashion, and the exigencies of publication, teaching, and hiring for their sense of discipline. All these things are very much on a par, and they also are all very much alike. I think the lack of methodological articulation in the humanities and social sciences, and I don’t mean verbal articulation but articulation in the sense that a spider’s leg is articulated and fitted together at the joints, accounts for the misapprehension of science by radical cultural and social critics. In point of fact, their theories aren’t fitted together with their methods at the joints. Their disciplines have no joints because they have no methods. Their theories *are* their methods because cultural and social critics, radical and otherwise, only represent. Scientists both represent the world and intervene in it.

This last point is the burden of Ian Hacking’s work in the philosophy of science. He argues that most philosophers have assumed, mistakenly, that the representation of reality is the essence of science, and it seems to me that radical critics of science have made the same faulty assumption. Hacking argues that we need to recognize that “reality has more to do with what we do in the world than with what we think about it.” His insistence on what scientists do is meant to counter the prevalent assumptions about what scientists think, and about the way in which the patterns of their thought are determined by paradigms and theories, or as radical critics of science would have it, by social forces and interests. “The harm,” Hacking writes, “comes from a single-minded obsession with representation and thinking and theory, at the expense of intervention and action and experiment.” His touchstone example of intervention, action, and experiment involves a procedure in which electrons are sprayed on a tiny ball made of niobium. Electrons were purely theoretical entities at one time; but it makes no sense, Hacking argues, for us to continue to regard electrons as representations, theoretical constructs, discursive effects, or products of social forces once we have developed the ability to spray them on a ball of niobium. “So far as I’m concerned,” he writes, “if you can spray them then they are real.” Hacking sees the ability to manipulate entities like the electron in other than theoretical ways as the best reason to accept scientific realism. “Engineering,” he writes, “not theorizing, is the best proof of scientific realism about entities.”<sup>117</sup>

Barry Barnes, a founder of the Sociology of Scientific Knowledge, agrees with Hacking. “There is,” he writes, “more to science than thought and ideas. Primarily, it is an activity.” But this doesn’t mean that there is nothing particularly social about science: Barnes hasn’t foreclosed on his own enterprise. His treatment of science is

*symmetrical*. Symmetry is a virtue to which many studies of science aspire, but it is a virtue more honored in the breach than in the observance. "The existing knowledge of science comprises not a direct reflection of the real world but a theoretical interpretation of that world," Barnes argues. "Scientific facts and scientific theories are inextricably mixed up with each other; there is no independence of fact and theory." "Science is theoretical knowledge," he insists. "And it is theoretical through and through, not just in part."<sup>118</sup> In short, both the unsophisticated scientific realist (quite possibly a mythical creature) and the radical social constructionist (all too real) are wrong, precisely because both are only partly right.<sup>119</sup>

Radical critics usually describe science as if it were entirely a matter of representation. "The stock image of basic science, and thus of knowledge generally, presented it primarily as a cosmology, a representation of the basic nature of the world," according to Barnes. "We are now much more aware that knowledge is a matter of knowing how, as well as of knowing what, and that the accumulation of know-how represents the advance of knowledge just as much as the accumulation of observations and items of information."<sup>120</sup> In response to this alternative view of scientific knowledge, some critics stubbornly claim that know-how, action, and intervention are forms of second-order representation and amount to a "discourse" by default. This is a claim that Hacking emphatically denies. "Experimenting is not stating or reporting but doing," he insists, "and not doing things with words." A devotion to the concept of representation at all costs, up to and including the cost of making the very concept itself seem nonsensical, does with representation much the same thing that devotion to the concept of social construction does to the social: it beats it to an airy thinness. The result is an inability to appreciate what scientists do, and the corollary belief that whatever it is they do, it can't be all that different from what we do, if we are members of humanities departments or their near relatives in departments of social science. Of the latter, Hacking writes, "Social scientists don't lack experiment; they don't lack calculation; they don't lack speculation; they lack the collaboration of the three." He argues that social scientists need "real theoretical entities about which to speculate," so that they can quit relying on "postulated 'constructs' and concepts." Real theoretical entities would have to be "entities we can use, entities which are part of the deliberate creation of stable new phenomena." What Hacking refers to as the "collaboration" of representation and intervention sets scientific theory and methodology apart from the perspectives, points of view, and bodies of traditional lore on which the humanities and social sciences are forced to rely. The social sciences, Hacking says, "are still in a world of dogmatics and empirics."<sup>121</sup> Where, one wonders, does that leave humanists?

The radical critique of science is rife with dogma because it tries to counter what it regards as a fundamentalism of nature with a fundamentalism of culture. Complaints about both forms of fundamentalism are frequently made by those in the mainstream of science studies who, while they have no wish to take nature at face value (which is impossible to do), are exasperated by the excesses of their more in-

temperate colleagues. As Latour has pointed out, “If nature and epistemology are not made up of transhistoric entities, then neither are history and sociology—unless one adopts some authors’ asymmetrical posture and agrees to be simultaneously constructivist where nature is concerned and realist where society is concerned.”<sup>122</sup> Hacking makes much the same point when he asks, “Could one coherently be a realist about sociology and an anti-realist about physics, or vice-versa?”<sup>123</sup> The answer to this question is no.

The possibilities that this negative answer raises for ecocriticism, to which I turn my attention in the next chapter, are richer than the possibility of a return to literary realism that it seems to shut down. A symmetrical view of the relationship of nature to culture gives rise to a concept of interpretation avoiding the lopsidedness, on the one hand, of Andrew Ross’s “broad exercise of social reason,” which scants nature (and logic), and on the other, of the ecocritical deferral to nature, which scants culture (and logic). Interpretation isn’t just a clever way to chart the capture of nature by culture, nor is it a surefire means of securing the redemption of culture by nature. “Interpretation is where nature and culture come together,” as Barry Barnes, David Bloor, and John Henry have said.<sup>124</sup>

The symmetrical view is not one we are delivered to by consciousness-raising or by a vision of grace, since as often as not it lands us in a jumble of nature and culture, culture and nature—a confusing place where we are bound to be uncomfortable. Call it home. We need to get used to jumbles and confusions, to being uncomfortable: to being at home. The symmetrical view is the perspective we are granted by our evolutionary history, and is enjoined upon us by who and what we are.<sup>125</sup> This means that when we cross from nature to culture and back again, we should look both ways because we cannot safely choose to do otherwise. We are determined to be indeterminate.

# 4

## Art for Earth's Sake

*The verbs to be and to write are hard to reconcile.*  
*Gaston Bachelard, The Poetics of Space*

### *Ecocriticism in Theory*

Because its adherents have promoted ecocriticism as a way to enliven the study of literature and culture both ethically and aesthetically, they have been anxious to avoid the sober-sided deportment and the insularity with which the term “academic” has long been synonymous. And so far, so good: that the study of literature and culture should be lively and relevant rather than otherwise, and that it is, disappointingly, sometimes very much otherwise, are unlikely to strike anyone as controversial propositions. This much is familiar; we’ve heard it many times before. Of course, ecocritics are giving the old familiar complaints about the academy an earth-friendly spin. But they have yet to overcome several fundamental difficulties with regard to the translation of their hopes and anxieties into viable arguments about the possibility of ecocriticism in general and about the texts, works of art, and cultural practices, all colored in varying shades of green, that they find most interesting.

Some of the more outspoken and most widely published ecocritics have been made especially unhappy by the preponderance, in literary and cultural studies, of theory, which they have rejected on the score of its being needlessly, pointlessly abstract and therefore less than vital to the everyday practice of scholarship, if not greatly damaging to it. They have promoted a realistic variety of ecocriticism as a way of reconnecting the study of literature and culture to the wider and wilder world beyond language, and as a justification of a return to the critic’s traditional task of providing appreciative commentary on works of insight and genius, with a little moral guidance thrown in on the side. In light of the prominence of the realistic variety of ecocriticism in most discussions of the subject to date, and in light of the sanguine approach its promoters take to what they see as the manifest felicities of the work of art, I admit that to speak of “ecocriticism in theory,” as I am going to be doing in this chapter, is to court an outright contradiction.

According to realist ecocritics of the most aggressively “practical” persuasion (which I hope to show has little in common with a philosophically informed prag-

matism), in the work of nature writers like Thoreau or Annie Dillard, nature poets like Robert Frost or Mary Oliver, and novelists of place like Wendell Berry or Leslie Marmon Silko, the verbs *to be* and *to write* are reconciled, and all the fuss about the disparity between them kicked up by theorists has been uncalled for. Realist ecocritics present themselves as telling it like it is because to do otherwise, to tell it according to a theory, is not only to be impractical, it is to obscure the truth of ecology and the truth about art, too. Ecocriticism, they argue, should appeal directly to the creation, both natural and literary. As an alternative poetics of space, it should treat the verbs *to be* and *to write* as if there were no need to reconcile them, since Bachelard was plainly wrong, as were a host of other theorists who dared to question the status of writing.

But more intellectual weeds grow in its own gardens than the realist variety of ecocriticism has supposed. The contradictions of its polemic against theory were already evident in Glen Love's 1990 article "Revaluing Nature: Toward An Ecological Criticism." Love was one of the first to identify ecocriticism as a new trend, and his article can be described as seminal, in that it sows some bad seeds. In it, Love complains that professors of English, especially "the fashionable critics and theorists" who prefer "ego-consciousness" to "eco-consciousness" and who tend to be hostile or at best indifferent to nature as a topic of discussion, are suffering from environmental myopia:

While critical interpretation, taken as a whole, tends to regard ego-consciousness as the supreme evidence of literary and critical achievement, it is eco-consciousness which is a particular contribution of most regional literature, of nature-writing, and of many other ignored forms and works, passed over because they do not seem to respond to anthropocentric—let alone modernist and post-modernist—assumptions and methodologies.<sup>1</sup>

As is suggested by his disparaging reference to "fashionable critics and theorists" and confirmed by his subsequent suggestion that nowadays "ego-consciousness" is more highly valued than "eco-consciousness," Love's view of contemporary criticism and theory, and of the interpretations they tender, is a very broad one.

It seems to me that Love distorts several vital details, and that the situation he finds objectionable is, ironically, even more dire than he allows. Many theorists would take the position that "the ego" is effectively dead as an object of critical interest because of the manifold ways in which the "the subject" (as they prefer to call it) is defined, but also delimited and undercut, by the forces of history and by cultural assumptions. For these theorists, "the ego" has gone by the board more or less entirely, and "the subject" is in a very precarious position, too, or "decentered" as the expression goes.<sup>2</sup> Naturally, all this means that anthropocentric assumptions have been called into question, if not discredited once and for all. Excessive "ego-consciousness" would therefore seem to be among the least of the dangers posed by con-

temporary criticism and theory, which is not to say that there aren't still critics and theorists who have towering egos just the same.

Details of this sort matter very little, however, to ecocritics like Love, for whom "theory" and "theorists" are really no more than fighting words. After a tide-turning battle of theory and ecocriticism, Love envisions "realist and other discourse which values unity rising over post-structuralist nihilism."<sup>3</sup> To judge from his remarks, the ecocritical attack on contemporary theory is based less on an informed understanding of it than on a willingness to demonize it as egotistical, anthropocentric, and nihilist. When ecocritics deride theory, they seem to have in mind something quite generic, which might be characterized along the following lines:

According to theory, *to be* and *to write* are not only hard to reconcile, as Bachelard would have it, but irreconcilable. Moreover, many theorists suspect that the verb *to be* is not worth worrying about at all, since it may not have a referent, at least not one we can discover, trapped in language, or rather in writing, as we are. They insist that a concern with being is the province of metaphysics, an outmoded and discredited way of thinking. In their view, the discursive is of necessity always recursive, and they feel unable to talk about the putative object of discourse directly. For the most radical deconstructionists and the most antic postmodernists, this feeling of inability raises the possibility that there is no such thing as an actual *object* of discourse in the first place. They suggest that any given "object" is best regarded as a meaning-effect of the discourse in which it is embedded, rather than as an entity. For this reason, they maintain that if a discourse is to be theoretical, it must not be understood as a theory of anything other than itself: theory is a metadiscourse couched in writing laden with jargon, and this sort of writing is both deliberately obscure and entirely self-erasing. Since self-erasure keeps metadiscourses from becoming metaphysical discourses, and since deliberate obscurity keeps them from being intelligible to anyone not already an initiate, any claims a theorist happens to make are null with regard to the truth about the world, although claims about the possibility of such truth are another matter. It is the peculiar privilege of theoretical discourse, and of theorists, to deny those claims outright.

If this is a fair account of what ecocritics take theory to be, and I think it is, then it's no wonder they find theory annoying.<sup>4</sup>

A considerable irony is at play here: ecocriticism's wariness of theory shows how much it, too, has been captivated by the idea that theory is an all-consuming and all-powerful discourse. This suggests that ecocriticism is a lot more orthodox than it realizes or is willing to admit. Like their more theoretical and less environmentally aware colleagues, ecocritics also assume that an ontological and epistemological gulf separates culture from nature, and that a carefully elaborated epistemology, if not a

full-blown metaphysics, is required to bridge this gulf. After all, ecocritics have been to graduate school; they know that the representation of nature is far from being a simple matter, and that all meaning, in the words of the philosopher Donald Davidson, “is contaminated by theory, by what is held to be true.”<sup>5</sup> But that they know this is something ecocritics have been trying to forget.

Despite what their more extreme statements lead one to suspect, ecocritics don't live in a cultural void. They are aware of just how much theory has excited several generations of professors, students, journal editors, organizers of academic conferences, and casual observers looking on from outside the boundaries of literary and cultural studies. Certainly among this group there have been a number of those who, as Richard Rorty puts it, have failed to distinguish between the use of theory as a pedagogical device, “the device of summarizing the upshot of one's narrative in pithy little formulae,” and the use of theory as “a method for discovering truth.”<sup>6</sup> No doubt there also have been many theorists who have mistaken the purpose of theory, and have regarded it as more enabling and more important than it is, even if it has been the skeptical theories that they have most admired. For the majority of contemporary academics, developing an interest in skeptical theories has become an essential rite of passage. It therefore is inevitable that ecocritics who fire broadsides at theory will score the occasional hit: theory and theorists do tend to go too far.

It would seem, then, that Glen Love has a point: some of the most sophisticated theorists and critics are in fact skeptical about nature, since they view it as a category fraught with ideological import and very little else (as I tried to show in the previous chapter). No doubt many of them would be uninterested in following Love's argument, just as he is uninterested in following theirs. One therefore has to admit that a more theoretical approach to literature and culture would make it harder for ecocriticism to deal in home truths, as it would like to do. One also has to admit that ecocriticism's impatience with theory is understandable, considering that in literary and cultural studies the influence of theory can be measured most efficiently not in units of inspiration but in the number of plodding interpretations churned out under its auspices.<sup>7</sup>

However, there is a lot more than just this to consider. Some ecocritics have made a point of expressing their distaste for theory in language that suggests an impatience not only with theory but also with any intellectual activity trafficking in abstractions, as if ecocriticism needed no definitions, and as if it could begin and end by praising the objects of its attention—as if ecocriticism were to be organized and run as a sort of fan club. The problem with any form of criticism organized and run as a fan club has been suggested by Umberto Eco, who writes: “No discourse stops only because we say to it, ‘You are beautiful.’ On the contrary, it is precisely at this point that that discourse asks us to be taken up again in the work of interpretation.”<sup>8</sup> Ecocriticism has been full of admiration and praise for the literature it likes best: nature writing and nature poetry. In effect, ecocritics have been saying to that literature, in one essay after another, “You are beautiful.” They have often gone no fur-

ther than this in their commentary, and have seemed distrustful of any literary analysis that dares to be forceful—that makes critical and philosophical distinctions, and isn't all bark and no bite.

Those ecocritics most resistant to literary theory conceive of the new field in terms of a return to common sense and good stewardship—to all of those things that, along with the natural world, have been marginalized in and by the contemporary academy. Some have even argued that because ecocriticism seeks to broaden its base both within and outside the university, and because it advances from the margins, it is linked to other recent academic trends symptomatic of dissatisfaction with the status quo. Lawrence Buell, for example, has suggested that ecocriticism is “more like such prior critical insurgencies as feminist, ethnic, and gay revisionisms than like New Critical formalism, deconstruction, and new historicism, in that literature-and-environment studies takes its energy not from a central methodological paradigm of inquiry but from a pluriform commitment to the urgency of rehabilitating that which has been effectively marginalized by mainstream societal assumptions.”<sup>9</sup>

This characterization of ecocriticism as an “insurgency” overlooks its conservative, belletristic tenor, while ignoring a couple of still more salient facts: that the “feminist, ethnic, and gay revisionisms” have been closely associated with other recent academic trends, such as deconstruction and new historicism, and not opposed to them, as ecocriticism seems to be; and that owing to this association, each of these “revisionisms” has developed its own body of theory and hence a “paradigm of inquiry,” as ecocriticism to date has not, whatever rough consensus may have emerged among its practitioners. Most importantly, feminist, ethnic, and queer studies are conducted on their own behalf by women, ethnic minorities, and queers, or by sympathetic colleagues, all of whom have the signal advantage of their status as professionals. Ecocritical studies as defined by would-be realists must be conducted entirely by proxy, since neither texts nor trees, as objects rather than subjects, have any status or standing in the academy. The plain fact is that, unlike women, ethnic minorities, and queers, texts and trees cannot represent themselves; they must be represented. And in order to come to terms with that fact, one needs not just theory but better theory than in the past. What one doesn't need, it seems to me, are better *representations* of trees. Texts, however, may very well be a different matter.

Those who approve of theoretical movements like “New Critical formalism, deconstruction, and new historicism” and wish to be associated with them, and those who dislike such movements and want to have nothing to do with them, are equally prone to thinking about them in a cultural vacuum. Both parties tend to forget that the original intent of many so-called theories was polemical, or at least forensic. Theories are the products of debate and dissent. For precisely this reason, the proliferation of theory doesn't force us to choose between, say, dogged realism on the one hand and heedless skepticism on the other. But it may require us to engage in a dis-

cussion of dogged realism and heedless skepticism as points of view it might be possible for someone to espouse or to oppose in a more or less principled way, and “in theory.” Apparently, this open-ended, speculative aspect of theory makes ecocriticism uncomfortable, and so it has treated theory as if it were a defoliant, which must be bottled up and rendered harmless before it denudes greener forms of speech, instead of treating it as a more-or-less efficient way to clear the air. The result of the ecocritical effort to contain theory is not so much a blessedly practical kind of talk untainted by doubt and of the earth earthy, as it is a kind of talk propped up here and there by some very shaky ideas about nature, culture, and literature.

Ecocritics who continue to found their work on and in a relatively baseless complaint against theory may find themselves spinning their arguments not only idly but counterproductively as well, since those arguments may be dismissed out of hand as unprofessional before they have had a chance to be formulated in more plausible terms.<sup>10</sup> Another sign of the futility of their antitheoretical arguments, apart from the woeful inaccuracy of those arguments, is the bad habit many ecocritics have of taking the terms and concepts of ecology and of environmentalism, and haphazardly running them together with the terms and concepts of the literary and cultural theory that these selfsame ecocritics otherwise profess to abhor. I suspect that this habit is the result of their failure to recognize that literary and cultural theory, in addition to mooting broad questions about writing, language, representation, the basic structures of human understanding, and the like, also covers such relatively mundane topics as the symbolic character of many cultural practices, the nature of narrative, the rules of fictional genres, the definition of rhetorical figures, the importance of purely formal features like rhyme and meter, and so on—all of which makes an acquaintance with theory essential if one wishes to discuss literature and culture intelligently and forcefully. Such being the case, it is perhaps only to be expected that these ecocritics should view things willy-nilly from a theoretical perspective, despite their desire to celebrate under-theorized popular forms like nature writing, to carve out some new dimensions in canonical texts, to valorize the experience of wilderness as culturally essential, and to force a general rapprochement of literature, culture, environmentalism, and ecology on realist grounds.

It would appear, then, that instead of translating culture back into nature, as they intend to do, realist ecocritics often wind up doing just the reverse. For example, some of them have claimed that literature, when it is at its greatest, is both structurally similar and functionally the same as nature, by which they mean that the best sort of literature offers a perfectly reliable model for understanding nature and that the best literary texts are all but transparent windows on the world. Ecocritics who have made this claim are trying to revive the idea that great literature is organic, without saying plainly that this is what they are trying to do and without recognizing that, except for diehard aesthetes, the organic concept of literature was directed more toward a method of reading than toward a view of the ontological status of literary texts.

That this historical and theoretical oversight is what gave rise to ecocriticism in the first place is a matter of record. In the 1978 essay in which he introduces the term "ecocriticism," William Rueckert argues that all great literature has an essentially ecological character. Rueckert's argument is a bit mystical and hard to follow, especially if one assumes that he actually means what he says; but he seems to think that the organic character of literature is a key to the organic character of nature, and that nature itself therefore can be viewed in formal literary terms. Rueckert's extravagant claims about literature are rooted in a conception of form that, for sheer bravado, outdoes any of the formalisms or structuralisms promoted by literary theory. This becomes evident when he writes: "Properly understood, poems can be studied as models for energy flow, community building, and ecosystems." Poems, he suggests, are a natural resource of an unusually valuable kind: they are "ever-living, inexhaustible sources of stored energy." This makes poems far superior to fossil fuels, Rueckert notes, in that "they cannot be used up."<sup>11</sup>

Rueckert's analogy is, to put it mildly, a risky one: it flirts with a definition of poetry as an "inexhaustible source" of gassy hot air, which after all is just what gets produced whenever "stored energy" is treated like fuel; and it implies that cultural resources are superior to natural resources because they are more easily recycled.<sup>12</sup> To argue that poems "cannot be used up" is to suggest that they are superior to all kinds of things other than fossil fuels, including our daily bread and the oxygen that we breathe. Faced with a monotonous diet or forced to live in an atmosphere of just one poem, no matter how good that one poem might be, most of us would soon begin to feel restless and to wish that the one poem could be "used up," and the sooner the better, so that we might look for imaginative sustenance elsewhere. Fortunately, the reading of poetry has very little in common with the burning of fossil fuels, the eating of bread, and the breathing of oxygen, which means that the chief reason the analogy Rueckert proposes is risky is that it is false.

Perhaps I am being unfair. Certainly it is true that poems rarely disclose their full significance on a first reading. So we have to "recycle" them, as Rueckert suggests, reading them a second, third, or fourth time in order to better grasp their intricacies. But this doesn't make poems analogous to ecosystems, however complexly interrelated the constituent elements of ecosystems may be, and however much ecosystems may recycle the organic and inorganic materials on which their continuity depends. Poems and ecosystems are entirely different kinds of artifact. Poems are deliberately written, they don't just happen, and they must be deliberately read. That is, we have to think about what poems mean, and luckily for us, they remain stable no matter how many times we peruse them: titles are fixed, word order and rhyme schemes do not change, stanza breaks occur in the same places, and so on. Ecosystems, by contrast, are the passive result of evolution. They do just happen, and are dependent on the whims of the weather and the fortunes bestowed upon them by geography. They don't mean anything, and they change constantly. Thus there really is no point in comparing poems to ecosystems, much less in claiming

that they are similar, or even identical. Even if it could be shown that poems are “organic” in something other than a metaphorical sense of the term, there still would be no point in comparing them to ecosystems, since the ecosystem concept, as it developed in the late 1940s and 1950s, “was a machine theory applied to nature,” and not an organic theory at all.<sup>13</sup>

Rueckert’s view of literature is based on an analogy that is at best overstated and at worst entirely false. Unfortunately, his view, far from being an eccentric one, is prevalent in ecocriticism, which demonstrates the field’s need for more, and more self-conscious, theoretical know-how. Following the lead of Rueckert and others, ecocriticism continues to treat ecological, environmental, and literary concepts that it believes to be similar as if they were in fact the same. As a result, ecocritical analysis of literary texts proceeds unreliably, by means of a jury-rigged vocabulary fashioned out of borrowed terms like “organism,” “ecosystem,” “sustainability,” and a host of others.

Its borrowings from other fields are not enough to make ecocriticism interdisciplinary, as it is often said to be. For example, the ecocritic Jean Arnold suggests that ecocriticism effects “a cross-fertilization of the humanities with other academic disciplines,” forming “a cauldron of brand-new perspectives.”<sup>14</sup> Arnold also suggests that the hybrid vigor resulting from this cross-fertilization, combination, and recombination of disciplinary perspectives makes ecocriticism healthier than other humanistic endeavors currently are, since it is able to blend speculation about values with citations of natural fact. In much the same vein, Karl Kroeber has suggested that as an ecocritic, one can escape “from the esoteric abstractness that afflicts current theorizing about literature” in order to seize “opportunities offered by recent biological research to make humanistic studies more socially responsible” because more grounded in everyday natural realities.<sup>15</sup> Ecocritics who think as Arnold and Kroeber do seem to imagine that by borrowing the terms and by taking on the positive charge of ecology and of other more or less closely related disciplines, ecocriticism can proceed relatively free of doubt: its close relationship with science, especially with ecology, provides it with all the moral and philosophical sanction it needs to back up its claims. But they are mistaken: recent biological research has undermined any hope we might have entertained that natural realities are stable enough to supply ecocriticism—or ecology itself, for that matter—with grounding of the sort that Arnold and Kroeber describe.

The philosopher Luc Ferry has explained the appeal of ecology for a certain kind of moralist as follows:

At a time when ethical guide marks are more than ever floating and undetermined, it allows the un hoped-for promise of rootedness to form, an objective rootedness, certain of a new moral ideal: purity recovers its standing, but it is no longer founded on a religious or ‘ideological’ belief. Instead it claims to be

'proven,' 'demonstrated' by the incontestable facts of a new science—ecology—which, though global, as was philosophy, is nonetheless as beyond question as the positive sciences on which it bases itself.<sup>16</sup>

But ecology is not at all the source of authority, moral and otherwise, that it has been taken to be by ecocritics. In his article on revaluing nature, for example, Glen Love suggests that ecocriticism "values unity" because it is "realistic" to do so, since unity is incontestably an ecological value. But in ecological theory and research the value of unity is at present very much contested. Even Donald Worster, who is both a champion of traditional ecology and, not coincidentally, the environmental historian ecocritics cite most often, has had to admit that ecology provides us "with no model of development for human society to emulate."<sup>17</sup>

Ecology today is far from being the sort of recuperative, affirmative, and utopian science that ecocritics have assumed it to be. They should attend more closely than they have to the testimony of ecologists like Robert McIntosh, who writes: "Ecology has been credited with supplying aesthetic, ethical, moral, and even metaphysical insights for the human dilemma. All too often it has not been adequately credited with supplying scientific insights." "It is unfortunate," McIntosh adds, "that the demand for theoretical ecological insights with which to support rhetorical ecology comes at a time when ecology is in a condition sometimes described as a paradigm change or, perhaps better, paradigm confusion."<sup>18</sup> McIntosh's point is that just because we desperately need to develop an environmental ethic does not mean that we need to see the environment as an ethical entity in its own right. In Luc Ferry's memorable words, "We have seen men sacrifice their lives to protect whales; it must be said that the reverse is far less common."<sup>19</sup>

In their flight from literary theory and the narrow confines of their own expertise, ecocritics have bypassed another very difficult body of theory that must be surveyed with some care before one can speak sensibly about ecology. Ecological theory, just like literary theory, does not go directly to the creation; far from it.<sup>20</sup> If you cannot avoid being theoretical by becoming ecological, you certainly cannot avoid it by becoming ecocritical. Good intentions and a receptive attitude while out hiking or canoeing won't make you an ecologist, just as enjoying a good book won't make you a literary critic. It follows that enjoying a good book about hiking or canoeing won't make you an ecocritic. You're going to have to work harder than that, since ecological realities are no more obvious than literary values: they may be, and probably are, much less obvious most of the time. This doesn't mean that ecological thinking is not "fundamentally materialistic," as Kroeber has said it must be, only that it is materialistic in more than name only.<sup>21</sup> That ecological realities aren't obvious also means that the material world cannot be treated as a quick study, and that it offers very little support for philosophical idealism. In the material world, there are "lines of resistance," to recall Umberto Eco's helpful phrase.<sup>22</sup>

As regards the issues of ecocriticism's ethical sanction, its need for proofs, and the character of the ground on which it rests, I am an agnostic (as I indicated in chapter one). I suspect that the similarity between "organic" literary forms (if there are any) and organisms or ecosystems is entirely negligible, and is therefore devoid of diagnostic significance. And I feel sure that even if literary form and the form of ecosystems could be shown to be more similar than I suspect they are (which is highly unlikely, since no one knows whether ecosystems, not being organisms themselves, can be said to have forms), their similarity still would be only a coincidence, and not something we would be bound to regard as important. The ecocritic who recognizes all this nonetheless will be able to suggest, modestly enough, that the complexity of language, poetic language in particular, is expressive of the complexity of nature at least some of the time, if only by virtue of certain well-known conventions—such as purple prose, for instance. The important point to grasp is this: the possibility of ecocriticism does not hinge on the question of whether or not there is an inherent relation of resemblance between literature and nature. Whatever relation of resemblance there may be is external, a matter of convention; and we are perfectly free to treat it with skepticism if we like, without surrendering our credentials as ecocritics and without calling our environmental ethics into question. "Revaluing nature" doesn't have to be an all-or-nothing proposition dependent on the possibility or impossibility of resembling nature.

Some leading ecocritics have expressed their disgust with theory and their affection for ecology without backing up their counterclaims with actual interdisciplinary research and plausible arguments. A lot of work calling itself ecocriticism has taken the form of preliminary, exploratory, accusatory, and hortatory essays like Love's and Rueckert's, in which theory and the academy serve as convenient scapegoats, and in which ecocriticism is something merely gestured "toward" and not yet carried out. As a result, ecocriticism still seems embryonic and unformed. Only a very few have attempted to express the ecocritical vision at length and in a more than reactive way. Now that I've established the theoretical, historical, and institutional contexts in which their attempts need to be evaluated, I want to discuss several of them in detail.

I will begin with Joseph Meeker's 1974 book *The Comedy of Survival*, an early and prescient manifestation of what Meeker calls "literary ecology," of which his book may yet be the most sophisticated example, however flawed it seems. Next I will discuss John Elder's 1985 book *Imagining the Earth*, now in its second edition and unlike Meeker's book focused on poetry rather than on fictional prose. Then I will turn to a 1995 book by Lawrence Buell, *The Environmental Imagination*, which pays closest attention to the nonfictional nature writing essay, and which has been most influential in defining the emerging field of ecocriticism and in determining the current state of play in ecocritical theory (oxymoronic as that phrase may be). Finally, I will end with a reading, if that's the right word, of Roger Tory Peterson's field guide to birds, in which I will try to show that ecocritics have been mistaken to

think literary realism is a fully coherent aesthetic, and therefore one that we need to revive.<sup>23</sup> So although I am disappointed with ecocriticism as it has been defined and practiced to date, I would like this chapter to be considered as a piece of ecocriticism in its own right.

### *The Survival of the Wittiest*

*From a Darwinian point of view, there is simply no way to give sense to the idea of our minds or our language as systematically out of phase with what lies beyond our skins.*

*Richard Rorty, Objectivity, Relativism, and Truth*

One of the virtues of Joseph's Meeker's *The Comedy of Survival* is its awareness of form as something a fully realized "literary ecology" must consider with great care. But literary form is rarely, if ever, a simple matter, and in his efforts to account for it in terms of ecology, Meeker is less than wholly successful. He approaches the issue of form in two ways: from the vantage point of literary history, and then from the vantage point of human evolution. Both approaches are problematic, but since the first is the more successful I will begin my discussion of *The Comedy of Survival* by focusing on it.

Meeker judges the various literary genres and modes in terms of the respect they pay to ecological values. In his scheme of things, tragedy is culpable because it celebrates the transcendence of human consciousness over the natural world, while barring the doomed tragic hero from happiness here on earth. Meeker writes:

Tragic art, together with the humanistic and theological ideologies upon which it rests, describes a world in which the processes of nature are relatively unimportant and always subservient to the spirit of man. Nobility, honor, human dignity, and spiritual purification depend upon supranatural forces, not upon conciliation with nature. The tragic view of life is proud to be unnatural.<sup>24</sup>

Tragedy's unnatural character explains the misery its heroes must endure, Meeker suggests, because the codes they live by, and the actions they are forced to take in accordance with those codes, put them at odds with nature, both their own and the world's.

Meeker argues that unlike tragedy, comedy "grows from the biological circumstances of life" and "is unconcerned with cultural systems of morality." Environmentally, comedy is less culpable than tragedy precisely because it is less concerned with things like culpability in the first place: "Its only concern is to affirm man's capacity for survival and to celebrate the continuity of life itself, despite all moralities."

The comic attitude permits you to slough off the heavy worries that confound tragic characters because it allows you the freedom to exploit your ecological niche in the least troublesome way, "by muddling through."<sup>25</sup> Tragedy places you in a double bind between this world and the next; comedy gives you plenty of wiggle room.

Meeker draws a contrast similar to the contrast between tragedy and comedy in his discussion of the pastoral and the picaresque. He suggests that the pastoral hero, because he cherishes an intermediate landscape somewhere between the rawness of wilderness and the refinement of civilization, is cut off from both of the things that might sustain him. Thus the pastoral, like the tragic, creates a double bind. Meeker writes: "The pastoral epiphany is a recognition that neither society nor wilderness is a suitable environment for man, and that the garden which tries to mediate between the two merely separates him from both his fellow man and from nature."<sup>26</sup> Meeker suggests that this explains the pastoral's motif of isolated retreat and its elegiac quality.

Picaresque, in contrast to the pastoral, jettisons the formal baggage of the elegy, and its gloomy attempts at mediation, in favor of carefree improvisation, making do, and scraping by. Or so Meeker argues. "The picaro," he writes, "suffers from no conflict between society and nature simply because he sees society as one of the many forms of natural order."<sup>27</sup> The balance that the pastoral hero tries to maintain is overthrown by the incipient chaos that the picaro senses and celebrates wherever he goes. Thus the alternatives of wilderness versus civilization and of country versus city have no meaning for the picaro: in his eyes, even the city is a wilderness. And wilderness, Meeker notes, is the wellspring of environmental values.

This thumbnail sketch of Meeker's interpretive scheme should make the first problem with *The Comedy of Survival* apparent: its author works on such a broad front that one has to wonder how well his ideas apply to specific historical moments. In our own historical moment, for instance, fresh realizations of classic forms and modes are more or less nonexistent; as Meeker admits, they just don't make them that way anymore. As for the prospect of revivals of classic forms and modes, I doubt that the pastoral (as conceived along traditional lines) will help us confront the environmental crisis head on, since the context of this crisis is largely an urban one, and since that context obliges us to conduct dry debates about public policy. I also doubt whether we will fare any better, environmentally speaking, if we opt for the picaresque, though there is still plenty of amorality, comic and not so comic, to go around. A context in which either the pastoral or the picaresque might have an impact without being subjected to gross deformations is lacking in contemporary culture, as are well-defined landscapes of the sort that are the necessary backdrops to the actions of pastoral and picaresque characters. To arrange a canon of ecological works using Meeker's scheme of the genres and modes may be possible, but numerous distortions would be necessary in order to make his scheme seem apt as well as useful.

To put the point another way, numerous *mediations* would be necessary, and mediation has a bad name in ecocriticism, just as it does in the academy at large. American ecocriticism is particularly hostile to the thought of a literature adapted to our present landscape. American ecocritics, despite their affection for the pastoral, distrust its mutability and its willingness to compromise with the metropolis so that it can continue to hold the middle ground, if only by imagining a middle ground where none actually exists. Many of them subscribe to the questionable idea that wilderness is the chief repository or savings bank of value insofar as the natural world is concerned, since it is the one place supposed to be forever wild and hence forever true. And so they are suspicious of the garden, both as fact and as figure.<sup>28</sup> But the idea of wilderness is plagued with contradictions too numerous to list here, which means that Meeker's point about the pastoral hero being cut off from the things that might sustain him could have gone the other way: arguably, it is precisely because the pastoral hero occupies a landscape that has some features of civilization and some features of wilderness, too, that he is connected to both of the things that might sustain him. Hence it may be possible to have the sensibility of a picaro, and to sense the wildness of even the tamest landscapes, without ever leaving home, and no matter where home might be.

Whatever its shortcomings, Meeker's scheme of the genres and modes is an example of the very thing ecocriticism has been spurning. It is a *literary theory*, as Meeker acknowledges when he notes the speculative quality of his ideas and warns us of their limitations. "Intellectual explanations," he writes, "are always less rich and diverse than the artistic or ethical activities they attempt to explain."<sup>29</sup> But this is false modesty: Meeker is too eager to surrender the freedom of speculation to a platitude about the richness of art and the complexities of morality. He seems to be captivated by "a certain mythical ideal of life," in Barthes's phrase, and so he assumes that "the intelligible" is "antipathetic to lived experience."<sup>30</sup> And this is a very American attitude for him to take (as I hope to demonstrate in chapter five).

That intellectual explanations are no match for "artistic or ethical activities" by virtue of being reductive seems patently untrue to me, since those activities are probably predicated on "intellectual explanations," or *ideas*, of one sort or another in the first place. If they aren't so predicated, they are unlikely to be of any interest or much significance. It must be the case that some intellectual explanations are perfectly apt, while others are in fact considerably richer than the simple things they attempt to explain. This is why the rules of thumb that we call theories sometimes direct us to be subtle and indirect in our thinking, while at other times they direct us to be blunt and forthright. In either case, our explanations will be more or less reductive, since an explanation that isn't reductive in some measure is no explanation at all; it's only an observation, or an idle comment, and it explains nothing. If Meeker were right about explanations, criticism would be a pointless activity: what we truly admired we could never explain, and it would be best not to try. Having

made a promising start on a theory of the genres and modes that cashes them out plausibly in terms of the respect or disrespect they pay to nature, Meeker hamstringing his own efforts by not questioning more thoroughly some of the categories and preconceptions he has inherited, and must of necessity work with and through.

A second problem with *The Comedy of Survival* is also of a theoretical character, but in this instance the ideas in question aren't literary ones, though Meeker claims otherwise. In his preface, he calls his book "an exploration of the possible correspondences between the cultural creations of mankind, especially literature, and the requirements of a balanced natural ecology." But later in his book, he asserts that these "possible correspondences" are in fact simple relations of identity. Meeker writes: "Our aesthetic values are really no more and no less than abstract formulations of the natural as it exists both within us and around us."<sup>31</sup> Thus he attempts to fuse artistic and ecological values: an ill-advised turn in his argument, and for more than one reason. By appealing to natural history as the vital source of our aesthetic values, Meeker eliminates any basis for his own objections to art expressive of values he doesn't like. For consistency's sake, he should count tragedy as natural, too, even if its values are formulated differently and expressed more dramatically than those of the pastoral or picaresque. I suspect, however, that Meeker's use of the term "value" is the real source of the confusion here, since the word has moral overtones that cloud the distinctions he wants to make between tragic and other kinds of narrative. The aesthetic worth of tragic art is one thing, the moral worth another, and it is the latter that Meeker wants to discuss in the light of "the requirements of a balanced natural ecology."

The other reason this turn in Meeker's argument seems ill-advised has to do with his claim that the aesthetic and the ecological are both in a relation of correspondence and causally connected. In order to describe this causal connection, he employs the evolutionary concept of adaptation in an entirely metaphorical way, without intending to do so. Is literature, he asks, "an activity which adapts us better to the world or one which estranges us from it? From the unforgiving perspective of evolution and natural selection, does literature contribute more to our survival than it does to our extinction?"<sup>32</sup> Meeker's juxtaposition of adaptation and estrangement from the world is questionable: species don't become extinct because of feelings of estrangement, lingering ennui, or some other existential ailment, no matter how overwhelming it may be. The lives of the dinosaurs ended not with a whimper but with a bang; and having a better sense of humor wouldn't have helped them adapt to the drastic changes in climate that they faced, even if their tiny brains had provided them with minds able to accommodate so fanciful a thing as a comic perspective.<sup>33</sup>

I realize that the example of the dinosaurs may seem less than pertinent, since Meeker's argument is that comic attitudes have survival value for humans. And this, he insists, is owing to the fact that comedy and evolution have a similar logic: "Like comedy, evolution is a matter of muddling through."<sup>34</sup> But Meeker is mis-

taken: “a matter of muddling through” is precisely what evolution is not. According to Stephen Jay Gould, “Meaningful adaptation must be defined as actively evolved design for local circumstances, not mere muddling through with inherited features poorly suited to current needs.” I think Gould would point out another flaw in Meeker’s argument: evolution is dependent on physiological adaptations, not psychological ones. You may be, in all sincerity, fully intending to adapt; but that doesn’t mean that you are acting in accord with the dictates of evolution, since natural selection has no intentions and is an indifferent arbiter of your fate. As far as natural selection is concerned, the impact of the giant asteroid that may have caused the dinosaur’s extinction and the buildup of greenhouse gases that may cause yours are both cases of business as usual. Gould writes: “In Darwin’s world, organisms can only be selected for immediate advantages, not for success in unknown futures.”<sup>35</sup> Survival isn’t something determined once and for all by a successful one-time adaptation; it is, instead, a matter of sheer luck, which can change at any time, no matter how winning your attitude may be. “Selection pressure,” as theorists of evolution call it, is unrelenting. And this means that establishing a canon of “adaptive” literary works is impossible in principle.

That the comic attitude is “adaptive” and that adaptation is one of the chief mechanisms of evolution is only a verbal coincidence (or near-coincidence). Adaptation has to do primarily with changes in the physiology of a given species (or, more technically, adaptation is expressed in phenotypic differences having a genotypic origin), not with whatever attitudinal adjustments might be coincident with those changes, assuming that the species in view has any attitudes, positive, negative, or merely indifferent. I think this is one of those cases in which ecocritics need to recognize that cultural and natural processes are functionally distinct or at least distant from one another, and that maintaining the distinction, and keeping the distance, is probably a good idea. It’s also something we can do without surrendering any of the conceptual richness of nature-culture and the anthropological matrix, to recall Bruno Latour’s terms.<sup>36</sup>

Theorists of evolution, including those like Richard Dawkins who are given to sociobiological musings, sometimes express themselves quite forcefully on the issue of culture’s relationship to nature. Although Dawkins insists on the prime importance of the “selfish gene” in evolution, he denies the view, often attributed to him, that the selfishness of the gene is an all-powerful determinant of everything biological and of everything cultural, too. He writes: “We do not have to look for conventional biological survival values of traits like religion, music, and ritual dancing.”<sup>37</sup> The philosopher Daniel Dennett agrees with Dawkins:

The very considerations that in other parts of the biosphere count *for* an explanation in terms of natural selection of an adaptation—manifest utility, obvious value, undeniable reasonableness of design—count *against* the *need* for any such explanation in the case of human behavior. If a trick is that good,

then it will be routinely discovered by every culture, without need of either genetic descent or cultural transmission of the particulars.<sup>38</sup>

I think literature is just one of those tricks which are “that good.” But Meeker wants to treat our creation of literature as if it were a form of instinctual behavior and therefore an essential human attribute. If such were the case, we would be poets, novelists, essayists, and inveterate scribblers one and all, which manifestly we are not. I suppose that if you wanted to be stubbornly sociobiological, you could argue that since we are social animals, the majority of us are fated to be worker bees and will never get to play a leading role in the hive of literature. Meeker doesn’t make that argument, however, because he fails to take the relative rarity of the literary instinct into consideration: the very title of *The Comedy of Survival* reflects its author’s assumption that literature is something humans are destined to create by virtue of their phylogeny as hominids.

Meeker’s ideas about culture are influenced by the work of the biologist Konrad Lorenz, with whom he once studied. In the foreword to *The Comedy of Survival*, Lorenz writes: “There is a distinctly limited number of socially relevant situations which are able to arouse a specific emotional response.” He implies that this allows one to collapse all aesthetic production into one category, and to treat it as a form of instinctual behavior: “The greatest poets chose for their subject matter exactly the same themes which are consistently used by the cheapest forms of art production, by novelists shamelessly catering to the bad taste of their readers, or by similarly worthless film productions.”<sup>39</sup> If Lorenz is correct, then it seems to me that Meeker’s distinctions between the various modes and genres of literature must be regarded as spurious, as I already have suggested they are in light of his own attempt at an evolutionary treatment of art. But Lorenz’s view is untenable, for reasons explained by Gould, who writes: “The human brain became large by natural selection (who knows why, but presumably for good cause). Yet surely most ‘things’ now done by our brains, and essential to both our cultures and our very survival, are epiphenomena of the computing power of this machine, not genetically grounded Darwinian entities crafted specifically by natural selection for their current function.”<sup>40</sup>

That something calling itself “literary ecology” should yield the floor sooner or later to a deterministic version of sociobiology is not surprising.<sup>41</sup> Meeker writes: “The essential patterns of human aesthetic experience are innate, derived from our prehuman ancestors. They do not separate us from nature but unite us with it.”<sup>42</sup> Having tried to avoid the temptation of overly reductive explanations of literary genres and modes, he succumbs instead to the temptation of an overly reductive and deterministic view of human behavior, the consequences of which are potentially much more dire. In any case, while there may be essential patterns of aesthetic experience that we share with our prehuman ancestors and with other primates, these patterns are unlikely to be the ones of interest to literary critics, no matter how

much time we grant to all those monkeys seated before all those typewriters, with their furry little fingers poised for action. Evolutionary explanations aren't very promising when it comes to the more elaborate "patterns of human aesthetic experience," and these patterns are precisely the ones at issue in ecocriticism.

What Meeker requires is an evolutionary explanation of art that comes into his argument at the right moment, but such an explanation seems to have eluded him, and for good reason. As Gould argues, "When sociobiology is injudicious and trades in speculative genetic arguments about specific human behaviors, it speaks nonsense. When it is judicious and implicates genetics only in setting the capacity for broad spectra of culturally conditioned behaviors, then it is not very enlightening."<sup>43</sup> Of course, Meeker knows that "the essential patterns of human aesthetic experience" have been modified by cultural contexts, which, he says, "provide the language and symbols" and "dictate the external forms of expression."<sup>44</sup> Yet he still wants to claim that there is something *internal* to literary expression that cultural explanations fail to get at in full.

I doubt that evolutionary explanations of literary expression are ever going to fare any better than cultural ones. From an evolutionary perspective, the most interesting thing about literature is likely to be the fact that holding a pen or pecking on a keyboard requires sophisticated motor, visual, and cognitive skills, or the fact that books are made from trees. In order to sensibly ask the question of the adaptive value of literature—if it is possible, as a practical matter, to do so—a number of intermediate questions will have to be asked and answered first. Literary critics are unable to ask and answer these questions for themselves, since questions of this sort can be asked and answered only tentatively and with the benefit of hindsight. Such is nature's way: "natural selection," according to Ernst Mayr, "is strictly an a posteriori process which rewards current success but never sets up future goals."<sup>45</sup>

The biggest problem Meeker faced as a literary ecologist writing in the early 1970s is the same big problem confronting ecocritics today. It is relatively easy to see the biology in literature—to see, for example, how a particular author's interest in natural history has had a shaping influence on his or her work, determining character, theme, and action; molding and informing passages of description; and so forth. It isn't so easy, and it may be impossible, to see literature in the light of biology. So when Meeker writes that literary ecology "is the study of biological themes and relationships which appear in literary works," he is on safe albeit well-trodden ground. When he adds, in an attempt to venture onto and break some new ground, that literary ecology "is simultaneously an attempt to discover what roles have been played by literature in the ecology of the human species," he tries to blend two terminologies and two enterprises that don't sort very well together.<sup>46</sup>

Meeker insists that literary form "must be reconciled if possible with the forms and structures of nature as they are defined by ecological scientists, for both are related to human perceptions of beauty and balance." But his concepts of both literary and natural "forms and structures" were already dated when *The Comedy of Sur-*

*vival* was published in 1974. "A great work of art resembles an ecosystem in that it conveys an intuitive experience," he writes. "The ultimate success of a work of art depends on the finished artistic system as a whole and the fidelity of that system to a complex integrity which includes all creative and destructive forces in balanced equilibrium."<sup>47</sup> As I reported in chapter one, ecologists have long recognized that there is nothing particularly intuitive about the experience of contemplating an ecosystem, and they actually began to surrender their belief in the concept of "balanced equilibrium" sometime in the 1960s, having recognized that it is a vague and misleading notion. The concept of the organic work of art, which Meeker sees as the ecosystem's cultural complement, or rather as the expression of ecosystem "values" in cultural form, is equally vague and misleading, and has been discredited by literary theory.

Ecocriticism needs to take form fully into account, which means that it cannot rest in an assertion of the formal perfection and congruity with nature of the literature it most admires. To do that is not to take form into account, and it comes to naught because it is tautological. Ecocriticism is supposed to be something more than the latest avatar of the empty formalism that literary theory, in its de facto role as disciplinary ombudsman, has tried to critique and even to expunge, but which stubbornly refuses to be effaced. Owing to his reluctance to pursue questions of form in specifically literary terms, and given his preference for explanations of a sociobiological character that actually explain very little because they are circular, Meeker's version of "literary ecology" hasn't provided ecocritics with a workable model of interpretation. If they want to fashion one of those, they will have to take full advantage of the theoretical critiques of formalism and of the accompanying discussions of the interdisciplinary that have flourished in the academy since the late 1960s and early 1970s.<sup>48</sup>

### *The Composition of Verse*

*WOODS Induce reverie. Well suited for the composition of verse. In the autumn, when walking through them, say, "There is a pleasure in the pathless woods."*

*Gustave Flaubert, The Dictionary of Received Ideas*

John Elder's *Imagining the Earth; Poetry and the Vision of Nature* was first published in 1985, only a few years before talk about ecocriticism began in earnest. A second edition, with new material, was published in 1996, at a time when all the talk had become other than speculative and ecocriticism had been identified publicly as a new field of scholarly endeavor. Since *Imagining the Earth* helped bring about this changed state of affairs, it would seem to be first an innovative book, and then a timely one. Yet it is in certain respects a less contemporary work of criticism than

*The Comedy of Survival*, despite being a more recent publication by one or two decades, depending on which edition you have in hand.

Elder's perspective is decidedly not the comic one advocated by Meeker. Elder is more inclined to the prophetic, and berates our culture for being out of touch both with nature and with its own heritage. He writes: "To live in an urban world, cut off from tradition and nature alike, is to experience a life-threatening wasteland."<sup>49</sup> Sentiments of this sort rule out the comic approach to the contemporary cultural and natural landscape advocated by Meeker, whose critical outlook does have its advantages, however problematic its specifics are. But from Elder's perspective, a comic approach to the "life-threatening wasteland" of urban life must be seen as fatally contaminated with the amoral and impious attitudes that lie at the root of the problem needing to be addressed.

Comedy is no great friend of tradition: it is willing to entertain propositions that tradition regards as unnatural, even perverse. But comedy often entertains such propositions, ironically enough, precisely on behalf of the natural, which it charges tradition with trying to understand in terms of received ideas and threadbare rituals. The picaro, traditionally regarded as a rogue, is defined by his fluid sense of place and by his savoir-faire: his sensibility is chameleonic and his ethics are situational. The picaro rejects the pastoral, the poetic tradition favored by Elder, for being static and overly categorical in its imagination of the earth.

The pastoral literature that Elder is most interested in does seem to view nature in relatively fixed terms. Or at least it seems to do so in Elder's conception of it, which rules out of court other, more imaginative versions of pastoral, which might be more "adaptive," if only in the sense of being more mediatory and hence more accommodating of historical realities. Elder focuses on the elegiac strains of the pastoral and on poems taking a retrospective view of nature. The poets he most admires are those who celebrate rural life while disparaging and despairing of life in the city, and who therefore can be said to take after Wordsworth, or at least after Wordsworth as Elder describes him. As a very particular kind of latter-day Wordsworthian, Elder assumes that poetry's greatest theme and chief source of inspiration is and must be place. This assumption allows Elder to shoehorn an unlikely candidate or two into his personal pantheon of Wordsworthian poets, which includes Wordsworth himself, of course, along with Robinson Jeffers, Robert Frost, Wallace Stevens, Gary Snyder, Wendell Berry, A. R. Ammons, and Mary Oliver.

Readers of *Imagining the Earth* are not urged to take themselves off to the hinterlands, but to immerse themselves in the poetry of place, which the book's author suggests will have much the same restorative effect as heading upcountry. "Poets' vivid and informed response to the earth," he argues, can "foster a revitalized sense of tradition," which means "a vision of human culture in harmony with the rest of the natural order." Poetry's fostering of this harmonious vision doesn't mean that it is a benign way of achieving what the environmental and back-to-the-land movements have failed to bring about. On the contrary, according to Elder the poet of

place is a sort of Jeremiah, a powerful figure whose verse makes great moral demands on its readers and “comes to resemble Hebrew prophecy in its quality of alienated authority.”<sup>50</sup>

Readers of the poetry of place, if they are to learn to value it as highly as Elder does, must approach it in a spirit of devotion, perhaps even with fear and trembling. But learning to value the poetry of place as highly as Elder does may be hard for others to do, and not for the reasons he suggests. He admits that his readings are “highly selective and personal,” but their idiosyncrasy is not what makes them less than convincing. A much bigger stumbling block is the fact that Elder has couched his “consideration of poetry and the vision of nature” in a critical terminology badly in need of a lot more consideration than it seems to have gotten.<sup>51</sup> This critical terminology fails to register some of the complexities of the poems Elder reads, while attributing to them other complexities they just don’t seem to have.

Elder describes poetry as a form of emotional and spiritual testimony, and treats poets as entirely credible witnesses. As a critic, he doesn’t talk about poetry in terms of the language in which it is couched—in terms of terms, that is. He implies that terms are something a good poet can always transcend. Why a poet, unless that poet is in fact a bad one, would want to transcend language, of all things, is a question well worth asking, but Elder doesn’t ask it. For him, poetry is not so much expression as revelation, which means that both the writing and the reading of poetry are forms of religious practice. Poetry, Elder insists, is a response to “the fever of cultural dividedness” and “discovers grounds for reconciliation in the inextricable wholeness of the world.” It helps bring about “a crucial realignment of Western tradition” through its assimilation of “scientific insights.” Its “task is to ground human culture once more on a planet rich in nonhuman life and beauty,” and its “power is always that of wholeness and expansion.” “Only in poetry,” Elder writes, “is culture fully realized.”<sup>52</sup> These statements are hyperbolic. The charitable thing to do would be to regard them as Elder’s way of registering his intensely enthusiastic response to the poetry of nature and of place that he likes best; but to do the charitable thing would be to treat Elder’s book as something other than a work of literary criticism, a treatment he may not mind, though arguably he should. So should other ecocritics who feel tempted to follow his lead.

If for no other reason than to introduce a note of counterpoint and discord to the ecocritical chorus, I am going to suggest, *contra* Elder and others who make arguments similar to his, that poetry is a mundane endeavor, as it must be by definition if it is to help us imagine the earth, and that poets aren’t paragons of piety, prophecy, and perception but partisans of the imperfect, of “flawed words and stubborn sounds,” as Wallace Stevens would have it.<sup>53</sup> I agree with Umberto Eco: “What the Poets are really saying to us is that we need to encounter being with gaiety (and hopefully with science too), to question it, test its resistances, grasp its openings and its hints, which are never too explicit.” To which Eco adds: “The rest is conjecture.”<sup>54</sup> If Eco is right, poetry simply cannot “ground human culture” in the world:

it's much too speculative and irresolute for that. To put the point another way, poetry is more picaresque than pastoral, even if the pastoral happens to be the mode in which many poems have been written.

Encouraged by his assumption that the wholeness of the world is "inextricable" (whatever this means) and therefore ecologically important, Elder espouses the organismal view of biological community (a view discredited as long ago as 1935, when A. G. Tansley proposed the alternative concept of the ecosystem).<sup>55</sup> Elder's organicism is of an unusually thoroughgoing kind. He argues, for instance, that "culture too may be understood organically: it is the field of relationship between organisms and, as such, a complex organism in its own right."<sup>56</sup> This Spencerian assertion overlooks the fact that humans can be organisms and their interactions can produce culture, without culture itself *being* an organism, and without culture itself being *like* an organism in any noteworthy respect. Not everything an organism produces can be regarded organically, as if it were another cutting from the same old rootstock. Regarding culture as an organism just because it is produced by organic beings is like regarding traffic as a machine just because it is produced by those mechanical conveyances we call automobiles. Thus to speak of culture, or of traffic, as if it were an entity is more than misleading: it may be nonsensical.<sup>57</sup>

Elder fails to recognize that ecology, like other sciences, is reductive, even if it refuses to be reductive in the same way and to the same degree that physics and microbiology are. He writes: "Ecology confirms the indivisibility of natural process: each feature of a landscape must be understood with reference to the whole, just as the habits of each creature reflect, and depend upon, the community of life around it."<sup>58</sup> But no matter what some theoretical ecologists may have said at one time, as a practical matter the science of ecology has not been terribly interested in confirming "the indivisibility of natural process." How could something like that be confirmed? And why should ecologists want to confirm it? If natural process truly were indivisible, there would be no science at all, much less any ecology. Dividing natural process is how science gets a grip on the world.

Elder's assumption of ecological and cultural wholeness has as its corollary the assumption that poets must concern themselves with wholeness above all else. Just as ecologists go about documenting the wholeness of particular ecosystems, poets must go about praising the wholeness of both nature and culture in verse. Only then, Elder suggests, can they hope to secure the "redemption offered to human cycles within the order of natural cycles, an equilibrium as precise and comprehensive as an ecosystem," which it is their office to help maintain. Fortunately poets are materially aided in the execution of their duties by the very nature of the form in which they have chosen to work. Elder has the highest opinion of that form. "Poetry," he writes, "becomes a manifestation of landscape and climate, just as the ecosystem's flora and fauna are. A human voice becomes the voice of a place."<sup>59</sup> With this statement, Elder seems to cross an important dividing line, depending on how much pressure he wants us to put on the words "just as" with which he constructs his com-

parison of the poem and ecosystem. Does he mean that poetry tends to be about landscape and climate, in the same manner that an ecosystem's flora and fauna are, in some loose sense, "about" the same things? Or does he mean that landscape and climate are deterministic of a region's flora and fauna and of its poetry, too? That is, does he mean that the relationship between poetry and landscape and climate, like the relationship between flora and fauna and landscape and climate, is also a *causal* one? To invoke a distinction made by the philosopher Max Black, how "ontologically committed" is Elder's comparison of poetry to an ecosystem? Is it "a detached comparison reminiscent of simile and argument from analogy," or is it more of "an identification typical of metaphor," as Black phrases it?<sup>60</sup>

Regrettably, Elder seems to intend the comparison between the poem and the ecosystem, and between poetry and ecology, in its more metaphorical and "ontologically committed" form, which is why I think it is important to point out the shortcomings in his ideas about both poems and ecosystems.<sup>61</sup> Apparently Elder is undisturbed by the determinism implicit in his metaphor: if "poetry is a manifestation of landscape and climate, just as the ecosystem's flora and fauna are," then the poet's subject matter will be determined by the poet's address; and for us to understand a poet, it should be enough to know the pertinent facts about where he or she lives. On this account, all poets will be regionalists because only regionalists will be poets. Actually, their range might be still more tightly circumscribed: poets may be doomed to ponder only the finer implications of the local, and forced to become bards of the neighborhood and the microclimate, if they wish to be bards at all. But mercifully, literature and geography are disjoint, in that by means of the former you can always get there from here, no matter where "here" is.

Poetry is not a manifestation of landscape and climate, or of anything else, for that matter, apart from the conscious decisions and unconscious motivations of poets, and the structural and aesthetic effects of the genres and languages in which they write. To suppose otherwise is occult. To say this is to take nothing away from landscape and climate: no doubt they have an effect on poets much as they have an effect on the rest of us. Yet for most of us this effect does not eventuate in poetry. We only go so far as to talk about the scenery and the weather informally, and take comfort in using the most banal clichés when we do so. Fortunately for us, we don't need poets to give us directions to the nearest crossroads, or to tell us when to come in out of the rain.

Max Black writes: "In risking existential statements," or "ontologically committed" ones, "we reap the advantages of an explanation but are exposed to the dangers of self-deception by myths."<sup>62</sup> Elder wants us to regard poetry as a series of existential statements posing no threat of deception, even if they do happen to be couched in the language of myth. His attempt to found his hermeneutic of wholeness on what he takes to be bedrock truths about the "manifestations of landscape and climate," ecological and otherwise, seems not only mistaken but quixotic as well. He assumes that in order properly to value nature, art needs somehow to resemble the

natural world in its very forms, textures, and hues, just as they have appeared to us since the dawn of time. I cannot see why this needs to be so: art can be Green without literally being green.

At first glance, the more fanciful uses to which Elder puts ecological terms and concepts seem less objectionable. For instance, he writes: "Poetry is in ecological terms the *edge* between mankind and nonhuman nature, providing an access for culture into a world beyond its preconceptions."<sup>63</sup> Undeniably, poetry is one of the ways we address a natural world that we understand only partially, but calling poetry an "edge" is a less than illuminating way to characterize this form of address. And in any case, "edge" is not a simple term of value in ecological parlance. Edges are extremely complicated places, as most actual places prove to be when we attend to them closely. Conservation biologists have learned that the more edges an environment has, the more likely it is to have been subdivided into smaller and smaller parcels, making it harder for its residents to survive. If an edge allows woodland species access to openings where sunlight and foodstuffs are available, it also allows invader species, predators, and parasites easy access to the woodland interior.<sup>64</sup> Edges can create greater natural diversity or erode and destroy it, depending on the context and on a host of variables too many and too complicated to enumerate here. So if we want to think of poetry as an "edge," we should be prepared to recognize that it, too, may be double-edged, or both enlightening and confounding, and not necessarily in equal measure.

Elder's attempts to view literary and ecological values both in the same light and in the same terms often bear strange fruit. Consider his reading of the poetry of Mary Oliver, in which the aesthetic supplants the ecological in a way that obscures the difference between the imagined and the actual worlds. "The ecology of her poems presents her own emotions and ideas as fully integral to nature," Elder writes. "Her feelings arise and die like winds." One might think that this assertion is merely a stylistic flourish not to be taken literally, but Elder intends his point more strenuously than that. He continues: "In describing Oliver's imagination as ecological, I mean not to make a broad gesture toward her 'environmental' imagination but rather to describe a specific, and crucial, element in such poems as 'Turtle.' She understands the recycling of life through an ecosystem and also registers this reality as a psychological and emotional fact."<sup>65</sup> Elder suggests that Oliver's imagination is religious; he means both that it is taken up with a consideration of such matters of ultimate concern as life and death, and that Oliver has uncanny powers of insight and understanding. Those powers would have to be uncanny, for the "recycling of life through an ecosystem" to register "as a psychological and emotional fact." Otherwise, Oliver would not find the exchange of nutrients between trophic levels the least bit moving. Elder treats the details of natural history as if they can be rounded off and up, and metaphorically recast by poets in emotionally suggestive terms, without a loss of the specifically ecological meanings that he claims to discover in poem after poem. Thus the movement of nutrients through an ecosystem becomes

the “recycling of life,” which suggests reincarnation and overlooks the fact that while nutrients may be essential to the maintenance of life, they cannot be said to have lives of their own.

Elder’s eagerness to see poetry in ecological terms leads him to champion what amounts to a sort of hyperrealism. He describes a passage from Oliver’s poem “In Blackwater Woods” as “an instance of aural *transcription*” because it contains a list of the birds that a mockingbird is supposed to have imitated as Oliver listened to it one morning.<sup>66</sup> This list includes the linnet, an Old World finch, which suggests that Oliver’s mockingbird had a remarkably cosmopolitan repertoire of imitations. It must have learned how to be a mockingbird not by knocking around among its avian friends and neighbors, and not by obeying its instincts as a mimic thrush, but by listening to Berlitz tapes.

Elder insists on the mimetic accuracy of Oliver’s account of the contents of the mockingbird’s call. He says that she offers “the experience as well as the idea of birdsong in her heavily cadenced catalog, filled with the sensuality of lines like ‘carolina wren, chickadee, nuthatch, english’ in which consonants collide and break the line into a pulsing syncopation.” This claim is singularly unconvincing, and for more than one reason: Oliver’s consonants do not “collide” at all but are merely repeated; the phrase “pulsing syncopation” seems oxymoronic; and the line isn’t very sensual. I would wager that a list of any five words chosen from the dictionary at random might be just as sensual, perhaps more so. But more bothersome—or at least, it should be—is Elder’s claim that “the experience as well as the idea of birdsong” is somehow communicated to the reader of Oliver’s poem. He confuses the mockingbird’s “infrangible exactitude” (Oliver’s phrase) with the verbal exactitude of the poem in which it is celebrated. It can be true, as he says, that Oliver’s list “is about its own sounds” without its also being true that the list somehow replicates the mockingbird’s call.<sup>67</sup> If “In Blackwater Woods” were not “about its own sounds,” not only would it not be a good poem, it wouldn’t be a poem at all.

Why does Elder try to make Oliver’s poem bear so much freight of both idea and experience? Bearing this freight would require “In Blackwater Woods” to be sensual, and then some. The mockingbird’s call (assuming that there *was* such a call and not just “the idea of birdsong,” an idea I will have occasion to interrogate later in this chapter) was in mockingbird, a musical pidgin salted with occasional phrases in phoebe, robin, blue jay, flicker, and so on. Oliver’s list is in Standard English, very much so. When Elder insists that mockingbird can be transcribed into Standard English, and not just translated, he treats the semantic and the sensual, or sense-making and sensory experience, as if they operated on the same plane and in the same instance. He posits an ecstatic and “poetic” version of the realism that some ecocritics have wanted to see as the saving grace of nature writing in prose. For the ecstatic and “poetic” realist, verbal descriptions can represent the natural world accurately by virtue of the fact that in skilled hands they reproduce its sensual features

with absolute fidelity. Because this variety of realism does not recognize the difference between the world as represented verbally and the world as experienced sensually, it anticipates the advent of a purely imaginary earth. And this is the sort of earth that ecocriticism should treat with all the circumspection it can muster.

### *Must We Say What We See?*

*A picture of a complete apple tree, however accurate, is in a certain sense much less like the tree itself than is a little daisy.*

Ludwig Wittgenstein, *Culture and Value*

Like *The Comedy of Survival* and *Imagining the Earth*, Lawrence Buell's 1995 book *The Environmental Imagination* focuses on texts that engage with the natural world. But Buell's approach to ecocriticism differs from both Meeker's and Elder's. In part, this difference reflects Buell's choice of subject matter: because he is most interested in nonfiction prose narrative, he only touches lightly on questions of genre and mode, and has little to say about poetry. This means that his perspective is less comparative and less literary-historical than Meeker's, and not at all visionary, unlike Elder's, which seems visionary through and through. Buell's approach to ecocriticism also differs from Meeker's and Elder's in that he doesn't make extravagant claims about the direct import of the science of ecology for literary study, as they do. Yet he writes much more self-consciously and deliberately in an ecocritical context than either of his two predecessors were able to do. In fact, *The Environmental Imagination* seems designed to help determine the future shape of ecocriticism's research program. But the book does nothing to resolve the theoretical imbroglio of ecocriticism, which is clearly one of its author's goals.

It seems to me that this goal can be met only if ecocriticism manages to approach literary theory without the lingering suspicion toward it that Buell still feels. He argues that ecocritics need "to rethink our assumptions about the nature of representation, reference, metaphor, characterization, personae, and canonicity," and "to refine and reevaluate some of the basic analytical premises used by 'trained' readers of literature." Doing all that will mean questioning "the premises of literary theory while using its resources to expose the limitations of literature's representations." Such even-handedness, Buell suggests, will enable ecocritics to break through the force field of formalism that cuts texts off from the world, while avoiding a plunge into the universe of "intractable textuality," which contemporary literary theory posits by insisting on the distinction "between text and referent." An even-handed reappraisal of theory will also help ecocritics avoid becoming "anti-environmentalists in their professional practice," as Buell argues "professors of literature, whatever their behavior in ordinary life," tend to do.<sup>68</sup>

The balanced approach to theory that Buell recommends runs the risk of fence straddling, even when it is adopted in a principled way, especially given the fact that the principle to which Buell appeals most strongly isn't a literary one. He suggests that environmentalism is the solvent ecocritics can use to cut through the paradoxes engendered by a conflicted world of texts and readers of texts, paradoxes which if left intact would seem to counteract whatever potency writing about nature might have. Buell writes: "Ecocriticism' might succinctly be defined as study of the relation between literature and environment conducted in a spirit of commitment to environmental praxis."<sup>69</sup> Appealing to the "spirit of commitment to environmental praxis" gives Buell a rationale that enables him to dismiss out of hand certain theoretical notions as either unhelpful or harmful, or both. In this way, he disposes of what seems to be a shibboleth for the most zealously theoretical of literary and cultural critics. "The conception of represented nature as an ideological screen," he writes, "becomes unfruitful if it is used to portray the green world as nothing more than projective fantasy or social allegory." Better, Buell says, to reject such "typical results of a metropolitan-based enterprise of academic criticism," and instead seek to recover a sense of the "experiential or referential aspects" of literature. With the "experiential or referential aspects" of literature in mind, one can treat literary texts not as detractions from but as contributions to our interactions with the natural world. "Vision can correlate not with dominance but with receptivity, and knowledge with ecocentrism," Buell writes. "Contemporary literary theory," he adds, "makes it hard to see this side of the story—and thus makes the prospect of environmental reorientation, of awakening from the metropolitan dream, more unlikely than it needs to be."<sup>70</sup>

Like Meeker and Elder, Buell has a marked distaste for the metropolitan; but for him the word "metropolitan" has a peculiar meaning. When he uses the word, it refers to a mental landscape rather than to an actual cityscape, and its peculiarity of reference is one of the reasons that I think *The Environmental Imagination* does not provide a workable set of theoretical assumptions for ecocriticism. Buell tends to use theoretical terms—and "metropolitan" is one such term—rhetorically rather than argumentatively, and therefore he uses them *untheoretically*. He borrows the jargon of theory while discounting its concepts, when he doesn't dismiss them outright. The term "metropolitan," for example, is central to postcolonial theory, where it refers to imperial centers of power. But for Buell, the metropolis seems to be more or less coextensive with the American academy, and he uses the term "metropolitan" somewhat opportunistically, in order to distance ecocriticism from the academic mainstream and make its stance seem more militant than, in truth, it is. On the whole, ecocriticism simply does not have the aura of radical chic its promoters would like it to have.

Putting aside, for the moment, the specifics of Buell's quarrel with theory, I do think he is right to emphasize our intimate acquaintance with nature, over and against the tendency of many literary theorists to assume nature's entire otherness

and to question any concerted effort—especially if the effort is scientific—to learn something about this supposed otherness. Yet while it may be true that, as Buell says, “the emphasis on disjunction between text and world seems overblown,” it is unclear to me how working in “a spirit of commitment to environmental praxis” will join together what theory is supposed to have put asunder.<sup>71</sup> I have a hunch that texts and the world were disjoined, as a matter of convenience, long before literary theory came on the scene. And I wonder how a spiritual “commitment to environmental praxis” on the part of ecocritics is supposed to complement the good work done by environmentalists and ecologists. Ecocritics would seem to be in the unenviable position of cheering on the efforts of those in other fields who are better able to engage directly and professionally in environmental activism and the production of ecological knowledge. If so, then ecocriticism, especially if it chooses to express its “spirit of commitment to environmental praxis” by the usual academic route of translating actions into words, will be dismissed as agitprop, and rightly so.<sup>72</sup>

As Buell tells the story, there is no need for ecocritics to exchange their mortarboards for some other kind of headgear: they can be “environmental” without changing their minds about literature, and without making their foray into the awkward space of the interdisciplinary an extended one. Buell’s assumption that the study of literature provides a stable platform for an “environmental praxis” marks an important turning point in his argument, and suggests that his “realism” may actually be a form of literalism. He is not only saying that nature itself is something more than “an ideological screen,” a “projective fantasy or social allegory,” a proposition with which one has no trouble agreeing, although it is hardly a pertinent rejoinder to the claims about nature put forward by the most careful theorists. He is also suggesting that nature as depicted in many though not in all literary texts is something more than “an ideological screen,” a “projective fantasy or social allegory,” and I think this suggestion should give other ecocritics pause.<sup>73</sup>

To suggest that the nature depicted in a literary text—any literary text whatsoever, no matter how “environmental” its imagination—can be something substantial, is at odds with the fact that ideology, fantasy, and allegory are basic to literature. They aren’t necessarily the products of faulty style or of homocentric and egocentric values, nor can they be dismissed as the delusions of fevered critics who have read too much theory; after all, poets, novelists, and essayists also trade heavily in the currency of ideology, fantasy, and allegory. Buell seems to be saying that both the *nature of literature* and the *nature in literature* make it possible for ecocritics to work in “a spirit of commitment to environmental praxis” without fretting about the possible irrelevance of their professional behavior, because if they conduct themselves in the right way their professional behavior will be more or less on the same footing with regard to nature as that of any environmental activist or field biologist.

By making this claim on behalf of realism, Buell taps the vein of positivist thinking that runs throughout ecocriticism. His realism-cum-positivism explains why he characterizes ecocriticism as a counterrevolutionary movement: as he sees

things, when well-crafted literary texts refer to the habits of animals, mark the round of the seasons, recall the folkways of farmers, evoke the sense of place, and so on, they give the ecocritic all that is needed to dispel the murk of theory and reestablish realism as a valid aesthetic. Because literary theory has made the realist aesthetic seem doubtful, Buell like other ecocritics is eager to expose its shortcomings and its excesses, too. You get the feeling, while reading *The Environmental Imagination*, that its author has embraced literary theory for the same reason Delilah embraced Samson.<sup>74</sup>

That Buell has an ulterior motive is implied when he suggests that one can utilize the “resources” of literary theory while questioning some of its “premises.” I think this would amount to a simple rejection of those premises, such as the claim that a text can have no immediate relationship with the world it represents, even as one retained the abstruse flavor of theoretical rhetoric and most of the intellectual frameworks that theorists have constructed, too. Ecocriticism needs a rationale enabling it to use the resources of literary theory while retaining some respect for the force of theory’s premises, because it is surely the case that the premises of theory *are* its resources.

Adopting such a rationale would mean letting go of, or at least relaxing one’s grip on, the central claim of Buell’s book. This is the claim that ecocriticism should focus on recovering a sense of the “experiential or referential aspects” of literature, and on “the recuperation of natural objects and the relation between outer and inner landscapes.”<sup>75</sup> By pressing claims like this one, ecocritics fall prey to the false hope that there is some beyond of literature, call it *nature* or *wilderness* or *environment*, where deliverance from the constraints of culture, particularly that constraint known as theory, might be found. Don’t get me wrong; I do think there is a beyond of literature. There is, for example, *nature*: sticks and stones, grasshoppers and butterflies, catfish and Cooper’s hawks, moose and flying squirrels, river valleys and archipelagoes, tropical depressions and northeasters, the earth below and the sky above. But I doubt that these things can deliver us from the constraints of culture, any more than culture can deliver us from the constraints of nature.

Buell’s embrace of realism should be viewed not only against the backdrop of ecocriticism, where other versions of realism have been proposed, but in the context of American literary history as well. During the pre-Civil War period that Buell, who is a Thoreau scholar, knows best, democratic and natural values, or rather values supposed to be both democratic *and* natural at the same time, were the ones that many American writers cared about the most. Nature figured centrally in their imagination of themselves and their country, both of which in turn figured centrally in their conception of nature. Thus Buell’s attempt to put nature once more at the top of the cultural docket seems to be yet another recapitulation of a familiar old theme. He tries to generate an account of the environmental imagination from within the confines of a national literature long ago convinced of its special relationship to and special significance for nature. Buell recognizes that this conviction has

been based on a reductive view of “America-as-nature.”<sup>76</sup> His own view, which is meant to be much more open-ended and expansive, is that it should be possible for ecocritics to fill out the details and work out the true consequences of the “America-as-nature” vision. But many ecocritics have been content with reversing the older formula and inaugurating the new age of “nature-as-America.”

This second trope has proved all but irresistible, and ecocritics put it into play—for the most part, subconsciously—with an almost religious fervor. That ecocriticism might take an evangelical turn is a possibility Buell seems to have anticipated, not without a certain eagerness. He writes: “Realistic mimesis is not the stalking horse for a revised theology; it *is* that theology.” As a theology, realistic mimesis assumes that it has license to state its doctrines in an imperative way: “It requires us to remake our image of the world in terms of a criterion of value intentionally dislocating in its focus on the intractably and minutely factual.” If realism is a theology, it can be distinguished from a theory, which would be merely hypothetical and never as authoritative as a theology would have to be in order to merit its name. As a theology, realism can be used to define a moral position, an “ethos” of “basing art on disciplined extrospection,” which Buell says “is in the first instance an affirmation of environment over self, over appropriative homocentric desire.”<sup>77</sup>

I wouldn't want to argue that focusing on the “minutely factual” or factual is not a valuable thing to do in some contexts. But I do wonder if it can be as important and as imperative a value for literature as Buell thinks it can and ought to be. In his essay “Towards a Semiological Guerrilla Warfare,” Umberto Eco observes that in aesthetic communication “the message is deliberately ambiguous precisely to foster the use of different codes by those who, in different times and places, will encounter the work of art.” This suggests that a “minutely factual” focus will be obviated by the unavoidable fuzziness of verbal expression, if not immediately then eventually, and notwithstanding the good intentions of the realist. It also suggests that a taint of the hypothetical is bound to corrupt even our most authoritative statements sooner or later. In any case, I doubt that the kind of realism Buell advocates will prove to be as “dislocating” as he thinks. “Revolutions are often resolved in more picturesque forms of integration,” according to Eco.<sup>78</sup> A realistic revolution is more likely than others to be resolved picturesquely, since its insurgents will be convinced that pictures are of utmost importance to begin with. And this suggests that a realistic revolution is bound to fail: is there anyone who actually finds nature writing “dislocating,” simply because it focuses on factual details?

An ecocriticism premised on the reinvigoration of realism is likely to put a certain kind of art, and not nature, back at the top of the docket culturally. If ecocriticism were limited to reading realistic texts realistically, it would have to scant not only nature (ironically enough) but a lot of literature as well, including the literature of the American Renaissance, most of which cannot be called realistic however rife with visions of nature the work of writers like Emerson, Thoreau, and Whitman may be. An ecocriticism pledged to realism will be hamstrung in another way: its

practitioners will be reduced to an umpire's role, squinting to see if a given depiction of a horizon, a wildflower, or a live oak tree is itself well-painted and lively.

Literary realism privileges description, and even the sharpest description seems inert if it doesn't occur in a narrative context heightened by philosophical, psychological, political, or scientific interests, which need not be "realistic" in order to have real urgency. In other forms of expression, the pursuit of realism in the depiction of nature has produced a surfeit of kitsch. The best example of this is that school of wildlife art running mostly to depictions of heavily antlered whitetail deer and of leaping largemouth bass gazing at the art and nature lover with a flat, fishy eye, an eye not unlike the eye of the dogmatic realist. "A *complete* image," Barthes writes, "would exclude myth, or at least would compel it to seize only its very completeness. This is just what happens in the case of bad painting, which is wholly based on the myth of what is 'filled out' and 'finished.'" For richer signification, Barthes argues that an image has to be "relieved of its fat."<sup>79</sup> That it often produces fatty, bad art suggests that realism is a creed outworn, a nineteenth-century aesthetic unsuited for the production and the understanding of art at the turn of the millennium.

Ideologically, as well as historically, realism and environmental literature may not be a good fit, since literary realism is oriented more toward the social and artificial than toward the natural world. Realism is *metropolitan*. It is exemplified in American literature by the New York and Boston novels of James, Howells, and Wharton. Do ecocritics really want to promote environmental literature in the potentially contradictory terms of realism? The result can only be a middlebrow literature of nature informed only by middle-class values, and too much contemporary writing about nature is like that already (as I will try to demonstrate in chapter five).

A novel like Twain's *Adventures of Huckleberry Finn* might be put forward as a counterexample to the claims about realism I've just made. But Twain's novel is no exception to the rule that realism is essentially metropolitan; nor is it, for that matter, an exception to the rule that realism reflects middle-class and middlebrow values. The novel's frontier setting is one in which the social norms that are the determining cultural factors in realist fiction are in flux. Hence Twain's focus on grotesque violence, which disrupts Huck's domestic life again and again; in the novel, the real is precisely what is at stake socially and culturally. People fight and die over the issue, and Huck, Jim, and Tom argue about it incessantly—and sometimes tediously, which underscores my point. As for Twain's depiction of the natural world, the Mississippi River provides Huck and Jim with only temporary escape from social turmoil. And while sentimental readers may insist that the Mississippi's mythic presence sustains the narrative, the river's appearances in the novel are limited to a very few set pieces in which Huck sums up his impressions of it. With all this in mind, I would argue that "frontier realism" is a contradiction in terms. If realism is possible, then the frontier is closed (as it is, for example, in Owen Wister's *The Virginian*), and the issue of what is real has been *settled*: a word with several meanings, all of them relevant in this context.

For these reasons and more, I want to urge that the “ecocentrism” of literature *not* be understood to hinge on whether literature represents the natural world realistically or not. Verbal representation of nature, honestly weighed in the scales of realism, seems clumsy at best. This is why scientists discount the importance of their own writing and prefer whenever they can to express their ideas using graphs, charts, tables, diagrams, differential equations, experiments, and new technologies. It is also why scientists actually *like* redundancy and write so “poorly”: the validity of their work doesn’t derive from the representational efficacy of their words alone. Because of the weight literary realism wants to put on words, it sooner or later falls apart, just as it is said to do by the skeptics of modern philosophy and literary theory alike. Pointing out that the skeptics’ claims are overblown does no good. They are radicals: they want their claims to be overblown and to blow things apart. Since skeptics are particularly eager to blow realism apart, the argument against skepticism needs to be made on grounds other than those of realism, in order to avoid an infinite regress of assertion and counter-assertion, and a philosophical stalemate.

Some of these reservations and objections have occurred to the author of *The Environmental Imagination*. Buell notes that a number of studies published in the 1980s argued for the constructed character of realism: “Within a decade,” he writes, “it has become almost hackneyed to point out that so-called realism, far from being a transparent rendering, is a highly stylized ideological or psychohistorical artifact that we have sloppily agreed to call realistic.” As Buell’s tone makes clear, he finds this skeptical treatment of realism irksome and is convinced that it is much too strongly stated. But it seems to me that he ignores the polemical intent of the overstatements he rejects, and thus avoids seeing some of their implications for his own point of view, which he describes, I think quite tellingly, as a “countermyth.”<sup>80</sup> I also think Buell is too quick to hit the panic button, since very little of actual importance is lost if we choose to see literary realism as constructed, conventional, or even ideological. As Barthes argues, seeing realism this way “certainly does not mean that there is no responsibility of form toward reality. But this responsibility can be measured only in semiological terms. A form can be judged (since forms are on trial) only as signification, not as expression. The writer’s language is not expected to *represent* reality, but to signify it.”<sup>81</sup>

Buell’s impatience with 1980s studies of literary realism and his desire to formulate a countermyth that trumps them helps to explain why, in the chapter entitled “Representing the Environment,” he makes his case for realism’s value as an aesthetic in such an odd way. What makes it odd is that the sort of nonfiction prose narrative Buell tries to come to terms with in his book is that variant of the personal essay known as nature writing, and yet he doesn’t turn first to nature writing when it comes time for him to spell out the way in which he thinks literature can be realistic. His version of the realistic representational scenario involves the notion of *adéquation*, which he borrows from the French poet Francis Ponge by way of Sherman Paul’s book on American nature writing, *For Love of the World*.<sup>82</sup>

Paul describes *adéquation* as “a literary equivalence that respects the thing and lets it stand forth. *Adéquation* is not to be confused with *correspondence*: It is not a symbolic mode but an activity in words that is literally comparable to the thing itself.”<sup>83</sup> Paul understands *adéquation* as an attempt to skirt the edges of realism-as-correspondence without lapsing into it, but the notion of “a literary equivalence that respects the thing and lets it stand forth” seems too indeterminate, overly metaphorical, and vaguely Heideggerian, which is very vague indeed. And when Paul says that *adéquation* is “an activity in words that is literally comparable to the thing itself” all he really means is that one can, in fact, compare the “activity in words” to “the thing itself.” He doesn’t mean that the activity in words is a literal *representation* of “the thing itself.”

What Paul is driving at becomes much clearer when he cites, as an example of *adéquation*, a passage from Thoreau’s *Cape Cod*, a description of rolling breakers composed of a series of rolling periods. *Adéquation* is a variety of literary impressionism in which the meanings and the connotations of specific words and phrases is less important than the sonorous and rhythmic effects created by their arrangement relative to one another. *Adéquation* entails a sort of mimesis in which the imitation of the object inheres in formal qualities that cannot be detected if one focuses solely on semantics, and that may very well have nothing to do with semantics at all, though this probably doesn’t happen very often.

According to Paul, *adéquation* transpires when form effectively becomes content, thereby freeing what is usually regarded as content from the gloomier prospects of referential specificity, wherein it might seem inadequate. *Adéquation* gives you a sense of the gist of the thing, without concerning itself overmuch about giving you “the thing itself.” It takes advantage of the contingency of form and content, of their spatiotemporal simultaneity, in order to let form take up some of the burden of signification belonging more properly to content, rather like when a marching band (an unusually agile one, let’s say) assumes the rippling shape of the American flag while playing “The Stars and Stripes Forever.” The rippling shape really has nothing to do with Sousa’s score, but for those who recognize the tune, the rippling shape does help to convey Sousa’s patriotic sentiments.

Buell makes different hay of the concept of *adéquation*, which he says he finds too idealistic.<sup>84</sup> But his definition of *adéquation* is considerably more idealistic than Paul’s, not less. It can be argued that impressionism is relatively neutral with regard to the issue of representation, in that it lets verbal representation take care of itself, so to speak: in principle, there is no reason nonsense syllables cannot be perfectly adequate in the Pongean and Paulian sense, as they sometimes are in Dadaist poetry, or in those novelty recordings of a chorus of dogs barking to the tune of sentimental favorites like “Jingle Bells.” So Buell has to drain *adéquation* of its impressionistic implications in order to turn the concept into an armature of realism. He writes that adequate literary representations involve “verbalizations that are not replicas but equivalents of the world of objects, such that writing in some measure bridges the

abyss that inevitably yawns between language and the object-world.”<sup>85</sup> This gloss on the concept of *adéquation* bears the traces of a lurking theory of correspondence, something Sherman Paul specifically rejects. Buell shifts Paul’s grammar as well as his meaning: “equivalence,” a qualitative feature of a certain kind of literary performance in Paul’s account, becomes a substantive feature of “verbalization” in Buell’s. It becomes the “equivalent.” The distinction between the equivalent and the replica is a nice one, and I will try to give it cash value below. Of course, it may be no distinction at all, since the two words are near synonyms.

As for “the abyss that inevitably yawns between language and the object-world,” why does Buell credit this idea, so dear to those theories whose premises he wants to challenge? The thought that we can be systematically in touch with language, and by extension, with culture, and out of touch with “the object-world,” with nature, has broad currency in ecocritical circles, and it mistakes the character of both culture and nature. But once we accept that our language is essentially representational, we inevitably make this mistake. Having made it, we spend our time trying to bridge a rift that does not exist. Our access to language and our access to the world are the same: we cannot lose the world and keep language.

Traditional philosophical worries about the ability of language to represent the world, the worries which lie behind Buell’s brief on behalf of realism, make no sense in the light of our evolutionary history and scientific practices, though practical worries about that ability are of course another matter. We could lose language and keep the world, but if we did we would be much less adept at managing the world than we currently are, and would have to rely more on our opposable thumbs for aid and comfort than we now do. Or so our evolutionary history and scientific practices suggest, and these are two things I think ecocritics need to take seriously. At present, they don’t take them seriously, and in much of their work to date, discredited theories about representation are never more than a synonym or two away.

Buell identifies Roger Tory Peterson’s *A Field Guide to the Birds* as a text that has a vital relationship with the world in defiance of the dictates of literary theory. But appealing to Peterson’s book does not allow Buell to make a case for the literary text’s equally vital maintenance of the same relationship, because the *Field Guide* is not a literary text. All he does, then, is invoke it as a touchstone: if a “stylized image” of a bird in the *Field Guide* can put someone “in touch with the environment,” then, Buell reasons, it is legitimate to think that stylized literary images may do the same thing.<sup>86</sup>

After invoking Ponge and Peterson, Buell cites a few examples of literary works that he regards as models of *adéquation* and realism. He first discusses a passage from Gerard Manley Hopkins’s poem “Pied Beauty.” Here is the passage:

Glory be to God for dappled things,—  
For skies of couple-colour as a brindled cow;  
For rose-moles all in stipple upon trout that swim;

Fresh-firecoal chestnut-falls; finches' wings;  
 Landscape plotted and pieced—fold, fallow, and plough;  
 And all trades, their gear, and tackle and trim.

In the crucial moment of Buell's commentary on this passage, after noting the poem's polished artfulness, he exclaims,

But how delicately responsive the poem is to the stimuli it registers! Who would have thought to see trout's "rose-moles all in stipple"? In this way, aestheticism produces environmental bonding. Literally, the poet sees a painted fish; effectively, the aestheticist distortion animates the trout and makes its body palpable. There can be no question that this is a live trout shimmering for an instant in Hopkins's imaginary pool. With another glance, Hopkins evokes the feel and look of chestnut-falls, with another the mottled look of the agricultural landscape.<sup>87</sup>

In short: "Spot-on, Hopkins!" It seems to me that if this commentary is intended as ecocriticism, then ecocriticism needs to be given a strong dose of formalism. Without this purgative, ecocriticism will lapse into the merely appreciative mode that both formalism and literary theory are meant to cure.

If Buell's reading of Hopkins's poem is in fact appreciative, then it must be regarded as a poetic or quasi-poetic text in its own right, rather than a critical one. Such a text creates more ambiguities than it resolves. Consider Buell's interpretation of the things that the poem "registers" as "stimuli": a categorical list of "all trades, their gear, and tackle and trim" cannot be comprehended under this rubric. Neither can Hopkins's ostensibly more specific and concrete reference to "fresh-firecoal chestnut-falls," of which it is very difficult to *make sense*, to use a phrase apt in more than one respect. The "feel and look" of "fresh-firecoal chestnut-falls" is elusive, given the undecided and perhaps unanswerable question of just what they are. Fallen chestnuts? Fallen chestnut leaves? Firewood scavenged from the dropped limbs of chestnut trees? The coals remaining from a fire built of that wood? Chestnuts roasted on an open fire for too long? The phrase "fresh-firecoal chestnut-falls" seems to be motivated, not by Hopkins's desire to represent a "stimulus," but by his need as a poet to make a point about the glory of God by creating "dappled" effects of language—alliteration, for example—to suggest God's glory, even if he has to do so at the expense of meaning. Rhythmic considerations also come into play here.

Buell tries to enlist the formal and self-referential aesthetic features of "Pied Beauty" in support of the realist reading they militate against. Hence his claims that Hopkins "literally" sees "a painted fish," when in fact the trout in the poem is painted (or rather "stippled") only metaphorically, and when in fact the "reference" to trout is made generically, not specifically. Hopkins is "referring" not to one trout

but to all trout: presumably, he means brown trout, though not a unique one, not “that brown trout swimming in that pool right there,” imaginary or otherwise. And this is another reason one ought not assert that the poem registers “stimuli.”

Since Hopkins does not use the definite article, his “reference” to trout is not designative but denotative, which is to say that it isn’t really a “reference” at all. Eco has explained the distinction between designation and denotation in lucid terms, happily for us by borrowing an example from natural history:

We perform acts of reference by using designative sentences like *Look at that platypus, Go fetch me the stuffed platypus I left on the table, The platypus in the Sidney Zoo is dead*, while I maintain that sentences like *Platypuses are mammals* or *Platypuses lay eggs* do not refer to individuals but assert some properties that are attributed to genera, species, or classes of individuals.<sup>88</sup>

It makes as little sense, then, to assert, “The trout shimmering for an instant in Hopkins’s imaginary pool is alive,” as it would make to assert, “Sadly, the trout now floating on the surface of Hopkins’s imaginary pool has passed away,” for the simple reason that there is no one trout in this pool that could possibly be either alive or dead. What may be floating there (though I doubt this, too, since the poem isn’t a treatise in natural history) is Hopkins’s awareness of a distinctive feature of all those trout that are identifiable as members of the species *Salmo trutta*. This feature, their spots, is denoted, not designated.

Buell ignores the general character of Hopkins’s nonreference to brown trout—he ignores its *grammar*—and employs twists of logic because he wants his reader to accept the paradoxical idea that heightened verbal artifice can effect a heightened visual perception of the natural. “There can be no question,” he says, “that this is a live trout shimmering for an instant in Hopkins’s imaginary pool.” But there are a number of questions to ask about such a trout, not least the question of whether an imaginary pool is the sort of habitat in which live trout fare the best. I suspect that the poet’s description of the “rose-moles all in stipple upon trout that swim” is motivated more by the near-rhyme of “stipple” with “dappled” than by anything Hopkins may or may not have noticed about the visual appearance of trout. Eco writes, “The problem of referring cannot be decided in formal terms, because it has to do with the intentions of the person speaking and is therefore a pragmatic problem.”<sup>89</sup> But in this instance, an aesthetic one, the formal is the pragmatic, and so it seems unlikely that Hopkins meant to refer us to a particular trout. How could he have meant to do that?

Buell’s asking his reader who would have “thought to see” the trout’s “rose-moles” is an ill-advised rhetorical question, to which the answer is perfectly obvious: anyone with normal vision who has ever caught a brown trout and held it in his hands would have thought to see that. In all likelihood, the fisherman wouldn’t have had to think about it because there the trout’s spots would have been. Pro-

vided, of course, that the fish was wild and in good condition, and if it was a very young fish, provided that it wasn't a juvenile Atlantic salmon.<sup>90</sup> What Buell should have asked is, who would have thought *to describe in words* the trout's markings as Hopkins did? But this question also has a perfectly obvious answer: anyone writing a poem like "Pied Beauty." Or anyone writing an article about brown trout for the sporting press, where producing imaginative descriptions of the markings of trout and other salmonids is a thriving cottage industry.

Realism of the sort that Buell advocates boils down to a desire that *what we say* should be related in something other than a circumstantial way to *what we see*, and is never comfortable with the makeshift character of our words. So this sort of realism strives to put verbal representations on an equal footing with visual representations, which seem, at least in some contexts, more immediately efficacious and thus more adequate (and whether they are or not is something I will address below). But attempts to make the verbal seem comparable to the visual always fall short of success, for reasons explained by Foucault:

The relation of language to painting is an infinite relation. It is not that words are imperfect, or that, when confronted by the visible, they prove insuperably inadequate. Neither can be reduced to the other's terms: it is in vain that we say what we see; what we see never resides in what we say. And it is in vain that we attempt to show, by the use of images, metaphors, or similes, what we are saying; the space where they achieve their splendour is not that deployed by our eyes but that defined by the sequential elements of syntax.<sup>91</sup>

Foucault's point is that syntax and the rules of perspective observed by painting are not isomorphic, and that the two means of representation therefore cannot be said to be in a relationship of analogy to one another. Writing and painting are fundamentally dissimilar: they "do not call upon the same type of consciousness," as Barthes says.<sup>92</sup> Or, to put the same point more proverbially, even a blind man may speak, and speak well, too. What he can't do is paint.

Despite what I have said so far, it may seem that Buell does much the same thing with "Pied Beauty" that Sherman Paul does with the passage from *Cape Cod* when he reads it as echoing, in its verbal textures and rhythms, the waves it describes. In other words, it may seem that I am holding the author of *The Environmental Imagination* to too strict a standard. But his case and Paul's are very different. Buell doesn't claim that the Hopkins poem as a whole reflects structurally, tonally, or rhythmically the overall effect and impression of a given experience of the natural world; since the poem is a sonnet heavy with alliteration and cast in sprung rhythms, this would be a difficult claim for Buell to make good on. His much more ambitious claim is that the discrete details of "Pied Beauty" have a one-to-one relationship to particular moments of an experience of the natural world, a one-to-one relationship to particular "stimuli," and it should be clear that an impression isn't the same thing

as a stimulus: it is, for starters, more abstract.<sup>93</sup> Paul, on the other hand, wants to treat form as a higher order or exalted function of content, or as a comment on content offered from another, more immediately sensual dimension of the literary text, a dimension obscured by our habit of reading silently to ourselves and of writing for the “inner ear” (so to speak) as much as for the “inner eye.”

Buell, who seems to have misread Paul, wants to preserve content *as such*. He treats form as one of the many varieties of aesthetic seasoning, having no effect of impedance on the referential powers of content—of words. He tries to peg particular details and particular words in Hopkins’s poem to particular things in the world, to “stimuli,” and makes the originally expansive notion of *adéquation* seem reductive: “rose-moles all in stipple upon trout that swim” is an example of a Buellian equivalent, and the Buellian equivalent is a replica after all. It makes possible “a quasi-numinous revelation of the particular,” which Eco says “is none other than the modern notion of epiphany.”<sup>94</sup> It is not in the least an instance of Pongean or Paulian *adéquation*. For “Pied Beauty” to qualify as adequate in the Pongean or Paulian sense, anyone hearing the poem read aloud would have to be reminded of things like trout, chestnut-falls, and so on, simply because of the way the poem sounds and quite irrespective of its complicated semantics. In fact, the listener wouldn’t need to understand English, so long as the poem’s rhymes, rhythms, and alliterations were clearly vocalized. I see no way in which Hopkins’s poem could pass such a test, whereas a poem about riding horses, if it were written in *rump-diddy-bump* or “equestrian” meter, just might.

Perhaps the interpretation of poetry is not Buell’s strong suit: after all, *The Environmental Imagination* is chiefly a celebration of the strengths of “environmental nonfiction” or, more generally, “environmental prose.”<sup>95</sup> Buell complains that such nonfiction and prose is usually relegated to the ghettos of freshman writing programs and special topics courses, and his overstatements of its virtues may afford an ironic indication of why this is so. Consider another of his examples of *adéquation*, this one from *Keith County Journal*, a book by the natural history writer John Janovy Jr. In a passage cited for its excellence by Buell, Janovy describes some of the habits of caddis flies living in a stream in western Nebraska:

One has to visualize the life of these insects beneath the rushing-hard cold of Whitetail three: some kind of food was coming down that creek in large amounts, at a very rapid rate, and was being trapped by these larvae. My mind goes back to the branches beneath Whitetail three. . . . there were many twigs and lesser branches along the banks, dangling and submerged, also covered with caddis flies. . . . The fact of these flies’ dependence on twigs for homesites was impressive only until one looked at the larvae with a hand lens. Each larva lived in a house, constructed by itself. . . . One sensed no colony of caddis flies, as one senses a colony of cliff swallows, but rather sensed a set of instructions within each fly larva that chose twigs to build a house.<sup>96</sup>

While this description of caddis flies is entirely adequate, it doesn't seem to be so in a Pongean or Paulian sense because it is also perfectly prosaic. Buell treats it as if it were as vivid and intense as Hopkins's poem, and as artful.

Buell interprets Janovy's saying that his "mind goes back" to an earlier exploration of the river and that one "has to visualize" the underwater life of the caddis flies as evidence that "Janovy disclaims objectivity, reminding us that his image is a constructed thing." He also argues that Janovy's statement that one "senses" no collective identity for the caddis flies, but only the working out of a genetic pattern, means that Janovy's "little narrative" about the caddis flies not living colonially is "a complete fabrication." But that it is "a complete fabrication" doesn't mean that "the little narrative" is false. What Janovy says about the caddis flies happens to be true, though he does test his reader's faith in his veracity when he implies that one can "sense" the working of the larvae's genetic code. Buell concedes that Janovy's description of the caddis flies "comports with the entomological facts: the inner landscape is symbiotic with the outer." He treats the "inner landscape"—a concept he borrows from Barry Lopez, who interprets it psychologically—as a cryptic feature of Janovy's text, which he claims is "symbiotic" with the world because it describes that world accurately.<sup>97</sup> Buell's misuse of the word "symbiotic" reinforces my point about the bad ecocritical habit of distorting terms borrowed from the technical literature of ecology and biology. Since "symbiosis" refers to the variety of ways different organisms have of "living together" ecologically, such as commensalism (relying on the same food source), the claim that "the inner landscape is symbiotic with the outer" seems nonsensical.

But Buell is deliberately trying to push the envelope in his reading of Janovy. In a rather half-hearted attempt to give literary theory and his own scholarly training its due, he argues that Janovy "could not possibly have seen" some of the things he reports and that he has portrayed the underwater life of the caddis flies "with much more vividness and intensity and magnification than we would see it in the field."<sup>98</sup> Of course, Buell's contention is that this is precisely what makes Janovy's portrayal both accurate and artful, which qualifies it as an example of *adéquation*. But surely Janovy's "magnification" of the scene he describes is not to be attributed to his prose, but to the hand lens he used to view the caddis fly larvae. Buell turns Janovy's literal magnification of those larvae into a metaphor, and pretends to be skeptical about Janovy's description of the caddis flies until the time comes to celebrate the passage's realism. He breaks the caddis flies and Janovy upon the wheel, and then he praises their faithfulness to reality.

In his readings of Hopkins and Janovy, Buell's skepticism is intended to be the more theoretical position. But it is only a caricature of such a position, and neither it nor the celebration of realism that follows hard on its heels is convincing. Both are produced by Buell's misreading of the metaphorical as the literal and of the literal as the metaphorical. He seems to be suggesting that the power of environmental writing lies in the skillful way it plays peek-a-boo with a world it knows is there all along.

## How To Use This Book

*Philosophers often behave like little children who scribble some marks on a piece of paper and then ask the grown-up "What's that?"—It happened like this: the grown-up had drawn pictures for the child several times and said: "this is a man", "this is a house", etc. And then the child makes some marks too and asks: what's this then?*

Ludwig Wittgenstein, Culture and Value

I want to finish detailing the problems with the idea that representation (or *adéquation*) is the essence of environmental writing, and with the idea that what is exciting about such writing is the narrative of discovery it relates even if that narrative is fabricated, by discussing the work of the natural historian and illustrator Roger Tory Peterson, the celebrated author of *A Field Guide to the Birds*. Peterson's field-mark system is widely regarded as the most efficient and most effective way to identify birds under the poor conditions, such as color-obscuring glare, often encountered outdoors. A field mark is any distinctive feature setting one species of bird apart from others, especially its near congeners: barred tail feathers, eyebrow ridges, a curved bill, an unusual flight pattern, and so on. Peterson's illustrations highlight field marks (in some instances, with arrows), and a student of the *Field Guide* learns to recognize a bird in terms of its abstract patterns of marking insofar as those patterns differ from others, rather than in terms of its overall body image or coloration, both of which can be similar across species as well as variable within species. An experienced birder is almost certain to be an experienced "reader" of the *Field Guide*. Such a birder has the ability to identify juncos flitting through a patch of underbrush in winter merely by catching a glimpse of their white outer tail feathers, an ability which can seem inexplicable to the uninitiated. Buell understands that it derives from the adequacy of Peterson's images, argues that the success of the *Field Guide* demonstrates "the capacity of the stylized image to put the reader or viewer in touch with the environment," and suggests that this capacity "is precisely what needs stressing as a counter to the assumptions that stylization must somehow work against outer mimesis or take precedence over it."<sup>99</sup>

The example of Peterson's *Field Guide* does not make Buell's case, certainly not in the way he says it does. He is right to claim that texts can help us get in touch with the world, but his suggestions about how Peterson's text helps us do that are too simplistic. First, it seems to me that Peterson's illustrations do "work against outer mimesis" (and I have to ask: is there any other kind of mimesis?) in the sense that many of them are less than mimetic by design—notably, the silhouettes showing the characteristic forms of accipiters, falcons, and kites when these birds are viewed from below. Actually, this point is one that Buell acknowledges, but without working out its negative implications for his own view. He writes: "Peterson's schematic

bird drawings, with their emphasis on a limited number of field marks, are highly abstract renderings that have proved, in the experience of veteran birders, to enable the student to identify the originals more effectively than would a denser mimetic image, such as a photograph in the Audubon Society field guide."<sup>100</sup>

Where Buell's account of Peterson goes awry is in his assumption that the images in the *Field Guide* have something of crucial importance to do with "originals." That they do not is a point Peterson himself makes with great clarity in the "How To Use This Book" chapter of the *Field Guide's* first edition. Regarding his illustrations, he writes: "As they are not intended to be pictures or portraits, all modelling of form and feathering is eliminated where it can be managed, so that simple contour and pattern remain. Even color is often an unnecessary, if not, indeed, a confusing, factor."<sup>101</sup> In other words, the *Field Guide* is not only mimetically parsimonious, but visually impoverished, too, and deliberately so. Its illustrations are abstractions partially based, to be sure, on the illustrator's field experiences—on his encounters with "originals," of which there were a great many. That is, there was never an *original* "original," except perhaps in those cases where a bird was veritably a *rara avis*. Of course, Peterson's illustrations also are based on what might be called the consensus image of a given species as recorded in the ornithological literature and as embodied in the type specimens collected in museums of natural history. Notoriously, type specimens—each of which was once a bird of the field—do not display a thoroughgoing uniformity, but are made to serve their office as exemplars nonetheless.

So Peterson's illustrations are not the simple and direct products of the observation of "originals," and would lack authority if they were. Their authority, and hence their distance from the observation of "originals," is increased by the fact that they emphasize certain aspects of avian physiology at the expense of others perhaps equally visible to an observer in the field, but less significant (less useful, that is) for purposes of identification. Peterson's illustrations have a formal quality not observable in nature: most of the birds in the *Field Guide* are shown in side view, as if they had posed for police mug shots. Wild birds will not oblige you by turning to the right on request. Nor will they spread their tail feathers, erect their crests, flash their wing-bars, or in any way indicate what sets them apart from other, similar birds just because you want them to. This is precisely why seeing a field mark is considered "diagnostic," should you be so lucky as to see one.

The argument I am making with regard to Peterson's *Field Guide* to birds is confirmed by *A Field Guide to Wildflowers*, also illustrated by Peterson and even less mimetic than the *Field Guide* to birds. The majority of the plates in *A Field Guide to Wildflowers* show no color because there is no need for it: the green of foliage is presumed throughout, and a colored tab printed in the upper right-hand corner of each right-hand page indicates the tint of blossoms. The illustrations of individual wildflowers mostly consist of simple line drawings of their flowering parts, with a few leaves. The visual impoverishment of its illustrations is a principle of the wildflower

guide's organization, and is enabling for purposes of identification, just as it is in Peterson's other field guides, of which there is a series covering the whole of natural history.<sup>102</sup>

I realize that all this probably seems picayune, and that it invites a quarrel about the meaning of the word "mimetic." A similar quarrel could be had about the meaning of "stylization," for that matter. Very well, then; this brings me to the second point that Buell's claim about Peterson fails to consider. Mimesis presumes the *sameness* of the representation and the represented object. Earlier field guides, and the Peterson guide's inferior contemporaries, depict birds mimetically and in their natural habitats, according to the techniques of bird portraiture as refined by painters like Catesby, Audubon, and others. Peterson's *Field Guide* is only incidentally mimetic, precisely because his great innovations were to base his field-mark system on the diagnostic *difference* between one bird and another, and to ignore many of the conventions of bird portraiture, opting instead to portray his avian subjects more schematically, in a notably less stylized way, and grouped together *en famille*, as it were, against the plain white background of the page.

Mimesis is (or would like to be) synthetic; the images in Peterson's *Field Guide* are splendidly analytic, and deliberately so. A blurb printed on the dust jacket of the *Field Guide's* 1934 first edition makes Peterson's analytic intentions explicit. The blurb even insists on the distinction between appearance and reality, or fact and value, fundamental to the analytic point of view: "The book is made on an entirely new plan, which recognizes the fact that color values rather than the actual colors are most important in identifying birds at a distance. The plan comprehends the use of diagrammatic drawings of the birds in conjunction with descriptions of the marks that can be recognized in the field. The text is entirely without frills and is devoted strictly to giving information to help the student to identify birds in the field."

If Daniel Dennett is right about our visual experience, Peterson's images could not be otherwise than analytic. Dennett writes:

Learning to draw is largely a matter of learning to override the normal processes of vision in order to make one's experience of the item in the world *more like looking at a picture*. It can never be just like looking at a picture, but once it has been adulterated in that direction, one can, with further tricks of the trade, more or less "copy" what one experiences onto the paper.

Lest these words from Dennett should seem, despite my intentions, to confirm Buell's arguments, especially his claims about the representation of "stimuli," I should also quote Dennett's warning that our "visual phenomenology, the *contents* of visual experience, are in a format unlike that of any other mode of representation, neither pictures nor movies nor sentences nor maps nor scale models nor diagrams." "One can no more paint a realistic picture of visual phenomenology," Dennett declares, "than of justice or melody or happiness."<sup>103</sup>

Other philosophers also have weighed in on this subject. Bas Van Fraassen and Jill Sigman write: “The mere idea of representation is too poor to tell the story of representational art, because it is too poor to tell the story of perceptual experience itself.”<sup>104</sup> This is why Paul Feyerabend warns us that “observational terms are Trojan horses which must be watched most carefully” lest they be taken for granted.<sup>105</sup> Or as Van Fraassen and Sigman put it, “What is important in the welter of data that assails us is not ‘written on the face of’ the data, nor is it yet another datum among them.”<sup>106</sup> And that is why we need science and art, too, but it is also why neither can be *realistic* in the sense of the term favored by ecocriticism.<sup>107</sup>

Given the essential impossibility of the sort of straightforward perceptual realism desired by Buell—human beings are incapable of achieving it, no matter how hard they try—it seems clear that Peterson’s drawings are, to retranslate and modify Ponge’s term, *merely adequate*. The merely adequate image isn’t the same as a realistic image of the sort Buell celebrates. The merely adequate image may eschew realism altogether, and it seems a lot less exciting aesthetically, although its scientific possibilities may be correspondingly that much richer. The male and female silhouettes placed on the doors of most public restrooms are merely adequate images, from which the visual details of the secondary sex characteristics, details you would expect to be decisive in this context, are omitted. And yet the images are an effective means of communication. Though its images are much richer than those restroom door silhouettes (except for the silhouettes of accipiters, falcons, and kites that I mentioned earlier), Peterson’s *Field Guide* also reduces the visual field, and would not be efficacious, would not be a *field* guide, if it did not.

Peterson’s *Field Guide* makes ornithology portable, as the Double Elephant Folio edition of Audubon’s *Birds of America*, which might have been, and I emphasize *might have been*, a better text for Buell to ponder as an exemplary work of realism, does not. Peterson’s drawings are intentionally less vivid than Audubon’s in order to convey more useful information about each species, so that “live birds may be run down by impressions, patterns, and distinctive marks” by birders in the field, as Peterson puts it, a bit piquantly, in his 1934 preface.<sup>108</sup> Running down live birds in this way means that the Peterson-trained birder does not look for the whole bird or the bird-in-itself. Indeed, the Peterson-trained birder’s experience of looking at birds, if the training takes, comes to seem like looking at pictures, to recall Dennett’s point about drawing (which is not to say that it becomes *identical* to looking at pictures: the exigencies of the field are more than enough to keep that from happening). This is the case because Peterson’s pictures provide the theory through which the experience of looking at birds is apprehended and made over into a discipline, a craft, or a casual but compelling hobby. Without some such theory, birders would find themselves in an incomprehensible situation like the one imagined by Feyerabend, who writes: “Experience arises together with theoretical assumptions not before them, and an experience without theory is just as incomprehensible as is (allegedly) a the-

ory without experience: eliminate part of the theoretical knowledge of a sensing subject and you have a person who is completely disoriented and incapable of carrying out the simplest action."<sup>109</sup>

Buell's brief discussion of Peterson's *Field Guide* in terms of its usefulness as a text seems problematic for a third reason: he provides no description, and no account, of its actual use. Doing so calls further into question its status as a cynosure of realism. Using Peterson's guide isn't a simple matter of matching up visual representations in the text with the visual appearance of birds in the field. More than that is required to identify the bird in hand or rather the bird in view through a pair of binoculars, as novice birders soon learn. The field-mark system encourages a process of "identification by elimination." In "How To Use This Book," Peterson explains the logic behind this process: "It is often quite as helpful to know what a bird could not be as what it might be."<sup>110</sup> The user of the *Field Guide* must consult both its illustrations and the book's other resources, such as the descriptive text accompanying each illustration on the opposite page, in order to determine "what a bird could not be." If the descriptive text does not settle the issue of a bird's identity, then the birder must resort to the habitat maps in the back of the book's more recent editions. Field marks, it should be clear, are not limited to visual features, but also comprise things like geographic range, habitat preferences, typical behaviors such as interspecies flocking, and flight patterns. You might say that field marks have a theoretical dimension, and that because it requires one to distinguish between field marks as carefully as one can, birding involves a *negative dialectic*. At the very least, it makes for some lively arguments, as any birder will testify.<sup>111</sup>

Such being the case, the birder must become a reader, and the reader of Peterson is unlike the reader of, say, Thoreau or Annie Dillard, since the *Field Guide* isn't a narrative. It's more like a cookbook or a piece of software: the CD-ROM version of the book actually *is* a piece of software. The adequacy of Peterson's images isn't a quality they possess inherently and impress upon "readers" in the course of their perusal of the *Field Guide* front to back. Its "readers" don't peruse the *Field Guide* front to back, unless they are novices unfamiliar with its text and with birds, too. The adequacy of Peterson's images evolves out of their repeated use by birders. I doubt that a similar statement can be made about Thoreau's images in *Walden* or about Dillard's images in *Pilgrim at Tinker Creek* because being verbal rather than visual they simply are not the same kind of images. Peterson's images can be difficult to use, granted, but it is still more difficult to turn words into birds.

I now owe my reader a thorough description and analysis of the *Field Guide's* use. In order to meet this obligation, I would like to consider the difficulties associated with distinguishing between two species—the black-capped and the Carolina chickadee—which I am going to make exemplary precisely because they are very common and very closely related. In the following paragraphs, a third species, the boreal chickadee, will be making a cameo appearance, just to make things more difficult and hence more interesting.

Establishing the identity of black-capped as opposed to Carolina chickadees can be surprisingly complicated. Suppose that an inexperienced birder glimpses an apparently nondescript chickadee while out for a winter walk on a gloomy day in the Poconos of northeastern Pennsylvania. It is cold. The chickadee is ruffled in appearance, its worn feathers elevated for the sake of the insulation they provide. Other chickadees, a family of tufted titmouse, and a pair of downy woodpeckers are flitting about in the woods nearby, feeding actively in the last remaining hour of daylight. Flipping through the *Field Guide*, the birder first realizes that either version of the chickadee's song, *chick-a-dee-dee-dee*, or the same thing, but higher pitched, is plausibly what she has just heard.<sup>112</sup> She begins to fret; and when she looks for the chickadee again, it has disappeared.

Now our novice looks once more at Peterson's illustrations, and realizes that she didn't see the characteristic white wing-stripe of the black-capped. But she reads Peterson's discouraging note about poor conditions ("season, wear, angle of light, etc."), and has to confess that her not having seen it doesn't mean that the white wing-stripe wasn't there. Despairing, she consults maps 246 and 247, and realizes that she has chosen to go for a walk in a gray, borderline area. According to a note inset on Map 246, the black-capped is known to winter south of its normal range in some years, and the note inset on Map 247 points out that the Carolina's range "slightly overlaps" that of the black-capped. To make matters worse, Map 247 reiterates the text's warning that the two species "mingle at times and hybrids are known." Finally, our conjectural naturalist, her attention wandering, notices that Map 248 charts the range of something called the boreal chickadee, which is "casual south to n. Ill., Ohio, Pa., N.J., Md.," but only in "chickadee flight years," a phenomenon Peterson doesn't bother to describe or define.<sup>113</sup> Could she possibly have seen this rare visitor to the Poconos? Could the chickadee she glimpsed have been a sport of nature, a hybrid, or something more teratological? Could she have picked a worse time and place to go for a walk, and put Peterson to the test?<sup>114</sup>

This birder is confronted with a variety of interpretive options. Fortunately, there are protocols to be followed in cases like hers; but in order to decide which of the two, possibly three, kinds of chickadee she has just seen, she is going to have to rely on something more than just the resources provided by text—in this instance, Peterson's—and world, where it is now that dark night in which all chickadees are black. It will help her, of course, to become a better "reader" (i.e., a better user) of Peterson's guide, to figure out what he means when he says that a bird is *casual* in a given area and to learn what *chickadee flight years* are. She may have to consult other field guides (the magisterial new Sibley guide, for example, or the digitally enhanced Kaufmann), a regional bird list, back issues of *Birder's Digest* and *Birder's World*, audio and video recordings, the National Audubon Society's *Interactive CD-ROM Guide to North American Birds*, and the rare bird alerts (RBAs) posted on the Internet. She might have to go back out and beat the bushes more aggressively the next day, intervening, if need be, in the chickadee's life by "pishing" (mimicking the

bird's alarm call) in order to encourage it to show itself to her (which chickadees are unusually willing to do in response to "pishing"). She may need to buy a better pair of binoculars, getting rid of the bulky, overly powerful 10×50s that keep her from focusing quickly and tightly on small birds at close range. All of these are things that other users of Peterson's *Field Guide* might do in extreme cases like this one.<sup>115</sup>

The "stylized image" has not put the birder in touch with the environment, as Buell suggests it should. In this instance, the reverse has happened: the environment has put the birder in touch with the "stylized image." And this "transaction," to borrow Buell's term, has in turn put her to considering another image, and yet another, while returning, now and again, to the environment for fresh impressions.<sup>116</sup> Every transaction entails further action: the birder will have to engage in a lot of back-and-forth between text and world, and world and text, and between stylized image and bird, and bird and stylized image, if she really wants to know what kind of chickadee she saw. I think it is precisely this going back and forth between text and world, and between nature and culture, and the development of tools and techniques, like binoculars and computers and "pishing," to enable it, which gives a notion like getting "in touch with the environment" whatever worth it may have: a fourth reason Buell's use of Peterson's *Field Guide* as a touchstone of "outer mimesis" seems mistaken.

My view of Peterson does not lessen the value of his work in any way, although it does make it seem *contingent* in the philosopher Mario Biagioli's sense of the term, which is a very good thing; a field guide ought to be contingent. Biagioli writes:

Although a good representation is one that fits the environment, fit does not need to be thought of in a *mimetic* sense. We do not need to think of representations of the world as good or bad copies of it, but simply as contingently effective or ineffective—that is, as making it possible (or impossible) for a given group or culture to survive as such.

He adds: "This does not suggest that, as far as representations of the world are concerned, 'anything goes' in any given context, but rather that, in different contexts, worldviews may 'go' for different reasons."<sup>117</sup> In his book *Lifebirds*, George Levine, who is both a dedicated birder and a literary critic, makes a similar point, specifically with reference to birds and the names we give them: "I take the arbitrariness of naming as part of the pleasure of birding, a continuing revelation of the ways in which 'nature' and human conventions and consciousness are always intermingled and never in entirely satisfactory relation."<sup>118</sup>

Levine's point about the "arbitrariness of naming" is worth dwelling on for a moment. Consider the green-backed heron, which used to be called the little green heron. Its name has been changed, not because its green back is an outstanding feature of its appearance but because the greenness of its back is sufficiently striking to set it apart from other birds in the heron family. Its old name was confusing: the "lit-

tle green heron” wasn’t little, and it wasn’t green all over, as the name implied. The bird’s new name seems to be an improvement, even though you may not realize that you are seeing a bird with a green back when you view a green-backed heron in the field. So you might argue that despite its grammar, the green-backed heron’s name isn’t especially descriptive: the bird’s appearance is much more motley and variegated than its name suggests. In short, the name seems arbitrary and yet it is perfectly accurate.

A similar case can be made with regard to the red-bellied woodpecker’s name. This bird does have a blush of red between its legs in an area roughly corresponding to what we think of as the belly (it might be more “descriptive” to call this area the crotch, but the name “red-croched woodpecker” is unlikely to win the approval of the American Ornithological Union). And yet the bird’s red belly is a feature one rarely glimpses in the field, owing to the posture that the woodpecker must strike while hitching its way up a tree. The bird is called red-bellied in order to distinguish it from other woodpeckers, and not because the blush of red between its legs is, as Peterson puts it, a reliable field mark. Its name, despite being unquestionably descriptive, is not “in entirely satisfactory relation” to its appearance—not insofar as a birder looking up at the bird from below as it climbs the trunk of an oak is concerned. Yet it will have to do, and while it may confuse neophytes, the name red-bellied woodpecker seems to do very nicely. So does the name green-backed heron. Both are entries in a system of distinctions that, taken as a whole, is far from arbitrary, even if it can never offer us a view of ornithology from the perspective of eternity—a perspective irrelevant to natural history.

The upshot of all this is that Peterson’s *Field Guide* resembles the perpetually open texts celebrated by recent literary theory: no “reading” of the *Field Guide* ever achieves “closure,” even as theory has foretold. And this is one of the book’s *virtues*, demonstrating not its shortcomings but its usefulness. It explains why old copies of the *Field Guide* tend to be dog-eared: the book may not achieve closure, but it does get worn out. At the same time, Peterson’s text is probably less like the sort of text that ecocriticism has been celebrating, in that it is more constrained, more scientific, and more resourceful, working in more than one medium and form (especially now that it is available on CD-ROM) to help put us in touch with the natural world.

To say that Peterson’s *Field Guide* never achieves closure is to say that it invites quibbles. But these quibbles have to do less with the book’s vagaries as a text than with the myriad ways in which differences between species have ramified in the course of avian evolution. This should remind us that scientific realism and literary realism are not the same. In fact, they may be opposed to one another: scientific realism seems a lot less realistic, in the sense in which ecocritics would like to use the term, than literary realism because it is much less reliant on representation. However, the consequences of scientific realism are immediate, while the consequences of literary realism, if it has any, are not.

Ian Hacking argues that realism of the literary sort is a realism-in-general, while scientific realism is a realism-in-particular: "A question of realism-in-particular is to be settled by research and development of a particular science. In the end the sceptic about photons or black holes has to put up or shut up. Realism-in-general reverberates with old metaphysics and recent philosophy of language. It is vastly less contingent on facts of nature than any realism-in-particular."<sup>119</sup> In "How To Use This Book," Peterson urges those who wish to employ the field-mark system, realists-in-particular one and all, to recall a salient fact: "The ornithologist of the old school seldom accepted a sight record unless it was made along the barrel of a shotgun." As a surrogate for shotguns, the field-mark system also should be handled with care: "A quick field observer who does not temper his snap judgment with a bit of caution is like a fast car without brakes." "How To Use This Book" is a cautionary text.<sup>120</sup>

Literary texts are rarely cautionary or cautious in the same way. Suppose that a reader of Thoreau—according to Buell, Thoreau is the founding figure and first saint of American environmentalism—conceives a desire to hear the screech owl call just as the author of *Walden* heard it call one lonesome night. Thoreau paraphrases the screech owl's call as "*Oh-o-o-o-o that I never had been bor-r-r-r-n!*"<sup>121</sup> His paraphrase is not unlike the verbalizations of bird calls that Peterson offers in many of the entries in his guide, but Peterson declines the opportunity to paraphrase the screech owl's call. He describes it in fairly abstract terms as a "mournful whinny, or wail; tremulous, descending in pitch. Sometimes a series on a single pitch."<sup>122</sup> I think he is more circumspect than Thoreau in this case for the simple reason that the screech owl's call is not amenable to the sort of verbal treatment Thoreau gives it. As a representation of the screech owl's call, "*Oh-o-o-o-o that I never had been bor-r-r-r-n!*" is faulty on two counts: it is a trite expression, and it sounds nothing like a screech owl. It will not put Thoreau's reader in touch with the world.

I've used Thoreau as a straw man in order to prepare the way for making a final observation with regard to ecocriticism's advocacy of a return to realism: celebrating literature that points to the world is no way to counter the claims literary theory has made about and against representation. There is no doubt that literature can be realistic in some limited sense of the term, and representational as well: it can point to the world. But as Hacking argues, "Pointing is never enough. What pointing does do is to provide us with a causal, historical, connection between our word 'apple' and a certain kind of fruit, namely apples. That connection could be established in other ways, as is illustrated by the historical development of theory and experiment around the word 'electron.'"<sup>123</sup> Literature can point to the world, but only in the sense that it can indicate a particular aspect or feature of the world, which it must describe and locate in more or less detail for a competent reader who understands what it is trying to do (at least in theory). This kind of realistic representation

is opposed to the idealized kind suggested by Buell's use of the term "mimesis" and favored by the philosophical tradition.

According to John Dewey, philosophical realism of the traditional sort overlooks the makeshift character of our representations of the world:

It postulates, even though only implicitly, a pre-established harmony of the knower and things known, passing over the fact that such harmony is always an attained outcome of prior inferences and investigations. It assumes a knowing mind wholly guileless, and extraordinarily competent, whose sole business is to behold and register objects just as what they are, and which is unswervingly devoted to its business.<sup>124</sup>

The more subdued variety of realism favored by a pragmatist like Dewey is founded not in an idealized vision of the powers of human consciousness but in convention. Speaker and auditor, writer and reader must follow elaborate protocols of cultural competence in order to make such realism operational. Otherwise, one is apt to misinterpret a sentence like the following, from William Dean Howells's novel *The Rise of Silas Lapham*, as a description of something macabre: "He did not rise from the desk at which he was writing, but he gave Bartley his left hand for welcome, and he rolled his large head in the direction of a vacant chair."<sup>125</sup>

Realism is idiomatic. It works only when interlocutors share assumptions about what is ordinary and the proper way to describe it. Such sharing isn't universal.<sup>126</sup> It may be quite rare, and it is certainly context-dependent. The philosopher Max Black states a pertinent principle: "An imperative gesture is an instrument for producing a determinate response by a willing and competent receiver."<sup>127</sup> In Howells's novel, Bartley was willing and competent, so he sat down when Silas Lapham rolled his large head at the vacant chair. For him to do so was only a matter of common courtesy, which however common it may be isn't universal. In other words, it isn't *natural*. Point at something for the benefit of your Labrador puppy, and it will stare at your finger. But train your puppy, and it will go wherever you point it. The same rule holds true for imperative speech: speak to your puppy, and if it is obedient, it will recognize your speech as a call to action of some kind or another: "Fetch! Bark! It's time for a walk!" It will be a willing and competent retriever. But it will not regard your speech as a representation of how things are, nor will any human bystanders who happen to overhear you (unless, of course, they are diehard realists with something to prove). For them, much the same kind of contextual constraint is in effect, though for humans constraints of this sort are considerably more complicated.

This last claim can be confirmed by experiment. If you mimic the call of the screech owl according to Thoreau ("*Oh-o-o-o-o that I never had been bor-r-r-r-n!*"), your friend, no matter how competent his woodcraft, may express concern for your psychological well-being. Repeat verbatim Peterson's description of the same call,

and the results will be a little better, if your friend thinks he has heard something like that before and if your recital from Peterson is made in an appropriate context. Say to your friend, "Pay attention to me—this is how a screech owl sounds," then whistle like a screech owl (if you can: it isn't easy to do), and the results will improve dramatically. But would we want to compare your whistling to a *literary* performance? Or, the more extreme alternative, would we want to treat it as a *model* of literary performance? I think we would balk at that. So would Buell and other ecocritics of similar inclination (Elder, for instance: recall his remarks about the "aural transcription" of a mockingbird's song in Mary Oliver's poem "In Blackwater Woods"). But on what grounds? If successful "outer mimesis" is the acid test of the environmental imagination, then Buell and company, if they are serious about returning to realism, will have to admit some unliterary but realistic texts and some literal-minded but realistic works of art, like duck decoys, into the canon of works worthy of praise and (here's the rub) ecocritical attention.

On this score, Buell has the courage of his convictions, at least where literature is concerned. In *The Environmental Imagination* he celebrates hitherto neglected works of "environmental prose" like Susan Fenimore Cooper's *Rural Hours*, an account of life in Cooperstown, New York, in the mid-nineteenth century. For consistency's sake, he should treat other texts that seem indisputably literary (certain passages of *Walden*, for example: Thoreau was no realist, however much he valued real things) as less valuable than they have been thought to be, and he also may not be unwilling to do that.<sup>128</sup> There is, however, a further contradiction or confusion at the heart of his argument. I began my discussion of *The Environmental Imagination* by quoting its author's assertion that an inquiry into the environmental imagination involves an exploration of the "limitations of literature's representations" in the light of recent literary theory. Buell's desire to explore those limitations isn't as strong as his desire to flout the warnings of theory and philosophy about the naiveté of realism. He makes a mistake common in both ecocritical and environmental circles: he assumes that to think ecologically and environmentally is to recover the habits of thought of some era in the past before the disruption of the human and natural worlds by a heedless agriculture, a runaway industrialism, the loss of faith, the discovery of relativity, the embrace of modernism, and the advent of the postmodern.

To imagine that the solution to the environmental crisis involves a return to the past ignores the fact that our understanding of the environment has come about, in large part, through the disruption of nature by agriculture and industrialism and the concomitant rise of science. Without environmental crisis, in other words, there would be no environmental imagination. At best, there would be only a very attenuated one. Nor would there be ecologists struggling to understand and repair a damaged natural world: we would still be living in the era of natural history, when purely descriptive studies of nature uninformed by scientific theory and experiment, and not driven by practical concerns with environmental protection and

restoration, were the norm. There is considerable irony in the fact that in order to begin to understand nature, we had first to alter it for the worse. Foursquare realism is not the worldview best suited to helping us understand that irony, just as a sense of place of the sort displayed by Susan Fenimore Cooper in *Rural Hours* and by Thoreau in *Walden* will not prepare one for life in present-day Cooperstown and Concord, much less for the complexities of acid rain, global warming, urban sprawl, and a host of other environmental ills. Today the real is contested not only in the academy, but in reality as well.

# 5

## What Do Nature Writers Want?

*Nothing can escape being put into question by History; not even good writing.*

*Roland Barthes, Mythologies*

### *Form*

Before I begin to answer the question posed in the title of this chapter, I need to define my topic and to draw a few distinctions that will help to clarify the lines of my argument. Judging from the contents of the anthologies, conference papers, and journal articles ecocritics have devoted to the subject, I find that when they refer to *nature writing*, they usually have in mind a nonfiction prose essay describing a first-person narrator's efforts to establish an intensely felt emotional connection with the natural world. This emotional connection can be a more or less idiosyncratic one, depending on the temperament of the individual nature writer, who often lives or at least writes in relative isolation from other human beings, and who may have no interest whatsoever in being tutored by the natural sciences, preferring instead to find things out first-hand whenever possible.

Of course, a given example of nature writing will not be readily identifiable as such if its author's attempts to forge an emotional connection with the natural world, however they are conducted, fail to follow a certain script. And yet spelling out the details of this script in an unambiguous way has turned out to be a difficult task, as always seems to be the case when we turn from poring over the content of texts to begin pondering the more difficult question of their form (which is precisely why, as a critical term, "form" often works in such mysterious ways). For example, Robert Finch, who in addition to being a student of nature writing as a form is one of its most distinguished practitioners, argues that "the natural pattern" of nature writing is "the excursion"—the venture out into something unknown or not familiar, and "then coming back and shaping that experience into something."<sup>1</sup> Finch's description of the "pattern" of nature writing, though it is a very broad one, is accurate enough. I would find it much more apt, however, if Finch had resisted the urge to define the pattern he has detected in nature writing as a "natural" one. Strictly speaking, there can be no such thing as a "natural pattern" for nature writing, since the essay is not, to borrow a phrase from philosophy, a natural kind.

I realize that this may seem to be speaking more strictly than is warranted; but the word “natural” plays a double role in characterizations of nature writing like Finch’s, in which many things about nature writing are passed off as natural when it’s perfectly obvious that they aren’t. Its enthusiasts have a habit of taking nature writing as a given, and of ignoring its cultural peculiarity and particularity—its very *formality*, you might say (the title of Frank Stewart’s book, *A Natural History of Nature Writing*, is a neat instance of this habit).<sup>2</sup> By contrast, in this chapter I am going to attempt to treat nature writing “unnaturally,” or critically and theoretically, and that will mean holding it to tighter standards of consistency than its creators and its critics are used to assuming. The risk here is nit-picking, and obtuseness of a sort that belonging to the culture one studies is usually enough to preclude. This is a risk I am willing to run, since I think it is far from being the case that natural is as natural does.

As I have confessed more than once in this book, nature itself (if you’ll pardon the expression) seems to me to be much less culturally and socially constructed than has been claimed by the harshest critics of the “natural” point of view. But surely nature writing is culturally and socially constructed, and in a thoroughgoing fashion: its tendency to follow the typical pattern described by Finch is strong evidence that such is the case. Otherwise, a hundred flowers would have bloomed, and it would have been difficult for enthusiasts of the form to agree about nature writing to the remarkable extent to which they have been agreeing, however ambiguous the terms on which they agree seem to be. The ecocritic Don Scheese, for example, offers a description of nature writing’s form that is much more detailed than Finch’s, but otherwise very similar to it. Scheese writes: “The typical form of nature writing is a first-person, nonfiction account of an exploration, both physical (outward) and mental (inward), of a predominately nonhuman environment, as the protagonist follows the spatial movement of pastoralism from civilization to nature.”<sup>3</sup> Scheese’s description, because it emphasizes that the typical nature writing narrative moves “from civilization to nature,” also seems to naturalize the form, just as Finch’s does. However, Scheese does omit one essential: the return to home, both literal and figurative, which as Finch rightly points out completes the narrative movement of most nature writing.

So much, at least for the time being, for descriptions and definitions; now for the distinctions I mentioned earlier. Nature writing is to be distinguished, most importantly, from *natural history*, in which the narrator, if there is one, is a much more neutral party, whose character need not be all that strongly marked. This narrator is keen to explore and understand the complexities of nature, but stops short of full-fledged scientific investigation and report, though some of the natural historian’s best friends are likely to be scientists. Nor is the natural historian, when it comes time to write, going to feel driven in his guise as narrator by the same formal considerations that are important to nature writers.

To make the distinction I am driving at as clear as I can, and at some risk of overstating it, I should say that nature writing is belletristic, and in a fairly conventional way; natural history, by contrast, is much less so. As Sherman Paul observes in his book *For the Love of the World*, most nature writing “doesn’t challenge dualism so much as exploit it by giving the mind sovereign play, sometimes in sentiment and sentimental spirituality, and most often by a show of literary sensibility. Nature writing,” he concludes, is “‘fine’ writing.”<sup>4</sup> Since Paul is otherwise full of praise for the form, that he should find nature writing’s display of “literary sensibility” irksome is, I think, instructive and puzzling in equal measure. And Paul isn’t alone in his distaste for the showiness of the form: the ecocritic Karl Kroeber also complains that nature writers are overly attracted to what he describes as “dim-witted and unpleasant mysticisms,” an attraction which in his view obviates some of the virtues of their work.<sup>5</sup> I want to follow up on the rather arch observations of Paul and Kroeber by putting this “‘fine’ writing” still further “into question,” which as Barthes suggests will mean setting American nature writing (and in the sense in which I’m using the term “nature writing,” there may not be any other kind) in historical perspective.

I would be remiss, however, if I didn’t refine the distinctions I’ve just been making by noting that there are authors of so-called nature writing who do avail themselves of much that natural history and the natural sciences have to offer, and who are fully committed to standards of objectivity and to getting the facts straight. But this doesn’t mean that they keep their own subjectivity completely in check when they write and never yield to sentiment. Other nature writers, and some of the most popular ones (the ones that Paul and Kroeber are likely to have had in mind), seem to regard natural history and natural science less as aids than as obstacles to achieving a spiritually satisfying relationship with nature. And yet they, too, may be perfectly willing, despite their suspicions and their sentimentality, to make use of the information that natural history and natural science provide, if that information is sufficiently striking and suggestive to the imagination. Nature writers who belong to this second group present themselves both as keen observers and as spiritual barometers sensitive to the pressures that weigh upon body and soul here on earth.

Perhaps the best way to make the several distinctions I’ve drawn so far come to life is by turning, without any further preamble, to the work of a nature writer who has received a great deal of attention from ecocritics, and whose formal wizardry is widely acknowledged. Annie Dillard’s 1974 book *Pilgrim at Tinker Creek* is probably the single most popular nature essay published in the United States since the sixties. Chiefly for this reason, it figures centrally in most studies of the contemporary nature-writing canon (if that’s the right term), which has already been memorialized in anthologies brought to press by major publishers like Norton. But Dillard’s prominence in these anthologies, and in recent studies of nature writing, is equally the result of genuine admiration for the textures of her prose on the part of anthol-

ogists and ecocritics alike. *Pilgrim at Tinker Creek* is, to borrow Paul's phrase, a definitive example of what is meant by "fine" writing." It is a painstakingly *literary* text.<sup>6</sup> That it is also a thoroughly constructed text, and a product of Dillard's very deliberate and quite self-conscious manipulation of nature writing's key elements, should be more apparent to the book's many fans than it seems to have been. This is especially true of the book's academic fans; most of them are aware that not long before she wrote *Pilgrim at Tinker Creek*, Dillard wrote a master's thesis on the formal structure of *Walden*.<sup>7</sup> The none-too-surprising result is that "*Tinker Creek* is more like the book formalist criticism imagined *Walden* to be than *Walden* itself is," as Lawrence Buell puts it.<sup>8</sup>

By calling into question its originality, I don't mean to suggest that the popularity of *Pilgrim at Tinker Creek*, academic and otherwise, is undeserved or that the book has no merit. It is a veritable *tour de force*, even if a certain amount of its force is siphoned off from the source materials its author taps whenever she skillfully weaves together recollections of the exhilarating little walks she took each day with an account of her adventures as a reader. It is from these adventures in reading that Dillard's ability to engage in religious and philosophical speculation derives; they also help her to fill out the brief sketches of local natural history she offers along the way.<sup>9</sup> That Dillard's experience is both framed and informed by her reading helps to ensure that her own reader is never in any danger of feeling challenged by the sheer factuality of Tinker Creek and its environs. The creek and its environs remain just as mysterious to her reader as they are to Dillard herself.

We know that Dillard finds Tinker Creek and the surrounding Blue Ridge mountains mysterious because she tells us as much at every opportunity. Early in the book, for instance, she writes, "We don't know what's going on here." Disarming statements of this sort are one of Dillard's trademarks; she is adept at suggesting, in an intimate, conversational way, the confusion that dwelling on earth causes those who are as spiritually inclined as she is. "Our life," she explains, "is a faint tracing on the surface of mystery, like the idle, curved tunnels of leaf miners on the face of a leaf. We must somehow take a wider view, look at the whole landscape, really see it, and describe what's going on here."<sup>10</sup> Two things strike me about Dillard's characterization of mystery, and I want to deal with each of them as thoroughly as I can.

The first point I would like to make about mystery has to do with the way in which Dillard's words on the subject play off of one of recent nature writing's favorite tropes. To take "a wider view" is to return to wide-eyed innocence, which is both a naïve point of view and something like a full-fledged epistemology (all it really lacks is the philosophical articulation that would make its premises cohere into a theory about how we come by our knowledge of the world). But Dillard has something broader and much more sensual in mind than her suggestion that we should take "a wider view" implies. She does want us to open our eyes, but she wants us to flare our nostrils, peel our ears, cleanse our palates, and awaken our nerve endings, too. She wants us to become, as she claims to have become during her stay at Tinker

Creek, “a tissue of senses.”<sup>11</sup> For each of us actually to become “a tissue of senses” might be an extraordinary feat, one that would greatly intensify the pleasure we take in daily life; but it also would overwhelm us with information for which we have no use, leaving us helpless. Perhaps this is why Dillard doesn’t relish the enhancement of her sensuality quite so much as she might. For her, to become “a tissue of senses” means reenacting, moment by moment, the passion of the spirit made flesh, in keeping with the Christian themes emerging, submerging, and reemerging throughout her work.<sup>12</sup>

In *Pilgrim at Tinker Creek* Dillard makes it clear that she is much more vulnerable to earthly disappointments than she might otherwise be, precisely because she can become “a tissue of senses.” Again and again, she feels intense satisfaction give way, in the very instance of its recognition, to sharp dissatisfaction. On one such occasion, while she pets a puppy and gazes at a nearby mountain, Dillard briefly experiences both the puppy and the mountain as fully present to her senses: “I am,” she writes, “more alive than all the world.” And she adds: “The second I verbalize this awareness in my brain, I cease to see the mountain or feel the puppy.”<sup>13</sup> One would like to think that Dillard doesn’t mean that second assertion literally; and yet it makes very little sense if one chooses to regard it as figurative speech. Dillard seems to be trying to insert a conundrum between herself and her experience, a conundrum she can exploit as a source of dramatic tension—of “mystery”—in her written account of the experience. Her very disavowal of verbalization is meant to be a “writerly” gesture.

Because Dillard assumes that the experiential and the verbal can’t be reconciled, she finds nature stimulating and frustrating in equal measure. She hints at the ambivalence of her attitude when, early in *Pilgrim at Tinker Creek*, she wishes that nature were more reliably present, and thus more readily available to fill her spiritual and literary needs. “Unfortunately,” she writes, “nature is very much a now-you-see-it, now-you-don’t affair.”<sup>14</sup> But Dillard is using the word “nature” in a special sense. For her, “nature” isn’t just whatever happens to lie outside her window and beyond her front door: it isn’t grass, trees, and flowers, or mammals, reptiles, birds, fish, and insects, or the folded hollows and sprawling ridgelines of the nearby mountains. “Nature” as Dillard characterizes it is at least once removed from all these things; it isn’t the water, it’s the spirit that moves upon the water. And it is revealed only in those moments of epiphany in which Dillard is permitted to pet a puppy and look at a mountain simultaneously, or in which she glimpses a rarity that she hasn’t seen before, but may have read about in the work of a writer more expert in natural history than she is.

In *Pilgrim at Tinker Creek*, the rare things, the magical, “now-you-see-it, now-you-don’t” things, include events like the death of a frog in the jaws of a giant water bug: “He was a very small frog with wide, dull eyes. And just as I looked at him, he slowly crumpled and began to sag. The spirit vanished from his eyes as if snuffed. His skin emptied and drooped; his very skull seemed to collapse and settle like a

kicked tent. He was shrinking before my eyes like a deflating football." Dillard says that she was so moved by this sight that she couldn't catch her breath when "the unrecognizable flap of frog skin settled on the creek bottom, swaying." She also claims to have been deeply moved by the play of light in the crown of a cedar tree: "I saw the backyard cedar where the mourning doves roost charged and transfigured, each cell buzzing with flame. I stood on the grass with the lights in it, grass that was wholly fire, utterly focused and utterly dreamed. It was less like seeing than like being for the first time seen, knocked breathless by a powerful glance."<sup>15</sup> In *Pilgrim at Tinker Creek*, events like these become important tokens of Dillard's spiritual sensitivity. Such events are made all the more token, and turned into literary devices, by virtue of the fact that at least one of them, the giant water bug's gruesome act of predation, never occurred, at least not in Dillard's presence; she based her description of it on a passage from the work of another nature writer.<sup>16</sup>

Dillard's handling of episodes like the death by misadventure of the frog and the transfiguration of the cedar tree in her backyard suggests that nature must be startlingly on display—all aglow and awash in mystery—in order to attract our attention and capture our interest. Thought of in this way, nature is in danger of becoming for us yet another form of hackneyed entertainment, a procession of visual clichés like Old Faithful, Niagara Falls, Yosemite Valley, and the Grand Canyon. But considering Dillard's penchant for extreme emotional thrills, I think she is probably too much the connoisseur and too jaded to be satisfied by anything as tried and true as Old Faithful: she needs that extra frisson, and seems to be something of a "traumatophile."

The term "traumatophile" is one I'd like to borrow from Walter Benjamin, who in his essay "On Some Motifs in Baudelaire" reports that the poet "made it his business to parry the shocks, no matter where they might come from, with his spiritual and psychological self." This habit, Benjamin argues, reduces "experience" or *Erfahrung* to "the sphere of a certain hour in one's life," or *Erlebnis*. Experience as *Erfahrung* is know-how, expertise, skill; experience as *Erlebnis* is adventure, chance occurrence, a passing sensation. I'd like to suggest that natural historians are interested in *Erfahrung*, and that nature writers like Dillard are interested in *Erlebnis*. And even though the distinction between the two kinds of experience is a sharp one (at least in German), they are easily confused. *Erlebnis* is "a passing moment," Benjamin writes, "that struts about in the borrowed garb of experience" and conceals the fact that it is only a flash in the pan.<sup>17</sup> The borrowing of authority from experience (*Erfahrung*, knowledge, expertise, skill) in order to dress up the insight of "a passing moment," of an occurrence real or imagined or merely appropriated from another's text, is one of Dillard's specialties.

Ecocritics have pointed out that many nature writers are seeking a nonverbal, sensual awareness of nature, which they must find some way to verbalize and to make sense of, owing to the demands of their vocation. Only in this way can nature writers "truly become, as well as write, nature," as one ecocritic has argued Dillard

wants to do.<sup>18</sup> Yet Dillard always insists that her efforts to “truly become” nature while trying to write about it, too, are more or less futile and doomed from the start. “We don’t know what’s going on here,” she says in the opening pages of *Pilgrim at Tinker Creek*, before suggesting, later in the book, that her habit of putting things into words robs her of whatever small knowledge of nature that she manages, however fleetingly, to acquire. But Dillard seems to think that, all worries about verbalization to one side, our situation is extremely dire: the mere fact of our self-consciousness, she says, is enough to separate us “from our fellow creatures.” She adds that self-consciousness is “the curse of the city and all that sophistication implies.” But since Dillard also believes that the city is “the novelist’s world, not the poet’s,” I would argue that her problem is actually not one of “self-consciousness” so much as it is one of genre and form.<sup>19</sup> She is trying to force essentially lyric thoughts into the prosaic container of the nature essay.

In any case, I think it’s clear that Dillard protests too much when she claims not to know “what’s going on here.” To hear her tell it, she suffers from a paradoxical form of aphasia, in which linguistic fluency isn’t impaired but heightened, only to be offset by a leaching away of the very experience about which the afflicted speaker has said something fluent, perhaps even something brilliant. The more articulate the statement made about the experience, the more the experience itself withers away and the less immediate it becomes, so that lucid understanding of and memorable statement about anything, no matter how simple that thing may be (the profile of a mountain on the near horizon, or the warm fur of a puppy), begins to seem like evidence of mental impairment and spiritual poverty. The cure for this affliction is only too obvious: falling silent, and finding another line of work.

This brings me to the second point I want to make about Dillard’s insistence on mystery, which has to do with the ironic way in which the idea of mystery actually depends on an assumption about alienation, from which it derives most of its force. Dillard assumes that human consciousness is alienated from the natural world, which is less rationally ordered and therefore more mysterious than the human mind would like it to be. Because she is so heavily invested in the idea of mystery, or in the idea of alienation, which amounts to the same thing, she often seems both awe-struck and angst-ridden at the same time, and it’s hard to see how she can have it both ways. Notice how carefully her figure for mystery is gleaned from her reading in entomology: mystery is “like the idle, curved tunnels of leaf miners on the face of a leaf.” Where, exactly, is the mystery here? Not “on the face of a leaf,” not if one knows that those tunnels are made by leaf miners, but in the eye—and the prose—of the beholder. This eye isn’t so wide open after all: Dillard very carefully selects the figures she uses to suggest the presence of mystery in her writing. Arguably, it is only because she tends to use details like the leaf miners’ tunnels to illustrate her points that she has any reputation as a nature writer at all; the habit of illustrating her points with examples drawn from natural history is in keeping with the persona she has adopted in imitation of Thoreau. But her true interest seems to lie elsewhere.

Walt Whitman's true interest also lay elsewhere when he employed aesthetic strategies like Dillard's a century and a half ago in order to celebrate his own mystical experiences and yearnings. Consider the following passage from "Song of Myself," in which a figure similar to that of the leaf miners' tunnels, the "little wells" of brown ants hidden beneath withered leaves, is used in order to suggest the ineffable:

Swiftly arose and spread around me the peace and joy and knowledge that  
 pass all the art and argument of the earth;  
 And I know that the hand of God is the elderhand of my own,  
 And I know that the spirit of God is the eldest brother of my own,  
 And that all the men ever born are also my brothers . . . and the women my  
 sisters and lovers,  
 And that a kelson of the creation is love;  
 And limitless are leaves stiff or drooping in the fields,  
 And brown ants in the little wells beneath them,  
 And mossy scabs of the wormfence, and heaped stones, and elder and  
 mullen and pokeweed.<sup>20</sup>

One has to wonder why a celebrant of nature would want to credit, as Whitman does here, a notion like the "peace and joy and knowledge that pass all the art and argument of the earth." "The art and argument of the earth" (human art and argument not excluded) should be of great concern to any writer about nature. But Whitman wants to have all of the art, without having any of the argument. Like Dillard, he thinks of argument as something that belongs in the "novelist's world" of the city: it has no rightful place either in poetry or in nature. Like Dillard, he too is forced to become something of a genre-bender.

In the 1870s, Whitman enjoyed moments of lyrical transport alongside southern New Jersey's Timber Creek, and recorded them in a series of memoranda punctuated by untutored meditations on natural history, memoranda he later collected and published in *Specimen Days* (which he might have entitled *Erlebnis Days*, though we probably should be grateful that he didn't). I think the poet's experience at Timber Creek, much more than Thoreau's experience at Walden Pond, establishes the model Dillard was to apply alongside Tinker Creek in the 1970s, even as the two place names are near echoes of one another, and despite Dillard's faithfulness to the template provided by *Walden*. The guidelines laid down by Thoreau are honored by later nature writers as much in the breach as in the observance, and Dillard, whatever she may have had in mind when she wrote *Pilgrim at Tinker Creek*, is no exception: her sensibility is much closer to Whitman's than it is to Thoreau's.

That Whitman was quintessentially an urban poet and a rough-hewn American version of the Baudelairean *flâneur* only strengthens the similarity between him and Dillard. Like Whitman at Timber Creek, Dillard is posing as an exurban writer (she is city-bred, but rusticated herself when she began to write). And just as Whit-

man's were, Dillard's creek-side excursions are a rural version of the *flâneur's* promenades in search of something that Benjamin identifies as the "shock factor," the intense but fleeting moments of sensuous disorientation and psychic reinvigoration that the modern city provides in abundance.<sup>21</sup>

*Pilgrim at Tinker Creek* has been a keystone of most ecocritical attempts to construct a genealogy for American nature writing, so recognition of just how problematic Dillard's pursuit of "mystery" and her relationship to Thoreau are is long overdue. Like Dillard, ecocritics have assumed that nature writing has the power to move us because it is evocative of experience. But what sort of experience is it that the contemporary nature writer actually has and evokes? It seems to be an entirely literary one, in the sense that it involves a great deal of self-fashioning by way of self-conscious imitation. Regardless of whether Dillard modeled *Pilgrim at Tinker Creek* narrowly on *Walden* or more broadly on a variety of texts including Thoreau's, there is no doubt that the formal conventions of the nature essay are worked with great fluency in the book. From the point of view that I am trying to establish here, Dillard's fluency seems almost cynical.

### Resonance

NATURE *How beautiful nature is! Say this every time  
you are in the country.*

*Gustave Flaubert, The Dictionary of Received Ideas*

*Pilgrim at Tinker Creek* is designed to flatter a certain kind of contemporary sensibility. Its ideal reader is someone who feels almost entirely cut off from the natural world, who interprets ignorance of natural history as a symptom of a debilitating spiritual malaise, and who imagines that an intense experience, perhaps only one such experience, of some natural phenomenon will provide a means of resuming intimacy and daily commerce with the earth—that it will be an epiphany, in short. And "in short" isn't a phrase I use idly: Dillard's book is well-stocked with epiphanies, which come at its reader thick and fast. I imagine that the keenest of its admirers collect butterfly cocoons, sleep with their windows up, and wait hopefully, just as its author did, for revelations to emerge and unfold, or to leap through the open sash like Dillard says her tomcat used to do.

While we are pondering the role that epiphany plays in *Pilgrim at Tinker Creek*, we should recall the argument that Philip Rahv makes in his classic essay on "The Cult of Experience in American Writing." "The Transcendentalist movement is peculiar in that it expresses the native tradition of inexperience in its particulars and the revolutionary urge to experience in its generalities," Rahv argues. "No wonder, then, that Transcendentalism declared itself most clearly and dramatically in the form of the essay—a form in which one can preach without practicing."<sup>22</sup> Rahv's

point is that innocence and experience cannot be had simultaneously. Yet something of this sort—something distinctly *unnatural*, you might say—seems to be what Emerson (in essays like “Nature” and “The American Scholar”) urges his readers to attempt in order to found American culture and literature on an appropriately “natural” footing. Was Emerson really suggesting that we just fake it, in order to get our culture and our literature off the ground? And are nature writers like Dillard following meekly in the train of someone who, to put the point bluntly, may have been a bit of a charlatan, intellectually speaking?

In order to help sort out the conflicting (and hence transcendental) claims about the potentialities of experience that seem to be essential to the Emersonian tradition, we also should recall, once more, the arguments Benjamin makes in his essay on Baudelaire. There Benjamin suggests that “conditions for a positive reception of lyric poetry” are unfavorable as a result of “a change in the structure” of the lives of lyric poetry’s readers, lives which have been fragmented and objectified by the forces of history, especially capitalism. In lyric poetry, experiences of the kind celebrated by Emerson, and by the nature writers who wittingly or unwittingly have followed his example, are centrally important; but such experiences are increasingly remote from the realities of everyday life, according to Benjamin. He writes: “Since the end of the last century, philosophy has made a series of attempts to lay hold of the ‘true’ experience as opposed to the kind that manifests itself in the standardized, denatured life of the civilized masses. It is customary to classify these efforts under the heading of a philosophy of life.” But early twentieth-century attempts to found a “philosophy of life,” Benjamin adds, were not conducted on the most promising basis: “Their point of departure, understandably enough, was not man’s life in society. What they invoked was poetry, preferably nature, and most recently, the age of myths.” The pessimist in Benjamin insists that philosophy’s attempted revival of a more immediate notion of experience is an outright falsification of the historical moment, in which the poet who “has been cheated out of his experience” is, like everyone else, “a modern man,” which given the turmoil of the times (the 1930s) does not strike Benjamin as a very good thing to be. But the optimist in Benjamin, who seems inseparable from the pessimist in him (thus the meditative, nonargumentative character of his essay), insists that philosophy’s attempt to recapture a sense of lived immediacy is a vital expression of resistance to the very forces of modernity that make having such a sense impossible in practice, practice being, as Benjamin says, “in decline,” which is also why “the lyric poet with his halo is antiquated.”<sup>23</sup>

Benjamin therefore argues that lyric poetry, even though it celebrates antique values and is steeped in philosophical anachronism, does reveal some vital truths about the present moment; but it does so in much the same way that the flash of lightning reveals the surrounding darkness of the night. For this reason, it isn’t the conjunction of expression and practice in lyric poetry, but the rift between them, that Benjamin probes in his essay; and this is a rift similar to, if not identical with,

the one I have been exploring with regard to *Pilgrim at Tinker Creek* as an exemplar of contemporary nature writing. If this rift seemed remarkable to Benjamin and to Rahv, both writing in the 1930s, it seems even more remarkable today. But because ecocriticism has been hostile to ideological criticism of the sort practiced by Rahv and Benjamin, and as befits a movement premised on the hope of rebirth, it has insisted that the foregrounding of personal experience in the nature writing essay is the seal of its authenticity as a literary form and the sign of its philosophical validity.

To put the point I am trying to make in less literary-critical and more sociological terms, I'd like to suggest that *Pilgrim at Tinker Creek* is popular because of the appeal it makes to the peculiar character of the contemporary self. But this is something that the book doesn't do uniquely, as if it were the only one of its kind: most contemporary nature writing, it seems to me, is *too selfish*, by which I mean that it is too preoccupied with the self as the formative and essential element of experience, and overly concerned with the self, not as an ethically responsible entity and a citizen of the world, but as the locus of what passes for spiritual life in a secular culture. I realize that my impatience with this defining feature of today's nature writing will seem a little strange to other ecocritics. Frank Stewart probably speaks for the majority when he notes, approvingly, that nature writing "explores how we might restore balance in our paradoxical selves, a restoration achievable only by awakening our kinship with all the other parts and processes in nature."<sup>24</sup>

But I am much less taken with the therapeutic function and character of nature writing than Stewart is, albeit for reasons other than the one put forward by Lawrence Buell, who argues that we ought to resist the temptation "to read nonfiction as lyric, as the adventures of the 'I,'" since that will prevent us from doing "full justice to environmental nonfiction." It seems to me that the just reading Buell goes on to recommend, which is a realist one, would entail treating the narrator of "environmental nonfiction" as a mere place-marker—literally as an "I," a character of the alphabet, that is, rather than as the sort of character we wouldn't be surprised to find entangled in a plot. In other words, such a reading would entail a formalist treatment of environmental nonfiction of precisely the sort that Buell disapproves of otherwise: it would force us to regard the "I" as nothing more than a "textual function."<sup>25</sup> But since Buell is eager to discuss environmental literature in terms of its realism, he needs to get the narrator—who is, after all, a mediating figure—out of the way, or at least cut down to size. When gotten out of the way or cut down to size, the narrator—who is almost always identical with the author—can do much less to hamper nature writing's performance of its essential task of referring to the world. Unfortunately for Buell's argument, which obviates the distinction between nature writing and natural history that I began this chapter by drawing, nature writers seem quite unwilling to let the "I" disappear, however anxious they may be to integrate it with its surroundings.

Buell also argues, correctly from my point of view, that the effect of the seemingly inexhaustible interest in themselves displayed by many nature writers is to call

into question “whether the self is as interesting an object of study as we supposed.”<sup>26</sup> I am persuaded that it isn’t; but that doesn’t mean we can simply brush the self aside as an object of study: we have to meet it head on. I therefore am in agreement with Wendell Berry’s notion about the best way to deal with such “consecrated bovines.” Berry writes: “Any human product or activity that humans defend as a category becomes, by that fact, a sacred cow—in need, by the same fact, of an occasional goosing.” “The most exalted of all the modern sacred cows,” he adds, is “the self.”<sup>27</sup>

Its having become *too selfish*—its delicate treatment of the self as a “modern sacred cow”—tends to ensure the imaginative and ethical impoverishment of contemporary American nature writing. This needs to be stressed not despite but because of the good moral characters and sound environmental ethics of many nature writers (something for which it would be difficult to provide hard proof, apart from the activist stance that many of them adopt both in their work and in their private and public lives; but I’m willing to grant it for the sake of the argument). The selfishness or self-absorption implicit in the very form of nature writing, as it seems to be construed these days, can dilute good intentions and ethical commitments, at least in terms of their effective expression, literary and otherwise. It also can keep us from treating sacred cows like so much red meat.

Nature writers and ecocritics need to abandon their assumption that the self is a transcendental entity not to be explained in the terms of biology, common sense, and everyday life. At the very least, they need to grant that the self is something that can be explained, somehow or another. They might consider thinking of the self in terms of the evolutionary concept of the extended phenotype. According to Daniel Dennett, the phenotype “not only extends beyond the ‘natural’ boundary of individuals to include external equipment such as shells (and internal equipment such as resident bacteria); it often includes other individuals of the same species.” Dennett provides a couple of examples of the extended phenotype, each of which emphasizes its social and pragmatic aspects: “Beavers cannot do it alone, but require teamwork to build a single dam. Termites have to band together by the millions to build their castles.” The concept of the extended phenotype comprehends both the natural facts and the artifacts associated with a given species. One of the artifacts associated with human beings, Dennett suggests, is the self. He characterizes the self as a “web of discourses” and as a “center of narrative gravity.” But this doesn’t mean that we make it up: the self, Dennett says, is “as much a biological product as any of the other constructions to be found in the animal world.”<sup>28</sup> If he is right, then the nature writer’s worry about connecting the self to its surroundings is unnecessary. That hard work has been done by evolution.

The fact that a lot of nature writing has its source in a misunderstanding about the self has unhappy literary consequences: narratives driven by a concern with a pseudo-problem are bound to seem like pseudo-narratives. In other words, they are bound to seem melodramatic. Many nature writers try to create narrative interest by describing the displacement of mild agitation by timid euphoria. This displace-

ment tends to occur in so patterned a fashioned and so punctually (just at the end of each essay and chapter: how do they do it!) as to make it seem trite. And it *is* trite; considering the wild places nature writers spend their time exploring, it is a very small wonder that they are able to connect with nature. The effort required is not so great as they would have us believe.

In *Walden*, Thoreau notes that the “doubleness” or standing apart engendered by our treatment of the self as a transcendental entity can “easily make us poor neighbors and friends sometimes.”<sup>29</sup> I think it also can impoverish our imaginative relationship to and our depiction of the natural world, especially if we overlook John Dewey’s warning, with regard to private experience, that “the quality of belonging to some one is not an all-absorbing maw in which independent properties and relations disappear to be digested into egohood.”<sup>30</sup> Earnest attempts to achieve this sort of digestion are frequently encountered in nature writing (and in other variants of the personal essay), so frequently that many ecocritics have assumed that the quest for greater awareness and a more intense experience must be definitive of the form.

I’m not suggesting that this assumption is baseless; Thoreau, John Burroughs, and John Muir also put themselves at the centers of their essays. But the self at the center of recent nature writing essays is not the same as the self at the center of the essays of Thoreau, Burroughs, and Muir. It is represented as incapable of sustaining the intense, life-long involvement in a particular place that gave definition to the characters of Thoreau and Burroughs—that, in effect, made them characters. And it also seems to be incapable of sustaining the buoyancy of character possessed by Muir, whose wanderlust never made him feel displaced, as it might well have done. Only a few of today’s nature writers attempt to achieve the pitch of ecstasy that was Muir’s most characteristic note, and their efforts to do so seem strained, especially in contrast to the unforced joy that Muir, by all accounts including his own, was able to achieve.

Because it has been shaped by different cultural and historical forces than those that shaped the selves of earlier nature writers, the self as it figures in recent nature writing is more a psychological than a spiritual entity. The latter kind of self is increasingly in short supply, owing to the fact that our “contemporary climate is therapeutic, not religious.”<sup>31</sup> And this means that in “the America of Linus,” as Umberto Eco has put it, “happiness must assume the form of a warm puppy or a security blanket.”<sup>32</sup> I think this cultural context explains the tendency that nature writers have to hold forth on “spiritual” matters, and I think it also explains why they seem to have become de facto authorities on such matters for many of their readers, just as Linus Van Pelt is for Charlie Brown. Nature writers are, however, much more eclectic than Linus, whose theological perspective is circumscribed by his devotion to the Old and New Testaments. Nature writers prefer to shop around more; they range freely across cultures in search of viable language to use in describing their “spiritual” aspirations, which is very strong evidence that the

historical moment in which those feelings might have had an inherent meaning has passed.

Back, then, to Annie Dillard, whose daily routine as a resident of Tinker Creek is not so different from the daily routine of the children who inhabit the suburbia depicted in *Peanuts*, in that it, too, has a certain repetitiveness, which gives it a formal coherence it might otherwise lack. When Dillard describes what is for her a typical day, she offers an epitome of the classic nature essay conceived of as an “excursion”: “I walk out; I see something, some event that would otherwise have been utterly missed and lost.”<sup>33</sup> This, of course, is not the whole story; its conclusion, “I walk back in; I write about what I saw,” goes unnoted by Dillard. Though it may be truncated and elliptical, a little narrative of walking out, seeing something, and exclaiming over it is as much of a story as one usually gets in most nature writing, the priorities of which lie elsewhere.

As I’ve suggested, those priorities are for the most part *selfish* ones. Time after time, Dillard terminates her excursions with lyric outpourings, which have less to do with Tinker Creek and its environs than with her own state of mind. This pattern is marked in miniature in the passage I quoted only a part of in the previous paragraph: “I walk out; I see something, some event that would otherwise have been utterly missed and lost; or something sees me, some enormous power brushes me with its clean wing, and I resound like a beaten bell.”<sup>34</sup> Lyric outpourings of this sort make possible a rhetorical handspring over the confusion and anxiety that nature writers like Dillard say they feel in those moments when they are confronted with something that seems alien to them, or about which they know either very little or nothing at all. Such moments are always treated as if they were occasions for transcendence.

As a latter-day transcendentalist, Dillard likes to blend anecdotes about the strange lives of plants and animals with expressions of her wonder and with mystical speculations. Again and again, she deftly translates the landscapes she describes into something else, so that they seem to “blossom into immense themes,” as one reader has put it (in precisely the sort of naturalizing language that conceals the entirely artificial character of the enterprise).<sup>35</sup> The blossoming of “immense themes” helps turn Tinker Creek into a hothouse where the green fuse is forced through the flower by literary means. Of course Dillard is not the only nature writer to rely on the “blossoming” of themes in her attempts to achieve poetic forms of closure; but she is unusually adept at it.

A number of the adventures that Dillard describes in *Pilgrim at Tinker Creek* have to do with her efforts to find out, after the fact, what the thing that she has just seen, and which has caused her to “resound like a beaten bell,” actually is. Much of the book is devoted to this backing and filling, as Dillard revises and reinterprets her experiences in light of what she has learned at the local library. The resonance that she celebrates therefore has to do with more than her immediate emotional re-

sponse to nature, which is why I feel free to call it into question. I think resonance is a learned response: you learn it by reading the right books in a dutiful way.

In her defense, one can argue that at least Dillard has done her homework and has acquired her writerly habits honestly; as both theme and device, resonance has had a very long life in American literature. Resonance is cognate with metaphors that other writers have used to express their idea of the special relationship to nature that residents of the New World are supposed to enjoy. For example, it resembles the bittersweet “feeling knowledge” described by Anne Bradstreet in her 1678 poem “Contemplations.” Bradstreet’s poem is a hymn to the senses cast in terms that, to a Puritan, must have seemed theologically acceptable or at least permissible, though perhaps just barely so. I quote from a passage celebrating the sun:

Thy swift annual and diurnal course,  
Thy daily straight and yearly oblique path,  
Thy pleasing fervor and thy scorching force,  
All mortals here the feeling knowledge hath.

These lines pass muster despite the fact that Bradstreet’s reference to the sun’s “pleasing fervor” suggests a wayward sensuality. Their “feeling knowledge” of the sun’s “pleasing fervor” is the compensation that all “mortals” receive for their mortality during their lives here on earth. In the context of the poem, “mortals” means chiefly plants and animals; but it refers to the poet, too, at least potentially, since Bradstreet’s poem is about the irony of her feeling the same attractions that plants and animals feel, and thus is about her running the risk of sharing in their mortality. At the same time, “feeling knowledge” suggests—is concordant, if not synonymous with—the rapture that the Puritans experienced in salvation, the one moment in a Christian life when the sensual and the sensible (the moral, that is) may be felt and thus known as one, without any reservations or second thoughts (except, of course, for thoughts of the sun’s “scorching force,” of which mortals also have a “feeling knowledge” and which helps to keep good Christians humble by reminding them of their own innate depravity). Bradstreet’s poem negotiates a fine line between being rapt with “wonder” and being rapt merely with “delight,” and it does so with great delicacy.<sup>36</sup> As it must: the latter kind of rapture by itself would be sinful, if not heretical, in Puritan eyes.

Resonance also resembles the transparence celebrated by Emerson in the most famous passage of his 1836 essay *Nature*: “Standing on the bare ground,—my head bathed by the blithe air, and uplifted into infinite space,—all mean egotism vanishes. I become a transparent eye-ball; I am nothing; I see all; the currents of the Universal Being circulate through me; I am part or particle of God.”<sup>37</sup> Emerson’s point is that when “mean egotism” vanishes while one stands on “the bare ground”—that is, when one is situated, as he was, in the relatively unimproved, un-

developed, and still largely rural American landscape—a much *finer* egotism immediately replaces it. This new form of egotism pays one a rich dividend spiritually (and rhetorically too, of course), while simultaneously making possible a transubstantiation of one's body.

The “transparent eye-ball” is a super-organ. Obviously Emerson's metaphor doesn't hold up from an ophthalmologic point of view: a “transparent eye-ball” would be useless for the purpose of sight, since no light would be reflected by its retina (presumably, it wouldn't need to have a retina). Yet given that vision is the keenest of the human senses, Emerson's metaphor has its own quirky logic. What better to see the cosmos with than a hypertrophied and disembodied eyeball not subject to the limitations of ordinary vision and the vicissitudes of organic existence? Equipped this way, Emerson is ready, like Dillard, to see and be seen by “some enormous power.” Had he said, “I lap up the blithe air with my large permeable tongue,” the logic of his metaphor would have been quite different, although the erotic character of the basic idea might have been much clearer.

Resounding, if not like “a beaten bell” then at least like an activated buzzer, is also something that might have happened to Whitman's “body electric.” The poet describes his body as if it were hard-wired to respond to stimulation in much the same intense way that Dillard values. In a well-known passage from the 1855 version of “Song of Myself,” Whitman both celebrates and protests against the power of his own reaction to touch. Of course, Whitman being Whitman, his reaction to touch is no less powerful when he is doing the touching himself, as for example when he is in the grip (pun very much intended) of autoerotic passion:

You villain touch! what are you doing? . . . my breath is tight in its throat;  
Unclench your floodgates! you are too much for me.  
Blind loving wrestling touch! Sheathed hooded sharp-toothed touch!  
Did it make you ache so leaving me?

The violence of the language Whitman uses in this passage suggests that he isn't having an especially good time, and that he really is indulging in self-abuse. But his suffering, because it is part of the creative process, turns out to be justified in the end. Though he spills his seed on the ground in the lines following the ones I've quoted, there is “recompense richer afterward” and a blossoming, you might say, of immense themes: “Sprouts take and accumulate . . . stand by the curb prolific and vital, / Landscapes projected masculine full-sized and golden.”<sup>38</sup> But Whitman's projections of the landscape fructified by his seed, by his poetry, are at the same time introjections of that landscape. On the next page of “Song of Myself,” he finds that he “incorporates” all of the animal, vegetable, and mineral elements of earthly existence. Thus the landscape in Whitman's poetry always turns out to be an inscape.

It turns out, that is, to be not a part and a parcel of the earth, but a part and a parcel of the soul. In a peroration Whitman added to later versions of “I Sing the Body

Electric," the poet addresses his body and "the likes" of his body and body parts: "O my body! I dare not desert the likes of you in other men and women, nor the likes of the parts of you, / I believe the likes of you are to stand or fall with the likes of the soul, (and that they are the soul,)." What the poet calls "the likes of the parts" of his body includes the many phallic and testicular natural objects described elsewhere in his poetry, such as the "root of washed sweet-flag, timorous pond-snipe, nest of guarded duplicate eggs" and the elongated "fibre of manly wheat" for which he expresses tender feelings in "Song of Myself." These are the natural counterparts of the "man-balls" and "man-root" that he appraises as frankly as he can in the gross anatomy to which he devotes the bulk of section nine in "I Sing the Body Electric." As Whitman tells us in the concluding lines of this poem, after he has finished explaining how the knee bone connects to the thigh bone and so on until he has worked his way outward to freckles and inward to marrow, all these things are not only "the parts and poems of the body" and also, by some stroke of good fortune, coincidence, or convergent evolution, parts "of the soul." That would mean they continue to have a double character, and the point is to get them together in the same place both as equals and as one. So Whitman concludes much more forcefully by asserting, "these are the soul!"<sup>39</sup>

When he makes this assertion, Whitman seems to be attempting to solve the mind-body problem with an exclamation point, and by relocating the penis as an internal organ: it is no longer a mere appendage. Thus Whitman translates the penis into the "phallus" so highly valued by psychoanalysis, and rejects its use value for the exchange value common to all symbolic objects. His treatment of the rest of nature, of the earth's body, follows suit. That his assertion of the unity of body and soul is, at least in part, the product of Whitman's intense self-involvement, and that this self-involvement is often figured in his poetry as masturbatory, should give us pause. Not that there's anything wrong with masturbation; but I doubt whether it affords the best available model for our relationship with the natural world, which is both productive and reproductive (in roughly the sense in which these terms are used by advocates of sustainable agriculture like Wendell Berry and Wes Jackson).<sup>40</sup> Masturbation is, in short, *too selfish*.

The reader may be wondering why I haven't included Thoreau in this brief literary history of resonance, since few ecocritics would dare to leave him out. The reason is simple: I don't think he belongs here. In *Walden* Thoreau describes what could be called a version of resonance, but he discounts the possibility of immortality that Bradstreet, Emerson, Whitman, and Dillard are all eager to maintain. Thoreau's version of resonance also seems distinctly less rapturous than theirs. He writes: "If you stand right fronting and face to face to a fact, you will see the sun glimmer on both its surfaces, as if it were a cimeter, and feel its sweet edge dividing you through the heart and marrow, and so you will happily conclude your mortal career. Be it life or death, we crave only reality."<sup>41</sup> If this is a transcendental sentiment, it is an extremely odd and bloody-minded one. There is something violent

about Thoreau's imagination, and he may have been a true Puritan without being a Christian. This means that his Puritanism was not the merely residual form of belief or habit of mind that it was for most New Englanders of his day. Thoreau discovered something resembling the innate depravity of existence for himself, and came to terms with it—after some struggle, and never to his entire satisfaction—through his study of natural history, and by refusing to compromise in his dealings with his society. Needless to say, this makes him a problematic father figure for later writers about nature, who have been inclined to take a much less complicated, less paradoxical, and less politicized view of things.

Otherwise the circle remains unbroken: “feeling knowledge,” the “transparent eyeball,” and the “body electric” are metaphors for a state of theological, epistemological, and/or psychosexual clarity and intensity during which the self, the writer's inner nature, and everything outside it, the natural world or, in Emerson's dismissive phrase, nature “in the common sense,” are experienced as one thing.<sup>42</sup> Then they *resonate*. Resonance happens when you discover a connection between yourself and nature in moments of ecstasy. In *Pilgrim at Tinker Creek*, Dillard's ecstatic relationship to nature seems to be religious, transcendental, and sensual all at once. I think it was also a self-induced ecstasy, though not, I hasten to add, in the same way that Whitman's was.

Dillard characterizes her own ecstatic experience as follows: “Experiencing the present purely is being emptied and hollow; you catch grace as a man fills his cup under a waterfall.” The odd thing is that although “grace” entails a heightening of consciousness for Dillard, it does not lead her to a better understanding of natural processes or the lives of organisms. Just the opposite, in fact: “I reel in confusion,” Dillard writes; “I don't understand what I see.”<sup>43</sup> So much, then, for natural history: it is a ladder that a nature writer like Dillard feels compelled to kick away after ascending to a higher plane of consciousness. Consciousness of this sort seems to have very little to do with understanding the earth; how, then, can it be said to have something to do with imagining the earth in a way fully in accord with the best theories of ecological science, as we have been told by ecocritics that it does?

Ecocritics have tended to take the ability to experience the present “purely” for granted as a marker of the nature writer's heightened awareness of the earth. In his book on nature writing, Scott Slovic defines “awareness” as an “exalted mental condition,” and identifies this condition as the primary subject matter of *Pilgrim at Tinker Creek*. He describes Dillard's work as “psychological,” and suggests that its psychological dimension is what makes it valuable as literature.<sup>44</sup> In a similar vein, Don Scheese suggests that nature writing is descended from natural history, travel writing, and “spiritual autobiography,” and maintains that its spiritual quality, far from being a potential source of tension and contradiction, is nature writing's most praiseworthy aspect.<sup>45</sup>

On this score, editors of nature writing anthologies also seem to have reached a consensus. In his preface to *This Incomperable Lande*, Thomas Lyon argues that the

“crucial point” for nature writers is “the awakening of perception to an ecological way of seeing,” an awakening that gets cashed out psychologically and spiritually, since it is accompanied by “a transcendence, to some degree, of the isolated consciousness of self.”<sup>46</sup> John Elder and Robert Finch, in their introduction to *The Norton Book of Nature Writing*, note that nature writers like to begin their essays “with a closely observed phenomenon” and then to “reflect upon its personal meaning for them.” And this means that “the personal element—that is, the filtering of experience through an individual sensibility—is central” to what Elder and Finch view as “the nature writing tradition.”<sup>47</sup> Yet another anthologist, Stephen Trimble, confirms the importance of individual experience in nature writing’s scheme of values: “Being a naturalist is a *feeling*,” he writes, “a conscious sense of connection to the land, to the other animals and plants.” And he adds: “Each experience begins as a new sensation. But as soon as writers attend to it, sensation becomes perception.”<sup>48</sup>

Each of these commentators celebrates precisely those features of the nature writing tradition that seem most problematic. And each of them affirms a set of interrelated truisms that ought to be called into question: that nature writers are more “aware” than other observers of nature, and more “spiritual,” too; that they transcend “the isolated consciousness of self”; that the most essential thing they do is to filter “experience through an individual sensibility”; and that they are concerned with “a *feeling*” created when “sensation becomes perception.” However, these truisms should be called into question not because they are false but because they are such accurate descriptions of the status quo: it seems regrettable that they are as true as they currently are. “Awareness,” the “psychological” and the “spiritual,” “transcendence,” “sensibility,” “feeling,” “sensation,” and “perception” are problematic notions precisely because ecocritics and nature writers, too, have put so very little pressure on them. Like resonance, they have become received ideas, and we are meant to gasp with admiration when we encounter them: *How beautiful nature writing is!*

To counter the complacency with which these ideas continue to be received, I would like to suggest that there is a fundamental tension between psychology or spirituality and natural history, a tension that ecocritics have ignored. If so, then nature writing must have little or no bearing on ecological and environmental issues, which are biologically, socially, and politically as well as, if not rather than, psychologically and spiritually determined. How aware one is of the environment, in the nature-writing sense of “aware” (which, after all, does seem to set the bar for awareness awfully low), is in the greater scheme of things simply not very important.

That Dillard describes the “exalted mental condition” of “experiencing the present purely” in terms of feeling “emptied and hollow” is instructive. It is hard for me to see what we are likely to gain from having such an experience, tonic as it might seem. Yet nature writers and ecocritics continue to insist that “experiencing the present purely” connects us in some special way to nature, which we know to be plentiful, bountiful, and overflowing, or anything but empty and hollow. By

doing so they betray an unimaginative dependence on threadbare metaphors and scenarios.

For these reasons, I would like to suggest that the experience of being filled with “grace,” as Dillard describes it, cannot partake of, or even have much influence on, thought that is truly ecological, especially given how difficult ecological truth is to come by. Ecology involves understanding what one sees, something that Dillard professes she cannot do more than once in *Pilgrim at Tinker Creek*. Admittedly, ecology also involves understanding, and trying to imagine, a lot of what one doesn’t see (and never will). But in coming to terms with what one doesn’t see ecologically, having spiritual insight is less helpful than having a viable theory, grant money, graduate research assistants, and lots of laboratory equipment (microscopes, gas chromatographs, imaging and mapping software, access to a main-frame supercomputer, and so on, all in good working order). Presumably the emotional rapport with nature felt by an ecologist is more or less helpful in conducting research, but emotion and personal uplift are not the central concerns of ecology. I think it would be a salutary thing if they were less the concerns of nature writing than they have been and are.

### *Contact*

*Sight is a genteel sense.*

*Roland Barthes, Mythologies*

By insisting that nature writing can continue to do what lyric poetry can no longer do and what transcendentalism never could do, at least according to Benjamin and Rahv, ecocriticism has emphasized not only the stubbornly traditional character of the form but its more therapeutic aspects as well. For instance, Frank Stewart observes that nature writers “seek to make our minds and our hearts whole again. When we look at nature, they believe, we are looking mainly at ourselves.” But nature writers who fit Stewart’s description are interested in seeing a lot more than just their own mirror images when they view nature; they also want to get a glimpse of religious and metaphysical truths. Stewart himself hints at this desire when he defines nature writing as “the pursuit of the seeable and the unseeable.”<sup>49</sup> He might have said, more accurately, that nature writing is the pursuit of the unseeable by means of the seeable, since it treats nature as vehicle, and not tenor: as medium, and not message. But had he said that, Stewart would have been breaking ranks with the majority of ecocritics. His point about “the pursuit of the seeable and the unseeable” in nature writing is a commonplace in ecocriticism, so much so that its problematic character has gone unnoticed.

Again, the point to be taken here isn’t that the commonplaces about nature writing that ecocritics have formulated are entirely wrong-headed; it is, instead, that

these commonplaces actually mark contradictions badly in need of a much more forthright treatment than ecocritics have given them. In short, these commonplaces are symptomatic rather than diagnostic. Consider, for example, the arguments made by the nature writer Diane Ackerman, arguments which echo Stewart's point about the pursuit of the seeable and the unseeable but take that point to extremes Stewart doesn't seem to have considered. In her book *The Moon By Whale Light*, Ackerman says that nature writers share not only "a pastoral ethic," as one would expect them to do, but "a devotion to the keenly observed detail" and "a sense of sacredness" as well. "There is a way of beholding nature," Ackerman suggests, "that is itself a form of prayer."<sup>50</sup> Nature writing, in other words, tends to veer off into writing about the supernatural.

Like Annie Dillard, Ackerman is at some pains to lay claim to a religious tradition, and would like to do so on her own idiosyncratic, "mysterious" terms. She is aware, of course, that "beholding nature" has rich biblical precedents: we are instructed to behold the earth for the first time in Genesis 1, verses 29–31. In fact, it is no less than the second command God gives us, the first being the problematic directive to "Be fruitful and multiply."

And God said, "Behold, I have given you every plant yielding seed which is upon the face of all the earth, and every tree with seed in its fruit; you shall have them for food. And to every bird of the air, and to everything that creeps on the earth, everything that has the breath of life, I have given every green plant for food." And it was so. And God saw everything that he had made, and behold, it was very good. And there was evening and there was morning, a sixth day.

Obviously this is just one version of the creation among many, and just as obviously "beholding nature" as a religious practice is not limited to the Judeo-Christian world. It has a long and varied heritage, and the terms in which it is described in other religious traditions often suggest something much more contemplative than is urged upon us in Genesis 1. This more inward-looking notion of "beholding" is one to which many nature writers, dedicated multiculturalists that they are, also see themselves as, well, beholden.

To any one who assumes that the distinction between the material and the spiritual is not adventitious but gets made to some purpose and for good reason, attempting to apprehend the material world spiritually—say, by "beholding" it prayerfully—seems to be a category mistake of the most basic kind. This doesn't mean that there is no room whatsoever in nature writing for the expression of feelings, but it does limit the ways in which the feelings of nature writers can be expressed and, more importantly, interpreted. As Kroeber notes, "ecological conceptions of natural reality," conceptions of the sort that many nature writers would claim to have, "need not exclude ideas or attitudes sometimes associated with reli-

giosity,” even if those conceptions “allow no place for any transcendent deity,” much less for the dim-witted mysticisms that Kroeber finds annoying.<sup>51</sup>

Many of today’s nature writers, and certainly the best of them, must be aware of the risks they run intellectually when they frame their work in religious terms. Perhaps this is why they seem to hesitate when they describe their spiritual life in nature: they don’t want to project their own values onto the natural world willy-nilly. In fact, on this score I would say that nature writers tend to be overly cautious. Many of them assume that alienation from nature is so much a part of their character as westerners that it is presumptuous of them to pose as observers and students of the natural world. In essay after essay and book after book, they convey a sense of being caught in a cosmic dilemma: a sense of being trapped between inner and outer, self and other, word and thing, literature and science, culture and nature.<sup>52</sup> If for no other reason than to escape the unpleasant business of having to shuttle back and forth between opposite poles, they try to reconcile these dichotomies. Their attempts at reconciliation provide the narrative impetus, such as it is, for much of their writing.

That so many nature writers continue to be attracted to prayerful ways of “beholding nature” also suggests that they feel uneasy with the nature bequeathed to us by the sciences, not excluding ecology. This is a nature entirely lacking in any transcendental meaning—a nature in which the “unseeable” is understood to be nothing more than the microscopic, the subatomic, the ultraviolet, and so on, which however hard they may be to see cannot be called ineffable. Literary tradition encourages nature writers to assume that to lack transcendental meaning—to be, as it were, entirely effable—is tantamount to having no meaning at all, and for many of them, nature is either sublime or it is ridiculous. Despite their supposed affection for all things pastoral, they scorn the middle ground.

So pronounced is this scorn for the middle ground in the work of American nature writers that I’m tempted to say that with friends like these, nature doesn’t really need any enemies. Of course, some nature writers are much more subtle on this score than others. For example, in her book *A Natural History of the Senses*, Ackerman rejects the distinction between the sensible (the meaningful) and the sensual (usually thought of as inherently meaningless), and her rejection of this distinction makes her version of “beholding” seem rather more complicated than Dillard’s is. “The senses don’t just *make sense* of life in bold or subtle acts of clarity,” Ackerman argues, “they tear reality apart into vibrant morsels and reassemble them into a meaningful pattern.” For her, the meaningfulness of our sensual experience is part of the natural order of things; but this, she suggests, is something we tend to forget, and so we have become confused about our place in nature. “We need to return,” Ackerman writes, “to feeling the textures of life,” which she proposes we do by allowing ourselves a greater degree of sensory indulgence, of really feeling.<sup>53</sup> But I doubt that we will be any more successful in apprehending the order of things if we shift our attention, as Ackerman suggests we should, to the odor of things. She rec-

ognizes, as Barthes did, that sight is a genteel sense, and wants us to give more priority to scent, taste, and touch than we do.

But there is a limit to how far we can go toward sensing things more intensely than we do now. This limit is fixed by our evolutionary heritage, which determines the amount of bandwidth we can pick up using any one of our five senses. As a matter of complete coincidence—this is, quite simply, just the way things worked out—our evolutionary heritage has cut us off from a more intense experience of some sensations, especially tastes and smells, both of which tax our powers of chemoreception. The ecologist E. O. Wilson writes:

The jungle teems, but in a manner mostly beyond the reach of the human senses. Ninety-nine percent of the animals find their way by chemical trails laid over the surface, puffs of odor released into the air or water, and scents diffused out of little hidden glands and into the air downwind. Animals are masters of this chemical channel, where we are idiots.<sup>54</sup>

Our chemical idiocy is part of the duty we pay on our heightened powers of visual and mental acuity—on our hypertrophied optic lobe and enlarged cerebrum. Only so much information can be crammed into our brainpans; and it seems to me that nature writers ought to be among the first to accept our cognitive limitations, and to move on to fresher subjects.

Instead of doing that, writers like Ackerman have tried to verify Dillard's assumptions about mystery by applying them to experience conceived of in more sensual and less overtly "spiritual" terms. Ackerman does deserve credit for interpreting our sensuality in the light of the natural history of the human sense organs, and for avoiding the abstruse theological arguments that Dillard finds attractive. But beyond a certain point, Ackerman's engagement with natural history also becomes almost entirely metaphorical, and she begins to echo some of the more self-indulgent sentiments expressed in *Pilgrim at Tinker Creek*. In *A Natural History of the Senses*, for example, Ackerman writes, "There is no need for divine election. Perception itself is a form of grace."<sup>55</sup> It follows from this statement that the less perceptive person, the scientifically trained observer, for example, whose mind is more apt to mediate perceptions, to sort them out and shape them into piles of data, than to relish them, is likely to be the less graceful person as well. Ackerman dramatizes this implication whenever she reports, as she does in a number of the essays collected in *The Moon By Whale Light*, on her adventures with field biologists. These are often charmingly boyish men with the know-how to take her to places where she can put herself in vibrant sensual contact with the animals they study, while they go about the less sensual and therefore less "real" business of number crunching.

Ackerman's celebration of the therapeutic benefits of sensuality, and of what might be called the "poetry" of perception, has affinities with the arguments made on behalf of "gross contact" by Jack Turner in his book *The Abstract Wild*. Turner,

who at one point in his life was a professor of philosophy but who has now worked for many years as a mountain guide, describes his book as a rant. As befits a rant, many of the book's assertions about the impact culture has had on nature are just as apocalyptic as Horkheimer and Adorno's were fifty years ago.<sup>56</sup> "Maps and guides," the curmudgeonly Turner declares, "destroy the wildness of a place just as surely as photography and mass tourism destroy the aura of art and nature."<sup>57</sup> This declaration doesn't leave much in the way of wiggle room in which we can work out our destinies and make those shuffling evasions and compromises that are necessary even in the wild, where fish gotta swim, birds gotta fly, and humans can't help loving the things they do. It is going to be very difficult for anyone to have "gross contact" with the wild, if any sign of human impact on and presence in the wild is taken as evidence of the impossibility of having "gross contact." On Turner's account, "gross contract" will be a one-off affair available only to the lucky few.

But despite the vigor of Turner's arguments, his unwillingness to compromise, and his insistence on gross physicality, what he is really after is ethereal contact. And he holds out for that in the end precisely because he sees the human self as both root cause of our maladjustment to nature and the probable source of a cure for this maladjustment, if we take our wilderness in the right doses. Turner writes: "Ecological crisis, is not, *at the roots*, caused by industrialization, capitalism, and technology, but by a particular form of the human self."<sup>58</sup> As so many nature writers and not a few ecocritics also do, Turner thinks of ecological crisis as something organic, as something with "roots," and not as something interwoven with other human problems in historically complex ways. Uproot the bad form of the human self, become other than you are (less abstract, for starters), and you have begun to resolve the ecological crisis. Turner's arguments bring him closer to the point of view of writers like Dillard and Ackerman than one might think he is at first blush.

Like Dillard and Ackerman, Turner also assumes that nature and our knowledge of it are among the many ancient things threatened by modernity. This assumption greatly underestimates nature's resilience, and its mutability, not all of which is owing to our interference. Nature takes strange guises sometimes, and it seems to have its own ideas about gross contact. From New Jersey southwards through Virginia, Canada geese forget how to migrate and become all but immovable objects as they squat on the lawns of office parks and hiss at passersby, when they aren't busy polluting the water of small ponds with their prodigious droppings. In the low country of South Carolina, alligators take up residence in the fish-filled water hazards of golf courses, and make them truly hazardous, while sharks snack on the arms and legs of swimmers who venture just a little bit too far from shore and the neon glow of Florida's beachfront resorts. From Maine to Pennsylvania through to Wyoming and Montana and on to Alaska, black bears parade nonchalantly through subdivisions, as if ranch houses and condominiums were natural features of the landscape, noshing on garbage as they go. In the desert southwest, urban coyotes lure poodles and golden retrievers to their deaths, and cougars prey on straying

toddlers, frightened joggers, and frail senior citizens. The upshot of all this is that venturing into the wild may be much less of a venture than we have assumed.

Before we complain about our inability to really feel it and our lack of gross contact with it, we should give more thought than we do to the fact that nature is more than willing to poke us in the eye, elbow us in the ribs, and kick us in the shins. In her iconoclastic screed "Against Nature," Joyce Carol Oates, feeling bitter after a nasty episode of tachycardia she suffered while jogging on a beautiful summer day, defines "Nature-in-itself" in Melvillean terms. It is, she says, "a blackness ten times black." This definition of nature is opposed to the Emersonian and the Thoreauvian definitions, and by adopting it as her own Oates means to tweak the tender sensibilities of nature writers, whose "painfully limited set of responses" to nature she sums up as follows: "REVERENCE, AWE, PIETY, MYSTICAL ONENESS."<sup>59</sup> Oates is right, I think, about the limitation of those responses; but she fails to recognize that many nature writers are every bit as squeamish about nature as she is. This squeamishness has gone unnoticed by ecocritics, too. Reverence, awe, piety, and mystical oneness are antiseptic responses to nature; one might even say that they are *unnatural* responses, in that they are incompatible with what we know about the earthy flavor, by which I mean to suggest not only the randiness, but the rawness and rankness as well, of most biological processes. If you want to set up shop as a nature lover, you're going to need extra reserves of cold blood, a stout heart, a strong stomach, a resilient mind, and several changes of clothing, and no matter how prepared for the worst you may be, you shouldn't expect to view natural phenomena without wilting with disgust from time to time. Reverence, awe, piety, and mystical oneness may appeal to the romantic in you, but they are far from being impartial responses to nature. In other words, they reveal a bias, which is just the sort of thing that, to hear nature writers tell it, they are supposed to help us overcome.

The natural history writer David Quammen makes the bias of romantic responses to nature abundantly clear when he describes a long day spent watching lemurs in Madagascar:

When the rain begins drumming more steadily, I raise the hood of my parka. The ground is soggy against my ass. I hunker. The golden bamboo lemurs hunker. I gape at them and, every so often, they glance pityingly down at me. An hour creeps by. The rain doesn't stop and the lemurs don't perform any memorable behavioral hijinks. A few leeches come inchworming up my legs, thirsty for blood. I flick them away without malice. I savor another day of romantic adventure in the rainforest.<sup>60</sup>

Obviously Quammen, who knows the subject well, would agree that there is nothing natural about reverence, awe, piety, and mystical oneness. Before such lofty emotions can be felt and communicated, much groundbreaking work must be done: a plot of bare earth must be staked out, cultivated, and made fertile in the

imagination. In other words, someone has to have written the right books, and someone else has to have bought them and read them, so that a daisy chain of expression, reception, influence, response, and imitation—all those things we mean when we speak of a tradition, or of a market, for that matter—can be created.

Having reached a crucial juncture in my argument, I would like to put one of the points toward which I have been working in this chapter as plainly as I can. Too much of what is called nature writing proves, on closer inspection, not to be writing about nature at all; it is, instead, writing about a response to nature. And this response may not be as resonant as it is said to be, since this writing leans more toward the private, inner world of the self, a place where tremulous sentiment rules, than toward the public, outer world of nature and culture. My point isn't that all forms of inwardness are suspect, but that other forms of inwardness—such as, for example, intimate familiarity with and a keen pleasure in the natural world, and an unapologetic savoring of its many delights, or a frank appraisal of its many dangers and the hurts they can cause—aren't seen as viable options and are given short shrift by most nature writers. As is another and still more challenging alternative, intellectual curiosity about natural history; should that curiosity mature into scientific or philosophical inquisitiveness, it might make the distinction between inner and outer on which so much nature writing is premised seem embarrassingly flimsy.

### *Really Seeing*

*We bring to the simplest observation a complex apparatus of habits, of accepted meanings and techniques. Otherwise observation is the blankest of stares, and the natural object is a tale told by an idiot, full only of sound and fury.*

*John Dewey, Experience and Nature*

Like Whitman's poetry, nature writing may be "stuffed with the stuff that is coarse," with gross content and natural detail.<sup>61</sup> But as with Whitman's poetry, this stuffing is often there only to round out a phrase or two and to chart the dilations of the writer's self-awareness, its expansions and contractions. Particularly the latter; considered strictly as narrative, nature writing is steeped in ennui. Many readers, especially those who have some resistance to so-called fine writing, who suspect that it is only sentiment propped up by sturdy syntax and vivid adjectives, find nature writing boring. It smacks too much of the seminar room and the creative writing workshop (which may be the nature writer's true home away from home), and it shares too many assumptions about the healing powers of nature with the shallowest of currently fashionable therapies.

As I suggested earlier in this chapter, the experience valued by many nature writers is not the kind patiently acquired over time (not *Erfahrung*), but the kind

that can be had in an instant and captured in a phrase (it is *Erlebnis*). A rather pat confidence in the power of the descriptive seems to be widespread in our culture—thus our belief, for example, in the effectiveness of advertising, which has more in common with nature writing than one might think. Like copywriters, nature writers are skilled at description, which enables them to provide their readers with a vicarious “experience” of being “in the great outdoors” (an idiomatic but nevertheless a paradoxical expression). Needless to say, the great majority of their readers are going to enjoy this vicarious experience while seated comfortably on their hindquarters indoors. Thus they can avoid the gruesome accidents, and the mild discomforts of sweat, sunburn, insect bites, stinging nettles, sprained ankles, and sand in the swimsuit, to which the outdoors leaves one constantly exposed. They can play it safe, risking only boredom and a little petty cash.

For nature writing is surely a commodity; after all, nature writers exploit natural resources, if only for the sake of imagery, so that they can send a tasteful and well-packaged product to market. They appeal to the tastes of the above-average Joe and Jane, who are educated, have some disposable income, and may even own a weekend place at the lake or in the mountains where they, too, can take exhilarating little walks, just like nature writers do. Despite my impatience with the Frankfurt School, I think they got some things right, and their observation that under capitalism experience is easily reified and turned into a commodity is one of those things.<sup>62</sup> Writing about nature is another way of having it on tap for cultural purposes, and the aesthetic enterprise has a lot more in common than one might think with other enterprises that much more obviously treat nature as a resource. Not that nature writing is the moral equivalent of strip-mining (as the Frankfurt School, in its most overheated moments of argumentative vigor, would have it), but the two activities do occupy the same moral universe. This is something that a lot of nature writers and ecocritics would like to deny.

Those nature writers and ecocritics who favor a phenomenological approach to resolving epistemological issues, even if as a rule they don't make phenomenology an explicit theme of their essays, would be especially eager, I think, to deny that experience can be commodified and that writing about an experience, no matter how raw or unique an experience it might be, is one way to help the process of its commodification along. Consider the case of the nature writer David Abram, who like Jack Turner has a background in philosophy, and who does make his devotion to phenomenology explicit, very much so. In his book *The Spell of the Sensuous*, Abram writes: “The eyes, the skin, the tongue, ears, and nostrils—all are gates where our body receives the nourishment of otherness.”<sup>63</sup> Abram's approach to sensuality obviously has affinities with Ackerman's approach to the same subject, as it also does with Turner's, albeit to a lesser extent. But to Ackerman's credit, she doesn't embroil herself in the hoary old philosophical debates that Abram, who unlike Turner has very little experience of wilderness, still finds compelling. And Abram continues to find these debates compelling, despite his claims to have resolved them to his own

satisfaction by reading writers like Merleau-Ponty and applying their ideas in his admittedly and deliberately naïve attempts to come into vibrant contact with the natural world.

That in fact Abram has not resolved any of the philosophical debates he comments on is suggested by his continued reliance on a vocabulary that phenomenology ought to have cured him of using, as when he characterizes the sense organs as “gates where our body receives the nourishment of otherness.” He might have dwelt on the following proposition more than he seems to have done while writing *The Spell of the Sensuous*: that our organs mediate our sensual awareness of things for us demonstrates that the world *should not* be regarded as if it were “other” than we are. Unless, of course, our sense organs are also “other” than we are, which really puts us in a pickle philosophically, physiologically, and existentially. I suspect Abram is concerned about “otherness” only because he tends to think of sensory experience *unnaturally*, or like a philosopher, and because he approaches it with a ready-made thesis already in hand. This is why he characterizes the sense organs as if they functioned like gates, which very clearly they don’t (nor, for that matter, do they deliver “nourishment” to our bodies). Abram’s metaphors are revealing, but not in the way he intends them to be.

Like each of the other writers I’ve discussed, Abram seems to be attracted to the idea of our alienation from nature, and not just because it gives him something to write about. But many of his anecdotes suggest that what he characterizes as alienation from nature is much better described as ignorance of nature. Curiously, such ignorance is often represented by American nature writers as an advantage, if not as something of a virtue; working in a vacuum of knowledge seems to inspire them with a sort of missionary zeal, and they soon become their own proselytes. Consider, for example, Abram’s newfound enthusiasm for the insect life of Indonesia. He writes: “Fireflies! It was in Indonesia, you see, that I was first introduced to the world of insects, and there that I first learned of the great influence that insects—such diminutive entities—could have upon the human senses.” I feel compelled to point out that this an unlikely story: how could Abram not have noticed “the world of insects” prior to his Asian travels? Excluding the poles, on this planet insects are ubiquitous and their numbers are legion. But as Abram explains, some pages later, he “had rarely before paid much attention to the natural world.”<sup>64</sup> So when he finally got around to paying it some attention, he reacted to the natural world with all the enthusiasm of the convert. His head-over-heels reaction to the insect life of Indonesia is therefore justified, at least rhetorically. Like Dillard, Abram is *resonating*: he, too, is a pilgrim. Fireflies!

In *The Poetics of Space*, Bachelard writes: “A philosopher often describes his ‘entry into the world,’ his ‘being in the world,’ using a familiar object as a symbol. He will describe his ink bottle phenomenologically and a paltry thing becomes the janitor of the wide world.”<sup>65</sup> Bachelard approves of this imaginative telescoping of the object, and seems to assume that any philosopher of worth will be a fellow phe-

nomenologist (and not a blinkered British empiricist or a cynical American pragmatist). But to judge from what Abram makes of phenomenology, I think it much more likely that the worthy philosopher will be dedicated to optical parsimony and possessed of a gimlet eye. Such a philosopher will construe the object's gatekeeping function more narrowly, rigorously, and reductively than Bachelard allows, especially if the object in question is as unprepossessing a thing as an inkbottle.

And yet if the worthy philosopher does happen to be a phenomenologist, perhaps even an unusually tough-minded and skeptical one, then Bachelard is probably right: the world will be his oyster, and should one happen to appear on his desk, the oyster will be his world. Such a philosopher will be a happy sort of fetishist, as Abram seems to be when he spends a couple of pages of *The Spell of the Sensuous* teasing out the phenomenology of his awareness of a ceramic bowl. His contemplation of this bowl, which sits before him on a wooden table lit by a single lamp, leads him to speak earnestly of the way in which his senses gradually become "more attuned to its substance," as they also will become increasingly more attuned to other objects in the room in which he sits, when given the opportunity. A wooden dresser, an old sink, the table where Abram writes, and his pens and pencils too are all capable of soliciting his undivided attention. Abram writes: "My sensing body gradually attunes itself to the style of this other presence—to the *way* of this stone, or tree, or table—as the other seems to adjust itself to my own style and sensitivity." Thus he is able to engage in "a continuous dialogue that unfolds far below" his "verbal awareness," as if he were the Doctor Doolittle not only of the inarticulate but of the inanimate as well.<sup>66</sup>

I think it isn't merely coincidental that when Abram focuses his attention in the way recommended by Bachelard, Merleau-Ponty, and other phenomenologists, the object of his attention should be an empty bowl. The empty bowl is an *objet d'art*, and hence the product of a certain artifice, both of craft and, more importantly, of thought. Abram contemplates an object that has been relieved of much of its raw materiality by the potter who shaped and fired it, and which has been dematerialized and formalized further still by Abram's decision to use it in his illustration of phenomenological methods and of his own "style and sensitivity." By virtue of the intensity with which Abram studies the ceramic bowl, it becomes the centerpiece of a ritual occasion. But this is just the sort of ritual occasion that occurs whenever a philosopher decides to come to terms with the supposed otherness of the world, as Abram makes it clear he is doing: think, for example, of Descartes and his famous ball of wax. And imagine the difference it would have made if Abram's ceramic bowl had not been empty—if it had been full of loose change, say, or of granola, fresh blueberries, and whole milk. That would have put his relationship to the bowl on an entirely different footing, and would have made it a lot more difficult for him to appraise the bowl in terms of its supposed "otherness." He would have been too busy putting it to good use, filling his pockets with coins or his belly with breakfast.

In light of Abram's account of what a phenomenological approach to the world, or rather to the contents and furnishings of his kitchen, is like, phenomenology seems to be an essentially aesthetic way of viewing the world, or at least of writing about it. It also seems to a somewhat autistic way of viewing the world, though its autism is a methodological imperative rather than a clinical condition.<sup>67</sup> Phenomenology Abram-style tries to forget that the world is something we use, and treats the world as if it were wholly symbolic and hence all but inexplicable. As an aesthetic exercise, phenomenology involves, first of all, the deliberate commission of the pathetic fallacy, so that one can describe bowls and tables and the like as "presences" preternaturally alert to one's own moods. It also involves the cultivation of a certain "style and sensitivity," which gets cashed out verbally in the lush lyricism of phenomenological prose. Where would phenomenology be without adjectives, and lots of them? And finally, phenomenology involves a stunning indifference to contradictions; otherwise it's very hard to understand how one could speak seriously about carrying on "a continual dialogue" with things located outside the realm of one's "verbal awareness."

For these reasons, and more, I think it's obvious that as a nature writer Abram does not and cannot do just what he says he does and can do. For all his solicitude toward what he calls "the other," he pays less attention to the bowl on the table than he does to his paying attention to the bowl on the table. Bowl, table, and world serve him as props for a scene played out in his own self-consciousness, despite his emphasis on bodily awareness. As Abram describes it, the body seems erudite and even polymathic, as it would have to be to carry on the many dialogues in which it is supposed to be engaged.

Whenever observation and argument fail Abram, italicized terms and thick descriptions come quickly to the fore in his writing. If he cannot see something clearly, he assures us he nonetheless can *feel* it and is attuned to its *way*. He likes to make emphatic declarations about matters that, in truth, are more metaphysical than phenomenological. He writes: "Prior to all verbal reflections, at the level of our spontaneous, sensorial engagement with the world around us, we are *all* animists."<sup>68</sup> Because it forces its practitioners to continually appeal to the *a priori*—to experience as it transpires "prior to all verbal reflections"—phenomenology is a stopgap measure at best. Unwittingly, it propitiates the void and courts the metaphysics it only pretends to have nothing to do with. And as Charles Sanders Peirce argued, in an essay with the bracing title "How to Make Our Ideas Clear," metaphysics "is a subject much more curious than useful, the knowledge of which, like that of a sunken reef, serves chiefly to enable us to keep clear of it."<sup>69</sup> For this reason, writers about nature would be better off leaving it to philosophers of the phenomenological variety to chart the shoal waters of consciousness, if that is what they want to insist on doing.

And even those philosophers are going to have a hard time of it. After all, it isn't as if the contents and operations of consciousness were readily apparent to us and

fully available for our inspection. This is a point very forcefully made by Peirce's fellow pragmatist John Dewey, who writes:

Awarenesses do not come to us labelled "I am caused by an event initiated on the surface of the body by other bodies"; and "I on the contrary originate in an intra-organic event only indirectly connected with surface changes." The distinction is one made by analytic and classifying thought. This fact is enough to place in doubt the notion that some modes of consciousness are originally and intrinsically "sense-perception."

"It is pure fiction that a 'sensation,'" Dewey adds, "travels undisturbed in solitary state in its own coach-and-four to enter the brain or consciousness in its purity." Something like this "pure fiction," the so-called phenomenological reduction, is the initial move in the philosophical method of phenomenology; it can be thought of as one of the more elaborately rationalized forms of navel gazing. Dewey fulminates against "hypostatizing" philosophical maneuvers of this sort. Those who make them, he writes, "suppose that there are inherently marked off different forms of awareness corresponding to the distinction arrived at by technical analysis." He detects in such maneuvers the continued influence of "the traditional theory that knowledge is an immediate grasp of Being." All that such maneuvers accomplish, he says, is to dress up the traditional theory "in the terminology of recent physiology." For Dewey, "bare consciousness or brain and nerves" are much less important to "valid knowing" than things like pendulums, lenses, prisms, yard sticks, pound weights, and multiplication and logarithmic tables.<sup>70</sup> The list is his own; obviously, we could update it by adding things like computer networks, weather radar, global positioning systems, and all the other prosthetic devices that, not being omniscient, we need to get around in the world.

Because he isn't content with the things that prosthetic devices can do for us, and because he is hostile to science, in *The Spell of the Sensuous* Abram attempts to revive the phenomenological tradition and to adapt it for the purposes of nature writing. I think he violates the maxim about trying to teach an old dog a new trick. But Abram is determined to interpret his experiences of nature in terms of the light they shed on problems that philosophers like Peirce, Dewey, and their pragmatic descendants regard as insoluble because the terms in which they are couched seem to be nonsensical.

Abram appears to think that one can unravel philosophical tangles and clear up intellectual muddles simply by appealing to intuition. "Our spontaneous experience of the world, charged with subjective, emotional, and intuitive content, remains the vital and dark ground of all our objectivity," he writes, adding that this is something that "goes largely unnoticed or unacknowledged in scientific culture." The effect, if not the intent, of this statement, is to undermine both objectivity and scientific culture, by making them seem desiccated and overly rationalistic.

Objective science, Abram complains, has reduced “the living person” to an “anatomized corpse.” His argument is a variant of the old romantic complaint that we murder to dissect first voiced by Wordsworth. The sleight-of-hand performed here (Abram is a magician as well as a philosopher and a nature writer, so I use the metaphor of trickery deliberately) is typical of *The Spell of the Sensuous* as a whole. The case it makes for phenomenology as the curative discourse that will lead us out of the blinkered and dysfunctional “Western philosophical tradition,” and into the promised land of “indigenous, vernacular cultures,” where we will see things clearly and walk at our ease upon the welcoming earth, is pitched primarily at our emotions and prejudices.<sup>71</sup>

Abram’s brief against science also seems mistaken from a historical point of view. In a discussion of the limited role played by the senses in science after the seventeenth century, Foucault notes that taste and smell are excluded “because their lack of certainty and their variability render impossible any analysis into distinct elements that could be universally acceptable.” As for the sense of touch, it “is very narrowly limited to the designation of a few fairly evident distinctions (such as that between smooth and round).” Foucault says that this “leaves sight with an almost exclusive privilege, being the sense by which we perceive extent and establish proof.” He therefore concludes that “the blind man in the eighteenth century can perfectly well be a geometriician, but he cannot be a naturalist.” To be a scientific observer, he says, “is to be content with seeing—with seeing a few things systematically.”<sup>72</sup>

Phenomenology, as Abram tells its story, is averse to “seeing a few things systematically.” It advocates instead that we return to “the taken-for-granted realm of subjective experience, not to explain it but simply to pay attention to its rhythms and textures, not to capture or control it but simply to become familiar with its diverse modes of appearance—and ultimately to give voice to its enigmatic and ever-shifting patterns.” If phenomenology can help us do all that (and the reader should recall the reasons Dewey offers as to why it cannot), Abram thinks it also will help us to “articulate the ground of the other sciences,” which would mean that phenomenology beats other philosophies at their own game by refusing to play that game according to the rules.<sup>73</sup> But if the sciences aren’t in need of grounding (as I argued in chapter three), then phenomenology’s efforts on their behalf would seem to be idle, and Abram’s argument doesn’t have the vital context he thinks it does.

Abram consistently misconstrues and misrepresents the philosophical and scientific positions he argues against. When, in a discussion of the heliocentric view of the solar system proposed by Copernicus, Abram declares, “This conception simply did not agree with our spontaneous sensory *perception*, which remained the experience of a radiant orb traversing the sky of a stable earth,” the mistake he makes is to assume that concepts need to “agree with our spontaneous sensory *perception*” in the first place.<sup>74</sup> They often don’t, which is precisely why we call them *concepts* rather than, say, casual observations or chance impressions. We have to conceive them: they are human artifacts. Why be shame-faced about this, as Abram seems to be

suggesting we should be? Moreover, it isn't as if concepts and percepts have the habit of occurring to us in anything other than highly complex combinations. As they do, for example, in "the experience of a radiant orb traversing the sky of a stable earth." This experience is shot through with theories about the physics of light, about astronomy, and about tectonics, to list only the most obvious ones. Abram seems unable to decide whether "perception" means sense perception strictly speaking or something much more metaphorical, an unconscious perceptiveness and sensitivity to the nature of things.

The amusing thing about arguments like Abram's is that while the rhetoric they rely on is rife with expressions of impatience with abstraction, the solutions that they offer are always just as abstract as and much more perplexing than the problems to which they are addressed. Consider Abram's description of the epiphany he experienced when he encountered a bison in a forest in Java: "It was as if my body in its actions was suddenly being motivated by a wisdom older than my thinking mind, as though it was held and moved by a *logos*, deeper than words, spoken by the other's body, the trees, and the stony ground on which we stood."<sup>75</sup> The alert reader will notice several things: first, that Abram puts a lot of stock in livestock. And second, that he describes his epiphany in the subjunctive mood (without registering that mood grammatically). This signals that his words are speculative, a matter of "as if," and not simple notations of fact. His description is actually an interpretation, then, if not a fantasy of sorts, since even though Abram "really saw" the bison, he may not have seen it quite in the hallucinatory manner he describes. The third thing the alert reader will notice is that Abram's terms are precisely those that, as Dewey argues, will allow him to recoup the old idea that "knowledge is an immediate grasp of Being," of "a *logos*, deeper than words, spoken by the other's body."

From a pragmatic point of view like Dewey's, the case that Abram makes in his book is utterly predictable: he attempts to reconstruct for his reader "sensuous" experiences of the sort he thinks must ratify a phenomenological approach to the natural world. Again and again, his reasoning seems circular: the experiences he describes seem to validate phenomenology, only because he first describes them in accord with phenomenological theory, which he insists isn't culturally circumscribed, as other philosophical theories are. Uniquely, phenomenology provides Abram with the tools he thinks he needs to overcome our "strange inability to clearly perceive other animals," our "real inability to clearly see, or focus upon, anything outside the realm of human technology, or to hear as meaningful anything other than human speech."<sup>76</sup>

*The Spell of the Sensuous* is yet another illustration by an American nature writer of the insightfulness of Philip Rahv's claim that "experience," no matter how dressed up it may be in theory, tends to be an anti-intellectual idea. In literature in which "experience" is represented as the most essential thing, "the real appears," according to Rahv, "as a vast phenomenology swept by waves of sensation and feeling. In this welter there is little room for the intellect, which in the unconscious belief of

many imaginative Americans is naturally impervious, if not wholly inimical, to reality.<sup>77</sup> Abram's appeal to the philosophy of Merleau-Ponty doesn't make Rahv's point any less applicable; it's a point that nature writers and ecocritics alike need to heed. If they do, they no longer will feel compelled to make complaints like the one made in a recent volume of ecocriticism: "Rather than being continuously felt, much of the natural world that pervades our daily lives goes unnoticed and is not even experienced as proximate, much less integral and synergistic to our every breathing moment."<sup>78</sup> What would it mean to "continuously" feel the pervading character of the natural world, and to experience it as "integral and synergistic to our every breathing moment," which sounds like an exhausting thing to do? I suspect that it would mean being another kind of creature altogether, a nonhuman and very likely a single-celled, extremely short-lived creature, destined to burn out before it has a chance to fade away over several decades of a gracious old age.

In *The Moon By Whale Light*, Ackerman writes, "Once you have seen a bat echolocate, or watched an alligator touch distant pond mates with its water dance, your idea of *seeing* and *touching* changes."<sup>79</sup> But Ackerman is wrong: once you've seen a bat echolocate, or watched an alligator boom and make the water around it dance, it isn't "your idea of *seeing* and *touching*" that changes, not if you are paying careful attention to what you see—both "really seeing" it, that is, and *really thinking about it* once you've seen it. What should change is your idea of hearing, but only insofar as the auditory experiences of bats and alligators are concerned: their range of hearing extends into frequencies where our ears are of no use to us, something it has taken us a long time to discover. Bats are nimble creatures and alligators are toothy brutes, so we've had to approach them carefully in order to get to know them as well as we do. And that we know them at all is due to the efforts we've made to formulate a few theories about them. As John Burroughs once insisted, "The eye is informed and sharpened by the thought."<sup>80</sup>

Nature writers and ecocritics are distrustful of our thoughts, largely because they are ours and don't seem to belong to the world as fully as they would do if they were present in it in the same way that bats and alligators are. But as Richard Rorty argues, the complaint that "we are for ever trapped behind the veil of subjectivity is merely the pointless, because tautologous, claim that something we define as being beyond our knowledge is, alas, beyond our knowledge." Rorty also says that the "distinction between inside and outside" that gives rise to this tautological claim is invalid because it is at odds with "a biologicistic view"—a view that nature writers and ecocritics ought to take into account—and because it "amounts to making knowledge into something supernatural, a kind of miracle."<sup>81</sup> From Rorty's perspective, it seems evident that nature writers cannot have what they want, and that the complaints they make about culturally fundamental matters like verbalization are signs of their bad faith.

The bad faith of American nature writing is most evident in its treatment of its own subject matter, the natural world, which it represents as alien, and therefore as

something impossible to address, much less capture, in words—even when the words it uses to describe the natural world are in fact wonderfully eloquent and evocative. Consider just one example of eloquent and evocative words of the kind I have in mind, Henry Beston's attempt to describe the sound of snow falling against the windows of his farmhouse in Maine: "Every now and then I could hear, even through the wind, the sound which snow makes against glass—that curious, fleecy pat and delicate whisper of touch which language cannot convey or scarce suggest."<sup>82</sup> This self-admonishing passage is from Beston's classic *Northern Farm*, first published fifty years ago. It shows just how ingrained the contrary tendencies of nature writing are.

These contrary tendencies persist both because they are "traditional" and because of the credence that nature writers continue to grant to epistemology as a philosophical subject worthy of their interest. Following the lead of the nature writers they study and emulate into a philosophical cul-de-sac, many ecocritics have thought that they, too, must redress the epistemological shortcomings of Western culture if ecocriticism is to flourish. That they need not bother to do so, that, in fact, no one, philosophers not excepted, need bother to do so, has been my assumption throughout this book, and I want now to explain, once more but from a new angle, why I think epistemology should not be a subject of our concern.

One of the epistemologies that nature writers and ecocritics seem to find most attractive is a very old one; it can be traced back to the work of the first natural historian, Aristotle. "The hylomorphic epistemology," as Rorty explains in *Philosophy and the Mirror of Nature*, "thought of grasping universals as instancing in one's intellect what the frog instanced in its flesh."<sup>83</sup> To understand the frog was to grasp its elemental froghood, its batrachian quintessence or, as we might think of it, anachronistically and from our own historical perspective, its froggy DNA.

But the hylomorphic model of human understanding was displaced long ago, according to Rorty, "by a law-event framework which explained froghood as possibly a merely 'nominal' essence."<sup>84</sup> Froghood became just another entry in the book of nature until Locke synthesized the hylomorphic and the nominalist views by conceiving of the mind as supersensory, thus linking language to the world directly through the mind as the organ of sense and sense making. As Rorty points out, this is a purely metaphorical solution, in which the mind is thought of as being, like the eye, the "mirror of nature."

The nature writer's desire to have an unmediated relationship with nature is a desire to become a more perfectly reflective surface for the representation of nature. This desire is frustrated by the constraints imposed upon us, ironically enough, by our relation to nature and by our own natures as one sort of animal among myriad others. In other words, these constraints involve both the many varieties of cultural blindness—which are easily overstated; we can always change our minds about things—and the ineptness of human beings when it comes to things like catching the scent of another animal on the wind. That's something we just have to live with.

The argument that we don't fully experience nature because we are incapable of really seeing and really feeling denies our own nature, but the constraints placed on our relationship to nature aren't limited to epistemological or, rather, physiological ones; those constraints are also ethical. This is one of the most important points made by neopragmatists like Rorty, who remarks that the "attempt to slough off responsibility"—or bad faith—"is what Sartre describes as the attempt to turn oneself into a thing."<sup>85</sup> Turning themselves into things, into bell-like instruments and empty vessels of pure responsiveness, is what American nature writers often have sought to do. They have imagined that this change of state will grant them an enlightened passivity, and therefore ethical peace of mind where nature is concerned; but to be ethical is to be embroiled in activity and to never enjoy peace of mind. In fact, I would argue that one cannot slough off responsibility, to use Rorty's phrase, or to put the point another way, cannot slough off one's culture, and remain a moral agent at the same time. Michael Pollan asks an apposite rhetorical question with regard to the American obsession with wilderness: "Wasn't the attraction of wilderness precisely the fact that it relieved us of having to make choices—wasn't nature going to decide, letting us off the hook of history and anthropocentrism?"<sup>86</sup> Nature writers and ecocritics cannot be let off that hook; what they want is as unavailable philosophically as it is culturally and experientially, in the wilderness the same as elsewhere.

This appears to be the case no matter how perfervid the language nature writers use to try to deny or get around it. When, for example, Terry Tempest Williams asserts her belief "in the longing for unity," explains that longing as a "yearning to heal the fragmentation and divisions that separate us from nature, that separate us from ourselves, that separate us from God or the mysteries," and then tells us that the wilderness is the place where "we all can make peace with our contradictory natures," we have to notice both how typical and yet how very peculiar a statement she is making.<sup>87</sup> It's the kind of statement that gets made only when the mind is conceived of as being something like an internal wilderness area, a sort of blank space on the cognitive map. While some minds may be like that, charity requires us to believe that most of them are not.

But there are limits to how far we can go in our charitable appreciation of other minds. In his discussion of Thomas Nagel's classic essay "What Is it Like to Be a Bat?" Rorty points out that philosophers like Nagel who assert the validity of intuition, of what it feels like to be a bat, or of what it feels like to be a human being for that matter, rest their arguments on "sheer phenomenological qualitative ipseity." They make an appeal to the experience of being one thing rather than another, an appeal to the "ipseity" or *is-ness* of that thing. Thus they argue in an inappropriate and fallacious *ipso facto* fashion, since it is the very nature of the thing that is at issue and has yet to be established as a fact. This raises, Rorty argues, "a bedrock metaphysical issue: can one ever appeal to nonlinguistic knowledge in philosophical

argument?" That is, how can we hold ourselves accountable to something of which we all admit we can give no account? Rorty argues, "This is the question of whether a dialectical impasse is the mark of philosophical depth or of a bad language, one which needs to be replaced with one which will not lead to such impasses." And he adds, "The intuition that there is something ineffable which it is like to be us—something which one cannot learn about by believing true propositions but only by *being* like that—is not something on which anything could throw further light. The claim is either deep or empty."<sup>88</sup> Rorty suspects that it is empty, and so do I.

Rorty argues that philosophy as we have had it handed down to us is "the impossible attempt to step outside our skins—the traditions, linguistic and other, within which we do our thinking and self-criticism—and compare ourselves with something absolute."<sup>89</sup> Like philosophy, nature writing also begins with an attempt to step outside and into what is supposedly another, more absolute reality. "I walk out," Dillard writes, "I see something." But attempts to "see something," if they are attempts to *really see* it, are never conclusive and inevitably lead to an impasse. Stuck in this impasse of their own creation, nature writers wait in vain for what Ackerman describes, in her essay "In Praise of Bats," as "an electric, pulse-revving vision when the universe suddenly declares itself. A ravishing tug on the sleeve of our mortality."<sup>90</sup> Mortality may very well tug on our sleeve, but this doesn't mean that the universe "declares itself." We have to find it out: such is the lesson that natural history teaches us. Unless they begin to be more conscious and more critical of the ideas that have structured their work, nature writers and ecocritics, too, may find themselves, in Rorty's words, "drawing a line around a vacant space in the middle of the web of words and then claiming that there is something there rather than nothing."<sup>91</sup> This vacant space may be reminiscent of Walden Pond, but we will be unable to sound its depth. It won't have any.

## Culture

*for the word tree I have been shown a tree  
and for the word rock I have been shown a rock,  
for stream, for cloud, for star  
this place has provided firm implication and answering  
but where here is the image for longing  
A. R. Ammons, "For Harold Bloom"*

Religion and philosophy are two provinces of thought separated by an ambiguous frontier, a hoodoo terrain that Emerson explored again and again in his essays. This terrain continues to attract American nature writers, though it is clear that it isn't altogether of this earth. But our nature writers seem to be most comfortable with a

view of the landscape taken from on high, even if this view is often blocked by intellectual fogs and a blue haze of religiosity—such is the meteorology of the intense inane.<sup>92</sup>

In his poem “For Harold Bloom,” A. R. Ammons strips the scenario informing Emersonian transcendentalism to its bare essentials. This scenario is Promethean, by way of Romanticism: like Prometheus, the narrator of Ammons’s poem has ventured into the high places in search of “firm implication and answering” with regard to the mysteries of being. But he has met with only partial success, having been granted the rudiments of culture—a functional language, useful for the denotation of trees and rocks—and culture’s painful excesses of meaning, which dictate that the only “image for *longing*” the narrator of the poem can acquire is one that he fashions for himself: a stopgap measure at best. Thus the fate meted out to Prometheus, bite after bite for all eternity, and thus the gnawing at the vitals that Romantic assumptions about nature and culture visit upon those who accept them as valid. Ammons, I believe, recognizes the mistake made by the narrator of his poem (which must be read as an ironic tribute to Harold Bloom, among the last of the red-hot Romantics). It would be a good thing if contemporary American nature writers could share Ammons’s insight and skepticism.

An earlier generation of nature writers got into trouble for “nature faking”: for making up more or less outlandish tidbits of nature lore. It was claimed, for example, that some mother birds are able to mend the broken legs of their fledglings, should the need arise, by setting the broken legs in casts made of mud.<sup>93</sup> The present generation of nature writers, by way of contrast, might be accused of “culture faking,” of making up or exaggerating cultural handicaps so that they can represent themselves as more impaired than they actually are. Dissatisfied with what William James calls “ambulatory” knowledge, “knowing as it exists concretely,” nature writers long for a “saltatory” knowledge, a form of “abstractly taken” knowing that is the stuff of fantasy, according to James. Saltatory knowledge has little to do with the entanglement and embrangement of the “rich thicket of reality.”<sup>94</sup> So much, then, for the “nature essay” as a perambulatory “excursion.”

Frustrated in their pursuit of saltatory knowledge, American nature writers often indulge in bouts of hand wringing, as we have seen, and seek solace in religiosity, poetizing, sensuality, or philosophical glibness. But there is yet another way for them to cope with the frustrations they feel, one that involves trying to discover an ethnological solution to the problem of our alleged alienation from the natural world. In theory, such a solution involves shifting one’s allegiance and defecting to another culture, where the scales might drop from one’s eyes. Then one would be able to “really see” the natural world for the first time, or so we are told by nature writers who are enamored of the ethnological approach. As one ecocritic has observed, these writers “seek to recoup a ‘oneness’ with the nonhuman world” of the sort thought to be typical of “the mind-set of primitive cultures.”<sup>95</sup> They assume that really seeing nature would mean seeing it as something other than the concate-

nation of forces and assemblage of mechanisms that Western science has studied so unrelentingly and with such devastating effects.

In his 1989 book *The Island Within*, Richard Nelson reveals his fear that he may be alienated from nature simply because he is an American of Western European extraction who grew up in the Midwest during the 1950s and 1960s. Nelson, who has lived in Alaska for many years, says that he envies his Native American friends because they are more attuned to nature than he will ever be, no matter how much time he spends hunting, fishing, and camping on the wild coast where he makes his home.<sup>96</sup> But Nelson is obviously a more than competent natural historian and outdoorsman; otherwise he couldn't live where he lives and couldn't do the things he does. Nelson seems to suffer from a peculiarly American form of wistfulness: he longs to achieve "a separate kind of conscience" and to escape from the "snares of thought" into "the purer freedom" of the senses.<sup>97</sup> Frankly, I find this desire for a more perfect union with nature puzzling. Nelson lives just a short journey by boat away from an uninhabited island where brown bears feed on the carcasses of dead whales along a shoreline carved out by the unfettered surf of the Pacific. What more does he want?

Nelson answers this question, though he does so indirectly, in a passage of *The Island Within* in which he describes his inability to connect with a flock of seabirds diving for scraps of fish near his boat. He writes: "I become distracted by the urge to identify which species these birds are, straining to see minute differences in the color of their wing linings, bills, and feet. I pull out the book, then realize that in my compulsion to possess or categorize them with names, I've stopped *seeing* them."<sup>98</sup> Nelson's quandary is both semiotic and epistemological. He italicizes the word "seeing," but doing that gives the word no more meaning than it would have otherwise, nor does it improve the word's grip on reality. If squinting our eyes at reality is of no avail, then squinting our words at reality also is of no avail. *Seeing* a bird—and *hearing, smelling, touching, and tasting* it, too—are acts (partially) embedded in culture.<sup>99</sup> Why do we wish that it could be otherwise? Why can't we just relax, enjoy the view, and identify the birds, too?

But Nelson's semiotic and epistemological quandary is, of course, a familiar one: like other nature writers, he's bothered by his inability to see the birds only to the extent that he assumes birds are hard to see because they belong to a nonhuman order of things—to "nature," that is. I wouldn't want to deny that there are things about nature that are difficult for humans to know, since we are—as I've already noted—much less proficient than other creatures when it comes to exploring certain aspects of reality, especially the more "sensual" ones. Nor would I want to deny that some humans are more proficient than others when it comes to exploring certain other aspects of reality, which may or may not be "sensual." But so what? I think nature writers should consider Dewey's observation that "the counterpart of the idea of the invidiously real reality is the spectator notion of knowledge."<sup>100</sup> If you assume that reality is inordinately difficult to know, you will relegate yourself to the status of a

chance bystander of the sort who is never a reliable witness of events in the world. You will start to believe that getting the barest glimpse of things is just the best that you can do. But this double bind isn't hard to avoid, from a Deweyan point of view, since reality, even if it should happen to take the form of seabirds dressed in unfamiliar plumage, need not be regarded as "invidiously real," nor must being a spectator seem dismal. Surely Horkheimer and Adorno were overstating the case when they wrote, "Paranoia is the dark side of cognition."<sup>101</sup>

Compare George Levine's take on what happens when man meets bird to Nelson's. Levine writes: "I have been forced to recognize the degree to which even their otherness is part of a distinctly human conception, bred from books and texts and language as much as from the confrontations or evasions of the field."<sup>102</sup> In other words, birds can be different from humans without their difference posing an insurmountable obstacle to our knowledge of them. The difference between nature and culture doesn't have to be granted the grave philosophical significance that nature writers have granted it. In fact, this difference is one source of the pleasure we take in encountering birds and other wildlife, which suggests that things can be different from us without being other than we are—without being, as different things are sometimes said to be, *the Other*. Culture is our means of negotiating our differences from nature and from each other, and not an outright impediment to our negotiations, about which we can do nothing at all—the dismal view of culture that holds sway in most of our theories about it.

It seems to me that like Richard Nelson, Barry Lopez takes an unduly dismal view of culture—or at least, of his own culture—in his many books and essays. Also like Nelson, Lopez is very fond of the native peoples of the far north, and seems to be seeking an ethnological solution to the problem, as he sees it, of Western culture's contempt for nature. But Lopez's vision is a darker one than Nelson's, and his tone is more plaintive. The ecocritic William Rueckert is sensitive to the lighting and timbre of Lopez's work, and interprets it in terms of a "powerful nostalgia for the primitive," "the primitive" meaning "a relationship based on an extensive firsthand practical knowledge of nature and a reverential, nonadversarial attitude toward it." Rueckert argues that Lopez's mission as a writer is to "reestablish" a positive relationship "with the prehuman and nonhuman ground of all life; with the preverbal, nonverbal, and pretechnological."<sup>103</sup> But to offer an account of the preverbal, nonverbal, and pretechnological, or all those things presumed to lie somewhere just off the shores of culture in the vast sea of the "prehuman and nonhuman," while relying precisely on the verbal and the technological resources that culture provides, is a tall order and one impossible to fill. Anyone who dared venture to fill it would have to be a primitivist, and then some.

Of necessity, the preverbal, nonverbal, and pretechnological that Rueckert argues Lopez would like to "reestablish" a positive relationship with would have to be ungraspable using any of the means at the disposal of the writer, since these means are exclusively verbal and technological. Nevertheless, Rueckert is correct to sug-

gest that Lopez sees forging an unbreakable link between inside and outside, text and world, and self and other as an ethical and artistic imperative. As Rueckert observes, "Lopez is never frivolous" and his work is "deeply moral."<sup>104</sup> But what Rueckert finds "deeply moral" about Lopez's work may very well strike other readers as unnecessarily moralistic.

The primitivism that American nature writers and ecocritics find congenial is a somewhat Pollyannaish primitivism, which turns a blind eye on the barbarism that inevitably infects all cultures to some degree, whether they actually are so-called primitive cultures or not. This version of primitivism assumes that "extensive practical knowledge" and "a reverential, nonadversarial attitude" are compatible ways of being "in touch with" nature. But combining the two is likely to give rise to insuperable contradictions, since one is the fruit of a way of doing and the other is the fruit of a way of being, and since to err, as we all know, is human. This isn't just a cliché. In his poem "The Glass of Water," Wallace Stevens writes: "In a village of the indigenes, / One would have still to discover. Among the dogs and dung, / One would continue to contend with one's ideas."<sup>105</sup> Primitivist nature writers would prefer to avoid having to make discoveries and having to contend with ideas. But if Stevens is right about what must happen even in "a village of the indigenes," no refuge from the hardships of discovery and the contentiousness of ideas will be available to them there.

Attempts to evade the hardships of discovery and the contentiousness of ideas are bound to fail, and this failure will make itself evident symptomatically. For instance, Lopez's 1987 book *Arctic Dreams* has been regarded as a magisterial text, but the book expresses an ambiguity of conviction and is haunted by a looming despair at odds with the bounty and beauty of the landscapes its author traverses. The more deeply one reads into *Arctic Dreams*, the more brooding and introspective its tone becomes. Not that Lopez, or any other nature writer, should be an outright optimist where the fate of the natural world is concerned; but despair can be, and often is, yet another form of bad faith.

Lopez is a very sophisticated writer in some respects, but he often makes an extremely simplistic distinction between nature and culture. He is apt, for example, to interpret evidence of human presence and activity in nature as a contradiction. He does this in *Arctic Dreams* in a passage in which he mulls over the difference between the archeological remains of early inhabitants of the arctic and the abandoned campsites of more recent sojourners in that land:

You raise your eyes from these remains, from whatever century, to look away. The land as far as you can see is rung with a harmonious authority, the enduring force of its natural history, of which these camps are so much a part. But the most recent evidence is vaguely disturbing. It does not derive in any clear way from the land. Its claim to being part of the natural history of the region seems, somehow, false.<sup>106</sup>

Lopez is dismayed to discover that twentieth-century high-arctic campsites are littered with tobacco tins, oilcans, and empty rifle cartridges, the refuse of a commercial culture with little sense of what subsistence means. And no doubt this litter is a depressing sight; yet it seems unfair to human beings, and especially to the Western variety of human beings for whom Lopez has very little patience, to judge them in the light of an unfamiliar landscape “rung with a harmonious authority.” This sort of authority, couched in what seems to be the mixed metaphor of a ringing harmony that one can see (but cannot *really see*), is unlikely to be the least bit visible to anyone else, no matter how sympathetic to Lopez’s position everyone else may be. This sort of authority resides entirely in the eye—and in the prose—of the beholder.

Questions of vision, of perception, and of some form of faith are the central issues in *Arctic Dreams*, as is indicated by the book’s “psychological” title and adumbrated by its subtitle, *Imagination and Desire in a Northern Landscape*. Lopez mystifies the experiences of arctic travelers, especially those travelers who happen to be natives of the region. And he does this both implicitly, when he describes his own experiences in moving, lyrical ways and in language rich with religious overtones, and explicitly, when he editorializes about what kind of experience one *ought* to have in and of northern landscapes:

The land retains an identity of its own, still deeper and more subtle than we can know. Our obligation toward it then becomes simple: to approach with an uncalculating mind, with an attitude of regard. To try to sense the range and variety of its expression—its weather and color and animals. To intend from the beginning to preserve some of the mystery within it as a kind of wisdom to be experienced, not questioned.<sup>107</sup>

The sentiment expressed in this passage, which concludes a meditation on the shortcomings of the scientific point of view, conveys a message other than the one Lopez intends, and an unhappy one. In the later chapters of *Arctic Dreams*, the detailed natural history that has been presented in the opening pages of the book is revealed as window-dressing. If the quality of our intention and of our attention is what matters most, then should we not dispense with natural history and cultivate an altogether “uncalculating mind” right from the start of our arctic adventures? It seems to me that on Lopez’s account, doing just that would be the quickest way for us to achieve a heightened awareness of the land’s “expression.”

In an essay first published in 1981, Lopez reveals his impatience with the plodding, prosaic character of natural history when he complains that the majority of field biologists work “under the press of orthodoxy in Western science” and “overlook mystery.” “They dismiss, for fear of the complexity they introduce, many factors that set an individual animal apart from the standard description of the species.”<sup>108</sup> Lopez is entirely correct to complain about the unreliability of “the standard description” of species by field biologists: as many of them have ad-

mitted, the logistic view of species is a highly faulty one, conferring a spurious appearance of precision on fairly miscellaneous data. However, the standard descriptions of species offered by taxonomists are another matter; and few, if any, field biologists would agree that “mystery” is an acceptable alternative to the logistic equation. They would use terms like “randomness,” “patchiness,” or “the stochastic” instead, about which there is very little mystery, however much imprecision there may be in coping with the chaotic phenomena that these terms denote mathematically.<sup>109</sup> “Mystery” is a term that nature writers like to use to paper over the gap between what is and what they assume ought to be, even if there may be some disagreement between writers like Dillard and writers like Lopez about just where this gap is located.

Papering over gaps of this sort, no matter where they’re located, is regarded by many ecocritics as the essence of the nature writer’s art: they argue that an approach to nature like Lopez’s, in which “mystery” is treated as “a kind of wisdom to be experienced,” expresses a moral as well as an aesthetic point of view. But it seems to do that only if one grants that moral points of view are matters solely of the inner state (the imagination and the desire) of individual persons at particular moments.<sup>110</sup> To be moral in this way, even intensely so, in the solitudes of the arctic is no test, I would argue, of one’s integrity as a moral agent. In moral matters, context is all, especially in moral matters that touch upon issues of environmental ethics. It may be true, as Lopez would have it, that the most appropriate form of awareness in the arctic, at least for someone who is neither a hunter nor a scientist, is “ascetic contemplation.”<sup>111</sup> After all, no one is likely to think of the arctic as a sensualist’s paradise. Not only is it cold, it is a desert, notwithstanding all that snow and ice and abundant bird and mammal life. Just as there are said to be no atheists in foxholes, there are probably no hedonists in the higher latitudes.<sup>112</sup>

But let me put a different spin on the argument I’ve just made. The moral stance recommended by Lopez is not only “also” an aesthetic stance, it is an aesthetic stance through and through; hence its religiosity. When Lopez mystifies the experience of the arctic, and recommends mystification as the one true way to approach the northern landscape, he does so because he understands both this landscape and the experience of the person moving in and through it on the analogy of an aesthetic form. He writes: “In the face of a rational, scientific approach to the land, which is more widely sanctioned, esoteric insights and speculations are frequently overshadowed, and what is lost is profound. The land is like poetry: it is inexplicably coherent, it is transcendent in its meaning, and it has the power to elevate a consideration of human life.”<sup>113</sup> What can one say about obfuscation attempted on a scale this grand? I think it is axiomatic that Lopez’s view of poetry is not one that a literary critic can countenance (and as for his assertion that “the land is like poetry,” I’ve said enough about that in earlier chapters).

Jonathan Raban, the expatriate English writer who now makes his home, just as Nelson and Lopez do, in the Pacific Northwest, complains in his recent book *Pas-*

*sage to Juneau* about the limitations placed on American nature writers by their allegiance to a point of view indebted to “Emerson at his most vatic.” Because they subscribe to this point of view, Nelson and Lopez try to maintain a “prayerful relationship” to nature, which gives rise to a “dominant tone” in their work that is “solemn, lyrical, minutely observant”—a false tone, or so Raban implies. The vatic, the solemn, and the lyrical all necessitate a belief in a “transcendental order” that is “improbably tidy and benign,” Raban argues, adding that one is unlikely to discover much evidence of this kind of order in the chaotic old-growth forests and swirling coastal waters of the far northwest. Instead, it must be willed into being as a part of the nature writer’s vocation. This explains the peculiar earnestness of American writing about nature, an earnestness that after reading Lopez Raban didn’t feel he could emulate. “Lopez,” he writes, “was too good for me.”<sup>114</sup>

What I find most striking in Lopez’s work is the way in which the one hand, that of the natural historian keenly interested in wildlife and wild places, doesn’t wash the other hand, that of the religious seeker and artist dissatisfied with his own cultural heritage. What happens instead is that Lopez’s will-to-mystery reacts negatively on his mastery of natural fact and detail, chiding it for being insufficiently poetic and esoteric. As a result, his writing seems to spiral around a center compounded of equal parts of knowledge and know-nothingness. This unstable compound never resolves itself into a firm confidence in the worth and value of what is known and felt, or a happy-go-lucky but bittersweet skepticism about both.

It also seems to me that over the course of Lopez’s career as a writer, the note of complaint has strengthened: the caustic, and not the casuistic, has begun to win out in the struggle between his doubt and his desire. And he has made it clear that his upbringing is to blame for his dissatisfaction. Because Western culture is supposed to be alienated from nature, it inspires in Lopez an aversion that borders on loathing. This aversion is complemented and exacerbated by a view of aboriginal cultures that is more or less utopian. In a recent memoir, Lopez explains that he was attracted to the study of anthropology while enrolled in the masters of fine arts program in writing at the University of Oregon, and soon discovered that the alternatives he sought were available in a number of indigenous cultures. Of these cultures, he writes: “They did not separate humanity and nature. They recognized the immanence of the divine in both. And they regarded landscape as a component as integral to the development of personality and social order as we take the Oedipus complex and codified law to be.”<sup>115</sup> Lopez commits what I think of as the anthropological fallacy—that is, he treats cultures as more rigidly structured and codified, and as more distinct from one another, than they are and could possibly be. He writes as if the incest taboo and the institutions of law were uniquely Western phenomena, and as if there were no traces of animism and of the sense of place to be found outside the confines of indigenous cultures.

Nature writers often bewail the susceptibility of indigenous cultures to Western influences; they depict indigenous cultures as if they were endangered species

highly vulnerable to changes in the moral climate and the invasion of exotic ways of thought. That is, they depict them as if they were islands surrounded by rough seas brimming with moral and intellectual dangers. At the same time, they describe their own culture as if it were immune to nonwestern influences and incapable of wrapping its mind around nonwestern ideas. Yet Lopez's career, and Nelson's, too, can be cited as evidence of Western culture's fascination with and susceptibility to many if not all things indigenous and nonwestern.

Because of his qualms about his own culturally determined disabilities and predispositions, Lopez likes to adopt a painstaking, perception-by-perception focus on his reactions to the topographic features of unfamiliar landscapes and their resident flora and fauna. Like David Abram, he is fond of the phenomenological approach to things and relies on this approach as a means of reconstructing his reactions to nature in as undiluted a fashion as possible for his reader. But he also relies on it in order to place himself in a sort of cultural self-quarantine. While Lopez may be our representative in the exotic landscapes he visits, he often comports himself in his writing as if he were the man from nowhere, a virtual blank slate of a person. This phenomenological strategy sometimes leads him to indulge in description merely for description's sake.

In Lopez's essay "The Stone Horse," for example, he recounts—almost step by step, and I mean that literally—his visit to the site of an intaglio horse, a sculpture created several hundred years ago by Native Americans living in the Southern California desert, somewhere near the Mexican border. Lopez writes:

I still had not moved. I took my eyes off the horse for a moment to look south over the desert plain into Mexico, to look east past its head at the brightening sunrise, to situate myself. Then, finally, I brought my trailing foot slowly forward and stood erect. Sunlight was running like a thin sheet of water over the stony ground and it threw the horse into relief. It looked as though no hand had ever disturbed the stones that gave it its form.<sup>116</sup>

In this passage, as in the passages which precede and follow it, Lopez pays careful attention to himself paying careful attention to . . . well, *himself* paying careful attention to the stone horse.

At some point in their essays, most nature writers shift their focus from the natural world to the inner world, a rhetorical strategy that is likely to produce prose lacking in dramatic appeal. The action in the paragraph I have quoted from "The Stone Horse" consists entirely of Lopez shifting his eyes and moving his foot, as the morning sun begins to wash over the sculpture he is examining. More accurately, the action consists entirely of Lopez taking careful note of those events, and I hope the reader understands that I am using the words "action" and "event" in their weakest denotative sense. As a matter of fact, it is by using words in just this way that phenomenology wills itself into being, as if it were a rabbit pulling itself out of

a hat by its own ears. Like Abram, Lopez wants to bear witness to his bearing witness, and to record for his reader a flickering moment of encounter, not because of the knowledge that such moments impart but just because they are moments of encounter, hence precious from both the phenomenological and the anthropological point of view. That the intaglio horse is hard to see even when you are standing right next to it, that desert travelers often pass by it without noticing it at all, is only part of Lopez's point, and the least important part.

Lopez is yet another rusticated, exurban *flâneur* with time on his hands. "The man of leisure can indulge in the perambulations of the *flâneur*," Benjamin argues, "only if as such he is already out of place. He is as much out of place in an atmosphere of complete leisure as in the feverish turmoil of the city." That Lopez, a writer devoted throughout his career to evocations of place, should so consistently strike the posture of the displaced person described by Benjamin is instructive. Benjamin notes that in the nineteenth century some *flâneurs* experimented with walking turtles on leashes through the Paris arcades.<sup>117</sup> They did this in order to set an extravagantly leisurely pace; to separate themselves from the surrounding environment, above all from the crowds of bourgeois shoppers whose sensibilities they were eager to offend; to reset, as it were, the cultural clock; and to create moods in which they might be more receptive to fresh impressions. Lopez's motives are similar, even if he doesn't go quite to the same length as the Paris *flâneurs*: he dispenses with the turtle on a leash.

Ecocritics who have written favorably about nature writing seem to find slow-motion psychological stripteases of the sort that Lopez performs in "The Stone Horse" stimulating. Yet it's very hard to say what the point, ultimately and perhaps even proximately, of such an exercise may be. I assume that the point has something to do with coming to grips with "the preverbal, nonverbal, and pretechnological," but in practice all that proves not to be within Lopez's reach. Instead, it is something he is forced to evoke by calling our attention to his strenuous efforts to grasp it. I think this is the case because "the preverbal, nonverbal, and pretechnological" is something sublime, and hence something incipiently metaphysical, if not entirely so. And as I suggested earlier, the phenomenological is also something incipiently metaphysical, and is kept from becoming completely metaphysical only by the painstaking, ritualized attention given to the modalities of consciousness by the phenomenologist.

American nature writing has a fundamentally contradictory character: at critical junctures, it swerves inward, erasing the world it has been at such pains to describe, and abandoning the physical for the metaphysical. And it does this so that the writer, as Lopez puts it, can "situate" himself or herself in a nonhuman limbo. Unfortunately, the nature writer's representations of this nonhuman limbo have been taken for granted even by readers who should be committed to taking nothing for granted. Some ecocritics see nothing peculiar or problematic about this state of affairs: William Rueckert, writing about Lopez's book *River Notes*, actually argues that the book's readers, both casual and critical, should try to suspend their powers of judgment.

A relentless, systematic approach to this text would destroy it. One must be careful and attentive to hear what it is “saying,” to perceive what it is doing. In a sense, we must learn to save these notes from our highly trained analytic and hermeneutic minds by realizing that—here anyway—things most often just are, and that to turn them all into symbols is to trespass on, rather than share in, their being.

Rueckert writes as if he were describing the tending of an eternal flame, and not the reading of a slim volume of slender content, which is what *River Notes* actually is. But then Rueckert believes that “we have to learn again that there are other sources of wisdom besides humans. We have to learn what *River Notes* teaches us.” He means that we have to learn respect for “nonhumanized nature,” but the implication is that we also have to treat the author and the text of *River Notes* deferentially, as presenter, as representation, and (running the two together) as representative of “nonhumanized nature,” speaking not only *about* it or *of* it, but *for* it as well.<sup>118</sup> In other words, the reader is to approach the nature writing text in the same phenomenological and anthropological frame of mind in which its author has approached the world, or run the risk of trespassing on its “being.” And the critic should mimic the object of criticism by playing peek-a-boo with it, just as it plays peek-a-boo with the world.

### *Tradition*

*But how does one feel?  
One grows used to the weather,  
The landscape and that;  
And the sublime comes down  
To the spirit itself,*

*The spirit and space,  
The empty spirit  
In vacant space.  
What wine does one drink?  
What bread does one eat?*

*Wallace Stevens,  
“The American Sublime”*

I have devoted the preceding pages to an in-depth discussion of *Pilgrim at Tinker Creek*, *The Moon By Whale Light*, *A Natural History of the Senses*, *The Abstract Wild*, *The Spell of the Sensuous*, *The Island Within*, *Arctic Dreams*, and selected passages of other texts in order to prepare the way for suggesting that the question of whether nature writing constitutes a viable tradition or not ought to be a more vexed ques-

tion for ecocritics than it has been. I realize, of course, that where traditions are concerned, one critic will see a ragtag army of imitators, and will point scornfully to all those dust jacket blurbs announcing the debut of yet another chip off the old block, while another critic will see a genuine cultural movement unbroken in its continuity, and will point to those same dust jacket blurbs with pride. The first critic will speak of a decline and the second of a possible ascent to new heights. To have to choose between their two points of view is a disheartening prospect. However, since my sympathies do incline more toward the first point of view, I want to articulate the limitations of the second point of view as I see them.

Those who profess a great admiration for American nature writing enjoy pointing out just how consistent its tradition has been over the past century and a half, or since Thoreau's natural history essays were first published. For example, Thomas Lyon observes that nature writing "appears to have been so firmly rooted in its basic methods and allegiances that currents of intellectual fashion and even deep philosophical change, in the culture at large, seem hardly to have disturbed it."<sup>19</sup> Lyon suggests that nature writing's imperturbability is a very good thing, and that its rootedness "in its basic methods and allegiances" is one of its chief virtues. And if he were right about that, the interested critic would be relieved of the burden of taking contemporary nature writing's immediate cultural, intellectual, and philosophical context seriously into consideration, whereas its historical provenance would be something that the interested critic could safely assume, without giving it much thought. Of course, if it is true that nature writers have not bothered to keep up with "intellectual fashion," and if still more remarkably they have disregarded the "deep philosophical change" that has occurred "in the culture at large," then surely they have been running the risk of irrelevancy, or at least of marginality, and their work must be difficult to consider in context simply because they have failed to contextualize it from the start. It therefore seems to me that a certain amount of force must be applied to nature writing if it is going to make sense as something other than a historical curiosity; we have to jimmy it open using the tools we have at hand, to recall a point I made in the preface to this book, and that is just what I have tried to do in this chapter.

I doubt whether we can offset nature writing's apparent failure to keep pace with the times (which I, for one, don't fully acknowledge in any case) by stipulating that it is a quintessentially American form and practice, hence as central to the American literary canon as Hawthorne's tales or Dickinson's poetry. Adding a grandfather clause of this sort to our arguments, while adding nature writing to our reading lists, will not be and, indeed, has not been enough to convince skeptics that they should read something as quaint as the typical nature writing essay, by definition, must be. Nor do I think this problem can be overcome by stipulating that nature writing is "ecological." Surely ecology must be counted as one of those new "intellectual fashions" and products of "deep philosophical change" from which the nature writing tradition is supposed to have kept its distance; and as I've shown, na-

ture writing is in point of fact highly suspicious of biology and ecology, just as it is of all science.

But the point I am trying to make in raising these objections to the idea of the American nature writing “tradition” isn’t that Lyon and other ecocritics are entirely mistaken to think that this so-called tradition has bucked the tide not only of current trends but of history, too. Viewed in the context of those trends, and in light of history, both literary and otherwise, contemporary nature writing does indeed seem quaint. And it seems that way in large part because its gaze is steadfastly retrospective, but without being properly historical. Nature writing almost always looks back to a time when Americans lived in a once-and-never land of uncut forests and of great grasslands, which were unbroken except by the hooves of buffalo and the burrows of prairie dogs—it is, in a word, almost always nostalgic. But its nostalgia is complicated and distorted by cultural feedback, as nostalgia inevitably is.

In his book *Second Nature*, Michael Pollan writes: “Americans have a deeply ingrained habit of seeing nature and culture as irreconcilably opposed; we automatically assume that whenever one gains, the other must lose. Forced to choose, we usually opt for nature (at least in our books).” Pollan’s closing parenthesis is telling: the irreconcilability of nature and culture is a matter of literary tradition. It can be thought of, then, as a sort of fiction, and therefore as a special case of falsehood. Because in *Second Nature* Pollan is most concerned with the practical relationships that a gardener has with the natural world, he argues that the choice between nature and culture “is a false one.”<sup>120</sup> The garden is his figure for the coextensiveness of nature and culture, but it is also the place where this coextensiveness is actively explored by gardeners. The garden, it seems to me, is yet another extended phenotype: it is the human equivalent of beaver dams and termite mounds.

Of course gardens aren’t the favorite terrain of most nature writers; wilderness is. But wilderness has always been more a state of mind than a reality; it has always been a figuration of consciousness, rather than something to be discovered waiting for us outside the bounds of our assumptions.<sup>121</sup> Wilderness is that imaginary landscape where we leave behind only our footprints and take away only our memories, as the prissy old motto has it. But leaving behind only our footprints is more or less impossible for us to do; just consider what goes on in most officially designated wildernesses today. They are overrun with hikers, bikers, whitewater rafters, and rock climbers. This is scarcely surprising, since in the United States wilderness areas are intended to serve as venues for recreation. The majority of Americans think of the woods, the rivers, the oceans, the mountains, and the deserts as places to have fun, not as places where we might discover a more productive way to live with the land.<sup>122</sup>

Nature writers like Turner, Nelson, and Lopez, who spend much of their time in wilderness areas, are especially eager to rediscover both the natural landscape that Americans once possessed, however fleetingly, and the imaginary homeland of an earlier era of literary history as well. In this earlier era, the myth of the American

Sublime appealed to a people who, first by means of conquest and secondly through their own industry, were creating the latest in a long line of terrestrial empires out of what they perceived, without noting the potential contradiction, as both a “howling wilderness” and a “virgin land.” These people needed to repent of their trespasses imaginatively; when they paused in their labors to take a considerate look at nature, they wanted to be awestruck. They had yet to develop Wallace Stevens’s sense of the American Sublime as a “vacant space” where an “empty spirit,” having grown “used to the weather,” “the landscape,” and all “that” would find bread and wine hard to come by. It therefore seems to me that the most awestruck of today’s nature writers are trying to live and write in a cultural time warp; they are trying to be not only premodernist but premodern as well, in repentance of the sins of their forefathers. This means that today’s nature writers are forced to overlook the actuality of the landscape we have made for ourselves, so that they can fix their sights on more ideal terrain, which they hope to conquer and settle in spirit. They badly need to catch up with Stevens, so that they then can begin to come to terms with the present moment, in relationship to which even Stevens has begun to seem a little quaint.

But the admirers of American nature writing, as well as those who produce it, have not viewed its quaintness in this light, which is the light cast by reflection on the broader currents of literary and cultural history. They have instead yielded to nostalgia, and have chosen to view nature writing as if it really did constitute a hermetic tradition immune to outside influences and hence uncorrupted, incorruptible, and heroic in its resistance to change. Consider the judgment made by Elder and Finch in their introduction to the *Norton Book of Nature Writing*, where they write that “nature writing flourishes in America as never before.” They suggest that this means “nonfiction” may be “the most vital form of current American literature,” in an atmosphere in which “the natural context of fiction has been attenuated and when much literary theory discovers nothing to read but constructs of self-reflexive language.”<sup>123</sup> Elder and Finch seem to be saying that nature writing flourishes, paradoxically enough, precisely because it doesn’t breathe very much of the atmosphere of the present day.

Of course, the manner in which Elder and Finch have characterized the atmosphere of the present day is highly tendentious. They’ve overlooked the fact that most students of the subject regard “constructs of self-reflexive language” as definitive of “the natural context of fiction,” and not as a strange aberration, which has cropped up only recently and, with the encouragement of literary theory, has spoiled things for the partisans of old-fashioned realism. Elder and Finch seem to have forgotten that the self-reflexive and the fictional go hand in hand and always have done, which is perhaps the chief reason the fictional can be untrue without its being a lie. And as it happens, nature writing is self-consciously self-reflexive, too; it is yet another instance of the supposedly unnatural habit many contemporary authors have of “writing about writing.” Witness the worries about the dangers of verbalization to which writers like Annie Dillard and David Abram are prone.

Elder and Finch also overlook the fact that “the natural context of fiction” is and can only be a cultural context. However, they are using the word “natural” in an intuitive rather than in a theoretical way. Like Thomas Lyon, and like many others in the ecocritical community, they think nature writing affords an alternative to the excesses of culture: to “intellectual fashion,” to “deep philosophical change,” to “literary theory,” and to those irksome, self-reflexive novels that aren’t like the ones in which our great-grandparents immersed themselves, once all the corn was shucked and the livestock bedded down for the night. If only nature writing were given its due, they seem to be saying, then we could overcome the obstacles posed by intellectual, philosophical, and literary history, and the “natural context” of literature, whatever that is, could once again flourish.

If it seems that ecocritics are trying to have it both ways when they talk about nature writing, that is because they are, in fact, trying to have it both ways. One of the most eye-opening of the assertions they have made about nature writing, given that they all seem to agree on its devotion to tradition and thus would seem to be saying that it is an essentially conservative form, is the assertion that it is revolutionary. “For all the nature essay’s perhaps placid-seeming consistency over time,” Lyon has observed, “there is genuine revolution in it. Even at its most genteel,” he continues, “it is subtly, inherently subversive. Seeing, simply seeing, destroys divisions; for however brief a time, it restores health.” Lyon argues that the nature essay can realize the paradoxical feat of subversion by conservative means despite its habit of speaking in a still, small voice and its “radical reversal of our usual bluster.” However, the revolution that the nature essay has “in it” isn’t in the first instance political: it isn’t radical that way. By addressing us without bluster, the nature essay’s immediate effect on us is, according to Lyon, “an entire psychic reorganization.” It is only after this dramatic psychological change has been secured that we will be prepared for what Lyon calls “our redemption, both ecological and political.”<sup>124</sup> That “revolution,” “reorganization,” and “redemption” are incommensurate terms, and that a religious vocabulary, a therapeutic vocabulary, and a political vocabulary are being run together here, without a negotiation of their differences, would seem to be serious shortcomings in Lyon’s argument.

But ecocritics aren’t the only ones to have argued that nature writing is potentially revolutionary: sweeping claims about its cultural and political muscle also have been made by nature writers, who haven’t been shy about flattering themselves. For instance, Barry Lopez has said that he believes nature writing “will not only one day produce a major and lasting body of American literature, but that it might also provide the foundation for a reorganization of American political thought.”<sup>125</sup> It seems to me that the assumption that ecocritics like Lyon and nature writers like Lopez have been making is this one: in an ideal world, a world reorganized along earth-friendly and “ecocentric” lines, nature would inform culture punctually of the character it ought best to take, and culture would be grateful for this information, which would prove to be more or less immediately redemptive.

Culture would be “forever on the alert” for the sort of clarion call Thoreau described in *Walden*.<sup>126</sup>

However, I suspect that in the event a clarion call of this sort might not be at all soothing: it might awaken us to nature and to greater awareness of our social and political discontent, too, just as it seems to have done for Thoreau. And it also might open up the tradition of nature writing, and rock that “lasting body of American literature” back on its heels, so that it is forced to reconsider its own foundations. Many of today’s nature writers and their admirers are still trying to think and write (though not necessarily in that order, which is half the problem) largely within the framework of assumptions about nature current in this country a century and a half ago, if I may beg the question of how truly current those assumptions were at that time.<sup>127</sup> These writers and their admirers share the hope for a renaissance of American culture and a revolution in American politics of the same kind that inspired writers like Emerson, more than anyone else, the spokesman of this hope; Thoreau, albeit in delimited and paradoxical ways; Whitman, the self-proclaimed popular champion of political revolution, social reorganization, personal redemption, and cultural renaissance; and many others.

Evidence that nature writers are taking a leap back in time to mid-nineteenth century America is not hard to find: I noted early on in this chapter that Dillard shares thematic interests with both Emerson and Whitman, and relies on tropes similar to theirs, while lifting much of the architecture of her book directly from the pages of *Walden*. And I think it is very likely that Lopez is deliberately echoing Emerson, Thoreau, and especially Whitman when, in an essay entitled “The American Geographies,” he calls for a national literature of nature, just as they once did. In a passage reminiscent of Whitman’s catalogs, Lopez writes: “I know that in a truly national literature there should be odes to the Triassic reds of the Colorado Plateau, to the sharp and ghostly light of the Florida Keys, to the aeolian soils of southern Minnesota and the Palouse in Washington, though the modern mind abjures the literary potential of such subjects.” Lopez doesn’t want to consider the possibility that “the modern mind” has a valid point, since for him as for many other nature writers its being “modern” is one of the things preventing that mind from having any views of nature, and of writing about nature, worth taking into consideration. Lopez also sees the creation of a national literature of nature as a moral imperative of just the sort that “the modern mind” is likely to resist. He writes: “There *should be* eloquent evocations of the cobbled beaches of Maine, the plutonic walls of the Sierra Nevada, the orange canyons of the Kaibab Plateau.”<sup>128</sup> To which “the modern mind” may very well respond, “*Says who?*”

I think there is yet another reason “the modern mind abjures the literary potential” of the subjects Lopez ticks off his list, one which has nothing to do with its supposed lack of interest in those subjects and its distaste for moralizing, and everything to do with the shaping influences of literary history. “Odes” and “eloquent

evocations” no longer have the power to move us that they once had (thanks, in no small part, to the efforts of intellectually sophisticated poets like Stevens). The Triassic Reds of the Colorado Plateau, the Aeolian soils of the upper Midwest and Far West, and America’s cobbled beaches, plutonic mountain ranges, and orange canyons do have “literary potential”: of this there can be no doubt. But the question is how best to express this potential in terms of actual literary production. Many nature writers are overly reliant on “eloquent evocations,” on word painting; they regularly turn out what are purported to be essays, but are really the prose equivalents of odes. This suggests that these writers are being held hostage by cultural assumptions about nature and by ideas about form that are long overdue for a rethinking.

Ecocritics and nature writers need to recognize that there is nothing original, and thus nothing revolutionary, about the hope for a national literature redeemed by its fidelity to nature. They have been trying to peg the worth of nature writing on its continuation of projects dear to the heart of American literature, classically and canonically conceived. In this conception, the thought that political, cultural, and social life might be amenable to redemption, if only its fidelity to nature can be assured, is central. In classic American literature of the mid-nineteenth century, the genteel and the subversive, with redemption of culture and politics as the stakes, attempted to run a sort of three-legged race together, when they might have turned in better performances in opposition to one another. As it was then, so it is now: a genteel subversion, of the sort described by Thomas Lyon, will almost certainly be a purely imaginary one, conducted entirely within the precincts of literature or, more broadly, of art (though in this scheme of things art is thought to run errands of mercy in daily life, it is believed to have its true home in a higher and separate realm of transcendental values).<sup>129</sup> A genteel subversion is also much more likely to be reactionary than revolutionary, if only by default.

In any case, and for reasons having to do with broader issues of rhetoric and argument, I think it is far from clear that when “polar forces collide and nature writers attempt to reconcile them in epiphanic prose,” as Don Scheese has put it, their attempts at reconciliation are ever going to be more than very modestly successful.<sup>130</sup> Genuinely polar forces aren’t so easily reconciled, careful readers aren’t so easily persuaded, and meaningful arguments aren’t so easily won. But nature writers and ecocritics have been assuming that a little epiphany goes a long way.<sup>131</sup> Some such notion about the power of epiphany lies at the core of Emerson’s essays, in which a redemptive vision of American nature, culture, and literature is sketched in the air for the benefit of the reader. And as I noted earlier, some such notion also seems to motivate much of Dillard’s performance in *Pilgrim at Tinker Creek*.

Against the backdrop of outsized claims, vague hopes, and distortions of literary history that ecocritics have expressed with regard to nature writing and that I have described in the preceding pages, I would like to suggest that nature writers cannot possibly do all the things they have been credited with doing. That is, they cannot

and do not dwell in an eternal present, as they have been said and, in some cases, have claimed to do. They cannot have what they want; no one can. The talents of any one writer, even when those talents are considerable, aren't enough to maintain the vitality of the conventions of traditional nature writing as described by ecocritics and nature writers alike.

At the same time, however, I want to argue that American nature writing must have evolved, if not in a gradual, progressive way, then more in line with the theory of punctuated equilibrium and haphazardly. According to this theory, periods of relative stagnation are followed by periods of innovation and rapid new growth, both of which are accompanied by mass extinctions. Each generation competes with the next as best it can because its differences from the next generation are just as marked as its similarities, and eventually prove fatal—in the long run, if it is a very fortunate generation, and much sooner, if it isn't fortunate at all. Insofar as nature writing is concerned, that its equilibrium is punctuated means that Thoreau, Burroughs, and Muir didn't pass the lighted torch on to Donald Culross Peattie and Edwin Way Teale, who safeguarded it for a generation before handing it over to Annie Dillard, who may be ready to pass it on to Diane Ackerman, David Abram, Jack Turner, Richard Nelson, and Barry Lopez in their turn.

Either the American nature writing tradition has been ruptured because it has changed internally with the evolution of new species, or it has been ruptured because its world has changed around it, and like the coelacanth and the horseshoe crab, it finds itself surrounded by strange new entities that it knew nothing of in its youth and may find it difficult to cope with. In either case, be it explosion or implosion, rupture isn't necessarily a bad thing. Quite the reverse: where traditions are concerned, rupture can be a happy accident. Rupture keeps traditions out of museums and classrooms, and in the streets—or in this case, in the back roads, the fields, the forests, and the mountains, and along the shorelines—where traditions belong, and where they can be reinvented from time to time. Provided, of course, that rupture occurs in the right place: it must be a lucky break. Otherwise all rupture means is that a tradition has been broken and needs mending, or is over and done with, and should be abandoned lest the dead weight of the past overtax the present. This much advantage, at least, the coelacanth and the horseshoe crab have over the nature writing tradition: better arguments have been put forward for their preservation.

This, however, is something that keepers of tradition, especially self-appointed ones, often fail to recognize. Umberto Eco writes: "It is typical of reactionary thought to establish a double equation, between Thought and Origin and between Origin and Language. The Thought of Tradition serves only to confirm a mystical belief that arrests any further reasoning." Precisely the reason, as Eco argues in another context, that "the real problem of a critique of our own cultural models is to ask, when we see a unicorn, if by any chance it is not a rhinoceros."<sup>132</sup> I think that

the American nature writing tradition, which though it may be venerable has yet to survive as long as the coelacanth and the horseshoe crab have survived, may be a rhinoceros, which has been disporting itself as a unicorn and which is, of course, also an endangered species that really can't afford to fool around. Provided, that is, that it doesn't turn out to be another creature of myth entirely, namely an albatross.

# E P I L O G U E

## A Word for Wildness

*Where was it one first heard of the truth? The the.*  
*Wallace Stevens, "The Man on the Dump"*

There are at least two reasons that the several attempts to define ecocriticism as a practice that I have reviewed in this book have been less than convincing, if not wholly unconvincing. The first has to do with the fact that these attempts have been premised on the assumption that practice can be conducted in opposition, as it were, to theory, and even as a rebuke and a corrective to it; and the second, with the fact that ecocriticism does not "face an organized structure," as the sciences generally do, at least according to Karl Popper, "but rather something resembling a heap of ruins (though perhaps with treasure buried underneath)." I should add that reason two is very closely related to reason one—so much so that to me it seems to be the very crux of the matter. I think it is precisely because ecocriticism finds itself in the position described by Popper than it can ill afford to reject theory, not only if it wants to seem coherent, or both practicable and practical, as a variety of literary criticism, but also if it wants to make good on its claim to be interdisciplinary.

For ecocriticism to earn its spurs intellectually, it must acquire not only more theoretical savvy but a less devotional attitude toward its subject matter, both literary and otherwise, as well. Certainly defining ecocriticism and its objects of study in terms of a revival of realism and of long-established literary modes like the pastoral, and more broadly in terms of the dictates of human cultural evolution and ecological science, restricts the interpretive options available to ecocritics much too severely, and may even render their interpretations unintelligible. Those who have offered restrictive definitions of ecocriticism have tended to overlook both the limited appeal and the ambiguities of the literature that can be accurately described as realist or pastoral, while subscribing to mistaken notions about the human place in nature (or the lack thereof) and the current state of ecological research. The result is that ecocritical celebrations of so-called environmental literature—of nature poetry, nature writing, and what have you—have rung hollow much of the time.

Personally, I think ecocriticism ought to be more offensive than it has been. I mean that ecocriticism ought to quit being defensive, so that it can take the initiative

and state its case without trying to trump what it imagines to be its enemies (“metropolitan” academic elites and the literary theory they adore), and without making claims that it cannot substantiate with solid evidence and sound argument. But I also mean that ecocriticism ought to be less devoted to pieties: that it ought to offend. Joseph Meeker’s celebration of the picaresque as a model of environmental literature is problematic, given the realities of literary history and the perennially confused state of genre conventions and definitions of modes, especially where fiction is concerned. Nonetheless, I think the ecocritic would do well to emulate the picaro’s mobility and fluid, playful sensibility. Like the picaro, we have to find our environmental sustenance as best we can, whenever and wherever it is to be found. Nor can we afford to be moralistic. An offensive and picaresque ecocritic will be less like a watchdog policing the boundaries of the wild and more like a coyote expanding the territories of the wild opportunistically and wherever it roams. The ecocritic-as-picaro will be much less attracted to prophecy, and will make judgments that, though they may seem expedient—and even offensive—to some, will be a lot more expeditious than ecocritical judgments currently are. Offensive and picaresque ecocritics will be engaging something more than an imaginary earth because they will be more imaginatively engaged with the earth as it is, urban wastelands, wildernesses, and all.

A passage from one of Wittgenstein’s notebooks suggests a model of how picaresque ecocriticism might conduct itself offensively in relation to the institution of literary criticism as a whole. Wittgenstein asks, “What is it like for people not to have the same sense of humour? They do not react properly to each other. It’s as though there were a custom amongst certain people for one person to throw another a ball which he is supposed to catch and throw back; but some people, instead of throwing it back, put it in their pocket.” “Or what is it like,” he continues, “for somebody to be unable to fathom someone else’s taste?”<sup>2</sup> Anyone familiar with Wittgenstein’s writing will recall how often he puts the ball in his pocket when he plays the language game called philosophy. He doesn’t do that simply because it suits his humor or because he is perverse; he does it as a way of making a point about how the game of language might be played differently by philosophers, once they recognize its almost purely conventional nature—once they realize that philosophy itself is structured like a game, as the saying goes.

Flouting philosophical convention was Wittgenstein’s way of imagining and inventing new games, and of liberating thought. Naturally, there were those who could not understand what he was about, and they were quick to accuse him of not playing ball. They thought his writing was impertinent and erroneous, or simply irrelevant; some even accused him of incivility—of seeking to offend. Certainly Wittgenstein was unwilling to philosophize in the usual fashion, but that, I think, was merely a reflection of his peculiar competence.

Without recognizing it, ecocritics are in somewhat the same position with regard to literary criticism as it is usually practiced that Wittgenstein was in with regard to philosophy as it was usually practiced in his day. They want to play ball

using that spherical object we call the earth, but without recognizing the necessity to invent new approaches to the game of literary criticism. They continue to pitch upon the familiar turf of pastoral poetry and nature writing, and have been caught in a squeeze play by the superannuated issues of organic form and the referential function of language, which they might have avoided if they had conceived of their task differently. I think a little incivility will serve ecocriticism well, even if its only effect is a change of tone. I have a hunch, however, that the consequences of adopting a critical strategy of incivility will be richer than that because ecocriticism will be brought more into line with what is recommended in the most daring moments of the very literature its practitioners profess to admire. I have in mind, first of all, the breathtaking rupture of civility announced at the beginning of Thoreau's essay "Walking." He writes:

I wish to speak a word for Nature, for absolute freedom and wildness, as contrasted with a freedom and culture merely civil,—to regard man as an inhabitant, or a part and parcel of Nature, rather than as a member of society. I wish to make an extreme statement, if so I may make an emphatic one, for there are enough champions of civilization: the minister and the school committee and every one of you will take care of that.<sup>3</sup>

Some readers of "Walking" wax sentimental about the saintly figure of the saunterer that Thoreau goes on to celebrate in the body of his essay. He interprets the word "saunterer" as a double-barreled pun on the French *Sainte-Terrer*, one who goes to the holy land, and on *sans terre*, without land or home or property of any kind, and therefore not guilty of the theft that all property is said to be. A *saunterer* is a *Sainte-Terrer* who is also *sans terre*, and is therefore the embodiment of all the Thoreauvian virtues.

However appealing the figure of the saunterer may be, I don't think one can afford to ignore the abrasive quality of Thoreau's pun; he offends not only against etymology (his is fanciful, and mistaken) but also against his propertied audience.<sup>4</sup> None of its members, Thoreau implies, can be saunterers because they are the sort of vagrants who spend their days sitting "still in a house all the time" and worrying about church and state.<sup>5</sup> For Thoreau as for Wittgenstein, puns are a way of rewriting social contracts, specifically those concerning language and its rightful uses, and of thumbing one's nose at established meanings and values. The Thoreauvian saunterer may therefore be a more picaresque and less saintly figure than is generally recognized.

When I disparage ecocriticism for adhering to standards that are "merely civil," I have in mind both the high moment that begins "Walking" and the outlaw impulse that informs much of the literature of wildness published in the wake of Thoreau's essay. However, I think it's best not to be too literal-minded about what constitutes wildness. Consider, for example, A. R. Ammons's book-length poem

*Garbage*, which seems to me to be a much more wayward text than most of the others that might be rounded up and gathered under the rubric of wildness (the essays and fiction of Edward Abbey come immediately to mind: wild, yes, but utterly predictable, too). Since Ammons's poem was published in 1993 and is in every sense of the term a contemporary work, a look at *Garbage* will help refresh and revise our sense of what wildness can mean.

Ammons is (or rather, was; he died in 2001) a very sophisticated jokester, if not a trickster, and although he has been celebrated for his contributions to nature poetry, I imagine that *Garbage* sticks in the craws of more than a few of his fans. There is the poem's in-your-face title, to begin with; then there is the fact that the poem isn't much like Ammons's shorter and more intensely lyric poems, especially those from early in his career, which display all the belletristic virtues: they are dense with beautiful imagery and language, and are very tightly focused both thematically and intellectually. *Garbage* also has, to be sure, considerable verbal charms, and it isn't lacking in intellectual high moments, either. But much of the poem is avuncular, goofy, and rambling, like an old man talking to himself, while other parts of the poem are deliberately lowdown and impious, even salacious, also like an old man talking to himself. What remains is often steeped in reminiscence, some of it pleasantly sentimental, some of it painful and death-haunted: again, like an old man talking to himself. The fact that it is the same old man talking to himself throughout the poem gives *Garbage* its quality of wildness: its voice is that of someone who is not only comfortable speaking without bounds (as Thoreau might say), but is delighted to be able to do so. I should mention that the poem is set, for the most part, in a garbage dump: Ammons was inspired to write *Garbage* by the sight of a mountain of trash towering over a landfill located near Interstate 95 in south Florida. He is an incurable romantic of an unprecedented sort, one who takes his "mountain gloom and mountain glory" just as he finds it, and wherever he can find it.<sup>6</sup> For Ammons the alpine is a point of view: it doesn't have to be a place.<sup>7</sup>

Rhetorically Ammons might be said to have two modes, a Stevens mode and a Whitman mode, and in *Garbage* (as in his other long poems) the two modes constantly interface, interact, and interpenetrate. Their endless combinations and recombinations give rise to permutations enabling Ammons to insist (and I think Barry Lopez should take note) that "garbage is spiritual" and that the garbage dump is "where the consummations gather," while never losing sight of the fact that his metaphors are metaphors, that "spiritual" garbage is still garbage, "false matter, hamburger meat left out."<sup>8</sup> In other words, if garbage provides Ammons with a Whitmanesque catalog of the flotsam and jetsam of consumer culture (broken lawn chairs and lemon crates, worn-out baby strollers, partially eaten hot dogs, spoiled ground beef, and the like), it also provides him with a Stevensian idea of order, because the garbage dump, far from being, as it was for many of the modernists, an emblematic wasteland, is for both Stevens and Ammons the ideal locus for contem-

plating the creative nexus where culture and nature commingle and consummate their relationship.

In his poem “The Man on the Dump,” Steven insists that “the dump is full of images.” Ammons agrees, and for him as for his predecessor, the dump is metropolitan and pastoral, civil and uncivil, a monument to the folly of consumption and one of the high temples of consummation. It is an uncanny place where, along with Stevens, one might fittingly “murmur *aptest eve*.”<sup>9</sup> In the garbage dump, one set of qualities is composted back into the other, and culture becomes natural again, not by means of an epiphany but through more reliable and much less visionary processes. Consumption, consummation, and recycling, whether of garbage or of poems like “The Man on the Dump,” seem to be inevitable, whether we attend to them or not; Ammons thinks we might as well attend to them.<sup>10</sup>

Thoreau’s strategy was to speak on behalf of wildness from the wilderness: figuratively from Walden Pond, and actually from the Maine woods. Thoreau wasn’t lacking in sassiness, as many a passage of *Walden* and of *The Maine Woods* demonstrates, but Ammons’s strategy is much more rebarbative: he speaks on behalf of wildness from a landfill. Doing so enables him to capture more of the figurative and actual truth about culture and nature, and about what we desire and what we do not. The garbage dump may be filled with “permanent waste,” 2 percent of which is “disposable diapers, good to last / five hundred years: cute little babies’ shit,” and these would seem to be depressing figures, both numerical and poetic.<sup>11</sup> Yet Ammons likes these figures because they establish the garbage dump’s importance as a reflection and, indeed, a repository of culture. Our most enduring monuments commemorating our presence on earth are likely to be the markers we don’t really intend to leave behind, our by-products, which are “disposable” in only an approximate and relative sense of the term. Not every “heap of ruins,” to recall Popper’s words, is going to have “treasured buried underneath” it. Even so, Ammons finds reason to be light-hearted: from the costive perspective of an old man forced to dose himself with soy laxatives, babies’ shit really is cute. It may even be a subject fit for Whitmanesque celebration.

The garbage dump’s accidental, unintended status as a cultural monument—and the fact that it’s full of slowly moldering junk—doesn’t mean that it can’t be a positive model of art, which very obviously isn’t something that Ammons thinks of solely in terms of the fashioning of priceless treasures (even if he is a poet who likes to compose at the typewriter, toting up his words on fat rolls of adding machine tape). He writes:

I punched

out Garbage at the library and four titles  
swept the screen, only one, Garbage Feed,

seeming worth going on to; and that was about  
 feeding swine right: so I punched Garbage Disposal  
 and the screen came blank—nothing! all those  
 titles, row on row, of western goodies, mostly  
 worse than junk, but not a word on Disposal: I  
 should have looked, I suppose, under Waste Disposal  
 but, who cares, I already got the point: I  
 know garbage is being “disposed” of—but what  
 I wanted I had gotten, a clear space and pure  
 Freedom to dump whatever, and this means most  
 of the catalog must go, so much that what is  
 left will need no computer to be kept track of

This passage gives us Ammons’s take on all those things that, in Thoreau’s words, “the minister and the school committee and every one of you” have been at such pains to preserve. Like Thoreau, Ammons is also willing to dispose of “western goodies” in order to create “a clear space and pure freedom to dump whatever.” If this sounds cynical or nihilistic, consider that the landfill is also the sort of “clear space” where wild things congregate, where terns flit about and enjoy the same “pure freedom to dump whatever,” so that bird shit melds “enrichingly in with debris.”<sup>12</sup>

Ammons shares Thoreau’s skepticism about civility, but he is a lot more insouciant a skeptic than Thoreau ever managed to be. It helps, of course, not to be a Harvard-educated New Englander and a transcendentalist peculiarly exercised about matters of the spirit. It also helps to be a southerner of a certain background and generation, born and raised on a tobacco farm during the Great Depression, but footloose enough to have been a sonar operator in the South Pacific during World War II, a graduate student in California, a school teacher and principal on the Outer Banks, a businessman in New Jersey, and finally a professor of poetry at Cornell.

Ammons’s checkered past is what enables him to say, with his trademark willingness to use whatever terms seem handiest and with a subversive twinkle, “we’re trash, plenty wondrous.” Thoreau might never have made a good picaro, whatever prodigies of pedestrianism he was capable of: he was too fastidious. Ammons is not the least bit fastidious. He understands that to be picaresque is not to flinch at trashiness, least of all our own, and he is more than willing to admit the scandalous proposition (scandalous, at least, from Thoreau’s point of view) that “the intellect can be put by,” not because it importunes the spirit too much, but just for the sake of pleasure:

one can turn to tongue, crotch, boob, navel,  
 armpit, rock, slit, roseate rearend and  
 consider the perfumeries of slick exchange,  
 heaving breath, slouchy mouth, the mixed  
 means by which we stay attentive and keep to  
 the round of our ongoing

Ammons's willingness to address "the perfumeries of slick exchange" and "the mixed means by which we stay attentive" should be regarded as exemplary by ecocritics. But they have followed Thoreau's example too closely and interpreted it too narrowly; as a result, ecocriticism has been overly concerned with forms of exchange and means of staying attentive that aren't slick or mixed, but chaste and purified. Ecocriticism has comported itself as if this were a world, as Ammons puts it, "with no bitter aftertaste or post coital triste."<sup>13</sup> Instead of being a lone voice crying in the wilderness, it, too, ought to "murmur *aptest eve*," and take up a position alongside the man on the dump.

If it did that, ecocriticism might become less and less anxious about linguistic forms of exchange and literary means of staying attentive. That those aren't everything they've been cracked up to be, that they are less important and more undefined than has been thought, is a point Ammons makes with wonderful vigor and, as always, disarming humor. After he describes his database search for information on garbage and the disappearance of all those "western goodies" from his computer screen (in the passage I quoted earlier), he broadens his point about the virtues of "clear space and pure freedom to dump whatever" by teasing out some of its implications for our self-representations and our representations of the world. Ammons writes:

har: words are a specialization on sound  
 making a kind of language: but there are many  
 not just languages but kinds of language: the  
 bluejay's extensive vocabulary signals states  
 of feeling or being—alarm, exasperation,  
 feeding, idleness—and the signal systems  
 lay out the states for the safety of sharing  
 by others, alerting to dangers, even sharing  
 food sources: whales' pod-songs keep intimate  
 transactions fluid<sup>14</sup>

Ammons readily admits that there is no common language. But he suggests that the commonality of language, of vocal and sonic means for "alerting to dangers" and

keeping “intimate transactions fluid,” means that “we are not alone in language,” though “we may be alone in words.” Even the whales “can turn to tongue, crotch, boob, navel” and “consider the perfumeries of slick exchange” on a scale befitting their immense being.

Of course, our aloneness in words sounds pathetic, and many ecocritics have seen it as the chief reason our own transactions, both with each other and with the world, aren’t as fluid and as intimate as they might be, and have felt just a bit jealous of the whales as a result. But Ammons urges us to “for god’s sake drop all this crap about words,” so that we can return language in general and our own words in particular to something like their proper place in the pecking order of behaviors, human and animal. He writes:

our cousins the birds talk in the morning: I  
 can tell the weather by their voices before  
  
 I open my eyes: I know some of their “words”  
 because I know, share with them, their states  
  
 of being and feeling: my cousins the  
 robins tug worms up from the lawn and eat them  
  
 and that gives me a piece of conflictual reality  
 until I savor the hog in my bacon, admire the  
  
 thighbone in my chicken

The “conflictual reality” that Ammons is given a piece of in the song of the robins, in his bacon, and in the thighbone of his chicken isn’t the sort of reality ecocritics have been imagining might be summoned up by the words that they admire. The reality that has excited ecocritics isn’t of the sort one savors because it can be torn into with one’s teeth or turned to the light in one’s hand; it is of the sort one knows because it can be mirrored in one’s mind—provided, of course, that one’s thoughts and words are in order. The purported disparity between the reality one savors and the reality one knows has been perhaps the most important of my interests here. While writing *The Truth of Ecology*, I often remind myself of Ammons’s observation that while “our language is something to write home about,” it isn’t the world: “grooming does for / baboons most of what words do for us.”<sup>15</sup> I can’t think of better words with which to end this book.

*This page intentionally left blank*

## Notes

### *Preface*

1. Aldo Leopold, "Thinking Like a Mountain," in *Sand County Almanac; And Sketches Here and There* (New York: Oxford University Press, 1987), 129.
2. Dominic Head, "The (Im)possibility of Ecocriticism," in *Writing the Environment: Ecocriticism and Literature*, ed. Richard Kerridge and Neil Sammells (London: Zed Books, 1998), 38.
3. Heise writes that from a comparatist's perspective, ecocriticism "is not in principle more closely linked to American than to any other national or regional literature," and that it "has nothing specifically to do with *nature* writing" or with "nature writing." See Ursula K. Heise, "Forum on Literatures of the Environment," *PMLA* 114,5 (October 1999): 1097.
4. Richard White, "Discovering Nature in North America," *The Journal of American History*, 79,3 (December 1992): 874.
5. Roland Barthes, "From Work to Text," in *Image Music Text*, trans. Stephen Heath (New York: Hill and Wang, 1977), 155. Italics in original.
6. Jonathan Bate, "Poetry and Biodiversity," in *Writing the Environment*, 65.
7. Friedrich Nietzsche, "Against Mediators," in *On the Genealogy of Morals and Ecce Homo*, ed. and trans. Walter Kaufmann (New York: Vintage Books, 1967), 193.
8. Ian Hacking, *The Social Construction of What?* (Cambridge: Harvard University Press, 1999), vii, 35, 49.
9. David Bloor, *Knowledge and Social Imagery* (London: Routledge & Kegan Paul, 1976), 93.
10. William Cronon, "Introduction: In Search of Nature," in *Uncommon Ground: Toward Reinventing Nature*, ed. William Cronon (New York: W. W. Norton, 1995), 25–26.

### *Chapter 1*

1. For overviews of the field and a representative sample of essays in ecocriticism, see *Earthly Words; Essays on Contemporary American Nature and Environmental Writers*,

- ed. John Cooley (Ann Arbor: The University of Michigan Press, 1994); *The Ecocriticism Reader; Landmarks in Literary Ecology*, ed. Cheryl Glotfelty and Harold Fromm (Athens: University of Georgia Press, 1996); the selected papers from the first conference held by the Association for the Study of Literature and Environment in 1995, published as *Reading the Earth; New Directions in the Study of Literature and the Environment*, ed. Michael Branch, et al. (Moscow, Idaho: University of Idaho Press, 1998); *Writing the Environment; Ecocriticism & Literature*, ed. Richard Kerridge and Neil Sammells (London: Zed Books, 1998); the special issue on ecocriticism published in the summer of 1999 by the journal *New Literary History*; and the contributions to a “Forum on Literatures of the Environment,” *PMLA* 114.5 (October 1999): 1089–1104.
2. Frank Stewart, *A Natural History of Nature Writing* (Washington: Island Press, 1995), 222, 221. Unlike other ecocritics, Stewart invokes his moment of epiphany retrospectively, at the end of his book.
  3. Stewart, *A Natural History of Nature Writing*, 229.
  4. Patrick Murphy, *Farther Afield in the Study of Nature-Oriented Literature* (Charlottesville: University Press of Virginia, 2000), x.
  5. See SueEllen Campbell, “The Land and Language of Desire; Where Deep Ecology and Post-Structuralism Meet,” in *The Ecocriticism Reader*, 124–36.
  6. Lawrence Buell, *The Environmental Imagination; Thoreau, Nature Writing, and the Formation of American Culture* (Cambridge: Harvard University Press, 1995), 10.
  7. Buell, *The Environmental Imagination*, 5.
  8. Buell, *The Environmental Imagination*, 102. The seal’s point of view is one that Barry Lopez tries to imagine in his book *Arctic Dreams*, in a passage to which Buell is alluding.
  9. I should note that American ecocritics are not alone in their assumption that realism is somehow a crucial issue ecologically and environmentally. “The real, material ecological crisis,” according to the British ecocritic Richard Kerridge, “is also a cultural crisis, a crisis of representation.” He also suggests that ecological crisis is caused by “a failure of narrative” (“Introduction,” in *Writing the Environment*, 4).
  10. Umberto Eco, “On the Crisis of Representation,” in *Travels in Hyperreality*, trans. William Weaver (New York: Harcourt Brace Jovanovich, 1986), 126–27.
  11. Roland Barthes, “Myth Today,” in *Mythologies*, trans. Annette Lavers (New York: Hill and Wang, 1972), 126, 109, 142, 152–53. Italics in original.
  12. Roland Barthes, “The Death of the Author,” in *Image Music Text*, trans. Stephen Heath (New York: Hill and Wang, 1977), 142. Italics in original.
  13. Barthes, “From Work to Text,” in *Image Music Text*, 156–57, 157.
  14. Buell, *The Environmental Imagination*, 5.
  15. In an essay critical of versions of ecocriticism like Buell’s, Bonnie Costello writes: “A rhetorically oriented criticism is aware of the text (and indeed all mediating forms) less as a statement about reality than as a series of motivated strategies and structures that communicates to an audience or makes something happen imaginatively. A rhetorical criticism does not necessarily lead to a thesis about the primacy of the imagination, mind, or culture, as ecocriticism has charged” (“‘What to Make of a Diminished Thing’: Modern Nature and Poetic Response,” *American Literary History* [Winter 1997]: 574).
  16. Barry Lopez, “Landscape and Narrative,” in *Crossing Open Ground* (New York: Vintage Books, 1989), 64, 65.

17. Daniel Dennett, *Kinds of Minds; Toward an Understanding of Consciousness* (New York: Basic Books, 1996), 89, 82.
18. Lopez, "Landscape and Narrative," 64.
19. As an epigraph to the third chapter of *The Environmental Imagination*, Buell quotes almost at full length the passage from "Landscape and Narrative" that I have quoted only a small portion of here, and refers to the essay in largely positive terms thereafter. But see page 103, where Buell does complain that Lopez's description of the interior landscape is too mystical. For a skeptical reading of Lopez's essay that nonetheless finds some merit in the idea of the two landscapes, see William Howarth, "Some Principles of Ecocriticism," in *The Ecocriticism Reader*, 69–71; and for more on ecocritical evaluations of Lopez's work, see my discussion of nature writing in chapter five.
20. Lopez, "Landscape and Narrative," 64.
21. Lopez, "Landscape and Narrative," 63, 71.
22. Sue Hubbell, *Waiting for Aphrodite; Journeys into the Time Before Bones* (New York: Houghton Mifflin, 1999), 160.
23. Buell, *The Environmental Imagination*, 86.
24. Eric Todd Smith, "Dropping the Subject; Reflections on the Motives for an Ecological Criticism," in *Reading the Earth*, 30, 34, 35.
25. Dennett, *Kinds of Minds*, 93.
26. Smith suggests that ecocritics have resisted the idea that we do not have to "consider our language to have failed when it doesn't deliver the essence of a 'referent,'" because they have wanted to "preserve literature as a pure salve (either natural or metaphysical) for the alienated human soul" ("Dropping the Subject," 38).
27. Buell, *The Environmental Imagination*, 84.
28. Buell, *The Environmental Imagination*, 85, 86, 90.
29. Buell, *The Environmental Imagination*, 31. For some other attempts to define ecocriticism and nature writing, too, as pastoral, see Glen A. Love, "Et in Arcadia Ego: Pastoral Theory Meets Ecocriticism," *Western American Literature* 27,3 (Fall 1992): 195–207; John Cooley, "Introduction: American Nature Writing and the Pastoral Tradition," in *Earthly Words*, 1–15; and Don Scheese, *Nature Writing; The Pastoral Impulse in America* (New York: Twayne Publishers, 1996).
30. Paul Alpers writes: "Modern studies tend to use 'pastoral' with ungoverned inclusiveness." "It sometimes seems," he observes, "as if there are as many versions of pastoral as there are critics and scholars who write about it," and he cites Buell's work on "new world pastoral" as a case in point. See Alpers's book *What is Pastoral?* (Chicago: University of Chicago Press, 1996), ix, 8.
31. Buell, *The Environmental Imagination*, 54. Buell is motivated in large part by his desire to address what he sees as the shortcomings of Leo Marx's classic 1964 study of "new world pastoral," *The Machine in the Garden*, and to further revise Marx's own revision of his arguments in an essay published in 1986, in which Marx suggests that contemporary pastoralism "may be particularly well suited to the ideological needs of a large, educated, relatively affluent, mobile, yet morally and spiritually troubled segment of the white middle class"—a suitability that would seem to compromise the pastoral both culturally and politically. See "Pastoralism in America," in *Ideology and Classic American Literature*, ed. Sacvan Bercovitch and Myra Jehlen (Cambridge: Cambridge University Press, 1986), 40.
32. William Empson, *Some Versions of Pastoral* (Norfolk, Conn.: New Directions Books, 1960), 6, 23.

33. Marx, "Pastoralism in America," 54.
34. Bonnie Costello argues that while it is true that the pastoral impulse "persists in the literary imagination," the pastoral is far from being the only viable means contemporary poets have of addressing the natural world. "Fictions of nature as a primal Other or even a numinous presence are receding as poets turn to the indissoluble mixture of gray and green in which we live," she writes. She suggests that "modern poets interested in the mediations of language and culture that inform our relation to the natural world," poets like Robert Frost and Wallace Stevens, or poets "versed in the languages of history and science" like Amy Clampitt and A. R. Ammons, "have more to tell us about the possibilities for our relation to nature than do the latter-day Romanticists, primitivists, and 'poets of place' and mystical presence who are usually celebrated by ecologically oriented critics" ("What to Make of a Diminished Thing": 571, 572.)
35. I also should note another fact of some importance here, one the pastoral will have a hard time coping with: environmental historians now argue that human degradation of the environment is due as much, if not more, to the ancient and ongoing development of agriculture as it is to more recent human innovations like heavy industry. Alfred W. Crosby writes: "Agriculture, a Neolithic development, has been altering the biosphere for a lot longer than the industrial revolution, and, one could argue, continues to make greater changes" ("An Enthusiastic Second," *The Journal of American History* 76,4 [March 1990]: 1107).
36. Buell, *The Environmental Imagination*, 54–55. Glen Love notes that the pastoral mode "reflects the same sort of anthropocentric assumptions which are in such dire need of reassessment" and that "the terms by which pastoral's contrastive worlds are defined, do, from an ecological viewpoint, distort the true essence of each." He concludes: "We need to redefine pastoral in terms of the new and more complex understanding of nature" ("Revaluing Nature: Toward an Ecological Criticism," *Western American Literature* 25,3 (Fall 1990): 207). But redefinition of the pastoral so that it allows for greater recognition of ecological (and social) complexity will amount to retaining the term "pastoral" while emptying out the concept, and is bound to create confusion.
37. Since I can never remember the definition of metonymy, it seems only fair to give the reader some assistance here: metonymy is the figure of speech that uses the name of a thing as a substitute for the name of another thing of which it is a part, or with which it is associated.
38. Alpers, *What is Pastoral?*, 338.
39. See my discussion of the concept of niche in the next chapter, where the appropriate scientific authorities are cited.
40. A point indirectly suggested by Leo Marx: "Potential invaders of all sectors of the environment, the forces represented by the new technology necessarily blur (if they do not erase) the immemorial boundary lines between city, countryside, and wilderness. By threatening to take dominion everywhere, they intensify—at times to the point of apocalyptic stridency—the dissonance that pastoralism always had generated at the junction of civilization and nature" ("Pastoralism in America," 58). In this connection, see my essay "Don DeLillo's Postmodern Pastoral," in *Reading the Earth*, 235–46.
41. Eco, "Travels in Hyperreality," in *Travels in Hyperreality*, 49.
42. The hyperreal as described by Eco is not unlike myth as described by Barthes, in that the issue of where and how things lie is raised by both hyperreality and

- mythology. Barthes writes: “The ubiquity of the signifier in myth exactly reproduces the physique of the *alibi* (which is, as one realizes, a spatial term): in the *alibi* too, there is a place which is full and one which is empty.” He adds: “Myth is a *value*, truth is no guarantee for it; nothing prevents it from being a perpetual *alibi*: it is enough that its signifier has two sides for it always to have an ‘elsewhere’ at its disposal” (“Myth Today,” 123; italics in original).
43. Eco, “Travels in Hyperreality,” 52.
  44. The San Diego Zoo’s Web site is located at [www.sandiegozoo.org](http://www.sandiegozoo.org).
  45. Guy Debord, *The Society of the Spectacle* (Detroit: Black & Red, 1970), #9. Italics in original.
  46. Jean Baudrillard, *Simulations*, trans. Paul Foss, Paul Patton, and Philip Beitchman (New York: Semiotext(e), 1983), 140. Baudrillard’s description of the “hyperrealism of simulation” deserves to be quoted here in full: “This is a completely imaginary contact-world of sensorial mimetics and tactile mysticism; it is essentially an entire ecology that is grafted on this universe of operational simulation, multistimulation and multiresponse.”
  47. Buell, *The Environmental Imagination*, 113. On the opposition of natural and virtual realities, Katherine Hayles comments: “When the virtual is opposed to the natural, the emphasis falls on the redemptive potential of the natural world.” But, she adds, “when the virtual and the natural are aligned, new opportunities for analysis present themselves” (N. Katherine Hayles, “The Illusion of Autonomy and the Fact of Recursivity: Virtual Ecologies, Entertainment, and *Infinite Jest*,” *New Literary History* 30,3 [Summer 1999]: 677). Hayles’s argument is pointed in an entirely different direction, but the thought that “new opportunities for analysis” present themselves “when the virtual and the natural are aligned” has long been one of the great hopes of ecological research, where, unfortunately, the techniques of computer simulation have proved to be less than wholly enabling. See my discussion of ecosystem modeling in the next chapter.
  48. Of course Baudrillard would counter Buell’s argument (as Buell notes) by suggesting that environmental literature and ecocriticism are infected with “the nostalgia for a natural referent of the sign” (*Simulations*, 86).
  49. Eco, “Travels in Hyperreality,” 13, 30–31, 4, 7.
  50. “Must we say what we see?” is a question I take up again in chapter four: see the section with that question as its heading. The question is also an allusion to Stanley Cavell’s *Must We Mean What We Say?: A Book of Essays* (Cambridge: Cambridge University Press, 1976).
  51. Jean-Francois Lyotard, *The Postmodern Condition: A Report on Knowledge*, trans. Geoff Bennington and Brian Massumi (Minneapolis: University of Minnesota Press, 1984), 51.
  52. Jean Baudrillard, *Simulations*, 115.
  53. Linda Hutcheon, *The Politics of Postmodernism* (London: Routledge, 1989), 2.
  54. Fredric Jameson, “Postmodernism, or The Cultural Logic of Late Capitalism,” *New Left Review* 146 (July–August 1984): 78.
  55. Fredric Jameson, *Postmodernism, or The Cultural Logic of Late Capitalism* (Durham, N.C.: Duke University Press, 1991), 35, ix, 1. Jameson offers a more qualified judgment, and a more turgid one, on the fate of nature later in his book. Nature, he writes, “has systematically been eclipsed from the object world and the social relations of a society whose tendential domination over its Other (the non-

- human or the formerly natural) is more complete than at any other moment in human history” (170).
56. Jameson, in taking the view of nature that he does, also has in mind Heidegger’s concept of nature as the “standing-reserve,” which might be described as an epistemological and ontological version of the economic category of the capitalist mode of production deployed by Marxism. “Everything is ordered to stand by, to be immediately on hand, indeed to stand there just so that it may be on call for a further ordering,” Heidegger argues, and he then suggests that its being made a part of the standing-reserve means that nature is taken into culture once and for all time: “Whatever stands by in the sense of standing-reserve no longer stands over against us as object.” See “The Question Concerning Technology,” in Martin Heidegger, *Basic Writings*, ed. David Farrell Krell (New York: Harper & Row, 1977), 298.
  57. Jameson, *Postmodernism*, 231–32, 67–68.
  58. “What seems to have happened,” according to Arran E. Gare, “is that the triumph of Western civilization has revealed the hollowness of its premises” (*Postmodernism and the Environmental Crisis* [London: Routledge, 1995], 5).
  59. Debord, *Society of the Spectacle*, #175. Jameson agrees with Debord, stating that “place in the United States today no longer exists, or, more precisely, it exists at a much feeble level,” and that small towns, each of them “once a separate point on the map,” have become only “an imperceptible thickening in a continuum of identical products and standardized spaces from coast to coast” (*Postmodernism*, 127, 281). David Harvey confirms that this is a typically postmodern view. “Postmodernism cultivates,” he writes, “a conception of the urban fabric as necessarily fragmented, a ‘palimpsest’ of past forms superimposed upon each other, and a ‘collage’ of current uses, many of which may be ephemeral” (*The Condition of Postmodernity; An Enquiry into the Origins of Cultural Change* [Oxford: Blackwell Publishers, 1989], 66).
  60. William Cronon, “Modes of Prophecy and Production: Placing Nature in History,” *The Journal of American History* 76,4 (March 1990): 1124, 1126, 1130.
  61. Michel Serres, *The Natural Contract*, trans. Elizabeth MacArthur and William Paulson (Ann Arbor: The University of Michigan Press, 1995), 43.
  62. Michael E. Soulé, a biologist critical of postmodernist attitudes toward nature and natural science, writes: “To claim that *Homo sapiens* has produced or invented the forest ignores the basic taxonomic integrity of biogeographic units: species today still have geographic distributions determined largely by ecological tolerances and geological history and climate, rather than by human activities” (“The Social Siege of Nature,” in *Reinventing Nature? Responses to Postmodern Deconstruction*, ed. Michael E. Soulé and Gary Lease [Washington, D.C.: Island Press, 1995], 157).
  63. Eco is very strongly influenced by the writing of Charles Sanders Peirce, one of the founding figures of American pragmatism and, as it happens, also one of the originators of semiotics.
  64. William James, *Pragmatism and The Meaning of Truth* (Cambridge: Harvard University Press, 1978), 124.
  65. Paul Feyerabend, *Against Method; Outline of an Anarchistic Theory of Knowledge* (London: NLB, 1975), 230.
  66. Bruno Latour, *We Have Never Been Modern*, trans. Catherine Porter (Cambridge: Harvard University Press, 1993), 2, 1, 6.
  67. Latour, *We Have Never Been Modern*, 47.

68. Latour, *We Have Never Been Modern*, 50, 64. Michel Serres' thinking about nature and culture has a great deal in common with Latour's. Serres argues, "We have made politics and economics into their own disciplines so as to define power." But now the question facing us, he says, is "how are we to think of fragility?" (*The Natural Contract*, 41). Cronon also makes a point similar to Latour's, with specific reference to the peculiar difficulties of his own discipline of environmental history: "Nature, political economy, and belief—these, in varying mixes, have been the chief fascinations of environmental historians' work, and our greatest challenge has been to figure out how best to integrate the three." Cronon adds that this challenge has proved difficult to meet: "We have either had studies of ecology and economy, or studies of ideas of nature; too rarely have we had the three together" ("Modes of Prophecy and Production": 1123).
69. Barthes, "Lesson in Writing," in *Image Music Text*, 171.
70. The allusion is to Thomas Nagel, *The View From Nowhere* (Oxford: Oxford University Press, 1986).
71. As Paul R. Gross and Norman Levitt point out, "The mentality of postmodernism has an emphatically totalizing component, even as it pretends to denounce the totalizing propensities of whatever it wishes to attack" (*Higher Superstition; The Academic Left and Its Quarrels with Science* [Baltimore: The Johns Hopkins University Press, 1994], 89).
72. Of course "nature" tends to be a difficult, complicated term no matter who uses it. Raymond Williams calls it "perhaps the most complex word in the language" (*Keywords; A Vocabulary of Culture and Society*, Revised Edition [New York: Oxford University Press, 1983], 219).
73. In a chapter "On Being," Eco writes: "Here is what we mean by the word *Being*: Something." See his book *Kant and the Platypus; Essays on Language and Cognition*, trans. Alastair McEwan (New York: Harcourt Brace, 2000), 12.
74. With both postmodernism and poststructuralism in mind, Christopher Norris writes: "What these movements have in common is a deep suspicion of any theory that claims a vantage-point of knowledge or truth, a self-assured position of 'scientific' method from which to criticise the various forms of 'ideological' false-seeming or common-sense perception" (*What's Wrong with Postmodernism; Critical Theory and the Ends of Philosophy* [Baltimore: The Johns Hopkins University Press, 1990], 28). The 1960s, when a ground note of pessimism entered into the chorus of intellectual life, was the watershed moment for poststructuralism and postmodernism. According to Luc Ferry and Alain Renaut, in the sixties philosophy was "becoming a strangely problematic activity," one "condemned for its very survival to the eternal celebration of its own death" (*French Philosophy of the Sixties; An Essay on Antihumanism*, trans. Mary Schnackenberg Cattoni [Amherst: University of Massachusetts Press, 1990], 6).
75. Richard Rorty, *Essays on Heidegger and Others; Philosophical Papers Volume 2* (Cambridge: Cambridge University Press, 1991), 176.
76. Latour, *We Have Never Been Modern*, 46.
77. Max Black, *Models and Metaphors; Studies in Language and Philosophy* (Ithaca: Cornell University Press, 1962), 16.
78. Baudrillard, *Simulations*, 31.
79. Latour, *We Have Never Been Modern*, 75, 47. Compare John Dewey's assessment of our situation to Latour's: "The *world* is precarious and perilous. It is as easily accessible and striking evidence of this fact that primitive experience is cited. The

- voice is that of early man; but the hand is that of nature, the nature in which we still live. It was not fear of the gods that created the gods.” He adds: “When all is said and done, the fundamentally hazardous character of the world is not seriously modified, much less eliminated” (*Experience and Nature* [New York: Dover Publications, 1958], 42 [italics in original], 44).
80. Serres argues that the global environmental crisis should serve us as a powerful reminder of our culture’s continuity with nature: “The natural world will never again be our property, either private or common, but our symbiont” (*The Natural Contract*, 44). Of course, those who come to this insight from the perspective of literature and philosophy, as Serres has done, are much more apt to see the symbiosis of culture and nature as something new than are those whose perspective is shaped more by natural history. David Rains Wallace writes: “Civilization would not have evolved without the preceding evolution of cereal grains from wild grasses. That agriculture was developed by cultural instead of natural selection doesn’t make the plants less important. They may be sown and harvested by us, but they still do the real work of turning soil, water, and sunlight into food.” He concludes: “Civilization is a grassland symbiont, fully dependent on the condensed food energy of grain” (*The Klamath Knot; Explorations of Myth and Evolution* [San Francisco: Sierra Club Books, 1983], 113, 128).
81. Latour, *We Have Never Been Modern*, 3, 7, 87. It should be clear that Latour is not putting the concept of “nature-culture” forward as some sort of compromise position, or as a way of skating lightly over the cracks caused by the dualism of nature and culture. He would agree with Neil Evernden that this dualism “cannot actually be resolved, because it never existed,” though he would reject Evernden’s suggestion that the unreality of the dualism means “that there is no ‘nature,’ and there never has been,” since one could make the same assertion about culture and society equally well on the same grounds (*The Social Creation of Nature* [Baltimore: The Johns Hopkins University Press, 1992], 99).
82. Richard Rorty, *Objectivity, Relativism, and Truth; Philosophical Papers Volume 1* (Cambridge: Cambridge University Press, 1991), 36.
83. Dewey, *Experience and Nature*, 310.
84. Some readers may wonder how the disparaging remarks about social construction that I made in the preface of this book square with my enthusiasm for soft, squishy, and dubious facts, and for Latour’s concept of nature-culture, facts and a concept that have about them the tang of constructionist thinking. But to regard the facts as soft, squishy, and dubious and to accept the concept of nature-culture strikes me as one way of embracing a version not of social construction but of scientific realism.
85. Eco, “On Being,” 54–55. Italics in original.
86. In his essay “Dropping the Subject,” Smith also notes that ecocriticism tends to take the distinction between nature and culture as a given, and appeals to Latour and Donna Haraway in support of his argument. Jonathan Levin, in his contribution to the *PMLA* forum on ecocriticism cited in note 1 above, makes a similar case: “Nature and culture are entangled in complex and inherently elusive ways. To acknowledge this is not to abandon the project of thinking rigorously about their relation but is rather to set that project on an alternative track, one less devoted to resolving once and for all a long-standing sociophilosophical problem than to entering the space of the problem in new ways” (“Forum on Literatures of the Environment”: 1098).

87. Latour, *We Have Never Been Modern*, 10.
88. Campbell, “The Land and Language of Desire,” 128, 129, 132–33. John Cooley makes a point similar to Campbell’s: “The parallels between intertextuality and ecological concepts of biotic community interactions are numerous,” he writes. “Neither texts nor biotic communities are closed systems” (“Afterward: Toward an Ecocriticism,” in *Earthly Words*, 253). The question, of course, is whether texts and biotic communities are “systems” at all.
89. Campbell’s attempt to treat the deer as nodes in an environmental network is a nonmathematical version of the use of the logistic equation in scientific ecological research, an approach to wildlife biology that some ecologists believe to be a failure. See my discussion of this subject in chapter two.
90. Ludwig Wittgenstein, *Culture and Value*, ed. G. H. von Wright and Heikke Nyman, trans. Peter Winch (Chicago: The University of Chicago Press, 1980), 41e.
91. On the subject of Esperanto, see Wittgenstein, *Culture and Value*, 52e.
92. Richard Rorty, *Philosophy and Social Hope* (New York: Penguin Books, 1999), 64.
93. Wittgenstein, *Culture and Value*, 50e. Italics in original.
94. “A picture held us captive. And we could not get outside it, for it lay in our language and language seemed to repeat it to us inexorably.” Proposition 115 in Ludwig Wittgenstein, *Philosophical Investigations*, trans. G. E. M. Anscombe, (New York: MacMillan Publishing, 1958), 48e. Italics in original.
95. Donald Worster, *The Wealth of Nations; Environmental History and the Ecological Imagination* (Oxford: Oxford University Press, 1993), 180. Italics in original.
96. Rorty, *Philosophy and Social Hope*, 140.
97. Feyerabend, *Against Method*, 17 (italics in original), 194. I would distinguish the “anarchic” approach to ecocriticism from what Buell describes as the “eclecticism of critical practice” in order to justify or “sanction” his borrowing and use of the term “pastoral” in “an elastic sense” (*The Environmental Imagination*, 439n4). More is at stake in these matters than word choice: thus Feyerabend’s emphasis on “rags of argument.” Ecocritics would be wise, I think, to heed Barthes’s warning about eclecticism. In his essay on “Neither-Nor Criticism,” he writes: “A literary judgment is always determined by the whole of which it is a part, and the very absence of a system—especially when it becomes a profession of faith—stems from a very definite system” (*Mythologies*, 82).
98. Joel Kovel, “Dispatches from the Science Wars,” *Social Text* 46–47 (1996): 173–74. Like Latour, Kovel suggests that our intellectual culture is ill-prepared to cope with the environmental crisis: “Denial and apocalypticism, as well as cynical withdrawal or indifference, are all ways of relieving anxiety; here they can have potentially fatal consequences.” “If extrapolations of the present ecological crisis are true,” he adds, “if only the findings about sperm counts are true, not to mention better-known calamities such as global warming, rampant species-loss, destruction of topsoils, and deforestation—then we are facing something for which human society is utterly unprepared” (170–71).

## Chapter 2

1. See chapters two, three, and four in Thomas S. Kuhn, *The Structure of Scientific Revolutions*, Second Edition (Chicago: The University of Chicago Press, 1962, 1970).

2. Robert P. McIntosh, *The Background of Ecology; Concept and Theory* (Cambridge: Cambridge University Press, 1985), 1.
3. The environmental historian Peter Bowler writes: “In biology the relationship between the laboratory and the field disciplines has often been one of tension and re-creation” (*The Norton History of the Environmental Sciences* [New York: W. W. Norton, 1993], 429).
4. According to the philosopher of science Peter Galison, “To the molecular biologists the dream of a complete discipline includes the explanation of ontogenetic and phylogenetic development from primitive relations of genetic material. To the macrobiologists such reductiveness will never capture the systemic aspects of complex organisms, let alone the ecological systems in which they live and reproduce” (“Introduction: The Concept of Disunity,” in *The Disunity of Science; Boundaries, Contexts, and Power*, ed. Peter Galison and David J. Stump [Stanford: Stanford University Press, 1996], 2).
5. Jon Luoma suggests that ecologists are not as disruptive of scientific unity as they might be: “Even scientists who are trained as ecologists are tugged toward the small, the easily definable, the easily quantifiable, the *noncomplex*, the reductive,” owing to the practical constraints placed on their research. However, Luoma does quote an ecologist who thinks that the tendency to work on a small scale is a regrettable by-product of “physics envy.” See *The Hidden Forest; The Biography of an Ecosystem* (New York: Henry Holt, 1999), 10.
6. According to Stephen Budiansky, “Understanding the workings of ecological systems may be a more difficult problem, theoretically speaking, than those a chemist or physicist encounters” (*Nature’s Keepers; The New Science of Nature Management* [New York: The Free Press, 1995], 160).
7. Neil Evernden points out that we have assumed that ecology “will help us to feel our way into a healthier relationship with the world by revealing to us the ‘natural harmonies’ that are essential to our survival and happiness,” and that this assumption “is not particularly attuned to the literature of ecology.” He adds that the popular, oracular version of ecology is “a more ‘convenient’ ecology” tailored to the needs of “a program for social action” (*The Social Creation of Nature* [Baltimore: Johns Hopkins University Press, 1992], 7–8). Evernden means that the distortion of popular ecological rhetoric reflects the vicissitudes of the environmental movement; in other words, it can be explained politically. Of course, ecologists must share some of the blame for helping to foster the misunderstanding of their science that many of them now deplore. For an account of the popular misunderstanding of ecology, particularly on the part of conservationists and environmentalists, which confirms many of the points I make in this chapter, see the ecologist Michael B. Barbour’s essay “Ecological Fragmentation in the Fifties,” in *Uncommon Ground; Toward Reinventing Nature*, ed. William Cronon (New York: W. W. Norton, 1995), 233–55.
8. McIntosh notes that during the 1960s, “although ecologists had long asserted that ecological science was significant in offering insight about, and to, human societies, they were ill prepared to cope with the abrupt seizure of the name and its extension to include all aspects of environmental concern, often leaving behind ecological concepts and canons of evidence which had developed over the decades” (*The Background of Ecology*, 1).
9. Andrew Brennan, *Thinking About Nature* (Athens: The University of Georgia Press, 1988), 7.

10. Donald Worster, *Nature's Economy; A History of Ecological Ideas*, Second Edition (Cambridge: Cambridge University Press, 1994).
11. Donald Worster, *The Wealth of Nature; Environmental History and the Ecological Imagination* (Oxford: Oxford University Press, 1993), 165–66.
12. On this issue, see the forum on environmental history published in *The Journal of American History* 76,4 (March 1990), which includes an essay by Worster written in response to the contributions of other prominent environmental historians, some of whom are critical of his work.
13. In fact a different historiographic approach to ecology is readily available. Bowler describes this approach in the following terms: “Recent historical studies stress the importance of scientific disciplines and research programmes. The emergence of a science of ecology depended not so much on changing assumptions about Nature”—as Worster, dedicated as he is to intellectual history, would have it—“as upon the creation of a community (or communities) of researchers who saw the study of natural relationships as their primary goal.” Bowler adds: “Ecology was a second-generation response to the problem of creating a scientific biology,” and not a continuation of earlier and more traditional ways of thinking about the natural world (*The Norton History of the Environmental Sciences*, 363, 364).
14. Worster, *The Wealth of Nature*, 51.
15. See in particular Worster’s essays on “The Shaky Ground of Sustainable Development” and “The Ecology of Order and Chaos” in *The Wealth of Nature*, 142–55 and 156–70, in which he takes recent ecology to task for its “permissiveness,” a rhetorical maneuver which suggests that his understanding of current trends in ecology is limited. Worster’s treatment of the ecologists Daniel Botkin and Paul Colinvaux (see *The Wealth of Nature*, 149–153 and 166), especially his insinuation that they lack conviction because they have questioned some of the environmental movement’s broadest and least supportable claims, seems particularly unfair to me based on my own reading of their work.
16. Worster, *The Wealth of Nature*, 169. McIntosh describes ecology as “an eclectic science that frustrates writers of ecological history” (“Ecology Since 1900,” in *History of American Ecology*, 356). I do not think, however, that he has in mind the kind of frustration Worster sometimes expresses.
17. Richard White, “Environmental History, Ecology, and Meaning,” *The Journal of American History* 76,4 (March 1990): 1111, 1112. Stephen Pyne agrees with White. He says Worster “appeals to the laws of ecology to construct a nature that is external to humans and that provides a moral template against which to measure human behavior. This grants him, as author, a privileged, omniscient position with which to view the spectacle” (“Firestick History,” *The Journal of American History* 76,4 [March 1990]: 1139). Worster has responded to Pyne by charging him with being overly modernist, and by rattling off a litany of the bad things that can be identified with modernism: “The foremost philosophical challenge of this age, in my view, is to escape the state of nihilism, relativism, and confusion that modernistic history, and modernistic everything else, have left us in” (“Seeing Beyond Culture,” *The Journal of American History* 76,4 [March 1990]: 1146). Ecocriticism sometimes yields to the same temptation to dismiss as nihilist, relativist, and confused the many challenges that contemporary culture poses to its most dearly held views.
18. White, “Environmental History, Ecology, and Meaning,” 1114–15.
19. Worster, *Nature's Economy*, 58.

20. McIntosh, *The Background of Ecology*, 22. “Ecologists sorely need a guide to understanding the background of their science,” McIntosh admits, “but it is unfortunate if the science of ecology is conflated with diverse historical concerns with the relation between humanity and the environment and if things that have simply ‘gone before’ are linked as if they are in a direct line of development to ecology” (17). He notes with frustration that Worster is willing to include, on very slender evidence, even so unlikely a candidate as John Wesley, the founder of Methodism, in his pantheon of early ecologists.
21. Bowler approaches the history of ecology in a way much more likely to please McIntosh and his colleagues. Bowler writes: “It was certainly possible to study what would now be called ecological relationships before the founding of scientific ecology. But the natural theologians’ assumption that God had designed a harmonious order of Nature was hardly a suitable basis upon which to build a modern science” (*The Norton History of the Environmental Sciences*, 363).
22. Ernst Mayr has suggested that ecology, “among all biological disciplines, is the most heterogeneous and most comprehensive.” However, it seems ecology is the exception that proves to be the rule. What is true about it is also true of biology as a whole, where, Mayr suggests, “pluralism, probabilism, and purely qualitative as well as historical phenomena abound, while strictly universal laws are virtually absent.” “Probabilistic theories,” according to Mayr, “rarely give the kind of certainty one is aiming for when using the word ‘law.’” See *This is Biology; The Science of the Living World* (Cambridge: Harvard University Press, 1997), 207, 48–49, 62.
23. As McIntosh notes, Haeckel “provided a name but little substance” for ecology (*The Background of Ecology*, 23). And according to Bowler, “Haeckel’s holistic philosophy would inspire a later generation of environmentalists, but he had been trained as a morphologist and sought other ways of displaying the unity of Nature” (*The Norton History of the Environmental Sciences*, 338). Unlike McIntosh and Bowler, Anna Bramwell makes a great deal of Haeckel’s work in support of her contention that ecology “was formulated in Germany,” but she grossly overestimates Haeckel’s importance to the nascent science owing to her interest in his political activities. See *Ecology in the 20th Century: A History* (New Haven: Yale University Press, 1989) 10; on Haeckel, see page 39 and subsequent pages, especially page 53.
24. Mayr, *This is Biology*, 208.
25. McIntosh, *The Background of Ecology*, 4.
26. The first American book to incorporate “ecology” in its title was *Flower Ecology*, published in 1893 by Louis H. Pammel, a professor of botany at Iowa State College. Most of the important early ecologists were, like Pammel, botanists by training. See Frank N. Egerton, “The History of Ecology: Achievements and Opportunities, Part One,” *Journal of the History of Biology*, 16,2 (Summer 1983): 277.
27. Henry Chandler Cowles, “The Ecological Relations of the Vegetation on the Sand-Dunes of Lake Michigan,” in *Foundations of Ecology; Classic Papers with Commentaries*, ed. Leslie A. Real and James H. Brown (Chicago: The University of Chicago Press, 1991), 28, 38.
28. “Like other but simpler organisms, each climax not only has its own growth and development in terms of primary and secondary succession, but it has also evolved out of a preceding climax. In other words, it possesses an ontogeny and phylogeny that can be quantitatively and experimentally studied, much as with the individu-

- als and species of plants and animals” (Frederic E. Clements, “Nature and the Structure of the Climax,” in *Foundations of Ecology*, 62, 63, 64).
29. In practice, quadrats tend to be much smaller than I have suggested, and hence are likely to be even less representative. Luoma cites a 1993 study by the ecologist Robert May in which it was demonstrated that a majority of the experiments surveyed were focused on an area of less than ten square meters, while “fully 44 percent covered an area of less than one square meter—about the size of a coffee table” (*The Hidden Forest*, 10).
  30. As McIntosh reports, Clements’s critics “pointed out the anomaly of an adult organism which had multiple embryonic stages from different starting points and lacked a genetic basis, but superorganisms are not easily killed by mere logic” (*The Background of Ecology*, 81).
  31. “There has always been,” according to Ernst Mayr, “a somewhat mystical overtone to the description of plant communities as superorganisms” (*This is Biology*, 221).
  32. According to McIntosh, Clements’s love of vocabulary was evident throughout his career, beginning in 1905 with his first publication of importance, a book entitled *Research Methods in Ecology*: “In this volume he evidenced the tendency that was to earn for ecology the pejorative definition ‘that part of biology which has been totally abandoned to terminology.’ Its glossary contained the classical definition of *geotome* (complete with Greek derivation): ‘An instrument for obtaining soil samples’—that is, a shovel” (“Ecology Since 1900,” in *History of American Ecology*, 354).
  33. Worster, *Nature’s Economy*, 219.
  34. In effect, and perhaps without realizing it, Clementsian ecologists were holdovers from an earlier period of scientific thought, when those convinced of the priority and, indeed, the sufficiency of the *a priori*—and of theory—scoffed at “mere empirics.” This circumstance was not without its ironies. According to Frank B. Golley, “Concepts of the complex organism or the superorganism are idealist concepts that are not researchable using ecological methods of analysis” (*A History of the Ecosystem Concept in Ecology* [New Haven: Yale University Press, 1993], 27).
  35. Stephen Forbes, “The Lake as a Microcosm,” in *Foundations of Ecology*, 14, 27.
  36. Mary B. Hesse, *Models and Analogies in Science* (Notre Dame: University of Notre Dame Press, 1966), 167. Ernst Mayr observes that in science, “analogies are almost invariably misleading: they fail to be isomorphic with the real situation,” which suggests that the devolution of analogy into metaphor and myth is inevitable, no matter how conscious of the dangers of analogy a scientist may be (*This is Biology*, 278n6).
  37. I discuss the assumptions of radical critics of science about ecology, and about science in general, in chapter three.
  38. Hesse, *Models and Analogies in Science*, 169.
  39. Golley, *A History of the Ecosystem Concept*, 29.
  40. In a discussion of sixteenth-century science, Michel Foucault suggests that its “reversibility” and “polyvalency” are the factors that “endow analogy with a universal field of application” and make it almost irresistible and all but ineradicable. Foucault also links the privileging of similarity over difference, which seems essential to the creation of analogy, to the development of “that only too well-known category, the microcosm,” a category revived by late nineteenth-century ecology, as Forbes’s article on lakes demonstrates. See *The Order of Things; An Archaeology of the Human Sciences* (New York: Vintage Books, 1973), 22, 30.

41. Max Black, *Models and Metaphors; Studies in Language and Philosophy* (Ithaca: Cornell University Press, 1962), 223, 239.
42. Black, *Models and Metaphors*, 242.
43. Clements, for instance, is said to have been a devoted follower of Herbert Spencer, whose sociological writings inspired the ecologist to develop his own ideas about the plant community as a superorganism. See Bowler, *The Norton History of the Environmental Sciences*, 375.
44. H. A. Gleason, "The Individualistic Concept of the Plant Association," in *Foundations of Ecology*, 100.
45. In 1916 Clements had published a large volume entitled *Plant Succession*, in which he offered "one grand theory" unifying the concepts of community and succession, precisely the sort of theory that Gleason was to attack ten years later as the product of wishful thinking. Egerton provides a description of *Plant Succession* in "The History of Ecology": 278.
46. Gleason, "The Individualist Concept of the Plant Association," 107, 117.
47. Coincidence and accident can be fortuitous, of course, as in cases of the symbiosis and mutual dependency of coevolved species of plants, fungi, and bacteria.
48. See Bowler, *The Norton History of the Environmental Sciences*, 524–25. Something very like Gleason's individualistic concept is now the accepted view of succession, as described by Mayr: "One abandoned pasture in New England may be taken over by white pine and gray birch, another nearby pasture may first be invaded by junipers, bird cherries, and maples. Succession is influenced by many factors: the nature of the soil, exposure to sun and wind, regularity of precipitation, chance colonizations, and many other random processes" (*This is Biology*, 220).
49. A. G. Tansley, "The Use and Abuse of Vegetational Concepts and Terms," in *Foundations of Ecology*, 324.
50. Tansley, "The Use and Abuse of Vegetational Concepts and Terms," 299.
51. Popularizers of the ecosystem concept often failed to realize that it, too, was essentially reductive. Golley notes, for example, that environmentalists embraced the ecosystem concept during the 1960s "as a way to maintain their faith in holism" (*A History of the Ecosystem Concept*, 3).
52. Tansley's article appears to have marked the beginning of a process of retrenchment among ecologists who were less suspicious of reduction in science and dissatisfied with Clementsian holism. "Clements's organic view of vegetation," according to Daniel Botkin, was "completely dismissed in the United States" by the 1940s (*Discordant Harmonies; A New Ecology for the Twenty-First Century* [New York: Oxford University Press, 1990], 98). Joel Hagen reports that Clements's views are "anathema to most ecologists" today (*An Entangled Bank; The Origins of Ecosystem Ecology* [New Brunswick, N.J.: Rutgers University Press, 1992], 13), and Sharon Kingsland points out that abandonment of the organic concept paid immediate dividends: "The shift from a biological to a physical model for ecology also opened the way to a mathematical analysis of the system" ("Defining Ecology as a Science," in *Foundations of Ecology*, 6). Mathematical analysis, of course, is the *sine qua non* of modern science.
53. Raymond L. Lindeman, "The Trophic-Dynamic Aspect of Ecology," in *Foundations of Ecology*, 400.
54. The Savannah River Site (SRS) is one of the largest plutonium-producing facilities in the United States. Like many nuclear preserves, it is surrounded by an extensive buffer zone of forest and abandoned farmland. This has led to its becoming a sanc-

- tuary for wildlife (both plant and animal), and has made it a prime location for ecological research.
55. Such was Odum's influence that in 1973 one ecologist joked, "Until recently, the appropriate unit of measure of ecology texts was the *odum*." The author of this witticism is quoted in Martin LaBar, "Odum in Brief, 2<sup>nd</sup> Edition," *Ecology* 58,2 (March 1977): 460.
  56. Eugene P. Odum, *Ecology; The Link Between the Natural and the Social Sciences*, Second Edition (New York: Holt, Rinehart and Winston, 1975), 102, 222.
  57. Eugene P. Odum, *Fundamentals of Ecology*, Third Edition (Philadelphia: W. B. Saunders, 1971), 251, 36. Italics in original.
  58. The dawning awareness of environmental crisis in the 1960s and 70s helped create an atmosphere in which confusion about the character of ecology itself could flourish: according to McIntosh, "it was frequently confounded with any concern for, or ideology about, the environment" (*The Background of Ecology*, 6). In fact, the history of ecology should be viewed separately from the history of environmentalism. "The outsider might be tempted to assume that scientific ecology was inspired by the growth of environmentalism in the late nineteenth century," Bowler writes. "Yet serious studies of the interactions between animals, plants and their physical environments were often initiated by scientists who hoped to modify the natural balance in order to allow sustainable exploitation" (*The Norton History of the Environmental Sciences*, 362).
  59. The vulnerability of some of ecology's positions with regard to the human population explosion is a favorite topic of radical critics of science like Andrew Ross; see my discussion of his ideas about "social ecology" in chapter three.
  60. Odum, *Ecology; The Link Between the Natural and the Social Sciences*, 14.
  61. Odum, *Fundamentals of Ecology*, 251.
  62. Golley notes that early on in the development of the concept, "ecologists tended to misuse the term *ecosystem* as a more modern expression for the community concept or Clementsian complex organism and thus maintained the confusion that Tansley was trying to overcome" (*A History of the Ecosystem Concept*, 34, italics in original).
  63. Odum, *Fundamentals of Ecology*, 9, 276.
  64. McIntosh, *The Background of Ecology*, 232.
  65. Paul Colinvaux, *Why Big Fierce Animals Are Rare; An Ecological Perspective* (Princeton: Princeton University Press, 1978), 206.
  66. Golley, *A History of the Ecosystem Concept*, 165.
  67. Worster, *The Wealth of Nature*, 174.
  68. Worster, *The Wealth of Nature*, 174.
  69. Sharon E. Kingsland, *Modeling Nature; Episodes in the History of Population Ecology*, Second Edition (Chicago: The University of Chicago Press, 1985, 1995), 1.
  70. Budiansky, *Nature's Keepers*, 17.
  71. Golley, *A History of the Ecosystem Concept*, 80, 106.
  72. Colinvaux, *Why Big Fierce Animals Are Rare*, 6.
  73. Mayr, *This is Biology*, 222.
  74. Sue Hubbell, *Waiting for Aphrodite; Journeys into the Time Before Bones* (New York: Houghton Mifflin, 1999), 96–97, 98.
  75. R. H. Waring, "Ecosystems: Fluxes of Matter and Energy," in *Ecological Concepts; The Contribution of Ecology to an Understanding of the Natural World*, ed. J. M. Cherrett (Oxford: Blackwell Scientific Publications, 1989), 18, 17; Hagen, *An En-*

- tangled Bank*, 127. In a review of Golley's book on the ecosystem concept, T. R. Seastedt writes: "The arbitrary boundaries of ecosystems have always plagued the usefulness of the concept, but systems with 'real' boundaries (lakes, watersheds, etc.) seem to be the subjects of better ecosystem science. Whether we now know how to study ecosystems is debatable" ("The History and Status of Ecosystem Science," *Ecology* 75,8 [December 1994]: 2466).
76. McIntosh, *The Background of Ecology*, 203.
77. Egerton, "The History of Ecology": 292. On the history of false theories that nonetheless prove useful and fruitful, see Umberto Eco, "The Force of Falsity," *Serendipities; Language and Lunacy*, trans. William Weaver (New York: Harcourt Brace, 1999).
78. A parallel though not equivalent problem in literary criticism has to do with the recognition of texts as distinct not only from referents but also from narratives, characters, settings, and the like, with all the attendant differences in methodology and attitude that these distinctions entail and encourage.
79. McIntosh, *The Background of Ecology*, 133. McIntosh adds that it may be impossible to obtain "precise measurements of biological characteristics of communities or ecosystems" (135), should one be able to identify those communities or ecosystems as such in the first place.
80. Colinvaux, *Why Big Fierce Animals Are Rare*, 68, 71, 72.
81. Botkin, *Discordant Harmonies*, 36, 37. Ernst Mayr points out that logistic approaches to ecological research treat the individuals of a given species as members of a class, thereby draining the biology from ecology. "The members of a class usually lack the individuality that is so characteristic of the organic world, where each individual is unique; each stage in the life cycle is unique; each population is unique; each species and higher category is unique; each interindividual contact is unique; each natural association of species is unique; and each evolutionary event is unique." Mayr also points out that "the concept of species as a class" has received "virtually universal rejection" from evolutionary biologists. See *Toward a New Philosophy of Biology; Observations of an Evolutionist* (Cambridge: Harvard University Press, 1988), 34, 342.
82. McIntosh, "Ecology Since 1900," in *History of American Ecology*, 367. Budiansky makes a point similar to Botkin's and McIntosh's when he notes that one reason "the species-area curve tends to exaggerate so wildly is that it ignores the texture of habitats. Species are not distributed randomly but in patches. Reducing all of a forest's multiplicity of habitats to a single mathematical variable representing 'area' is a biological absurdity" (*Nature's Keepers*, 167). Max Black has noted that mathematical analysis, however empowering it may seem to be, is in fact a problem for all the sciences because it requires "drastic simplifications" that "entail a serious risk of confusing accuracy of the mathematics with strength of empirical verification in the original field" (*Models and Metaphors*, 225).
83. Ernst Mayr writes: "The population concept adopted by most mathematical population ecologists was basically typological, in that it neglected the genetic variation among the individuals of a population. Their 'populations' were not populations in any genetic or evolutionary sense but were what mathematicians refer to as sets." Mayr suggests that the "crucial aspect of the population concept to have emerged in evolutionary biology" is a new emphasis on "the genetic uniqueness of the composing individuals. This kind of 'population thinking' is in sharp contrast

- with the typological thinking of essentialism. In ecology the genetic uniqueness of a population is usually ignored" (*This is Biology*, 211).
84. "Ecology is such a heterogeneous science that arguments about methods, approaches, and definitions of central terms are nearly impossible to avoid" (Kingsland, "Defining Ecology as a Science," in *Foundations of Ecology*, 12).
  85. "The key terms of ecology—terms like 'community,' 'niche,' 'predator,' 'resource,' 'system,' 'competition,' 'parasite,' 'detritivore' and so on—do not have one clear level of application" (Brennan, *Thinking About Nature*, 97).
  86. "Few phrases are as ubiquitous in community ecology as 'more or less,' usually introduced in defense of one or another system for defining and classifying communities and in providing sufficient elasticity, not to say lubricity, to make it difficult to grasp and attack assertions about communities" (McIntosh, *The Background of Ecology*, 80, 119).
  87. Joseph Grinnell, "The Niche-Relationships of the California Thrasher," in *Foundations of Ecology*, 124.
  88. In 1957, G. E. Hutchinson redefined the niche as "an  $n$ -dimension hypervolume," "every point in which corresponds to a state of the environment which would permit the species  $S_1$  to exist indefinitely" ("Concluding Remarks," in *Foundations of Ecology*, 226). Paul Colinvaux follows Hutchinson's lead, but defines the niche much more colloquially: "The niche is an animal's (or a plant's) profession," he says, and not its address (*Why Big Fierce Animals Are Rare*, 11). For an excellent and very brief discussion of the niche concept, see Stephen Jay Gould, *An Urchin in the Storm; Essays about Books and Ideas* (New York: W. W. Norton, 1987), 184–86.
  89. Leslie A. Real and Simon Levin, "The Role of Theory in the Rise of Modern Ecology," in *Foundations of Ecology*, 180, 188.
  90. Golley, *A History of the Ecosystem Concept*, 100.
  91. Luoma, *The Hidden Forest*, 27.
  92. Colinvaux, *Why Big Fierce Animals Are Rare*, 237.
  93. Mayr, *This is Biology*, 222.
  94. R. C. Lewontin, *Biology as Ideology; The Doctrine of DNA* (New York: Harper-Collins, 1991), 118, 119.
  95. Mayr, *This is Biology*, 37. On the issue of validity and invalidity in interpretation, see the essays collected in *Questions of Evidence; Proof, Practice, and Persuasion across the Disciplines*, ed. James Chandler, Arnold I. Davidson, and Harry Harootunian (Chicago: University of Chicago Press, 1994).
  96. Joel G. Kingsolver and Robert T. Paine, "Conversational Biology and Ecological Debate," in *Foundations of Ecology*, 315.
  97. Mayr, *This is Biology*, 224.
  98. R. H. Peters, *A Critique for Ecology* (Cambridge: Cambridge University Press, 1991), 4, 4<sup>o</sup>.
  99. Odum, *Ecology; The Link Between the Natural and the Social Sciences*, 39.
  100. Readers familiar with the philosophy of science will recognize the Popperian slant of Peters's arguments.
  101. Peters, *A Critique for Ecology*, 101, 77, 78.
  102. See Naomi Cappuccino's review of *A Critique for Ecology*, "What Might Be Wrong With Ecology," *Ecology* 74,6 (Sept. 1993): 1907–08. Cappuccino welcomes the book as a valuable attempt to clear the air, something much needed by "a science that often asks fuzzy questions and engages in endless, aimless polemics" (1907). She

- does point out that Peters “often overstates his case” (1907), but thinks that his overstatements can be excused due to his desire to be critical.
103. Peters, *A Critique for Ecology*, 89, 91.
  104. Peters, *A Critique for Ecology*, 105.
  105. Peters, *A Critique for Ecology*, 273.
  106. According to Kingsland, “Ecology had hardly emerged when already ecologists were concerned with the problem of how best to impose a unified theoretical structure on the facts of nature” (*Modeling Nature*, 23).
  107. Peters, *A Critique for Ecology*, 105–06, 137.
  108. Peters, *A Critique for Ecology*, 135, 215.
  109. Even consciously delimited uses of analogy seem problematic in ecological research, as J. H. Lawton, writing about studies of so-called food webs, reports: “Confronted with limited data of highly variable quality, hardly any of which is really good, food web studies face either hand-wringing paralysis, or cautious efforts to see what can be discovered in the existing information.” Lawton thinks “some of the patterns” ecologists have been regarding as food webs “may eventually prove to be artefacts of poor information.” See J. H. Lawton, “Food Webs,” in *Ecological Concepts*, 45.
  110. Bowler notes that in the nineteenth century, “ecology was presented as an extension of physiology into the study of the organism’s reaction to its environment,” not as an offshoot of Darwinism, to which some leading ecologists were, in fact, hostile. “The late nineteenth century saw an ‘eclipse of Darwinism’ in which the supporters of natural selection were marginalized even within scientific biology” (*The Norton History of the Environmental Sciences*, 308, 327).
  111. Richard Levins and Richard Lewontin, *The Dialectical Biologist* (Cambridge: Harvard University Press, 1985), 11.
  112. Bowler reports that as late as the 1930s, holists like Clements “were vehemently opposed to the Darwinian selection theory, and tended to favour Lamarckism” (*The Norton History of the Environmental Sciences*, 523).
  113. Gould, *An Urchin in the Storm*, 183.
  114. Colinaux, *Why Big Fierce Animals Are Rare*, 73.
  115. Peters, *A Critique for Ecology*, 137.
  116. According to McIntosh, patchiness may be the one thing that more than anything else has hampered the development of contemporary ecology: “The problem of spatial distribution of organisms and particularly the problem of pattern, remains the key to modern ecological studies and theories, frustrating both empiricists and theorists” (*The Background of Ecology*, 53).
  117. “Critics have attacked what they see as an overemphasis upon constancy, balance, and gradual change in traditional ecosystem ecology. In its place, they would erect a new ecology that emphasizes indeterminism, instability, and constant change. Ecosystems, so critics claim, may be perpetually out of balance” (Hagen, *An Entangled Bank*, 194).
  118. Botkin, *Discordant Harmonies*, 9, 124.
  119. As Worster correctly points out, “the new ecology of chaos” is not “a total surrender to the idea of disorder, or to a philosophy of complete indeterminism, or to some obscurantist repudiation of science itself” (*Nature’s Economy*, 411).
  120. Golley, *A History of Ecosystem Ecology*, 109. Egerton suggests that the existence of vigorous debates between ecologists subscribing to incommensurable theories “arouses visions of a Kuhnian preparadigm stage of science.” He adds: “Yet select-

ing which paradigms will become generally accepted is not our business. There is at least a possibility that schools of ecology with mutually exclusive perspectives will persist side by side for an indeterminate period in ecology, just as they do in the social sciences” (“The History of Ecology”: 267). Some ecologists may find Egerton’s comparison of the state of their discipline to that prevailing in the social sciences disturbing, since “social science” is widely regarded as a synonym for “pseudoscience.” But he and Golley have given voice to what seems to be the consensus among theorists and critics of ecology today.

121. Cowles, “The Ecological Relations of the Vegetation of the Sand Dunes of Lake Michigan,” in *Foundations of Ecology*, 36–37, 40–41.
122. Jonathan Weiner, *The Beak of the Finch* (New York: Random House, 1994), 242, 244, 255, 244.
123. Marston Bates, *The Nature of Natural History* (Princeton: Princeton University Press, 1950), 116.
124. Budiansky, *Nature’s Keepers*, 5, 16.
125. Budiansky, *Nature’s Keepers*, 163–64, 238.
126. Peters, *A Critique for Ecology*, 10.
127. Kingsolver and Price, “Conversational Biology and Ecological Debate,” in *Foundations of Ecology*, 309.

### Chapter 3

1. The word “scientist” was not coined until sometime in the early nineteenth century.
2. This description of Sokal was attributed to Stanley Aronowitz by Janny Scott in her article, “Postmodern Gravity Deconstructed, Slyly,” *The New York Times* (May 18, 1996). For an overview of the Sokal affair, see *The Sokal Hoax; The Sham That Shook the Academy* (Lincoln: University of Nebraska Press, 2000), which contains essays, editorials, and other commentary collected by the editors of *Lingua Franca*, the journal that broke the Sokal story in the first place.
3. Alan Sokal, “What the *Social Text* Affair Does and Does Not Mean,” in *A House Built on Sand; Exposing Postmodernist Myths about Science*, ed. Noretta Koertge (New York: Oxford University Press, 1998), 11.
4. Paul Shepard, “Establishment and Radicals on the Environmental Crisis,” *Ecology* 51,5 (September 1970): 942.
5. Philip Kitcher, “A Plea for Science Studies,” in *A House Built on Sand*, 38.
6. David J. Hess, *Science Studies; An Advanced Introduction* (New York: New York University Press, 1997), 1.
7. Hess, *Science Studies*, 35.
8. Steve Woolgar, *Science; The Very Idea* (New York: Routledge, 1993), 21, 73, 89, 31, 35.
9. Steve Fuller, *Philosophy of Science and Its Discontents*, Second Edition (New York: The Guilford Press, 1993), 8. Fuller embraces what is known as an *asymmetric* version of science studies: “I am a scientific realist with regard to the discourse of the social sciences. By that I mean that the best explanation for the history of all of our knowledge enterprises is provided by the best social scientific theories. However, I am an antirealist about the discourse of the natural sciences, to the extent that I accept the validity of social constructivist accounts of natural scientific practices” (xiv).
10. Paisley Livingston, “Why Realism Matters: Literary Knowledge and the Philosophy of Science,” in *Realism and Representation; Essays on the Problem of Realism in*

- Relation to Science, Literature, and Culture*, ed. George Levine (Madison: The University of Wisconsin Press, 1993), 147.
11. Michael Weissman, review of Andrew Ross, *The Chicago Gangster Theory of Life: Nature's Debt to Society*, *Tikkun* 11,3 (May–June 1996): 64.
  12. Steve Shapin and Simon Schaffer, *Leviathan and the Air-Pump; Hobbes, Boyle, and the Experimental Life* (Princeton: Princeton University Press, 1985), 6. Italics in original.
  13. According to Richard Levins, “The claim that different outlooks are incommensurate, speak different languages, and find no points of contact is a gross distortion of the understanding of social viewpoint. Theoretical barriers do not mean the existential aloneness imagined by distant observers” (“Ten Propositions on Science and Antiscience,” *Social Text* 46–47 [1996]: 110).
  14. E. O. Wilson, *The Diversity of Life* (New York: W. W. Norton, 1992), 43–44.
  15. Ian Hacking, *Representing and Intervening; Introductory Topics in the Philosophy of Natural Science* (Cambridge: Cambridge University Press, 1983), 263.
  16. Bruno Latour, *Science in Action; How to Follow Scientists and Engineers Through Society* (Cambridge: Harvard University Press, 1987), 23.
  17. Karl Popper, *The Logic of Scientific Discovery* (London: Routledge, 1992), 111.
  18. Ian Hacking, *The Social Construction of What?* (Cambridge: Harvard University Press, 1999), 33.
  19. My fondness for Popper’s analogy may not seem consistent with the remarks I made in chapter two about the nefarious role analogy has played in both science and literary criticism. But Popper’s is an analogy *of* science, not *in* science, and is adduced here only by way of illustration.
  20. Michel Foucault, *The Order of Things; An Archaeology of the Human Sciences* (New York: Vintage Books, 1993), xi.
  21. For example, Shapin and Schaffer write that they “intend to display scientific method as *crystallizing* forms of social organization” (*Leviathan and the Air-Pump*, 14; my emphasis).
  22. As Fredric Jameson observes, “the anti-foundational position is always susceptible to slippage into a new kind of foundational role in its own right” (*Postmodernism; or, The Cultural Logic of Late Capitalism* [Durham, N.C.: Duke University Press, 1991], 256).
  23. Gross and Levitt, *Higher Superstition; The Academic Left and Its Quarrels with Science* (Baltimore: The Johns Hopkins University Press, 1994), 191.
  24. George Levine, “Looking for the Real: Epistemology in Science and Culture,” in *Realism and Representation*, 9, 15.
  25. Arthur Fine, “Science Made Up,” in *The Disunity of Science; Boundaries, Contexts, and Power*, ed. Peter Galison and David J. Stump (Stanford: Stanford University Press, 1996), 232.
  26. Max Horkheimer and Theodor W. Adorno, *Dialectic of Enlightenment* (New York: Continuum, 1997), 6.
  27. As I hope to show, radical critics of science treat the Marxist tradition as a rhetorical resource, rather than as a fund of philosophical and political argument, and use the catchphrases invented by figures like Horkheimer and Adorno as if these catchphrases embodied a proverbial and well-nigh inarguable wisdom. Needless to say, this strategy works best on those all-too-frequent occasions when radical critics of science preach to the converted.

28. The classic analysis of the divergence of science and the humanities is of course C. P. Snow's. "I believe the intellectual life of the whole of western society is increasingly being split into two polar groups," he writes. "At one pole we have the literary intellectuals," and "at the other scientists, and as the most representative, the physical scientists. Between the two a gulf of mutual incomprehension" (*The Two Cultures and The Scientific Revolution* [New York: Cambridge University Press, 1961], 4).
29. Horkheimer and Adorno, *Dialectic of Enlightenment*, xi, 85, xiv.
30. Horkheimer and Adorno, *Dialectic of Enlightenment*, 3.
31. Horkheimer and Adorno, *Dialectic of Enlightenment*, 4.
32. Ian Hacking, "The Disunities of the Sciences," in *The Disunity of Science*, 68, 50, 67.
33. Classical physics posited a number of ideas about the nature of reality that biologists do not find helpful, according to Ernst Mayr: "The classical physical sciences, on which the classical philosophy of science was based, were dominated by a set of ideas inappropriate to the study of organisms: these included essentialism, determinism, universalism, and reductionism. Biology, properly understood, comprises population thinking, probability, chance, pluralism, emergence, and historical narratives" (*This is Biology; The Science of the Living World* [Cambridge: Harvard University Press, 1997], xiii).
34. John Hay, *The Run* (New York: W. W. Norton, 1979), 104.
35. Horkheimer and Adorno, *Dialectic of Enlightenment*, 10.
36. Andrew Brennan, *Thinking About Nature* (Athens: The University of Georgia Press, 1988), 79.
37. Peter Galison, "Introduction: The Concept of Disunity," in *The Disunity of Science*, 5.
38. Woolgar, *Science; The Very Idea*, 80; my emphasis.
39. Stephen Budiansky, *Nature's Keepers; The New Science of Nature Management* (New York: The Free Press, 1995), 25.
40. Richard Dawkins, *The Blind Watchmaker; Why the Evidence of Evolution Reveals a Universe Without Design* (New York: W. W. Norton, 1996), 13.
41. The title of the famous essay from which the passage I have quoted comes is "The Culture Industry: Enlightenment as Mass Deception." See Horkheimer and Adorno, *Dialectic of Enlightenment*, 149.
42. Horkheimer and Adorno, *Dialectic of Enlightenment*, 224.
43. Herbert Marcuse, *One-Dimensional Man* (Boston: Beacon Press, 1964), xvi.
44. The distinction between *facts* and *factors* is Marcuse's own. Dialectical thinking, he writes, "attains its truth if it has freed itself from the deceptive objectivity which conceals the factors behind the facts—that is, if it understands its world as a *historical* universe, in which the established facts are the work of the historical practice of man" (*One-Dimensional Man*, 141; italics in original).
45. Marcuse, *One-Dimensional Man*, 1, 18.
46. Marcuse, *One-Dimensional Man*, 56. Italics in original.
47. Marcuse, *One-Dimensional Man*, 215. My emphasis.
48. Latour, *Science in Action*, 242. Italics in original.
49. Marcuse, *One-Dimensional Man*, 56.
50. See Fredric Jameson, *The Political Unconscious; Narrative as a Socially Symbolic Act* (London: Methuen, 1981).

51. Marcuse, *One-Dimensional Man*, 172.
52. For a lively account of the disagreements between figures associated with “ordinary language” philosophy and positivism, in particular Wittgenstein and Popper, see David Edmonds and John Eidinow, *Wittgenstein’s Poker; The Story of a Ten-Minute Argument Between Two Great Philosophers* (London: Faber and Faber, 2001).
53. Marcuse, *One-Dimensional Man*, 189.
54. Marcuse, *One-Dimensional Man*, 61, 64.
55. Marcuse, *One-Dimensional Man*, xvi, 66.
56. Marcuse, *One-Dimensional Man*, 226.
57. Marcuse, *One-Dimensional Man*, 238.
58. Marcuse, *One-Dimensional Man*, 237–38 (italics in original), 199.
59. Consider, for example, the gross generalizations about both science as a whole and physics in particular made in Stanley Aronowitz, *Science as Power; Discourse and Ideology in Modern Society* (Minneapolis: University of Minnesota Press, 1988).
60. Andrew Brennan writes: “It is sometimes argued that scientific, ecological studies show that traditional atomistic, and reductive modes of explanation have to be replaced by non-reductive, holistic modes.” However, “scientific work in ecology gives no real support to such claims. Much of the focus of contemporary ecology is adequately described as seeking the same kinds of explanation as are sought in other sciences” (*Thinking About Nature*, 7).
61. For a classic essay examining the identification of women with the earth, see Sherry B. Ortner’s “Is Female to Male as Nature is to Culture?” in *Woman, Culture, and Society*, ed. Michelle Zimbalist Rosaldo and Louise Lamphere (Stanford: Stanford University Press, 1974), 67–87.
62. In her review of *The Death of Nature*, Marcia L. Colish suggests that its “major defect is overinterpretation,” and that “Merchant’s *optique* is anachronistic” (*The Journal of Modern History* 54,1 [March 1982]: 68, 69). Karl Kroeber notes that Merchant tends “to treat all post-Renaissance science as a metaphysical monolith” (*Ecological Literary Criticism; Romantic Imagining and the Biology of Mind* [New York: Columbia University Press, 1994], 35).
63. Carolyn Merchant, *The Death of Nature; Women, Ecology, and the Scientific Revolution* (San Francisco: Harper & Row, 1989), xvi.
64. Merchant, *The Death of Nature*, xxi.
65. Merchant, *The Death of Nature*, 42.
66. Ernst Mayr writes that “one still speaks of the ecosystem when referring to a local association of animals and plants,” but he notes that this usage is casual (*This Is Biology*, 222).
67. Merchant, *The Death of Nature*, 42–43.
68. Merchant, *The Death of Nature*, 76. The source that Merchant cites in support of her claim about the effect of Nazism on ecology is Worster’s *Nature’s Economy*, where it is not made in anything like the flat-footed manner in which she makes it herself. Worster writes: “Confronted with the example of Nazism, many organicists began to retreat a few paces from the integrative ideal. That kind of state was not at all what they or nature had meant by ‘relatedness.’ Their organismic model was, or should have been, intended to be less centralized, less dominated by a single directive power” (*Nature’s Economy; A History of Ecological Ideas*, Second Edition [Cambridge: Cambridge University Press, 1994], 330).
69. Peter J. Bowler, *The Norton History of the Environmental Sciences* (New York: W. W. Norton, 1993), 457.

70. Merchant, *The Death of Nature*, 195.
71. Merchant, *The Death of Nature*, 100, 99.
72. Merchant, *The Death of Nature*, 103.
73. Carolyn Merchant, "Introduction," in *Ecology*, ed. Carolyn Merchant (Atlantic Highlands, New Jersey: Humanities Press International, 1994), 3, 4.
74. Merchant, "Introduction," 1.
75. See my discussion of Latour's *We Have Never Been Modern* in chapter one.
76. Merchant, "Introduction," 4.
77. I should note that Merchant's view of the "ecology movement" is influenced by Deep Ecology, which given its anti-intellectual character (at least in its American versions) is a poor fit with Critical Theory. Deep Ecology was first described by the Norwegian philosopher Arne Naess in terms that are hostile to science—and extremely flattering to philosophy. "In so far as ecology movements deserve our attention," Naess writes, "they are *ecophilosophical* rather than ecological. Zoology is a *limited* science which makes *use* of scientific methods. Philosophy is the most general forum of debate on fundamentals." See "Deep Ecology," in *Ecology*, 123 (italics in original); originally published as "The Shallow and the Deep, Long-Range Ecology Movement: A Summary," *Inquiry* 16 (1972).
78. Luc Ferry, *The New Ecological Order*, trans. Carol Volk (Chicago: The University of Chicago Press, 1995), 134, 138 (italics in original).
79. For a more innovative attempt to revise Critical Theory along ecofeminist lines than Merchant's, see the maverick work of Donna Haraway, especially *Simians, Cyborgs, and Women; The Reinvention of Nature* (New York: Routledge, 1991), a collection of essays that offers an overview of the development of Haraway's ideas beginning in the late 1970s. I should add, however, that like Merchant, Haraway is apt to over-simplify things, both where historical matters are concerned and as concerns science, in which she does have a professional background. Consider, for example, the following passage from Haraway's essay "In the Beginning was the Word: The Genesis of Biological Theory," which is included in *Simians, Cyborgs, and Women*: "One thing is undeniable about biology since its early formulations in the late eighteenth and early nineteenth centuries: biology tells tales about origins, about genesis, and about nature. Further, modern feminists have inherited our story in a patriarchal voice. Biology is the science of life, conceived and authored by a word from the father. Feminists have inherited knowledge through the paternal line. The word was Aristotle's, Galileo's, Bacon's, Newton's, Linnaeus's, Darwin's; the flesh was woman's. And the word was made flesh, naturally. We have been engendered" (72). Despite what Haraway says here, that "biology tells tales about origins, about genesis, and about nature" is far from being "undeniable," since biologists (and I should note that of the men on Haraway's list, only the last two were actually biologists) have become very aware of the potential for distortion inherent in narrative as a means of scientific explanation (as I tried to show in chapter two). And a good reason why biology *should not* sponsor some in-depth discussions "about origins, about genesis, and about nature," and particularly about the latter, is hard for me to imagine; but Haraway seems to be implying either that it shouldn't or that its discussions must be monitored very carefully, which smacks of censorship. As for Haraway's contention that biology accepts the view that life was "conceived and authored by a word from the father," ever since Darwin biology has cast doubt on one of the most patriarchal views of life's origins, the Judeo-Christian one, and has gotten into trou-

- ble with the guardians of tradition as a result. At moments like these, Haraway's essays are much too scatter-shot to be convincing.
80. Richard Dawkins, *The Selfish Gene* (Oxford: Oxford University Press, 1989), 36, 2.
  81. Andrew Ross, *The Chicago Gangster Theory of Life; Nature's Debt to Society* (London: Verso, 1994), 255, 257.
  82. Daniel C. Dennett, *Kinds of Minds; Toward an Understanding of Consciousness* (New York: Basic Books, 1996), 27.
  83. Here is what Dawkins actually writes in the passage Ross finds objectionable: "If we were told that a man had lived a long and prosperous life in the world of Chicago gangsters, we would be entitled to make some guesses as to the sort of man he was. We might expect that he would have qualities such as toughness, a quick trigger finger, and the ability to attract loyal friends. These would not be infallible deductions, but you can make some inferences about a man's character if you know something about the conditions in which he has survived and prospered. The argument of this book is that we, and all other animals, are machines created by our genes. Like successful Chicago gangsters, our genes have survived, in some cases for millions of years, in a highly competitive world" (*The Selfish Gene*, 2).
  84. Andrew Ross, "Introduction," *Social Text* 46/47 (1996): 11. Mario Biagioli takes critics like Ross to task for their arrogance; as he points out, "the potential for cultural criticism is not an essential quality that belongs naturally to certain methodologies while being *a priori* alien to others" ("From Relativism to Contingentism," in *The Disunity of Science*, 192).
  85. Philip Kitcher makes an apposite point with regard to science studies in general: "Some practitioners effectively demand a response to the global skeptical challenge for entities they don't like (the ontologies of the sciences) and then proceed to talk quite casually and commonsensically about things they do like (people, societies, human motives). There is a name for this kind of inconsistency; it is *privileging*" ("A Plea for Science Studies," in *A House Built on Sand*, 40; italics in original).
  86. Dawkins, *The Selfish Gene*, 2.
  87. Dawkins writes: "Natural selection favours some genes rather than others not because of the nature of the genes themselves, but because of their consequences—their phenotypic effects" (*The Selfish Gene*, 235; see also page 238).
  88. Mayr, *This is Biology*, 174.
  89. Ross, *The Chicago Gangster Theory of Life*, 1.
  90. Ross, *The Chicago Gangster Theory of Life*, 4.
  91. Ross ignores the considerable role that women have played in the conservation movement: "Although the gains of the movement have been attributed by historians to men such as President Theodore Roosevelt, forester Gifford Pinchot, and preservationist John Muir, the efforts of thousands of women were directly responsible for many of the country's most significant conservation achievements. Women writers on nature such as Isabella Bird, Mary Austin, and Rachel Carson have been among the most influential commentators on the American response to nature" (Merchant, "Gender and Environmental History," *The Journal of American History* 76,4 [March 1990]: 1118–19).
  92. Ross, *The Chicago Gangster Theory of Life*, 227.
  93. Ross, *The Chicago Gangster Theory of Life*, 205, 84.
  94. Ross associates the love of nature and environmentalism with reactionary political philosophies like Nazism on page 4 of *The Chicago Gangster Theory of Life* (see also page 274n6).

95. Ross, *The Chicago Gangster Theory of Life*, 28, 129, 147, 262, 162, 176.
96. Ross, *The Chicago Gangster Theory of Life*, 172.
97. Ross, *The Chicago Gangster Theory of Life*, 109 (italics in original), 227.
98. Ross, *The Chicago Gangster Theory of Life*, 2.
99. See Mark McGurl's interview with Ross, "Green Ideas Sleep Furiously," *Lingua Franca* (November/December 1994): 65.
100. Ross uses the phrase "social ecology of domination" with regard to the Gulf War, arguing that its environmental consequences should be understood not just in the context of the human conflicts that caused the war, but as "rooted" in those conflicts (*The Chicago Gangster Theory of Life*, 169). This makes sense in the case of the Gulf War: without it, the gigantic oil spill in the Persian Gulf would not have occurred, nor would burning oil wells have darkened the skies of Kuwait. But other environmental problems are not "rooted" in dramatic human conflicts of this kind.
101. See McGurl, "Green Ideas Sleep Furiously": 58.
102. Ross, *The Chicago Gangster Theory of Life*, 5.
103. See Roland Barthes, *Mythologies*, trans. Annette Lavers (New York: Hill and Wang, 1972).
104. Ross, *The Chicago Gangster Theory of Life*, 5. Ross makes the equation of nature with the status quo explicit a few pages later, when he suggests that it is possible that "the authority of nature, and hence of the status quo, will become a despotic vehicle for curtailing rights and liberties" (12). My emphasis.
105. Ross, "Introduction": 11. Compare John Dewey's assertion that "a tool denotes a perception and acknowledgment of sequential bonds in nature" (*Experience and Nature* [New York: Dover Publications, 1958], 123).
106. Hess, *Science Studies*, 31.
107. Bruno Latour, *We Have Never Been Modern*, trans. Catherine Porter (Cambridge: Harvard University Press, 1993), 21.
108. Sharon Traweek, *Beamtimes and Lifetimes; The World of High Energy Physicists* (Cambridge: Harvard University Press, 1988), 49.
109. See Barry Barnes, David Bloor, and John Henry, *Scientific Knowledge; A Sociological Analysis* (Chicago: The University of Chicago Press, 1996), viii, 1, 12 (italics in original).
110. Hacking writes: "Concepts, practices, and people interact with each other. Such interaction is often the very point of social construction." But as Hacking points out, it is impossible to interact with the entities that scientists deal with experimentally in the same way. Even such paradoxical entities as quarks, to cite an example that seems to be a big favorite with radical critics of science, "do not form an interactive kind; the idea of the quark does not interact with quarks. Quarks are not aware that they are quarks and are not altered simply by being classified as quarks" (*The Social Construction of What?*, 32). If our descriptions of quarks happen to be plagued by uncertainty, that's our problem, not theirs.
111. The personification of the laboratory is by no means a rhetorical ploy made only by Ross. Woolgar also ascribes agency to the laboratory: "The scientific laboratory is also populated by a wide variety of inanimate agents [in addition to animate human scientists]: experimental apparatus, oscilloscopes, measuring instruments, chart recorders and other inscription devices" (*Science; The Very Idea*, 102).
112. Ross, "Introduction": 3–4.
113. Ross, *The Chicago Gangster Theory of Life*, 271, 272.

114. Ross, *The Chicago Gangster Theory of Life*, 179, 181.
115. Richard Levins and Richard Lewontin, *The Dialectical Biologist* (Cambridge: Harvard University Press, 1985), 2.
116. Michael E. Soulé, “The Social Siege of Nature,” in *Reinventing Nature? Responses to Postmodern Deconstruction*, ed. Michael E. Soulé and Gary Lease (Washington: Island Press, 1995), 154.
117. Hacking, *Representing and Intervening*, 17, 131, 23 (italics in original), 274.
118. Barnes, *About Science*, 8, 64, 65, 66.
119. David J. Stump writes: “There is no metaphysical independence of results from social practices, no transcendental world out there, but there is still independence in as robust a sense as we need or should want” (“From Epistemology and Metaphysics to Concrete Connections,” in *The Disunity of Science*, 263, 274).
120. Barnes, *About Science*, 115, 116. Stump makes a similar point: “It is the representational picture of knowledge that underlies the debate over rational and social accounts of knowledge” (“From Epistemology and Metaphysics to Concrete Connections,” 277).
121. Hacking, *Representing and Intervening*, 173, 249, 248.
122. Latour, *We Have Never Been Modern*, 27. Biagioli echoes Latour’s complaint about asymmetric assumptions, with regard to the history of science: “While the historians contextualize the scientists’ own accounts of discoveries by relating them to the dynamics of the debates and of the structure of the communities or networks involved in them, the historians’ narratives are not usually presented as being affected by comparable processes” (“From Relativism to Contingentism,” 190).
123. Hacking, *Representing and Intervening*, 25.
124. Barnes, Bloor, and Henry, *Scientific Knowledge*, 28.
125. Barnes, Bloor, and Henry write: “Our perceptual apparatus is our only means of access not just to nature, but to culture as well” (*Scientific Knowledge*, 53).

#### Chapter 4

1. Glen A. Love, “Revaluing Nature: Toward An Ecological Criticism,” *Western American Literature* 25, 3 (Fall 1990): 205, 205–06.
2. Of course one has to admit that despite the animadversions of theory, “subjectivity seems strangely capable of resisting the most methodical efforts to get rid of it” (Luc Ferry and Alain Renaut, *French Philosophy of the Sixties; An Essay on Antihumanism*, trans. Mary Schnackenberg Cattoni [Amherst: University of Massachusetts Press], 149).
3. Love, “Revaluing Nature: Toward An Ecological Criticism”: 212.
4. I am not alone in my sense of the shortcomings of ecocriticism’s attack on theory: “Many ecocritical essays and analyses,” Patrick Murphy writes, “display little working knowledge of contemporary critical and literary theories and tend to downplay the degree to which any literary criticism constitutes a theoretical discourse” (*Farther Afield in the Study of Nature-Oriented Literature* [Charlottesville: University Press of Virginia, 2000], 17–18). Of course, there are those who have found ecocriticism’s animus against theory laudable. For example, in a 1995 article in *The New York Times Magazine*, Jay Parini celebrated the formal debut of ecocriticism at a conference held that summer at Colorado State University. Parini explained the intellectual character of ecocriticism by suggesting that it “signals a dismissal of theory’s more solipsistic tendencies. From a literary aspect, it marks a

- re-engagement with realism, with the actual universe of rocks, trees and rivers that lies behind the wilderness of signs” (“The Greening of the Humanities,” *The New York Times Magazine* [October 29, 1995]: 52).
5. Donald Davidson, “On the Very Idea of a Conceptual Scheme,” in *Inquiries into Truth and Interpretation* (Oxford: Oxford University Press, 1984), 187.
  6. Richard Rorty, *Objectivity, Relativism, and Truth; Philosophical Papers, Volume 1* (Cambridge: Cambridge University Press, 1991), 79.
  7. The distinction between inspired and plodding or “methodical” uses of theory is Rorty’s. See his *Philosophy and Social Hope* (New York: Penguin Books, 1999), 145.
  8. Umberto Eco, *Kant and the Platypus; Essays on Language and Cognition*, trans. Alastair McEwan (New York: Harcourt Brace, 2000), 35.
  9. Lawrence Buell, contribution to “Forum on Literatures of the Environment,” *PMLA* 114,5 (October 1999): 1091.
  10. American ecocritics also run the risk of being identified with the neoconservatives and reactionaries who began to complain about literary and cultural theory and its excesses during the 1980s, and who are anathema to many academics. However, ecocritics claim to be speaking, not on behalf of the Western tradition but on behalf of nature, which they do not assume to be the same thing as the Western tradition, as many neoconservatives and reactionaries do. But it must be admitted that a number of ecocritics fantasize about a golden age before the rise of industrialism and urbanization, and would like to restore the *status quo ante*. Yet even those ecocritics who idealize the pastoral, and who may be sentimental about tradition in other respects as well, happily participate in the ongoing revision of the literary canon, which they also want to amend and expand.
  11. William Rueckert, “Literature and Ecology; An Experiment in Ecocriticism,” in *The Ecocriticism Reader*, ed. Cheryll Glotfelty and Harold Fromm (Athens: The University of Georgia Press, 1996), 110, 108. Rueckert’s essay was first published in *The Iowa Review* 9,1 (Winter 1978): 71–86.
  12. Rueckert’s view of poems as infinitely recyclable also has affinities with Andrew Ross’s view of the “ecology of images,” which I criticized in the previous chapter.
  13. Frank B. Golley, *A History of the Ecosystem Concept in Ecology* (New Haven: Yale University Press, 1993), 2. Golley notes that the enthusiasm, very strong at one time, “for a physical or engineering approach to systems tended to deemphasize the significance of biological differences” (80). This is probably the chief reason why such an approach is no longer popular.
  14. Jean Arnold, contribution to “Forum on Literatures of the Environment”: 1089–90.
  15. Karl Kroeber, *Ecological Literary Criticism; Romantic Imagining and the Biology of Mind* (New York: Columbia University Press, 1994), 1. See also Glen Love’s essay on “Ecocriticism and Science: Toward Consilience?” in *New Literary History* 30,3 (Summer 1999): 561–76.
  16. Luc Ferry, *The New Ecological Order*, trans. Carol Volk (Chicago: The University of Chicago Press, 1995), xx.
  17. Donald Worster, “Nature and the Disorder of History,” in *Reinventing Nature*, ed. Michael E. Soule and Gary Lease (Washington, D.C.: Island Press, 1995), 720. On the lack of awareness of the fine details of environmental history among ecocritics, see William Howarth’s essay “Some Principles of Ecocriticism” in *The Ecocriticism Reader*, 69–91.
  18. Robert P. McIntosh, *The Background of Ecology; Concept and Theory* (Cambridge: Cambridge University Press, 1985), 319, 321.

19. Ferry, *The New Ecological Order*, 41.
20. See chapter two for a discussion of recent theoretical debates in ecology. Ideally, the “logic of discovery” in ecology ought not be any different from that followed in any other science in which “a structure of scientific doctrines is already in existence; and with it, a generally accepted problem-situation” (Karl R. Popper, *The Logic of Scientific Discovery* [London: Routledge, 1992], 13).
21. Kroeber, *Ecological Literary Criticism*, 9.
22. Eco, *Kant and the Platypus*, 54.
23. For a discussion of the debate over realism in ecocriticism in relation to the distinction between fiction and nonfiction, a topic I am not going to pursue in any detail in this chapter, see Murphy, *Farther Afield in the Study of Nature-Oriented Literature*, 5–10.
24. Joseph Meeker, *The Comedy of Survival; Studies in Literary Ecology* (New York: Charles Scribner’s Sons, 1974), 51–52.
25. Meeker, *The Comedy of Survival*, 23, 24, 33. At this point in his argument, Meeker might have found Bakhtin’s ideas about the comic supportive. But I would not go so far as to claim that there might be something called “The Bakhtinian Road to Ecological Insight,” as Michael J. MacDowell has done in his essay of that title. See *The Ecocriticism Reader*, 371–91.
26. Meeker, *The Comedy of Survival*, 91.
27. Meeker, *The Comedy of Survival*, 92.
28. In an essay critical of the environmental historian William Cronon, who has suggested that it may be time for us to view the wilderness in the light of historical reality, the ecocritic Christopher Hitt writes: “It seems extremely unlikely that a man-made garden could ever be capable of inspiring the sense of wonder, awe, and otherness that an old-growth forest could” (“Toward an Ecological Sublime,” *New Literary History* 30,3 [Summer 1999], 606). Hitt overlooks the fact that the sublime is first and foremost an *idea*, and not an experience.
29. Meeker, *The Comedy of Survival*, 119.
30. Roland Barthes, *Image Music Text*, trans. Stephen Heath (New York: Hill and Wang, 1977), 32.
31. Meeker, *The Comedy of Survival*, xx, 136.
32. Meeker, *The Comedy of Survival*, 4.
33. See chapter three, “The Great Extinctions,” in E. O. Wilson, *The Diversity of Life* (New York: W. W. Norton, 1992), 24–32.
34. Meeker, *The Comedy of Survival*, 33.
35. Stephen Jay Gould, *An Urchin in the Storm; Essays about Books and Ideas* (New York: W. W. Norton, 1997), 23, 45.
36. See my discussion of these ideas, and of Latour’s *We Have Never Been Modern*, in chapter one.
37. Richard Dawkins, *The Selfish Gene* (Oxford: Oxford University Press, 1989), 200.
38. Daniel Dennett, *Darwin’s Dangerous Idea; Evolution and the Meanings of Life* (New York: Simon & Schuster, 1995), 487. Italics in original.
39. Konrad Lorenz, foreword to *The Comedy of Survival*, x.
40. Gould, *An Urchin in the Storm*, 48–49.
41. I should note that the term “sociobiology” was not yet in wide circulation when *The Comedy of Survival* first appeared.
42. Meeker, *The Comedy of Survival*, 190–91.
43. Gould, *An Urchin in the Storm*, 68.

44. Meeker, *The Comedy of Survival*, 190–91.
45. Ernst Mayr, *Toward a New Philosophy of Biology; Observations of an Evolutionist* (Cambridge: Harvard University Press, 1988), 43.
46. Meeker, *The Comedy of Survival*, 9.
47. Meeker, *The Comedy of Survival*, 130.
48. Ecocritics who want to think seriously about the status of the interdisciplinary might begin by considering Stanley Fish's argument that "Being Interdisciplinary Is So Very Hard to Do," in the essay of that title published in Fish's iconoclastic book *There's No Such Thing as Free Speech; And It's a Good Thing, Too* ([New York: Oxford University Press, 1994], 231–42). The essay's title actually understates Fish's argument, which he sums up as follows: "Being interdisciplinary is more than hard to do; it is impossible to do" (237–38). Ecocritics also should consult the forum published in *PMLA* 111,2 (March 1996): 271–311. Reading through the forty contributions to this forum, one is forced to recognize the uncomfortable fact that those who most believe in the "interdisciplinary" are those who most need to do so. But the term itself is something of a stumbling block, since it suggests that there is a single defining quality possessed by all interdisciplinary projects.
49. Elder makes this statement while meditating on the import of the poetry of T. S. Eliot and Gary Snyder. See John Elder, *Imagining the Earth; Poetry and the Vision of Nature*, Second Edition (Athens, Georgia: The University of Georgia Press, 1996), 33.
50. Elder, *Imagining the Earth*, 1.
51. Elder, *Imagining the Earth*, 3.
52. Elder, *Imagining the Earth*, 1, 3, 26, 83, 22.
53. See the three epigraphs prefacing the first chapter of this book.
54. Eco, *Kant and the Platypus*, 56.
55. See A. G. Tansley, "The Use and Abuse of Vegetational Concepts and Terms," reprinted in *Foundations of Ecology; Classic Papers with Commentaries*, ed. Leslie A. Real and James H. Brown (Chicago: The University of Chicago Press, 1991), 318–41.
56. Elder, *Imagining the Earth*, 169.
57. Bruno Latour writes: "*The very notion of culture is an artifact created by bracketing Nature off. Cultures—different or universal—do not exist, any more than Nature does*" (*We Have Never Been Modern*, trans. Catherine Porter [Cambridge: Harvard University Press, 1993], 104; italics in original).
58. Elder, *Imagining the Earth*, 150.
59. Elder, *Imagining the Earth*, 82, 39.
60. Max Black, *Models and Metaphors; Studies in Language and Philosophy* (Ithaca: Cornell University Press, 1962), 228.
61. Ecosystems are primarily theoretical constructs. "Ecosystem" like "culture" is one of those words we use because we have to call "it" something, whatever "it" may be and whether or not it may "be" in the ontologically loaded sense of the term.
62. Black, *Models and Metaphors*, 228.
63. Elder, *Imagining the Earth*, 210. Italics in original.
64. John R. Luoma writes: "The edges of forest 'islands' . . . are more susceptible to being blown down in high winds. Worse than that, the first several feet of forest edges often are ripe for invasion by certain kinds of predators and parasites from the disturbed and more open 'sea' around them, including predators and parasites that could never survive in a large block of deep interior forest" (*The Hidden Forest; The Biography of an Ecosystem* [New York: Henry Holt and Company, 1999], 153).

65. Elder, *Imagining the Earth*, 221.
66. Elder, *Imagining the Earth*, 222.
67. Elder, *Imagining the Earth*, 222. “In Blackwater Woods” appears in Mary Oliver, *White Pine; Poems and Prose Poems* (New York: Harcourt Brace, 1994). For Oliver’s description of the mockingbird’s song, see page 31.
68. Lawrence Buell, *The Environmental Imagination; Thoreau, Nature Writing, and the Formation of American Culture* (Cambridge: Harvard University Press, 1995), 2, 5, 11, 10, 85.
69. Buell, *The Environmental Imagination*, 430n20. “Praxis” is a term from the Marxist theoretical tradition implying both practical activity and the ideological assumptions that buttress and/or derive from practical activity, but that Buell intends the word to have a Marxist flavor is doubtful, since his realism is essentially a denial of the influence of ideology on our perception of the world. Compare Cheryll Glotfelty’s less qualified definition of ecocriticism: “Simply put, ecocriticism is the study of the relationship between literature and the physical environment,” she writes; “ecocriticism takes an earth-centered approach to literary studies” (“Introduction: Literary Studies in An Age of Environmental Crisis,” in *The Ecocriticism Reader*, xviii).
70. Buell, *The Environmental Imagination*, 36, 82.
71. Buell, *The Environmental Imagination*, 84.
72. To borrow Luc Ferry’s description of the related movement of Deep Ecology, ecocriticism may be “an exotic symptom of the folly that seems to overtake American university professors on occasion, as when they succumb to the fashion of ‘deconstructionism’ or to the imperatives of ‘political correctness’” (*The New Ecological Order*, 61).
73. For some remarks critical of Buell’s realistic version of ecocriticism and of his attitude toward literary theory, see Christopher Hitt’s essay “Toward an Ecological Sublime,” 617.
74. Since publishing *The Environmental Imagination*, Buell has admitted that early work in ecocriticism was “excessively reactive against poststructuralist or cultural studies models” when it might more profitably have attempted “direct constructive engagement,” but suggests that the reactionary strategy was justified, since it was one of the ways the new movement was jump-started (“Forum on Literatures of the Environment”: 1092).
75. Buell, *The Environmental Imagination*, 88.
76. Buell, *The Environmental Imagination*, 15.
77. Buell, *The Environmental Imagination*, 107 (italics in original), 104.
78. Umberto Eco, “Towards a Semiological Guerrilla Warfare,” in *Travels in Hyperreality; Essays*, trans. William Weaver (New York: Harcourt Brace Jovanovich, 1983), 140, 143.
79. Roland Barthes, “Myth Today,” in *Mythologies*, trans. Annette Laver (New York: Hill and Wang, 1972), 127. Italics in original.
80. Buell, *The Environmental Imagination*, 87, 88.
81. Barthes, “Myth Today,” 137; italics in original.
82. Buell cites Paul’s book and identifies it as the source that first made him aware of Ponge in *The Environmental Imagination*, 464n31.
83. Sherman Paul, *For Love of the World; Essays on Nature Writing* (Iowa City: University of Iowa Press, 1992), 19. Italics in original.
84. Buell, *The Environmental Imagination*, 464n31.

85. Buell, *The Environmental Imagination*, 98.
86. Buell, *The Environmental Imagination*, 97.
87. Buell, *The Environmental Imagination*, 98.
88. Eco, *Kant and the Platypus*, 281. Italics in original.
89. Eco, *Kant and the Platypus*, 289.
90. Readers who have not had the experience of holding a wild brown trout in their hands should see the illustration on page 12 of A. J. McClane's *Field Guide to Fresh-water Fishes of North America* (New York: Henry Holt, 1965). For a comparison of juvenile Atlantic salmon and juvenile brown trout, see page 9 of the same text.
91. Michel Foucault, *The Order of Things* (New York: Vintage Books, 1970), 9.
92. Barthes, "Myth Today," 110.
93. Buell makes a mistake that Richard Rorty thinks is typical of traditional empiricism, which he says "notoriously ran together the claim that sensory observation (of, e.g., birdsong) was a stimulus to knowledge and the claim that it conveyed knowledge" (*Objectivity, Relativism, and Truth*, 169).
94. Eco, *Kant and the Platypus*, 33. Buell does not address the fact that "Pied Beauty" is intended in praise of God: for Hopkins, whatever significance the natural world may have is to be credited solely to its creator. Had Buell quoted the last four-and-a-quarter lines of the poem (the only lines he omits), especially the last one-and-a-quarter, the fact that the poem's celebration of the world is to be understood in religious terms would have been clear: "He fathers-forth whose beauty is past change: / Praise him." See "Pied Beauty" in Gerard Manley Hopkins, *Selected Poetry*, ed. Catherine Phillips (Oxford: Oxford University Press, 1996), 117–18.
95. Buell, *The Environmental Imagination*, 429n16.
96. John Janovy, Jr., *Keith County Journal* (Lincoln: University of Nebraska Press, 1978), 105. My ellipses.
97. Buell, *The Environmental Imagination*, 101. For Buell's discussion of Lopez and the "inner landscape," see pages 92–94.
98. Buell, *The Environmental Imagination*, 101, 102.
99. Buell, *The Environmental Imagination*, 97–98.
100. Buell, *The Environmental Imagination*, 97.
101. Roger Tory Peterson, *A Field Guide to the Birds; Giving Field Marks of All Species Found in Eastern North America*, Facsimile Edition (Boston: Houghton Mifflin Company, 1996), xix. First published in 1934.
102. See Roger Tory Peterson and Margaret McKenny, *A Field Guide to Wildflowers of Northeastern and North-central North America* (Boston: Houghton Mifflin Company, 1968).
103. Daniel Dennett, *Consciousness Explained* (New York: Little, Brown and Company, 1991), 53, 54, 55. Italics in original. Compare: "Any act of description activates the conventions of an existing vocabulary of description and thereby connects what is described with other things and other situations; it thus allows expectation, competences and experiences to be generalized and made more extensively applicable. Every act of description clears a pathway for the imagination to run along" (Barry Barnes, David Bloor, and John Henry, *Scientific Knowledge; A Sociological Analysis* [Chicago: The University of Chicago Press, 1996], 113).
104. Bas C. Van Frassen and Jill Sigman, "Interpretation in Science and the Arts," in *Realism and Representation; Essays on the Problem of Realism in Relation to Science, Literature, and Culture*, ed. George Levine (Madison: The University of Wisconsin Press, 1993), 78.

105. Paul Feyerabend, *Against Method; Outline of an Anarchistic Theory of Knowledge* (London: NLB, 1975), 75.
106. Van Frassen and Sigman, “Interpretation in Science and the Arts,” 80.
107. The sense in which ecocritics have been using the term “realism” suggests that they underestimate the complexity of the real world. Bruce Robbins writes: “It is only an impoverished notion of ‘reality’ (as the evidence of the senses) that is to blame for the caricatural notion of realism which can so easily be dismissed” (“Modern and Literary Realism: Response,” in *Realism and Representation*, 226).
108. Peterson, *A Field Guide to the Birds*, v–vi.
109. Feyerabend, *Against Method*, 168.
110. Peterson, *A Field Guide to the Birds*, xx.
111. According to Eco, “Deciding whether a sentence has a referential function or not is a matter for negotiation” (*Kant and the Platypus*, 420n3).
112. Telling one chickadee from another by judging the difference in pitch of their calls is of course a feat that can be performed only if one is already intimately familiar with the calls of the two kinds of chickadee. The fact that their calls differ in pitch would be of very little use to our novice. That they also vary regionally is perhaps something she would prefer not to know about at all.
113. Roger Tory Peterson, *A Field Guide to the Birds of Eastern and Central North America* (Boston: Houghton Mifflin, 1980), 210; Maps 246, 247, 248.
114. In the *Field Guide*’s first edition, Peterson describes a scenario similar to but more hopeful than mine: “We may, for example, be puzzled by a bird that is certainly a female Merganser. A consultation of the brief descriptions of those birds eliminates the Hooded Merganser because the bird sought had a reddish head—not a dark one. It was seen on the coast which, so the text tells us, increases the probability it was a Red-breast. And finally, we learn that in the Red-breasted Merganser ‘the rufous of the head blends into the white of the throat and neck instead of being sharply defined’ as in the American Merganser. This characteristic, which accurately describes the bird we have seen, makes the identification certain. This soft merging is clearly shown in the plate but because we had not known what to look for, we failed to notice it” (xvii–xviii).
115. The situation I have described isn’t a purely hypothetical one: the precise ranges of Carolina and black-capped chickadees, and the degree to which they interbreed, is the subject of ongoing ornithological research.
116. Buell, *The Environmental Imagination*, 97.
117. Mario Biagioli, “From Relativism to Contingentism,” in *The Disunity of Science; Boundaries, Contexts, and Power*, ed. Peter Galison and David J. Stump (Stanford: Stanford University Press, 1996), 199. Italics in original.
118. George Levine, *Lifebirds* (New Brunswick, N.J.: Rutgers University Press, 1995), 153.
119. Ian Hacking, *Representing and Intervening; Introductory Topics in the Philosophy of Natural Science* (Cambridge: Cambridge University Press, 1983), 31.
120. Peterson, *A Field Guide to the Birds*, xxi. Making ornithological snap judgments may not be as reckless a thing to do as Peterson suggests, but consider the possible consequences of incautious identification in other areas of natural history, such as mycology. Because the objects of their interest can be poisonous, as birds never are, mushroom hunters have to be especially careful when on the trail of their quarry.
121. Henry David Thoreau, *Walden; or, Life in the Woods* (New York: The Library of America, 1991), 102. Italics in original.

122. Peterson, *A Field Guide to the Birds of Eastern and Central North America*, 172. Other field guides also avoid the temptation to reproduce the screech owl's call mimetically. In the *Audubon Society Master Guide to Birding*, Volume 2 (edited by John Farrand, Jr.), Sadie Coats describes it in a manner similar to Peterson's: "Song a long 'whinny,' beginning on a rising pitch and quickly descending with a pronounced quaver. Also a rapid trill on 1 pitch, variable in length, usually growing louder toward end. Short barks or yelps also given" ([New York: Alfred A. Knopf, 1983], 160).
123. Hacking, *Representing and Intervening*, 83.
124. John Dewey, *Experience and Nature* (New York: Dover Publications, 1958), 309.
125. William Dean Howells, *The Rise of Silas Lapham* (New York: Signet, 1963), 5.
126. Eco makes the following point about the idiomatic character of language: "If I write the phrase 'no more,' you who interpret it according to the English-language code will read it in the sense that seems most obvious to you; but I assure you that, read by an Italian, the same words would mean 'not blackberries,' or else 'No, I prefer blackberries'; and further, if, instead of a botanical frame of reference, my Italian reader used a legal one, he would take the words to mean 'No, respites,' or, in an erotic frame of reference, as a reply: 'No, brunettes' to the question 'Do gentlemen prefer blondes?'" ("Towards a Semiological Guerrilla Warfare," 139–40).
127. Black, *Models and Metaphors*, 17. In *The Meaning of Truth*, William James makes an argument about the tigers in India that also seems relevant here. He says that most men think that "what we mean by knowing the tigers is having them, however absent in body, become in some way present to our thought; or that our knowledge of them is known as presence of our thought to them. A great mystery is usually made of this peculiar presence in absence." But "the idea and the tigers are in themselves as loose and separate, to use Hume's language, as any two things can be; and pointing means here an operation as external and adventitious as any that nature yields." See *Pragmatism and The Meaning of Truth* (Cambridge: Harvard University Press, 1978), 199, 200. And in much the same vein of thought as Black and James, Van Frassen and Sigman write: "Representation of an object involves producing another object which is intentionally related to the first by a certain coding convention which determines what counts as similar in the right way" ("Interpretation in Science and the Arts," 74.)
128. Insofar as the question of Thoreau's attitude toward realism as a philosophy is concerned, I think the most that can be said is that despite Thoreau's admiration for the realistic point of view, he was incapable of maintaining that point of view for himself in any consistent fashion. On this issue, see David E. Shi, *Facing Facts; Realism in American Thought and Culture, 1850–1920* (New York: Oxford University Press, 1995), especially pages 19–22.

## Chapter 5

1. Robert Finch's comment is recorded in *Writing Natural History; Dialogues with Authors*, ed. Edward Lueders (Salt Lake City: University of Utah Press, 1989), 60.
2. Frank Stewart, *A Natural History of Nature Writing* (Washington: Island Press, 1995).
3. Don Scheese, *Nature Writing; The Pastoral Impulse in America* (New York: Twayne Publishers, 1996), 6.

4. Sherman Paul, *For the Love of the World; Essays on Nature Writers* (Iowa City: University of Iowa Press, 1992), 68.
5. Karl Kroeber, *Ecological Literary Criticism; Romantic Imagining and the Biology of Mind* (New York: Columbia University Press, 1994), 53.
6. Lawrence Buell describes Dillard's writing as "a rushy kaleidoscope of perceptual and intertextual fragments, precariously contained by a basketry of image motifs" (*The Environmental Imagination; Thoreau, Nature Writing, and the Formation of American Culture* [Cambridge: Harvard University Press], 237).
7. Scheese gives a brief account of the composition of *Pilgrim at Tinker Creek* in his chapter on Dillard in *Nature Writing*.
8. Buell, *The Environmental Imagination*, 242.
9. As James I. McClintock notes, "Dillard's reading is often as much the focus of her attention as the natural object itself" ("'Pray Without Ceasing': Annie Dillard among the Nature Writers," in *Earthly Words; Essays on Contemporary American Nature and Environmental Writers*, ed. John Cooley [Ann Arbor: The University of Michigan Press, 1994], 80).
10. Annie Dillard, *Pilgrim at Tinker Creek* (New York: Harper's Magazine Press, 1974), 8–9.
11. Dillard, *Pilgrim at Tinker Creek*, 201.
12. Christian and other religious themes figure prominently in some of the books and essays Dillard has written since *Pilgrim at Tinker Creek*, in particular *Holy the Firm, Teaching a Stone to Talk*, and most recently, *For the Time Being*.
13. Dillard, *Pilgrim at Tinker Creek*, 78–79.
14. Dillard, *Pilgrim at Tinker Creek*, 16.
15. Dillard, *Pilgrim at Tinker Creek*, 5–6, 33.
16. For a discussion of Dillard's borrowings, see Patrick Murphy, *Farther Afield in the Study of Nature-Oriented Literature* (Charlottesville: University Presses of Virginia, 2000), 50–51.
17. Walter Benjamin, "On Some Motifs in Baudelaire," *Illuminations*, ed. Hannah Arendt (New York: Schocken Books, 1969), 163, 185.
18. Scheese, *Nature Writing*, 124.
19. Dillard, *Pilgrim at Tinker Creek*, 79, 81.
20. Walt Whitman, *Complete Poetry and Collected Prose*, ed. Justin Kaplan (New York: The Library of America, 1982), 30–31.
21. Benjamin, "On Some Motifs in Baudelaire," 163.
22. Philip Rahv, "The Cult of Experience in American Writing," in *Image and Idea; Twenty Essays on Literary Themes* (Norfolk, Conn.: New Directions, 1957), 17–18.
23. Benjamin, "On Some Motifs in Baudelaire," 156, 180, 186, 193.
24. Stewart, *A Natural History of Nature Writing*, 229.
25. Buell, *The Environmental Imagination*, 179. See my discussion of Buell's resistance to the idea of "textual functions" in chapter one. John Elder and Robert Finch also note that "in its imaginative cast, nature writing often seems to bear more resemblance to lyric poetry than it does to many other forms of essay writing" ("Introduction," in *The Norton Book of Nature Writing*, ed. John Elder and Robert Finch [New York: W. W. Norton, 1990], 25), but they don't seem to think that this oddity of nature writing's "imaginative cast" is a problematic feature of the form.
26. Buell, *The Environmental Imagination*, 179.
27. Berry, "A Few Words in Favor of Edward Abbey," in *Earthly Words*, 24, 25.

28. Daniel Dennett, *Consciousness Explained* (Boston: Little, Brown, 1991), 415, 416, 418, 416.
29. Henry David Thoreau, *Walden; or, Life in the Woods* (New York: The Library of America, 1991), 110.
30. John Dewey, *Experience and Nature* (New York: Dover Publications, 1958), 232.
31. Christopher Lasch, *The Culture of Narcissism; American Life in an Age of Diminishing Expectations* (New York: W. W. Norton, 1978), 7.
32. Umberto Eco, "Travels in Hyperreality," in *Travels in Hyperreality; Essays*, trans. William Weaver (New York: Harcourt Brace Jovanovich, 1983), 57.
33. Dillard, *Pilgrim at Tinker Creek*, 12.
34. Dillard, *Pilgrim at Tinker Creek*, 12.
35. Thomas J. Lyon, "A History," in *This Incomperable Land; A Book of American Nature Writing*, ed. Thomas J. Lyon (Boston: Houghton Mifflin, 1989), 5. According to Scheese, "*Pilgrim at Tinker Creek* ultimately delivers the message that the journey taken by so many nature writers is as much a mental and spiritual journey as it is a physical pilgrimage" (*Nature Writing*, 37). I agree, though I would argue that Dillard's book delivers this message not ultimately but immediately, and right from the start.
36. Anne Bradstreet, "Contemplations," in *The Norton Anthology of American Literature Fourth Edition*, Volume 1, ed. Nina Baym, et al. (New York: W. W. Norton, 1994), 205, 208.
37. Ralph Waldo Emerson, *Nature*, in *Essays & Poems*, ed. Joel Porte (New York: The Library of America, 1983), 10.
38. Whitman, *Complete Poetry and Collected Prose*, 56.
39. Whitman, *Complete Poetry and Collected Prose*, 254, 257, 51, 257, 258.
40. Both Wes Jackson and Wendell Berry have published extensively on questions of industrial production and natural reproduction in relation to agriculture and environmental health.
41. Thoreau, *Walden*, 80.
42. Emerson may not intend his reference to nature "in the common sense" to be dismissive, but since he identifies nature with the "NOT ME" it is necessarily devalued in his scheme of things. See *Nature*, 8.
43. Dillard, *Pilgrim at Tinker Creek*, 80–81, 24. I realize that Dillard's image of a man filling an empty cup under a waterfall is not lacking in psychosexual suggestiveness; but it seems to me that her point isn't psychosexual, as Whitman's would have been had he availed himself of the same image.
44. Scott Slovic, *Seeking Awareness in American Nature Writing; Henry Thoreau, Annie Dillard, Edward Abbey, Wendell Berry, Barry Lopez* (Salt Lake City: University of Utah Press, 1992), 3, 19.
45. Scheese, *Nature Writing*, 6.
46. Lyon, "Preface," *This Incomperable Land*, xiv, xv.
47. Elder and Finch, "Introduction," 24, 26.
48. Stephen Trimble, "The Naturalist's Trance," in *Words from the Land; Encounters with Natural History Writing*, ed. Stephen Trimble (Salt Lake City: Gibbs Smith, 1989), 6. Italics in original.
49. Stewart, *A Natural History of Nature Writing*, 52, xvi.
50. Diane Ackerman, *The Moon By Whale Light; and Other Adventures Among Bats, Penguins, Crocodilians, and Whales* (New York: Random House, 1991), xiv.
51. Kroeber, *Ecological Literary Criticism*, 53.

52. Making a point similar to mine, Murphy has suggested that alienation may be the “ontotheological foundation” of nature writing (*Farther Afield in the Study of Nature-Oriented Literature*, 53).
53. Diane Ackerman, *A Natural History of the Senses* (New York: Vintage Books, 1991), xvii (italics in original), xviii.
54. E. O. Wilson, *The Diversity of Life* (New York: W. W. Norton, 1992), 3–4. Wilson points out that our inability to sense everything there is to be sensed about the natural world is caused not only by limitations of range and receptivity, but by considerations of dimension as well. “In the real world, where species multiply until halted, space is not measured in ordinary Euclidean dimensions but in fractal dimensions,” he writes. “In the fractal world, an entire ecosystem can exist in the plumage of a bird” (208, 210).
55. Ackerman, *A Natural History of the Senses*, 301.
56. On Horkheimer and Adorno’s attitudes and opinions about both nature and culture, see chapter three.
57. Jack Turner, *The Abstract Wild* (Tucson: The University of Arizona Press, 1996), 16–17.
58. Turner, *The Abstract Wild*, 104. Italics in original.
59. Joyce Carol Oates, “Against Nature,” in *Antaeus* 57 (Autumn 1986): 239, 236.
60. David Quammen, *The Song of the Dodo; Island Biogeography in an Age of Extinctions* (New York: Scribner, 1996), 250–51.
61. Whitman, *Complete Poetry and Collected Prose*, 42.
62. Echoing the insights of the Frankfurt School, Christopher Lasch writes: “The appearance in history of an escapist conception of ‘leisure’ coincides with the organization of leisure as an extension of commodity production. The same forces that have organized the factory and the office have organized leisure as well, reducing it to an appendage of industry” (*The Culture of Narcissism*, 123).
63. David Abram, *The Spell of the Sensuous; Perception and Language in a More-Than-Human-World* (New York: Vintage Books, 1997), ix.
64. Abram, *The Spell of the Sensuous*, 4, 20.
65. Gaston Bachelard, *The Poetics of Space*, trans. Maria Jolas (Boston: Beacon Press, 1994), 155.
66. Abram, *The Spell of the Sensuous*, 52.
67. *Webster’s Ninth New Collegiate Dictionary* defines *autism* as “absorption in self-centered subjective mental activity (as daydreams, fantasies, delusions, and hallucinations) esp. when accompanied by marked withdrawal from reality.” And it defines *phenomenology* first as “the study of the development of human consciousness and self-awareness as a preface to philosophy or a part of philosophy,” and secondly as “the description of the formal structure of the objects of awareness and of awareness itself in abstraction from any claims concerning existence.”
68. Abram, *The Spell of the Sensuous*, 51, 52, 57. Italics in original.
69. C. S. Peirce, “How to Make Our Ideas Clear,” in *Pragmatism; A Reader*, ed. Louis Menand (New York: Vintage Books, 1997), 47.
70. Dewey, *Experience and Nature*, 333–34, 348.
71. Abram, *The Spell of the Sensuous*, 34, 31.
72. Michel Foucault, *The Order of Things; An Archaeology of the Human Sciences* (New York: Vintage Books, 1973), 132, 132–33, 133, 134.
73. Abram, *The Spell of the Sensuous*, 35.
74. Abram, *The Spell of the Sensuous*, 42. Italics in original.

75. Abram, *The Spell of the Sensuous*, 21.
76. Abram, *The Spell of the Sensuous*, 27.
77. Rahv, “The Cult of Experience in American Writing,” 11. See also pages 24 through 25, on the traditional American themes of “private life” and “bare experience,” themes Rahv thought American writers continued to take up “out of mere routine and inertia.”
78. Murphy, *Farther Afield in the Study of Nature-Oriented Literature*, 14.
79. Ackerman, “The Eyelids of Morning,” in *The Moon By Whale Light*, 96.
80. John Burroughs, “The Art of Seeing Things,” in *Birch Browsings; A John Burroughs Reader*, ed. Bill McKibben (New York: Penguin Books, 1992), 131.
81. Richard Rorty, *Philosophy and Social Hope* (New York: Penguin Books, 1999), 58, xxvii.
82. Henry Beston, *Northern Farm; A Glorious Year on a Small Maine Farm* (New York: Henry Holt, 1948), 16.
83. Richard Rorty, *Philosophy and the Mirror of Nature* (Princeton: Princeton University Press, 1979), 62.
84. Rorty, *Philosophy and the Mirror of Nature*, 62.
85. Rorty, *Philosophy and the Mirror of Nature*, 376.
86. Michael Pollan, *Second Nature; A Gardener’s Education* (New York: The Atlantic Monthly Press, 1991), 187.
87. Terry Tempest Williams’s remarks about wilderness are recorded in *Writing Natural History*, 43. They confirm Andrew Ross’s acerbic comment on the idea of wilderness as “a place where the sublimity of an unpeopled landscape (its indigenous inhabitants having long since been evicted) erases all of the legacies of social difference borne by visiting nature trekkers, and allows them to transcend those social identities that are judged to be restrictive and irrelevant in the face of unmediated Nature” (*The Chicago Gangster Theory of Life; Nature’s Debt to Society* [London: Verso, 1994], 103). Ross’s analysis seems to have been anticipated by Leo Marx in *The Machine in the Garden*, where he describes how “the dream of a retreat to an oasis of harmony and joy was removed from its traditional literary context” in nineteenth-century America, and recast in terms of a variety of “utopian schemes,” all of which imagined North America as “virgin” territory. See *The Machine in the Garden; Technology and the Pastoral Ideal in America* (New York: Oxford University Press, 1964), 3.
88. Richard Rorty, *Consequences of Pragmatism* (Minneapolis: University of Minnesota Press, 1982), xxxiv, xxxvi (italics in original). Daniel Dennett also has doubts about Nagel’s essay. He writes: “The title itself sets us off on the wrong foot, inviting us to ignore all the different way in which bats (and other animals) might accomplish their cunning feats without its ‘being like’ anything for them” (*Kinds of Minds; Toward an Understanding of Consciousness* [New York: Basic Books, 1996], 160). Dennett’s point is that much of what bats do they do unthinkingly, as it were, and all unaware, and he would point out that the same also can be said about many of the things that we do.
89. Rorty, *Consequences of Pragmatism*, xix.
90. Ackerman, “In Praise of Bats,” in *The Moon by Whale Light*, 33.
91. Rorty, *Consequences of Pragmatism*, xxxvi.
92. Of Emerson’s fondness for the view taken from on high, Leo Marx notes: “Few writers have been more explicit about the supposed metaphysical powers of landscape” (*The Machine in the Garden*, 232).

93. See Paul Brooks, *Speaking for Nature; How Literary Naturalists from Henry Thoreau to Rachel Carson Have Shaped America* (San Francisco: Sierra Club Books, 1980), and Stewart, *A Natural History of Nature Writing*, 85–102.
94. William James, *Pragmatism and The Meaning of Truth* (Cambridge: Harvard University Press), 246, 39.
95. Scheese, *Nature Writing*, 38.
96. The idea that Native Americans are more attuned to nature has been criticized by Shepard Krech III, an anthropologist who like Richard Nelson has spent time living with native Alaskans. See Krech's book *The Ecological Indian; Myth and History* (New York: W. W. Norton, 1999).
97. Richard Nelson, *The Island Within* (San Francisco: The North Point Press, 1989), 57, 19.
98. Nelson, *The Island Within*, 111–12. Italics in original.
99. Thomas Lyon might disagree with my argument here, since he claims that for nature writers “seeing, simply seeing, destroys divisions; for however brief a time, it restores health” (“The Continuities of Nature Writing,” 4).
100. John Dewey, “The Need for a Recovery of Philosophy,” in *Pragmatism; A Reader*, 225.
101. Max Horkheimer and Theodor W. Adorno, *Dialectic of Enlightenment* (New York: Continuum, 1997), 195.
102. George Levine, *Lifebirds* (New Brunswick: Rutgers University Press, 1995), 2.
103. William H. Rueckert, “Barry Lopez and the Search for a Dignified and Honorable Relationship with Nature,” in *Earthy Words*, 138.
104. Rueckert, “Barry Lopez and the Search for a Dignified and Honorable Relationship with Nature,” 137, 138.
105. Wallace Stevens, “The Glass of Water,” in *The Collected Poems* (New York: Vintage Books, 1982), 198.
106. Barry Lopez, *Arctic Dreams; Imagination and Desire in a Northern Landscape* (New York: Bantam Books, 1987), xxv.
107. Lopez, *Arctic Dreams*, 228.
108. Barry Lopez, “In a Country of Light, Among Animals,” in *About This Life; Journeys on the Threshold of Memory* (New York: Vintage Books, 1998), 120. This essay first appeared in *Outside* (June/July 1981).
109. See my discussion of this issue in chapter two.
110. See my discussion of Lopez's theory of the “interior landscape” in chapter one.
111. Lopez, *Arctic Dreams*, 206. Lopez uses the phrase “ascetic contemplation” in his description of the “architecture” of icebergs; and he compares the anticipation of seeing them to “waiting quietly for a very long time, as if for an audience with the Dalai Lama.”
112. Diane Ackerman would disagree with the point I have just made. She writes: “Before coming to the Antarctic, I had thought that penguins lived in a world of extreme sensory deprivation. But I had found just the opposite—a landscape of the greatest sensuality” (“White Lanterns,” *The Moon By Whale Light*, 233). But Ackerman is apt to say this sort of thing about the landscape no matter where she goes.
113. Lopez, *Arctic Dreams*, 274.
114. Jonathan Raban, *Passage to Juneau; A Sea and Its Meanings* (New York: Pantheon Books, 1999), 190–91.
115. Lopez, “A Voice,” in *About This Life*, 11–12. Lopez's view of “indigenous” peoples as being more environmentally sensitive than other folks is shared many nature writ-

- ers, owing to their belief that culture has determinate effects on perceptions of the world. Abram, for example, writes: “The members of any given culture *necessarily* inhabit an experienced world very different from that of another culture with a very different language and way of life” (*The Spell of the Sensuous*, 41; my emphasis).
116. Barry Lopez, “The Stone Horse,” in *Crossing Open Ground* (New York: Vintage Books, 1989), 8.
  117. Benjamin, “On Some Motifs in Baudelaire,” 172–73; 197n6.
  118. Rueckert, “Barry Lopez and the Search for a Dignified and Honorable Relationship with Nature,” 149, 158.
  119. Thomas J. Lyon, “The Continuities of Nature Writing,” in *Writing Natural History*, 1.
  120. Pollan, *Second Nature*, 4 and *passim*.
  121. The environmental historian William Cronon argues that wilderness “is quite profoundly a human creation—indeed, the creation of very particular human cultures at very particular moments in human history.” That does not mean, he adds, that “the nonhuman world we encounter in wilderness” is “merely our invention” (“The Trouble with Wilderness; or, Getting Back to the Wrong Nature,” in *Uncommon Ground; Toward Reinventing Nature*, ed. William Cronon [New York: W. W. Norton, 1995], 70).
  122. According to the environmental historian Richard White, “Distrust of work, particularly of hard physical labor, contributes to a larger tendency to define humans as being outside of nature and to frame environmental issues so that the choice seems to be between humans and nature” (“‘Are You an Environmentalist or Do You Work for a Living?’: Work and Nature,” in *Uncommon Ground*, 172).
  123. Elder and Finch, “Introduction,” 24–25.
  124. Lyon, “The Continuities of Nature Writing,” 4–5.
  125. Barry Lopez, in Barry Lopez et al., “Natural History: An Annotated Booklist,” *Antaeus* 57 (Autumn 1986): 297.
  126. Thoreau, *Walden*, 91.
  127. On this question, see Michael Rogin, “Nature as Politics and Nature as Romance in America,” in *Ronald Reagan, The Movie; and Other Episodes in Political Demonology* (Berkeley: University of California Press, 1987), 169–89.
  128. Barry Lopez, “The American Geographies,” in *About This Life*, 35. My emphasis.
  129. The classic statement on this subject is Herbert Marcuse’s essay “The Affirmative Character of Culture,” in *Negations; Essays in Critical Theory*, trans. Jeremy J. Shapiro (Boston: Beacon Press, 1968).
  130. Scheese, *Nature Writing*, 11.
  131. The reader may recall my discussion of the importance of epiphany to ecocriticism at the beginning of chapter one.
  132. Umberto Eco, *Serendipities; Language and Lunacy*, trans. William Weaver (New York: Harcourt Brace, 1999), 115, 75.

### Epilogue

1. Popper has specifically in mind the position of philosophers relative to that of scientists, but the relative position of literary critics seems to me to be quite similar, though I do suspect that they are faced with an even greater shambles and less hope of booty than philosophers are. See Karl Popper, *The Logic of Scientific Discovery* (London: Routledge, 1992), 13.

2. Ludwig Wittgenstein, *Culture and Value*, ed. G. H. von Wright and Heikki Nyman, trans. Peter Winch (Chicago: University of Chicago Press, 1980), 83e.
3. Henry David Thoreau, "Walking," in *The Natural History Essays*, ed. Robert Sattelmeyer (Salt Lake City: Peregrine Smith, 1980), 93.
4. According to *Webster's Ninth New Collegiate Dictionary*, the word *saunter* may be derived from a Middle English word, *santren*, meaning to muse. The *Oxford English Dictionary* regards the word's origin as obscure, but tentatively suggests a Middle English source.
5. Thoreau, "Walking," 93.
6. The allusion is to Marjorie Hope Nicolson, *Mountain Gloom and Mountain Glory; The Development of the Aesthetics of the Infinite* (Seattle: University of Washington Press, 1997). Originally published by Cornell University Press in 1959.
7. In an essay critical of the cloying approach to nature poetry that ecocriticism has tended to take, Bonnie Costello points out that poets like Ammons "experiment wildly with definition, in the spirit of superfluity; they take nature as a concept itself unfixed." Thus Ammons's availing himself of an "alpine point of view" while perched, metaphorically speaking, on top of a mountain of garbage. As Costello observes, he tends to describe actual mountains as forbidding places. She argues that the fluidity and superfluity of nature in Ammons's poetry sets his treatment of it apart from that "sentimental realism" which "asks us to embrace nature in its diminishment, relinquishing tropes and idealities" ("'What to Make of a Diminished Thing': Modern Nature and Poetic Response," *American Literary History* [Winter 1997]: 570, 583).
8. A. R. Ammons, *Garbage* (New York: W. W. Norton, 1993), 18, 28, 29.
9. Wallace Stevens, "The Man on the Dump," in *The Collected Poems* (New York: Vintage Books, 1982), 201, 203 (italics in original).
10. The ecologist Daniel Botkin would agree with Ammons. Botkin writes: "Nature in the twenty-first century will be a nature that we make; the question is the degree to which this molding will be intentional or unintentional, desirable or undesirable" (*Discordant Harmonies; A New Ecology for the Twenty-First Century* [New York: Oxford University Press, 1990], 193).
11. Ammons, *Garbage*, 61.
12. Ammons, *Garbage*, 49, 28.
13. Ammons, *Garbage*, 25-26, 108.
14. Ammons, *Garbage*, 49-50.
15. Ammons, *Garbage*, 51, 52.

## Index

- a priori, the  
  in ecology, 73  
  in phenomenology, 214  
  in postmodernist thought, 33
- Abbey, Edward, 243
- Abram, David, 211–18, 229, 230, 234, 238
- Ackerman, Diane, 205, 206–7, 208, 211, 218, 221, 238
- adaptation, 148–51
- adéquation*, 165–72, 173, 176
- Adorno, Theodor, 96, 97–104, 110, 114–15, 116, 124, 208, 224
- Adventures of Huckleberry Finn*, 164
- alienation  
  according to Marcuse, 107  
  from nature, vii–viii, 31, 193, 206, 212, 218–19, 222–23  
  in nature writing, 191, 206, 212, 218–19, 222–31
- allegory, 161
- Alpers, Paul, 19
- American Ornithological Union, 180
- American Renaissance  
  and literary realism, 163
- American Sublime, 233–34
- Ammons, A. R., 153, 222, 242–47
- analogy  
  contrasted with metaphor, 76, 119–20  
  in ecocriticism, 141–42  
  in ecology, x, 54–60, 61–62, 64–65, 75–76
- antihumanism  
  and critics of science, 89–90  
  and ecocriticism, 18–19
- Aristotle, 219
- Army Corps of Engineers, 126
- Arnold, Jean, 142
- atom smashing, 100–102
- awareness  
  in nature writing, 197, 202–3, 211–21, 226
- Audubon, John James, 175, 176
- Bachelard, Gaston, 136, 137, 212–13
- Bacon, Francis, 98
- balance, 42–51, 71–72, 151–52
- Barnes, Barry, 132–33, 134
- Barthes, Roland, ix, 9–10, 31, 127, 147, 164, 165, 170, 187
- Bate, Jonathan, x
- Bates, Marston, 81
- Baudrillard, Jean, 23, 24–25, 26, 32, 33
- being  
  of bats, 220–21  
  definition of, 32–33, 35  
  experience of, 220–21
- Benjamin, Walter, 190, 192, 194–95, 204, 230

- Berry, Wendell, 136, 153, 196, 201  
 Beston, Henry, 219  
 Biagioli, Mario, 179  
 biology  
   and biologism, 125, 126–27, 130  
   and black boxes, 128  
   mathematical approaches to, 68–69  
   origins of, 99–100  
   and other sciences, 79, 100–101  
 birding, 173–83, 223–24  
 black boxes, 93, 128  
 Black, Max, 33, 59–60, 156, 182  
 Bloom, Harold, 222  
 Bloor, David, xi, 134  
 Botkin, Daniel, 69, 78, 79  
 Bowler, Peter, 113  
 Bradstreet, Anne, 199, 201  
 Brown, Charlie, 197  
 Budiansky, Stephen, 81–82, 101  
 Buell, Lawrence, 5–11, 14, 15–17, 19, 23, 24, 39, 139, 144, 159–72, 173–77, 181, 182, 183, 188, 195–96  
 Burroughs, John, 197, 218, 238  
 caddis fly larvae, 172  
 Campbell, SueEllen, 5, 36–37  
 canonicity  
   ecocriticism and, 140, 146–47, 149, 183  
 Carroll, Lewis, 70  
 Catesby, Mark, 175  
 certainty, 93–95  
 chaos theory, 47, 79–80  
 Christianity  
   Dillard and, 189  
   and nature, 199  
 city  
   and the pastoral, 18, 146  
   and postmodernity, 27–28  
   and self-consciousness, 191, 192–93  
 civilization, 146, 242  
 Clements, Frederic, 54–56, 58, 59, 61, 62, 77  
 climax, 54–56, 64  
 coelacanth, 238, 239  
 Colinvaux, Paul, 65, 68, 71, 77–78  
 comedy, 145–46, 153  
 community, 56, 61–62, 64, 68, 77  
 complexity, 18–19, 22, 71, 78  
 conservation biology, 77  
 consumer society, 104–5  
 Cooper, James Fenimore, 55–56  
 Cooper, Susan Fenimore, 183, 184  
 Copernican theory, 90–93, 216–17  
 cosmology, 91–92  
 country  
   and the pastoral, 18, 146  
   and postmodernity, 27–28  
 coyotes  
   ecocritics as, 241  
   as varmints, 28  
 Cowles, Henry Chandler, 53–54, 80–81  
 Crèvecoeur, J. Hector St. John de, viii  
 Critical Theory, 97–117  
   and democracy, 103, 104–5  
   and ecology, 110–11  
   and environmentalism, 109, 110–11, 115–17  
   and the transcendental, 105–8  
 Cronon, William, xii, 28  
 cultural studies, 119, 120, 122, 123, 124–25  
 culture  
   according to postmodernists, 25, 27–28  
   as opposed to nature, 3, 19, 22, 30–36, 38, 123, 149, 162, 167, 208, 219–20, 222–31, 233, 235–36, 243–44  
   as organic, 155  
   porosity of, 92  
 culture industry  
   and nature, 102  
 Darwin, Charles, 38, 77, 110, 149  
 Darwinism  
   Critical Theory and, 109–10  
   ecocriticism and, 38, 145–52  
   ecology and, 77–78  
 Davidson, Donald, 138  
 Dawkins, Richard, 101, 118–21, 149  
 Debord, Guy, 22, 27  
 deconstruction, 139  
 Deep Ecology, viii, 36, 122, 126  
 Dennett, Daniel, 12–13, 15, 18, 119–20, 129, 149–50, 175, 176, 196  
 Descartes, René, 213  
 desublimation, 105–6  
 Dewey, John, 34–35, 39, 182, 215, 216, 217, 223–24  
 dialectical, the, 102  
 Dickinson, Emily, 232

- difference  
   between nature and culture, 224  
   in science, 94–95  
   and similarity, x, 75–76, 175
- Dillard, Annie, 136, 177, 187–93, 193, 194,  
   198–99, 200, 201, 202, 203–4, 205, 207,  
   208, 212, 221, 227, 234, 236, 237, 238
- discourse, 87, 94, 129
- diversity, 71
- docility of brown bears, 20, 101
- domination  
   of nature, 98, 99, 102–3, 104, 123  
   and technology, 104–10, 114–17,  
   123–26
- duck decoys, 183
- Earth First!, 124
- Eco, Umberto, 7–8, 20–24, 29–30, 32,  
   35–36, 38, 39, 138, 143, 154, 163, 169,  
   171, 197, 238
- ecocriticism, 3–11, 11–20, 135–84, 240–47  
   and the academy, 4–6, 135–40, 160  
   analogy in, 141–42  
   and antihumanism, 18–19  
   as appreciative or belletristic, ix,  
   138–39, 168  
   and canonicity, 140, 146–47, 149, 183  
   compared to ethnic studies, 139  
   compared to queer studies, 139  
   concept of culture in, 14–15  
   and Darwinism, 38, 145–52  
   disenchantment of, 40–41  
   and ecology, xii, 51, 76, 140, 141–44,  
   148, 151–52, 155–59, 172, 208, 240  
   and environmental history, 47–48, 50,  
   183  
   and environmentalism, 160, 161  
   and epiphany, 3–6, 171, 237  
   and epistemology, 7, 39, 137–38, 218,  
   219  
   and formalism, 168  
   history of, 3–5, 135–84  
   and ideological criticism, 195  
   and imagination, 24, 157–59  
   as interdisciplinary, ix, 36, 44–45, 51,  
   142, 144, 152, 240, 277n48  
   as literary criticism, 241–42  
   and literary form, 141–42, 145–47,  
   151–52, 171, 185–86, 195  
   and literary history, 162–63  
   and literary realism, xi–xii, 7, 15, 23–24,  
   39, 134, 135–36, 139, 144–45, 158–59,  
   161, 162–72, 173–84, 240, 246–47  
   and literary theory, ix, xii, 4, 51, 76,  
   135–45, 147–48, 151–52, 159–72,  
   234–35, 240–41  
   and mimesis, 7–8, 23, 158–59, 166,  
   173–75, 181–83  
   and nature-culture, 39  
   and nature poetry, 138, 141–42, 153–58,  
   240  
   and nature writing, 15, 17, 138, 140,  
   165, 171–72, 185–86, 190–91, 193,  
   195–96, 197, 202–3, 204–5, 211, 227,  
   232–33, 234–35, 237–39, 240  
   as a neologism, viii, 141  
   as offensive or picaresque, 240–41  
   orthodoxy of, 137–38  
   and pastoral, 16–20, 146–47, 153–54, 240  
   and postmodernism, 20, 33, 35–37, 183  
   as reactionary, 3  
   role of epiphany in, 3–6, 11, 171, 237  
   and skepticism, 39–40  
   and sociobiology, 149–51, 152  
   and Thoreau, 201–2, 242, 246  
   and wilderness, 146–47
- ecofeminism, 110–17, 271n79
- ecology, 42–82  
   the a priori in, 73  
   analogy in, x, 54–60, 61–62, 64–65, 75–76  
   bias in, 53–54, 62  
   as biogeochemical, 62  
   as a biological science, 65, 68–69, 77–78  
   coining of the word, 52  
   compared to microbiology, 45, 46, 78,  
   155  
   compared to natural history, 52  
   compared to physics, 43–44, 46  
   compared to taxonomy, 57  
   and complexity, vii–viii, 22  
   Critical Theory and, 110–11  
   critics of, 43, 45  
   and Darwinism, 77–78
- ecocriticism and, xii, 51, 76, 140,  
   141–44, 148, 151–52, 155–59, 172,  
   208, 240  
   and environmentalism, vii–ix, xii,  
   122–23

- ecocriticism (*continued*)  
   historicism of, 66  
   history of, x, 42–82  
   as holistic, 49–50, 60–69, 155  
   as ideology, 122  
   the Left and, 84–85, 96  
   literary theory and, 36–37  
   mathematical, 60–69  
   metaphor in, x, 54–60  
   models in, 58–60, 63–65, 74  
   myth in, 58  
   narrative in, 58  
   nature writing and, 203, 204, 206, 208,  
     232–33  
   origins of, 52–60  
   as a philosophy of nature, 114  
   as a point of view, 43–44, 50, 63, 78, 112  
   popular concepts of, vii–viii, 42–43,  
     45–46, 54, 71, 77, 82, 114, 116  
   relativism in, 66  
   as social, 117–30  
   and social policy, 62–64  
   theory in, 73–80, 143  
   and truth, 20–23, 29, 39, 51, 74, 83  
   unity of, 70, 73, 77–78, 79  
   as utopian, 42–47, 143
- ecosystem, 61–67, 74, 76, 77–78, 79, 112–13,  
   114, 141–42, 144, 151–52, 155–58
- edge, 157
- Egerton, Frank, 67, 78
- the ego, 136–37
- Elder, John, 144, 152–59, 160, 183, 203,  
   234–35
- electrons, 101, 132
- Emerson, Ralph Waldo, viii, 163, 194,  
   199–200, 201, 202, 221–22, 236, 237
- Empson, William, 17
- endangered species, 22, 29
- enlightenment  
   versus magic, 115  
   as mass deception, 102  
   and science, 97–110  
   as totalitarian, 97–98  
   tradition of, 100
- Enlightenment, The, 98, 99, 113–14
- environment, 12, 19–20, 36–37, 72, 74,  
   78–79, 81–82, 143
- environmental crisis, 81–82, 183–84, 208
- environmental history, 47–51
- ecocriticism and, 47–48, 50, 183  
 as history of ideas, 56, 111  
 and postmodernism, 28
- environmental literature  
   ecocriticism of, 165  
   definitions of, 7, 15  
   realism of, 23, 171–72
- Environmental Protection Agency, 126
- environmentalism  
   according to Critical Theory, 109,  
     110–11, 115–17  
   ecocriticism and, 160, 161  
   ecology and, vii–ix, xii, 122–23  
   postmodernism and, 33  
   as revolutionary, 116–17  
   and social ecology, 122–23
- epiphany  
   in ecocriticism, 3–6, 11, 171, 237  
   in nature writing, 189–90, 217, 237
- epistemology  
   and ecocriticism, 7, 39, 137–38, 218, 219  
   hylomorphic, 219  
   nature writing and, 188–89, 211–21,  
     223–24  
   phenomenology and, 211–21
- equilibrium. *See* balance
- estrangement  
   in science studies, 90
- evolution  
   and literature, 148–51
- experience  
   in American literature, 193–94  
   as commodity, 211  
   as Erfahrung, 190  
   as Erlebnis, 190  
   in nature writing, 188, 189–91, 193,  
     193–95, 202–4, 210–11, 217–18  
   and writing, 136, 190–91, 224–25
- experiment, 92, 100–101, 127–28
- extended phenotype  
   defined, 196  
   gardens as, 233  
   self as, 196
- extinction, 148–51
- Exxon, 123
- fact-value distinction, 34, 97–98, 142–43,  
   148, 175
- fantasy, 161

- Fascism  
and enlightenment, 97–98
- Ferry, Luc, vii, 117, 142–43
- Feyerabend, Paul, 30, 39, 85, 176, 176–77
- fiction  
genres of, 241  
self-reflexivity of, 234–35
- A Field Guide to the Birds*, 167, 173–83
- field marks, 173, 176, 177, 179–80
- Finch, Robert, 185–86, 203, 234–35
- Fine, Arthur, 95
- flâneur*  
Dillard as, 192–93  
Lopez as, 230  
and turtles, 230  
Whitman as, 192–93
- Flaubert, Gustave, 19
- Forbes, Stephen A., 57–58, 59, 60
- Foucault, Michel, 94, 95, 170, 216
- Frankfurt School, 96, 110, 121, 211
- Freud, Sigmund, 104, 106
- Frontier Thesis, 55–56
- Frost, Robert, 136, 153
- Fuller, Steve, 88
- Galison, Peter, 100
- garbage dumps, 225–26, 243–45
- genes  
as selfish, 118–21, 149
- geology, 79
- Gleason, H. A., 60–61
- Golley, Frank, 59, 65, 66, 67, 71, 80
- Gould, Stephen Jay, 77, 149, 150, 151
- Greens, viii
- Grinnell, Joseph, 70–71
- Gross, Paul R., 95
- habitat, 74, 79
- Hacking, Ian, xi, 92, 94, 99, 101, 129, 132, 133, 134, 181
- Haeckel, Ernst, 52, 53
- Hagen, Joel, 67
- Haraway, Donna, 271n79
- harmony, 42–51, 58, 72, 77
- Hawthorne, Nathaniel, 232
- Hay, John, 100
- Heise, Ursula, ix
- Hemingway, Ernest, 9
- Henry, John, 134
- Hesse, Mary, 58–59
- heuristic assumptions, 74, 75
- historical determinism, 113, 115–17
- holism, 60–69, 114, 155
- homeostasis. *See* balance
- Hopkins, Gerard Manley, 167–72
- Horkheimer, Max, 96, 97–104, 110, 114–15, 116, 124, 208, 224
- horseshoe crab, 238, 239
- Howells, William Dean, 164, 182
- Hubbell, Sue, 14, 66–67
- humanism  
and the transcendental, 89–90
- humanities  
compared to sciences, 72–73, 75–76, 131–34  
methodologies of, 131–32
- Humpty-Dumpty, 70, 73, 75
- Hutcheon, Linda, 25
- hybridization  
of the environment, 81–82
- hyperreality, 20–24, 158
- hyperspace, 19–20
- identification  
of brown trout, 169–70  
of chickadees, 177–79  
of green-backed herons, 179–80  
of red-bellied woodpeckers, 180
- identity  
of Jake Barnes, 8–9
- ideology  
in literature, 161  
and pastoral, 16–17
- imagination  
and description, 16  
and ecocriticism, 24, 157–59  
as environmental, 14–15, 183–84  
as figurative, 9  
in nature writing, 196, 202, 203–4  
and pastoral, 17  
and postmodernism, 24, 27  
and the self, 197
- indigenous cultures, 216, 223, 225, 228–29
- insects  
as postmodern, 81  
ubiquity of, 212
- interdisciplinarity  
Barthes on, ix

- interdisciplinarity (*continued*)  
 of ecocriticism, ix, 36, 44–45, 51, 142,  
 144, 152, 240, 277n48  
 perils of, 51, 56  
 as uncertain, ix–x
- interpretation  
 cultural, 120, 134  
 literary, 72–73, 138–39  
 in natural history, 178–79
- intervention  
 science as, 132–33, 178–79
- Jackson, Wes, 201  
 James, Henry, 164  
 James, William, 29–30, 222  
 Jameson, Fredric, 25–27, 106  
 Janovy Jr., John, 171–72  
 Jeffers, Robinson, 153  
 Jefferson, Thomas, viii
- Kilmer, Joyce, 9  
 Kingsland, Sharon, 66  
 Kitcher, Philip, 85
- knowledge  
 acquisition of, 34–35, 215, 222, 223–24  
 attitude toward, 86–87  
 as know-how, 133  
 and power, 86–87, 98, 99–100, 124
- Kovel, Joel, 40  
 Kroeber, Karl, 142, 143, 187, 205–6  
 Kuhn, Thomas, 43
- landscape  
 definitions of, 13, 14, 19, 227  
 as “interior,” 11–15, 23, 172  
 narrative and, 12–13
- language  
 arbitrariness of, 179–80  
 and the world, 167, 211–21, 222,  
 246–47
- late capitalism, 25–28
- Latour, Bruno, 30–34, 38, 39, 40, 85, 105,  
 116, 128, 134, 149
- Leatherstocking novels, 55–56
- Left, the  
 and ecology, 84–85, 96  
 and science, 96–97
- Leopold, Aldo, vii
- Levin, Simon, 71, 72
- Levine, George, 95, 179, 224
- Levins, Richard, 77, 131
- Levitt, Norman, 95
- Lewontin, R. C., 71–72, 77, 131
- Lindeman, Raymond, 62
- literary form  
 ecocriticism and, 141–42, 145–47,  
 151–52, 171, 185–86, 195
- literary realism  
 and the American Renaissance, 163  
 “comparative impotence” of, 23  
 as constructed, 165  
 ecocriticism and, xi–xii, 7, 8–9, 15,  
 23–24, 39, 134, 135–36, 139, 144–45,  
 158–59, 159–72, 173–84, 240, 246–47  
 and the frontier, 164  
 as idiomatic, 182  
 and kitsch, 164  
 as metropolitan, middlebrow, and mid-  
 dle-class, 164  
 and literary theory, 7, 135–36, 159–62  
 and nature writing, 195  
 versus scientific realism, 165, 176,  
 180–81  
 as theology, 163  
 Thoreau and, 183
- literary theory  
 and closure, 180  
 ecocriticism and, ix, xii, 4, 51, 76,  
 135–40, 147–48, 151–52, 159–63,  
 234–45  
 and ecology, 36–37  
 and literary realism, 7, 135–36, 159–62  
 as methodology, 138  
 as polemical, 139–40  
 as reductive, 147–48  
 and representation, 181–82  
 and skepticism, 39–40, 138  
 as trendy, 136–38
- literature  
 and evolution, 148–51  
 as organic, 140–42, 144
- Livingston, Paisley, 88
- Locke, John, 219
- logical positivists, 99, 106–7
- logistic equation, 68–69, 227
- Lopez, Barry, 11–15, 19, 172, 224–31, 233,  
 235–36, 238, 243
- Lorenz, Konrad, 150

- Love, Glen, 136–38, 143, 144
- Lyon, Thomas, 202–3, 232, 233, 235, 237
- Lyotard, Jean-Francois, 24–25, 26, 32, 33
- lyric poetry  
Benjamin on, 194–95
- Marcuse, Herbert, 96, 103–10, 114, 116
- Marineland, 21
- Marx, Karl, 27, 104, 106
- Marx, Leo, 18
- Marxism  
and nature, 28, 97–110  
and utopia, 103, 105–6
- mathematics  
in ecology, 60–69  
as socially constructed, xi  
and the unity of science, 99
- Mayr, Ernst, 52, 66, 71, 73, 78, 121, 151
- McIntosh, Robert, 50, 65, 67, 69, 70, 78, 143
- McKibben, Bill, 130
- mediation, 102–3, 147
- Meeker, Joseph, 144, 145–53, 159, 160, 241
- Merchant, Carolyn, 96, 110–17
- Merleau-Ponty, Maurice, 212, 213, 218
- Merton, Robert, 128
- metaphysics  
and phenomenology, 214, 231
- metaphor  
contrasted with analogy, 76, 119–20  
in ecology, x, 54–60  
literary criticism and, 73, 76  
of social construction, 94
- meteorology, 111–12
- metonymy, 19–20
- metropolitan, 160, 164
- microcosm, 57–58
- mimesis, 7–8, 23, 158–59, 179, 181–83  
and adéquation, 166  
visual, 173–75
- mind-body problem, 201
- mockingbirds  
as mimic thrushes, 158, 183
- models  
of literary performance, 183  
in science, 58–60, 63–64, 67
- modern synthesis  
in evolutionary theory, 77
- modernism  
versus postmodernism, 27
- modernity, 30–36  
Benjamin on, 194–95  
nature writing and, 208
- Muir, John, 4, 197, 238  
as white male, 123
- Murphy, Patrick, 4–5
- mystery  
and alienation, 191  
in nature writing, 188–93, 226–27
- myth  
in ecology, 58
- Nagel, Thomas, 220
- narrative  
construction of, 75–76  
definitions of, 13  
in ecology, 58  
and landscape, 12–13  
nature writing as, 185–86, 196–97, 198, 210  
priority of, 13–14
- national parks, 108–9, 123
- natural history  
contrasted with ecology, 183–84  
contrasted with nature writing, 186–87, 190, 195, 209–10, 228  
and spirituality, 203
- natural law, 127
- natural selection, 149
- nature  
according to Marxism, 28, 97–110  
alienation from, vii–viii, 31, 193, 206, 212, 218–19, 222–23  
Christianity and, 199  
domination of, 98, 99, 102–3, 104, 123  
as Edenic, 81–82  
end of, 26–29, 31, 32  
Enlightenment concept of, 113–14  
Marxism and, 28, 97–110  
meaning of, 206  
mutability of, 208  
as opposed to culture, 3, 19, 22, 30–36, 38, 123, 149, 162, 167, 208, 212, 219–20, 222–31, 233, 235–36, 243–44  
in philosophical discourse, 32–33  
representation of, x–xi, 127–28, 132–33, 137–38, 139, 144, 165–72, 173–83, 189, 219–20, 246–47  
as social construct, 118, 121–22

- nature (*continued*)  
 as spectacle, 190  
 as the status quo, 127  
 nature-culture, 34, 39, 122, 149  
 nature faking, 222  
 nature poetry, 138, 141–42, 153–58, 240  
 nature writing, 185–239  
   and alienation, 191, 206, 212, 218–19, 222–31  
   as American, 236  
   awareness in, 197, 202–3, 211–21, 226  
   bad faith of, 218–19, 220, 225  
   and Burroughs, 197  
   as commodity, 211  
   constructedness of, 186, 188  
   contrasted with natural history, 186–87, 190, 195, 209–10, 228  
   definitions of, 185–87  
   as descriptive, 211, 217, 229–30  
   ecocriticism and, 15, 17, 138, 140, 165, 171–72, 185–86, 190–91, 193, 195–96, 197, 202–3, 204–5, 211, 227, 232–33, 234–35, 237–39, 240  
   and ecology, 203, 204, 206, 208, 232–33  
   epiphany in, 189–90, 217, 237  
   and epistemology, 188–89, 211–21, 223–24  
   ethics of, 196, 220, 227  
   ethnological approaches in, 222–31  
   evolution of, 238  
   experience in, 188, 189–91, 193, 193–95, 202–4, 210–11, 217–18  
   genre of, 191, 192–93, 198, 237  
   and imagination, 196, 202, 203–4  
   limitations of, 209–10  
   and literary history, 234–35, 236–37  
   and modernity, 208  
   and Muir, 197  
   mystery in, 188–93, 226–27  
   as narrative, 185–86, 196–97, 198, 210  
   and nature faking, 222  
   nature in, 204, 206  
   nostalgia of, 233  
   phenomenological approaches to, 211–21, 229–31  
   and primitivism, 224–25, 228–29  
   realism of, 195  
   and religion, 221–22, 227–28  
   as revolutionary, 235–37  
   and science, 207, 215–16, 226–27  
   and the self, 195–98, 208, 210  
   self-reflexivity of, 234  
   sensuality in, 206–8, 211–21  
   spirituality in, 197–98, 202–4, 205–6  
   as therapeutic, 204, 210  
   and Thoreau, 197, 201–2  
   as a tradition, 209–10, 231–39  
   transcendence in, 198, 202–3  
   and Western culture, 222–29  
   and wilderness, 220, 233–34  
 Nazi ecologists, 113  
 Nelson, Richard, 223–24, 227–28, 229, 233, 238  
 New Criticism, 139  
 new historicism, 139  
 New York City  
   and cultural authority, 121–22  
 niche, 19–20, 70–71  
 Nietzsche, Friedrich, x, xii  
 Oates, Joyce Carol, 209  
 Odum, Eugene, 62–65, 73  
 old-growth forests, 71  
 Oliver, Mary, 136, 153, 157–59, 183  
 ordinary-language philosophy, 106–7, 109  
 organismal concept, 54–55, 57, 61–62, 64, 66, 67, 113–14, 155  
 otherness  
   of the world, 212, 213, 224  
 pastoral  
   and the city, 18, 146  
   and the country, 18, 146  
   definitions of, 16–20  
   ecocriticism and, 16–20, 146–47, 153–54, 240  
   hyperreality and, 23–24  
   poetry as, 154–55  
   versions of, 38  
 patchiness, 78–79, 80–81  
 Paul, Sherman, 165–67, 170–71, 187, 188  
 Peattie, Donald Culross, 238  
 Peirce, Charles Sanders, 214, 215  
 Peters, R. H., 73–75, 78, 82  
 Peterson, Roger Tory, 144, 167, 173–83  
 phenomenology  
   the a priori in, 214  
   and epistemology, 211–21

- and metaphysics, 214, 231  
and nature writing, 211–21, 229–31
- philosophy  
end of, 32–33  
impossibility of, 221  
as language game, 241  
and realism, 182  
and religion, 221–22  
of science, 132
- physics  
and black boxes, 128  
and ecology, 43–44, 66, 78, 155  
as the fundamental science, 98–99, 100–101
- picaresque  
ecocriticism as, 241  
as ecological, 146–47, 153  
poetry as, 154–55
- Pickering, Andrew, 90–95
- Pilgrim at Tinker Creek*, 177, 187–93, 195, 204, 207  
borrowings in, 190  
epiphany in, 193, 237  
as fine writing, 187–88  
mystery in, 188–90  
resonance in, 198–99, 202  
and *Walden*, 188, 192  
“pishing,” 178–79
- place  
in poetry, 153–54, 155–56
- Platonism, 105
- Poconos  
as a liminal environment, 178
- poems  
compared to ecosystems, 141–42, 155–57
- Pollan, Michael, 220, 233
- Ponge, Francis, 165, 176
- Popper, Karl, 93–94, 240, 244
- population ecology, 77
- positivism, 106–7
- posthumanism, 83, 89–90
- postmodernism, 4  
the a priori in, 33  
absurdity of, 30–37  
alternatives to, 16  
and the city, 27–28  
and the country, 27–28  
and culture, 25, 27–28  
definition of, 27  
ecocriticism and, 20, 33, 35–37, 183  
and environmentalism, 33  
and the imagination, 24, 27  
versus modernism, 27  
and nature, 20–29, 31–37  
and philosophy, 32–33  
relativism and, 33  
and representation, 28–29  
in science studies, 94  
as “theory,” 40  
and truth, 29–30
- Pound, Ezra, 27
- pragmatism, 7, 10, 29–30, 96, 182, 213
- Prometheus, 222
- punctuated equilibrium, 238
- quadrat method, 55  
and the logistic equation, 68–69, 78–79
- Quammen, David, 209
- quantum physics, 36, 72, 79
- Raban, Jonathan, 227–28
- rabbits  
experimentation on, 100–102
- Rahv, Philip, 193–94, 195, 204, 217–18
- randomness, 69, 78–79, 227
- reading, 141–42  
Dillard’s adventures in, 188  
versus using a text, 177–83
- real, the  
as conflictual, 247  
as contested, 183–84  
as invidious, 223–24
- Real, Leslie, 71, 72
- realism. *See* literary realism; scientific realism
- reality of deer, 36–37, 41
- reduction  
and the ecosystem concept, 62, 65–66  
and literary theory, 147–48  
and mediation, 102  
in science, 46, 52, 72, 99, 100–101, 155, 215–16, 222–23  
in sociobiology, 131
- referring, 169
- reification, 104
- relativism  
cultural, 90–94

- relativism (*continued*)  
 in ecology, 66  
 postmodernist, 33
- religion  
 and philosophy, 221–22
- representation  
 as contingent, 179  
 as correspondence, 166, 167  
 crisis of, 7–8  
 environmental, 14–15, 135–36  
 and experimentation, 100–102  
 in the humanities and social sciences,  
 131–32  
 and hypotheses, 13–14  
 and imperative speech, 182  
 of nature, x–xi, 127–28, 132–33,  
 137–38, 139, 144, 165–72, 173–83,  
 189, 219–20, 246–47  
 nature of, x, 37–38, 167, 246–47  
 as pointing, 181–82  
 and postmodernism, 28–29  
 and pragmatism, 7  
 of stimuli, 168–69, 170–71, 175–76  
 verbal, 165–67, 170, 177  
 visual, 170, 173–77
- repression, 104
- resonance  
 in American literature, 199–202  
 Dillard and, 198–99, 202, 212
- rhinoceros  
 confused with unicorn, 238–39  
 placidity of, 22  
 surfing, 21–22, 24
- Romanticism, 222  
 and ecology, 50–51, 55–56, 116
- Roosevelt, Teddy  
 as white male, 123
- Rorty, Richard, 33, 34, 37–38, 138, 218,  
 219, 220, 220–21
- Ross, Andrew, 96, 117–30, 134
- Rueckert, William, 141–42, 144, 224–25,  
 230–31
- San Diego Zoo, 20–23
- Saussure, Ferdinand de, 9
- Schaffer, Simon, 90
- Scheese, Don, 186, 202, 237
- science  
 according to Critical Theory, 97–110  
 certainty in, 93–95  
 compared to humanities, 72–73, 75–76,  
 131–34  
 critics of, 58, 79, 83–134  
 as deterministic, 98–99, 120–21  
 difference in, 94–95  
 as discourse, 87–88  
 distrust of, 46, 215–16  
 and enlightenment, 97–110  
 as holistic, 65–66  
 as intervention, 132–33, 178–79  
 the Left and, 96–97  
 models in, 58–60, 63–64, 67  
 nature writing and, 207, 215–16, 226–27  
 objectivity of, 85–86, 92–94, 215–16  
 quantification and, 67  
 reduction in, 46, 52, 72, 99, 100–101,  
 155, 215–16, 222–23  
 role of theory in, 60, 95, 131–33  
 as socially determined, 129–30  
 as totalitarian, 97, 99  
 unity of, 70, 99
- science studies, 84–95, 117, 128, 133–34
- science wars, 40, 83–134
- scientific realism, xi, 63, 74–75, 86, 92,  
 132–33  
 contrasted with literary realism, 165,  
 176, 180–81
- scientists  
 images of, 129–30
- screech owl  
 call of, 181, 182–83
- the self  
 Dewey on, 197  
 and environmental crisis, 208  
 as extended phenotype, 196  
 imagination and, 197  
 in nature writing, 195–98, 208, 210  
 Thoreau on, 197
- sense of hearing, 15, 223  
 in alligators, 218  
 in bats, 218
- sense of humor, 241
- sense of sight, 15, 200, 206–7, 216, 218,  
 221, 223
- sense of smell, 15, 206–7, 216, 219, 223
- sense of taste, 206–7, 216, 223
- sense of touch, 206–7, 216, 217, 223
- sense perception, 215, 216–17

- Serres, Michel, 28  
 Shapin, Steven, 90  
 Shepard, Paul, 85  
 Sigman, Jill, 176  
 Silko, Leslie Marmon, 136  
 similarity  
   and difference, x, 75–76, 175  
 skepticism  
   ecocriticism and, 39–40  
   and literary realism, 165  
   in science studies, 93–95  
 Slovic, Scott, 202  
 Smith, Eric, 14–15  
 Snyder, Gary, 153  
 sociability, 128–29  
 the social, 87–89, 125, 128–29  
 social construction  
   of mathematics, xi  
   as metaphor, 94  
   of nature, x–xi, 35, 121–22, 132–33  
   of nature writing, 186, 188  
   theory of, 87–95, 101, 186  
 social sciences  
   methodologies of, 131–32  
 sociobiology, 121, 126–27  
   ecocriticism and, 149–51, 152  
   versus social ecology, 123, 131  
 sociology of science, 128  
 Sociology of Scientific Knowledge (SSK),  
   128, 132  
 Sokal, Alan, 84  
 Sontag, Susan, 130  
 Soulé, Michael, 132  
 Sousa, John Philip, 166  
 Spencer, Herbert, 63  
 stability. *See* balance  
 Stevens, Wallace, 153, 154, 225, 234, 237,  
   243–44  
 Stewart, Frank, 4, 186, 195, 204–5  
 stimuli, 168, 170–71, 175–76  
 stochastic. *See* randomness  
 strong programme, 128  
 succession, 53, 54–55, 61, 63–64  
 symbiosis, 68, 172  
 symmetry  
   in science studies, 133–34  
 systems analysis, 65, 69, 79  
 Tansley, A. G., 61–62, 155  
 taxonomy  
   compared to ecology, 57  
   and cultural relativism, 91–92  
   and description of species, 226–27  
 Teale, Edwin Way, 238  
 texts  
   as objects, 139  
   science as, 87–88  
   and the world, 5–7, 10–11, 36–37,  
   159–60, 161, 173–74, 178–79,  
   224–25  
 theory, 95, 131  
   and critics of science, 116  
   in ecology, 73–80, 143  
   imported, 95–96  
   as transcendental, 105–6  
 thick description, 16  
 Thoreau, Henry David, viii, 7, 50, 51,  
   162, 163, 166, 177, 181, 182, 183, 184,  
   191, 192, 193, 197, 201–2, 232, 236,  
   238, 242, 243, 244, 245, 246  
 tradition, 232, 238  
 tragedy, 145–46, 148  
 transcendence  
   in nature writing, 198  
 traumatophile  
   Dillard as, 190  
 Traweek, Sharon, 128  
 trees  
   as objects, 139  
   their standing in texts, 5–10, 24  
 Trimble, Stephen, 203  
 truth, 29–30  
   of ecology, 20–23, 29, 39, 51, 74  
 Turner, Frederick Jackson, 55–56  
 Turner, Jack, 207–8, 211, 233, 238  
 turtles  
   the *flâneur* and, 230  
   nature of, 91  
 Twain, Mark, 164  
 type specimens, 174  
 unicorn, 238–39  
 United States  
   ecology in the, 42–82  
   Fish and Wildlife Service, 29  
   hyperreality of, 20–29  
   as nature's nation, vii–viii, 162–63,  
   199–202, 236

- United States (*continued*)  
 spirituality in, 197–98  
 as totalitarian, 104–5
- unity, 42–51, 58, 60–69, 143  
 of ecology, 70, 73, 77–78, 79  
 of science, 70, 99
- Van Frassen, Bas, 176
- Van Pelt, Linus, 197
- virtual reality, 23
- Walden*, 177, 181, 183, 184, 188, 192, 193,  
 197, 201–2, 236, 244
- Waring, R. H., 57
- web of life, 75
- Weiner, Jonathan, 81, 82
- Weissman, Michael, 90
- Wharton, Edith, 164
- White, Gilbert, 50, 51
- White, Richard, ix, 49
- Whitman, Walt, 163, 192–93, 200–201,  
 210, 236, 243–44
- wild, the, 208–9, 241
- wildness, 240–47
- wilderness  
 domination of nature and, 123  
 ecocriticism and, 146–47  
 experience of, 140, 220  
 in nature writing, 220, 233–34
- wildlife art  
 as kitsch, 164
- Williams, Terry Tempest, 220
- Wilson, E. O., 91–92, 96, 207
- wise use movement, 124
- Wister, Owen, 164
- Wittgenstein, Ludwig, 37–38, 241–42,  
 242
- women's studies,  
 compared to ecocriticism, 139
- Woolgar, Steve, 88, 101
- Wordsworth, William, 153, 216
- Worster, Donald, 38–39, 47–50, 55–56,  
 58, 65–66, 112, 116, 143
- writing  
 and experience, 136, 190–91, 224–25  
 about writing, 234
- Zukav, Gary, 36