I have tried in this book to write an ecological history of colonial New England. By this I mean a history which extends its boundaries beyond human institutions—economies, class and gender systems, political organizations, cultural rituals—to the natural ecosystems which provide the context for those institutions. Different peoples choose different ways of interacting with their surrounding environments, and their choices ramify through not only the human community but the larger ecosystem as well. Writing a history of such relationships inevitably brings to center stage a cast of nonhuman characters which usually occupy the margins of historical analysis if they are present in it at all. Much of this book is devoted to evaluating the changing circumstances of such things as pine trees, pigs, beavers, soils, fields of corn, forest watersheds, and other elements of the New England landscape. My thesis is simple: the shift from Indian to European dominance in New England entailed important changes—well known to historians—in the ways these peoples organized their lives, but it also involved fundamental reorganizations—less well known to historians—in the region’s plant and animal communities. To the cultural consequences of the European invasion—what historians sometimes call “the frontier process”—we must add the ecological ones as well. All were connected by complex relationships which require the tools of an ecologist as well as those of a historian to be properly understood.

The great strength of ecological analysis in writing history is its ability to uncover processes and long-term changes which might otherwise remain invisible. It is especially helpful in evaluating, as I do here, historical changes in modes of production: in one sense, economy in such an approach becomes a sub-
set of ecology. I have accordingly structured my argument to take best advantage of this analytical strength. I open by contrasting the precolonial ecosystems of New England with those that existed at the beginning of the nineteenth century. I then compare the ecological relationships of precolonial Indian communities with those of the arriving Europeans, especially in terms of how the respective groups conceived of owning property (and so bounding ecosystems). Having framed the argument with these sets of contrasts, I spend the rest of the book describing the processes of ecological change that followed the Europeans' arrival.

My purpose throughout is to explain why New England habitats changed as they did during the colonial period. It is not my intention to rewrite the human history of the region: this is not a history of New England Indians, or of Indian-colonial relations, or of the transformation of English colonists from Puritans to Yankees. Indeed, the reader should be careful not to draw the wrong conclusions about these subjects on the basis of my text. Although I attribute much of the changing ecology of New England to the colonists' more exclusive sense of property and their involvement in a capitalist economy—both present to some extent from the 1620s onward—I do not mean to suggest that the nature of the colonial economy underwent no fundamental alterations between 1620 and 1800. It of course did, and some of those alterations, by accentuating tendencies already present, accelerated the processes of ecological change.

Equally importantly, the reader must be very clear that the Indians were no more static than the colonists in their activities and organization. When I describe precolonial Indian ways of life, I intend no suggestion that these were somehow "purer" or more "Indian" than the ways of life Indians chose (or were forced into) following their contact with colonists. Indians did not define their "Indianness" solely in terms of ecological relationships, and many of them retained their sense of identity and their resistance to colonialism even after their effective military power and political autonomy had been destroyed. Because I seek primarily to explain ecological change, I devote relatively little attention to the political and military ways in which Europeans subjected Indian peoples. These are by now, I hope, fairly well known in their broad outline, and I trust that the reader will pursue further reading about them in the books I discuss in the bibliographical essay.

Although I have based my argument wherever possible on primary sources, any book of this kind must inevitably rely on the work of other scholars and other disciplines. Marshall Sahlins once described interdisciplinary research as "the process by which the unknowns of one's own subject are multiplied by the uncertainties of some other science." Like Sahlins, I think the benefits of interdisciplinary work outweigh the dangers, but I share his sense of risk. I have sometimes felt perilously unsure of myself as I have made my way through alien territory in anthropology, ecology, and colonial history. Fortunately, I have been blessed with guides who have pointed me clear of obvious errors whenever they could. Chief among these is Edmund S. Morgan, who originally suggested the subject of this book as a seminar paper I wrote for him four years ago. He was responsible for convincing me that the project was feasible in the first place, and has provided both criticism and moral support throughout its gestation. For a number of years now, Howard Lamar has been my mentor in all things pertaining to Western history, and I am grateful to him not only for his advice about this book but for his tolerance of my unplanned excursion onto the New England frontier.

This book could not have been written without the resources and community of Yale University. Aside from a brief excursion to Harvard's Widener Library and University Archives, all of my research was done at Yale. One of the delights (and sometimes irritations) of interdisciplinary work is the way it takes one to library call letters, library stack floors, and in fact entire libraries one has never visited before. In addition to my accustomed haunts in the Sterling and Beinecke Libraries, I found myself visiting Yale's Anthropology, Art and Architecture, Divinity School, Forestry, Geology, Kline Science, Law, Ornithology, Seeley Mudd, and Social Science Libraries; I am indebted to their librarians and to the institution which has assembled their collections. Particularly helpful was Joseph Miller, the Yale Forestry School Librarian, who took a strong interest in this project from the start.

Many other friends have helped out in a variety of ways. George Miles has been a firm and constructive critic of the way
On the morning of January 24, 1855, Henry David Thoreau sat down with his journal to consider the ways in which his Concord home had been altered by more than two centuries of European settlement. He had recently read the book *New England's Prospect*, in which the English traveler William Wood recounted his 1633 voyage to southern New England and described for English readers the landscape he had found there. Now Thoreau sought to annotate the ways in which Wood's Massachusetts was different from his own. The changes seemed sweeping indeed.

He began with the wild meadow grasses, which appeared, he wrote, "to have grown more rankly in those days." If Wood's descriptions were accurate, the strawberries too had been larger and more abundant "before they were so cornered up by cultivation." Some of them had been as much as two inches around, and were so numerous that one could gather half a bushel in a forenoon. Equally abundant were gooseberries, raspberries, and especially currants, which, Thoreau mused, "so many old writers speak of, but so few moderns find wild."

New England forests had been much more extensive and their
and coppice growth so common in nineteenth-century Concord. To see such a forest nowadays, Thoreau wrote, it was necessary to make an expedition to "the sample still left in Maine." As nearly as he could tell, oaks, firs, plums, and tulip trees were all less numerous than they had been in Wood's day.

But if the forest was much reduced from its former state, most of its tree species nevertheless remained. This was more than could be said for many of its animal inhabitants. Thoreau's list of those that were now absent was stark: "bear, moose, deer, porcupines, 'the grim-fac'd Ounce, and rav'nous howling Wolf,' and beaver. Martens." Not only the mammals of the land were gone; the sea and air also seemed more empty. Bass had once been caught two or three thousand at a time. The progeny of the alewives had been "almost incredible." Neither was now present in such abundance. Of the birds, Thoreau wrote: "Eagles are probably less common; pigeons of course ... heath cocks all gone ... and turkeys... Probably more owls then, and cormorants, etc., etc., sea-fowl generally ... and swans." To Wood's statement that one could purchase a fresh-killed swan for dinner at the price of six shillings, Thoreau could only write in wonderment, "Think of that!"

There is a certain plaintiveness in this catalog of Thoreau's, a romantic's lament for the pristine world of an earlier and now lost time. The myth of a fallen humanity in a fallen world is never far beneath the surface in Thoreau's writing, and nowhere is this more visible than in his descriptions of past landscapes. A year after his encounter with William Wood's New England of 1633, he returned to its lessons in more explicitly moral language. "When I consider," he wrote, "that the nobler animals have been exterminated here,—the cougar, panther, lynx, wolverene, wolf, bear, moose, deer, the beaver, the turkey, etc., etc.,—I cannot but feel as if I lived in a tamed, and, as it were, emasculated country." Seen in this way, a changed landscape meant a loss of wildness and virility that was ultimately spiritual in its import, a sign of declension in both nature and humanity. "Is it not," Thoreau asked, "a maimed and imperfect nature that I am conversant with?"

It is important that we answer this question of Thoreau's carefully: how did the "nature" of New England change with the coming of the Europeans, and can we reasonably speak of its changes in terms of maiming and imperfection? There is nothing new to the observation that European settlement transformed the American landscape. Long before Thoreau, naturalists and historians alike were commenting on the process which was converting a "wilderness" into a land of European agricultural settlement. Whether they wrote of Indians, the fur trade, the forest, or the farm, colonial authors were constantly aware that fundamental alterations of the ecological fabric were taking place around them. The awareness increased as time went on. By the late eighteenth century, many individuals—Peter Kalm, Peter Whitney, Jeremy Belknap, and Timothy Dwight chief among them—were commenting extensively on these changes.

For the most part, unlike Thoreau, they did so approvingly. As early as 1653, the historian Edward Johnson could count it as one of God's providences that a "remote, rocky, barren, bushy, wild-woody wilderness" had been transformed in a generation into "a second England for fertility." In this vision, the transformation of wilderness betokened the planting of a garden, not the fall from one; any change in the New England environment was divinely ordained and wholly positive. By the end of the eighteenth century, the metaphors for environmental change had become more humanistic than providential, but were no less enthusiastic about the progress such change represented. In a passage partially anticipating Frederick Jackson Turner's frontier thesis, for instance, Benjamin Rush described a regular sequence for clearing the forest and civilizing the wilderness. "From a review [of] the three different species of settlers," he wrote, speaking of Pennsylvania, "it appears, that there are certain regular stages which mark the progress from the savage to civilized life. The first settler is nearly related to an Indian in his manners—In the second, the Indian manners are more diluted: It is in the third species of settlers only, that we behold civiliza­tion completed." Though landscape was altered by this supposed social evolution, the human process of development—from Indian to clearer of the forest to prosperous farmer—was the center of Rush's attention. Environmental change was of secondary interest. For Enlightenment thinkers like Rush, in each stage, the
shape of the landscape was a visible confirmation of the state of human society. Both underwent an evolutionary development from savagery to civilization.1

Whether interpreted as declension or progress, the shift from Thoreau’s forest of “nobler animals” to Rush’s fields and pastures of prosperous farmers signaled a genuinely transformed countryside, one whose changes were intimately bound to the human history which had taken place in its midst. The replacement of Indians by predominantly European populations in New England was as much an ecological as a cultural revolution, and the human side of that revolution cannot be fully understood until it is embedded in the ecological one. Doing so requires a history, not only of human actors, conflicts, and economies, but of ecosystems as well.

How might we construct such an ecological history? The types of evidence which can be used to evaluate ecological change before 1800 are not uniformly reliable, and some are of a sort not ordinarily used by historians. It is therefore important to reflect on how they should best be criticized and used. The descriptions of travelers and early naturalists, for instance, provide observations of what New England looked like in the early days of European settlement, and how it had changed by the end of the eighteenth century. As such, they provide the backbone of this study. But to use them properly requires that we evaluate each traveler’s skills as a naturalist, something for which there is often only the evidence of his or her writings. Moreover, we can only guess at how ideological commitments such as Thoreau’s or Rush’s colored the ways they saw the landscape. How much did William Wood’s evident wish to promote the Massachusetts Bay Colony lead him to idealize its environment? To what extent did the anonymous author of American Husbandry shape his critique of American agriculture to serve his purpose of preserving colonial attachments to Britain? Even if we can remove most of these ideological biases to discover what it was a traveler actually saw, we must still acknowledge that each traveler visited only a tiny fraction of the region. As Timothy Dwight once remarked, “Your travelers seize on a single person, or a solitary fact, and make them the representatives of a whole community and a general custom.” We are always faced with the problem of generalizing from a local description to a regional landscape, but our understanding of modern ecosystems can be of great help in doing so.2

A second fund of data resides in various colonial town, court, and legislative records, although here the evidence of ecological change can sometimes be tantalizingly elliptical. We cannot always know with certainty whether a governmental action anticipated or reacted to a change in the environment. When a law was passed protecting trees on a town commons, for example, did this mean that a timber shortage existed? Or was the town merely responding with prudent foresight to the experience of other localities? If a shortage existed, how severe was it? Was it limited only to certain species of trees? And so on. Only by looking at the overall pattern of legal activity can we render a reasonable judgment on such questions. These problems notwithstanding, town and colony records address almost the entire range of ecological changes in colonial New England: deforestation, the keeping of livestock, conflicts between Indians and colonists over property boundaries, the extermination of predators such as wolves, and similar matters. Deeds and surveyor records can be used statistically to estimate the composition of early forests, and are usually more accurate than travelers’ accounts even though subject to sampling errors.3

Then there are the less orthodox sorts of evidence which historians borrow from other disciplines and have less experience in criticizing. Relict stands of old-growth timber, such as the Cathedral Pines near Cornwall, Connecticut, can suggest what earlier forests may have looked like. The relict stands which exist today, however, are by no means identical to most of the forests which existed in colonial times, so that the record of earlier forests must be sought in less visible places. Ecologists have done very creative detective work in analyzing tree rings, charcoal deposits, rotting trunks, and overturned stumps to determine the history of several New England woodlands. The fossil pollen in pond and bog sediments is a reliable but fuzzy indicator of the changing species composition of surrounding vegetation; despite problems in determining the absolute age of such pollen, it supplies some of the most reliable evidence for reconstructing past forests. In addition, a wide variety of archaeological evidence can be used to assess past environments, particularly the changing relations of human inhabitants to them.
Finally, there are those awkward situations in which an ecological change which undoubtedly must have been occurring in the colonial period has left little or no historical evidence at all. These include microscopic changes in soil fauna and flora, soil compaction, changes in the transpiration rates of forests, and so on. Here all arguments become somewhat speculative. Given what we know of ecosystem dynamics, however, it would be wrong simply to ignore such changes, since some of them almost certainly occurred even though no one noticed them at the time. I will occasionally appeal to modern ecological literature to assert the probability of such changes, and trust that, by so doing, I am not straying too far from the historian's usual canon for evaluating evidence. Silences in the historical record sometimes require us to make the best-informed interpolations we can, and I have tried always to be conservative on the few occasions when I have been forced to do this.

Although caution is required in handling all these various forms of evidence (and nonevidence), together they provide a remarkably full portrait of ecological change in colonial New England. But they also raise intriguing questions, questions which are both empirical and theoretical. One, for instance, follows directly from the imprecision of the data: travelers' accounts and other colonial writings are not only subjective but often highly generalized. Colonial nomenclature could be quite imprecise, so much so that the French traveler Chastellux wrote of the impoverishment of American English as a result:

Anything that had no English name has here been given only a simple designation: the jay is the blue bird, the cardinal the red bird; every water bird is simply a duck, from the teal to the wood duck, and to the large black duck which we do not have in Europe. They call them "red ducks," "black ducks," "wood ducks." It is the same with respect to their trees: the pine, the cypresses, the firs, are all included under the general name of "pine trees."

More confusing still could be the natural tendency for colonists to apply European names to American species which only superficially resembled their counterparts across the ocean.

The problems which this fuzzy nomenclature can create for those doing ecological history should be obvious. For instance, many early descriptions, including those by William Wood, make no mention at all of hemlock, although they do mention fir and spruce. On just such evidence, Thoreau concluded—incorrectly—that the fir tree had been much more common in colonial times. But since fir and spruce are now largely absent in southern New England, and since fossil pollen shows that hemlock has long been a significant component of the New England forest, it seems reasonable to conclude that "hemlock" was subsumed by colonists under the names of "fir," "spruce," and probably "pine." But how common was it? Only the fossil pollen can tell us. As another example, the hickory was rarely mentioned by name, but instead was for a long time known as the "walnut," an entirely different genus of tree. Because white pine was valuable economically, many early visitors seem to have seen it everywhere, thus leading them to exaggerate its numerical significance. Colonists confused the native junipers with European cedars for the same economic reasons, so that the red cedar has carried a misleading name ever since. All of these problems of nomenclature must be borne in mind if one is not to give a distorted picture of the colonial ecosystem.

A second difficulty is the old and familiar fallacy of post hoc ergo propter hoc. When reading colonial accounts describing floods, insect invasions, coastal alterations, and significant changes in climate, we are perhaps all too tempted to attribute these by some devious means to the influence of the arriving Europeans. This will not always do. Not all the environmental changes which took place after European settlement were caused by it. Some were part of much longer trends, and some were random: neither type need have had anything to do with the Europeans. Trickier still are instances where Europeans may or may not have altered the rate at which a change was already occurring. Unless one can show some plausible mechanism whereby settlement could and probably did cause a change, it seems best not to attribute it to European influence. One cannot escape the fallacy altogether—any discussion of causality in history must encounter it with some frequency—but one must at least be aware of when one is flirting with it. I shall have occasion to do so here.

This brings us to the heart of the theoretical difficulties involved in doing ecological history. When one asks how much an
ecosystem has been changed by human influence, the inevitable next question must be: "changed in relation to what?" There is no simple answer to this. Before we can analyze the ways people alter their environments, we must first consider how those environments change in the absence of human activity, and that in turn requires us to reflect on what we mean by an ecological "community." Ecology as a biological science has had to deal with this problem from its outset. The first generation of academic ecologists, led by Frederic Clements, defined the communities they studied literally as superorganisms which experienced birth, growth, maturity, and sometimes death much as individual plants and animals did. Under this model, the central dynamic of community change could be expressed in the concept of "succession." Depending on its region, a biotic community might begin as a pond, which was then gradually transformed by its own internal dynamics into a marsh, a meadow, a forest of pioneer trees, and finally to a forest of dominant trees. This last stage was assumed to be stable and was known as the "climax," a more or less permanent community which would reproduce itself indefinitely if left undisturbed. Its equilibrium state defined the mature forest "organism," so that all members of the community could be interpreted as functioning to maintain the stability of the whole. Here was an apparently objective point of reference: any actual community could be compared with the theoretical climax, and differences between them could then usually be attributed to "disturbance." Often the source of disturbance was human, implying that humanity was somehow outside of the ideal climax community.10

This functionalist emphasis on equilibrium and climax had important consequences, for it tended to remove ecological communities from history. If all ecological change was either self-equilibrating (moving toward climax) or nonexistent (remaining in the static condition of climax), then history was more or less absent except in the very long time frame of climatic change or Darwinian evolution. The result was a paradox. Ecologists trying to define climax and succession for a region like New England were faced with an environment massively altered by human beings, yet their research program demanded that they determine what that environment would have been like without a human presence. By peeling away the corrupting influences of man and woman, they could discover the original ideal community of the climax. One detects here a certain resemblance to Thoreau's reading of William Wood: historical change was defined as an aberration rather than the norm.11

In time, the analogy comparing biotic communities to organisms came to be criticized for being both too monolithic and too teleological. The model forced one to assume that any given community was gradually working either to become or to remain a climax, with the result that the dynamics of nonclimax communities were too easily ignored. For this reason, ecology by the mid-twentieth century had abandoned the organism metaphor in favor of a less teleological "ecosystem." Now individual species could simply be described in terms of their associations with other species along a continuous range of environments; there was no longer any need to resort to functional analysis in describing such associations. Actual relationships rather than mystical superorganisms could become the focus of study, although an infusion of theory from cybernetics encouraged ecologists to continue their interest in the self-regulating, equilibrating characteristics of plant and animal populations.12

With the imperatives of the climax concept no longer so strong, ecology was prepared to become at least in part a historical science, for which change was less the result of "disturbance" than of the ordinary processes whereby communities maintained and transformed themselves. Ecologists began to express a stronger interest in the effects of human beings on their environment. What investigators had earlier seen as an inconvenient block to the discovery of ideal climax communities could become an object of research in its own right. But accepting the effects of human beings was only part of this shift toward a more historical ecology. Just as ecosystems have been changed by the historical activities of human beings, so too have they had their own less-recorded history: forests have been transformed by disease, drought, and fire, species have become extinct, and landscapes have been drastically altered by climatic change without any human intervention at all. As we shall see, the period of human occupation in postglacial New England has seen environmental changes on an enormous scale, many of them wholly apart from human influence. There has been no timeless wilderness in a state of perfect changelessness, no climax forest in permanent stasis.
But admitting that ecosystems have histories of their own still leaves us with the problem of how to view the people who inhabit them. Are human beings inside or outside their systems? In trying to answer this question, appeal is too often made to the myth of a golden age, as Thoreau sometimes seemed inclined to do. If the nature of Concord in the 1850s—a nature which many Americans now romanticize as the idyllic world of Thoreau's own Walden—was as "maimed" and "imperfect" as he said, what are we to make of the wholeness and perfection which he thought preceded it? It is tempting to believe that when the Europeans arrived in the New World they confronted Virgin Land, the Forest Primeval, a wilderness which had existed for eons uninfluenced by human hands. Nothing could be further from the truth. In Francis Jennings's telling phrase, the land was less virgin than it was widowed. Indians had lived on the continent for thousands of years, and had to a significant extent modified its environment to their purposes. The destruction of Indian communities in fact brought some of the most important ecological changes which followed the Europeans' arrival in America. The choice is not between two landscapes, one with and one without a human influence; it is between two human ways of living, two ways of belonging to an ecosystem.

The riddle of this book is to explore why these different ways of living had such different effects on New England ecosystems. A group of ecological anthropologists has tried to argue that for many non-Western societies, like those of the New England Indians, various ritual practices have served to stabilize people's relationships with their ecosystems. In effect, culture in this anthropological model becomes a homeostatic, self-regulating system much like the larger ecosystem itself. Thus have come the now famous analyses designed to show that the slaughter of pigs in New Guinea, the keeping of sacred cows in India, and any number of other ritual activities, all function to keep human populations in balance with their ecosystems. Such a view would describe precolonial New England not as a virgin landscape of natural harmony but as a landscape whose essential characteristics were kept in equilibrium by the cultural practices of its human community.

Unfortunately, this functional approach to culture has the same penchant for teleology as does the organism model of ecological climax. Saying that a community's rituals and social institutions "function" unconsciously to stabilize its ecological relationships can lead all too quickly into a static and ahistorical view of both cultural agency and ecological change. If we assume a priori that cultures are systems which tend toward ecological stability, we may overlook the evidence from many cultures—even preindustrial ones—that human groups often have significantly unstable interactions with their environments. When we say, for instance, that the New England Indians burned forests to clear land for agriculture and to improve hunting, we describe only what they themselves thought the purpose of burning to be. But to go further than this and assert its unconscious "function" in stabilizing Indian relationships with the ecosystem is to deny the evidence from places like Boston and Narragansett Bay that the practice could sometimes go so far as to remove the forest altogether, with deleterious effects for trees and Indians alike.

All human groups consciously change their environments to some extent—one might even argue that this, in combination with language, is the crucial trait distinguishing people from other animals—and the best measure of a culture's ecological stability may well be how successfully its environmental changes maintain its ability to reproduce itself. But if we avoid assumptions about environmental equilibrium, the instability of human relations with the environment can be used to explain both cultural and ecological transformations. An ecological history begins by assuming a dynamic and changing relationship between environment and culture, one as apt to produce contradictions as continuities. Moreover, it assumes that the interactions of the two are dialectical. Environment may initially shape the range of choices available to a people at a given moment, but then culture reshapes environment in responding to those choices. The reshaped environment presents a new set of possibilities for cultural reproduction, thus setting up a new cycle of mutual determination. Changes in the way people create and re-create their livelihood must be analyzed in terms of changes not only in their social relations but in their ecological ones as well.

Doing away with functionalism does not mean abandoning the system-oriented perspective which an ecological approach allows. In addition to assuming that relations between people and
PART I · Looking Backward

their environment are not constant, but rather historical and
dialectical, it sees those relations as being connected within an
interacting system. Efforts to describe ecological history simply
in terms of the transfer of individual species between segregated
ecosystems, as Alfred Crosby and William H. McNeill have done,
are thus bound to be incomplete. Important as organisms like
smallpox, the horse, and the pig were in their direct impact on
American ecosystems, their full effect becomes visible only when
they are treated as integral elements in a complex system of
environmental and cultural relationships. The pig was not
merely a pig but a creature bound among other things to the
fence, the dandelion, and a very special definition of property. It
is these kinds of relationships, the contradictions arising from
them, and their changes in time, that will constitute an ecological
approach to history.

The study of such relations is usually best done at the local
level, where they become most visible; the best ecological histo­
ries to date have all examined relatively small systems as cases.
I have opted for a similar approach, albeit for a somewhat larger
region. But despite its strengths, the choice of a small region has
one crucial problem: how do we locate its boundaries? Tradition­
ally in anthropology, this has simply involved the area within
which people conduct their subsistence activities, often de­
dcribed using "ethno-ecological" techniques which analyze the
way the inhabitants themselves conceive of their territory. Yet
anthropologists are increasingly aware, as historians have long
known, that the development of a world capitalist system has
brought more and more people into trade and market relations
which lie well beyond the boundaries of their local ecosystems.
Explaining environmental changes under these circumstances—
as in the shift from Indian to European populations in colonial
New England—becomes even more complex than explaining
changes internal to a local ecosystem. In an important sense,
a distant world and its inhabitants gradually become part of an­
other people's ecosystem, so that it is increasingly difficult to
know which ecosystem is interacting with which culture. This
erasure of boundaries may itself be the most important issue of
all.

In colonial New England, two sets of human communities
which were also two sets of ecological relationships confronted
each other, one Indian and one European. They rapidly came to
inhabit a single world, but in the process the landscape of New
England was so transformed that the Indians' earlier way of
interacting with their environment became impossible. The task
before us is not only to describe the ecological changes that took
place in New England but to determine what it was about Indi­
ans and colonists—in their relations both to nature and to each
other—that brought those changes about. Only thus can we un­
derstand why the Indian landscape of precolonial times had be­
come the much altered place Thoreau described in the nine­
teenth century.
The view from Walden in reality contained far more than
Thoreau saw that January morning in 1855. Its relationships
stretched beyond the horizons of Concord to include vistas of
towns and markets and landscapes that were not in Thoreau's
field of vision. If only for this reason, we must beware of follow­
ing him too closely as our guide in these matters. However we
may respect his passion, we must also recognize its limits:

I take infinite pains to know all the phenomena of the
spring, for instance, thinking that I have here the entire
poem, and then, to my chagrin, I hear that it is but an
imperfect copy that I possess and have read, that my ances­
tors have torn out many of the first leaves and grandest
passages, and mutilated it in many places. I should not like
to think that some demigod had come before me and picked
out some of the best of the stars. I wish to know an entire
heaven and an entire earth.

We may or may not finally agree with Thoreau in regretting the
changes which European settlers wrought in the New World,
but we can never share his certainty about the possibility of
knowing an entire heaven and an entire earth. Human and natu­
ral worlds are too entangled for us, and our historical landscape
does not allow us to guess what the "entire poem" of which he
spoke might look like. To search for that poem would in fact be
a mistake. Our project must be to locate a nature which is within
rather than without history, for only by so doing can we find
human communities which are inside rather than outside na­
ture.18
The implications of this second ecological contradiction stretched well beyond the colonial period. Although we often tend to associate ecological changes primarily with the cities and factories of the nineteenth and twentieth centuries, it should by now be clear that changes with similar roots took place just as profoundly in the farms and countrysides of the colonial period. The transition to capitalism alienated the products of the land as much as the products of human labor, and so transformed natural communities as profoundly as it did human ones. By integrating New England ecosystems into an ultimately global capitalist economy, colonists and Indians together began a dynamic and unstable process of ecological change which had in no way ended by 1800. We live with their legacy today. When the geographer Carl Sauer wrote in the twentieth century that Americans had "not yet learned the difference between yield and loot," he was describing one of the most longstanding tendencies of their way of life. Ecological abundance and economic prodigality went hand in hand: the people of plenty were a people of waste. 9

NOTES

1. The View from Walden

2. Ibid., VIII, pp. 220-1 (March 23, 1856).
6. For a review of the literature using these techniques, see the bibliographical essay.
7. Marquis de Chastellux, Travels in North America in the Years 1780, 1781 and 1782 (1786), Howard C. Rice, Jr., ed. (Chapel Hill, 1963), I, p. 78.
9. Literally, "after this, therefore because of this." For a discussion, see David Hackett Fischer, Historians' Fallacies (New York, 1970), pp. 166-7.
2. Landscape and Patchwork

1. My initial sentence notwithstanding, the geographer Carl Sauer makes the important point that, for all of the differences, there were many similarities between New England and England: “It would be impossible, indeed, to cross an ocean anywhere else and find as little unfamiliar in nature on the opposite side.” (‘The Settlement of the Humid East,” in USDA Yearbook, Climate and Man [Washington, D.C., 1941], p. 159.) Sauer refers primarily to the individual species that were present in New England, whereas my argument speaks most directly to the populations of those species and the ecological relationships they bore to one another.


5. Douglas R. McManis, European Impressions of the New England Coast, 1497-1629, University of Chicago Department of Geography Research Paper No. 139 (Chicago, 1972), pp. 116-33, is good on this theme.


7. Wood, Prospect, pp. 50-2; Morton, Canaan, p. 193; Higginson, Plantation, pp. 311-14; Josselyn, Two Voyages, p. 277; A. W. Schorger, The Wild Turkey: Its History and Domestication (Norman, OK, 1966), pp. 318. Wood’s statement that some had killed fifty birds “at a shot” does not mean with a single gunshot but in a single hunting location. He and other seventeenth-century writers used “shot” in analogy with fishing, where the word means not only the single cast of a net but also the place from which nets are cast. See the Oxford English Dictionary.

8. Josselyn, Two Voyages, p. 278; Wood, Prospect, p. 50; William Hammond to Sir Simonds D’Ewes, September 26, 1633, in Everett Emer-