

More recently, modern hospital technology has indefinitely extended biological life through "extraordinary life-support." We have come to recognize that mere biological survival is not an unmixed blessing. Biotechnology confronts us with a far more radical specter: the indefinite prolongation of conscious, active life through the control of the aging process. If we can stop or slow the genetic program for cell senescence while controlling cell growth, we may be able to increase the human life-span dramatically. But if there are no longer natural limits, how many years should we allot ourselves? How much is enough? Do ever longer life-spans require a profound adjustment in our social institutions? Within a decade, these may well be pressing policy issues.

Biotechnology raises challenging new issues for public policy. In freeing us from the constraints of "normal human functioning," it may undermine the

assumptions that underlie much of the current policy debates. We will have to confront issues that were once left to philosophers and science fiction writers, and make decisions that were once thought to be God's alone.

—Robert Wachbroit

Among the sources discussed or cited in this article are J. Fiksel and V. Covello, "The Suitability and Applicability of Risk Assessment Methods for Environmental Applications of Biotechnology," in J. Fiksel and V. Covello, *Biotechnology Risk Assessment*, Pergamon (1986); Daniel Callahan, *Setting Limits: Medical Goals in An Aging Society*, Simon & Schuster, 1987; Bernard Williams, "The Idea of Equality" in Laslett and Runciman, *Philosophy, Politics and Society*, (Second Series) Blackwell, 1962; R. Wachbroit, "Making the Grade: Testing for Human Genetic Disorders," *Hofstra Law Review* 16 (Spring 1988): 583-99.

Nature Versus the Environment

Literature, history, and the arts take up the idea of nature as often as the ideas of humanity or love; indeed, a culture or an intellectual period can be identified by the symbolism it attaches to natural objects. No society has developed a culture that does not discover symbols in nature and attach special significance to them. But are these expressions of reverence for nature merely curious cultural artifacts, or do they have relevance for the contemporary debate on the environment?

Nature as Beauty and Power

"The two most obvious characteristics of Nature," the philosopher Alfred North Whitehead once said, "are loveliness and power." These were the principal characteristics artists and writers of the American Romantic tradition, including the transcendentalists, found in Nature — which they always spelled with a capital "N." Emerson, for example, discovered in the beautiful and the sublime aspects of Nature moral and religious lessons. "Man is fallen; nature is erect, and serves as a differential thermometer, detecting the presence or absence of the divine sentiment in man."

The transcendentalists inherited from the Puritan tradition the vision of Nature as a collection of images and shadows of divine things ("faint clues and indirections," Walt Whitman wrote) — although the buoyant Emerson thought these symbols were a lot easier to read than did the Puritan theologian Jonathan Edwards a century earlier. Similarly, the landscape of the American West impressed preservationists like

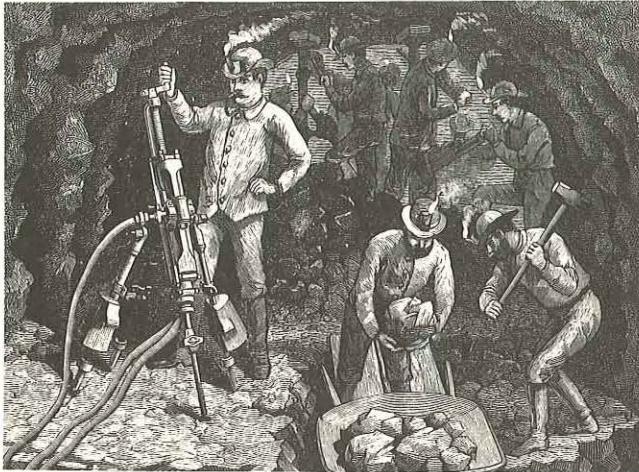
John Muir as a heritage direct from God's hand — a temple in which we should set foot only to worship.

What is striking today about the Romantic imagination of the nineteenth century is the insistence with which it portrayed Nature in moral, religious, and aesthetic terms — in terms of its beauty and power — and avoided mentioning its utility. The literature and art of the period — the paintings of Thomas Cole are an example — suggest that to use Nature is to transgress it, to put something foreign and artificial, i.e., Civilization, in its place. In one passage in which Emerson acknowledges the utility of Nature, he does so apologetically: we "draw our living as parasites from her roots and grains" he wrote, while we receive "the sublime moral of autumn and of noon."

The more Americans exploited the environment — the more they thrust civilization upon it — the more their literature and art celebrated the beauty and power of the Nature they destroyed. The historian Perry Miller observes:

The astonishing fact about this gigantic material thrust of the early nineteenth century is how few Americans would any longer venture, aside from their boasts, to explain, let alone to justify, the expansion of civilization in any language that could remotely be called that of utility. The more rapidly, the more voraciously the primordial forests were felled, the more desperately poets and painters — and also preachers — strove to identify the personality of this republic with the virtues of pristine and untarnished, or "romantic" Nature.

When the Western frontier closed after the Civil War, many Americans recognized the contradiction between the cultural attitude and the practical policy of their nation toward the natural environment. How could we continue to celebrate the loveliness and power of Nature while everywhere we mined it, plowed it, dredged it, and turned it to the purposes of our industrial economy?



Preservation or Conservation?

Preservationists at the end of the last century sought to minimize the encroachment of humanity on nature; like Whitehead, they believed the important characteristics of Nature are aesthetic and moral, not economic. They opposed conservationists, like Gifford Pinchot, who valued nature primarily for its useful resources and who believed that "the first duty of the human race is to control the earth it lives upon." Many of the concepts, metaphors, and associated norms and attitudes familiar in environmental controversies derive from a century-long debate between those who would protect nature for its symbolic qualities and those who would manage resources efficiently for human use.

The preservationist ethic drew strong support from American literature and art, which has approached nature as Olmsted perceived Yosemite, as the object of moral and aesthetic attention "aroused in the mind occupied without purpose, without a continuation of the common process of relating the present action, thought, or perception to some future end." F. Scott Fitzgerald said of one of his characters in *The Great Gatsby* that the beauty of nature compelled him "into an aesthetic contemplation he neither understood nor desired, face to face for the last time in history with something commensurate with his capacity to wonder."

The romantic and transcendentalist writers of the early nineteenth century, and Muir, Olmsted, and the preservationists who followed them, form a tradition with the nature writers of our own day — authors like John McPhee, Annie Dillard, Edward Abbey, Bill McKibben, and many others — who recite a litany for a vanishing natural heritage. These writers tend to

regard nature and humanity as utterly separate.

The idea that nature is what we cannot control — an independent force working on its own — is precisely the reverse of what conservationists like Pinchot believed. Conservationists held that nature or, more precisely, natural resources belong to humanity, which has a duty to maximize its own welfare, and it can do this best by controlling the earth. "The object of our forest policy," Pinchot announced in 1903 to the Society of American Foresters, "is not to preserve the forests because they are beautiful . . . or because they are refuges for the wild creatures of the wilderness . . . but . . . the making of prosperous homes."

Many economists, policy analysts, and others who, in the tradition of the conservation movement, urge us to use natural resources efficiently describe the object of our concern not as "Nature" but as "the environment," by which they mean the physical and biotic resource base for human sustenance and survival.

Writers concerned with ethical, cultural, and aesthetic issues, by contrast, tend to refer to "nature" rather than to the "environment." The titles of major texts in the field of environmental ethics, like John Passmore's *Responsibility for Nature* and Paul Taylor's *Respect for Nature*, avoid the term "environment." Thus, it seems that concepts that arise in the humanities — "responsibility," "stewardship," and "respect" — concern nature, while concepts in the social, natural, and policy sciences — "efficiency," "energy flows," "costs," and "benefits" — apply to the environment. The environment is what nature becomes when we see it as the object of planning, technology, and management.

While the arts and humanities have taught us to love and appreciate Nature for its beauty and power, the economic, policy, and natural sciences have instructed us to manage the environment to satisfy our wants and needs. We may ask, then, how we are to choose between the idea of Nature found in literature, religion, and art, of the one hand, and the concept of the environment we find in the sciences on the other. How can we deal intelligently with a nature that contains both — that is the locus both of beauty and power and, at the same time, of useful materials and resources?

Putting Nature Back Into the Environment

A century ago, Americans celebrated the beauty and power of pristine Nature while they rapidly developed natural resources. They protected a few magnificent landscapes and converted everything else to economic purposes. To experience Nature, Americans escaped to the Maine woods and to the Sierras; they returned to industrial cities like Chicago to develop the environment.

Today, all this has changed. The idea of an inviolate, self-sustaining pristine Nature has proven a will-of-the-wisp, as has the idea of a closed economic system. In place of the separate concepts of Nature and

environment, we now look for a single concept of nature (with a lower case "n") to describe a sustainable habitat — one in which to live harmoniously with our surroundings over the long run.

It has become apparent that neither the preservationist ethic nor the conservationist "gospel of efficiency" is adequate as we approach the twenty-first century. First, consider preservationism. While preservationists have fought for a century to keep the Adirondacks "forever wild," they have been pursuing a chimera. The flora and fauna of that region are hardly aboriginal; they got there in large part because of human activity, which had utterly revised virtually every ecological community in northeastern America. The area surrounding Walden Pond had been transformed by human beings even before the time of Thoreau. Wherever we look, we have played an immensely important role, intentional or not, in the course of natural history. Few if any pristine landscapes exist to be preserved.

It is in general too late, then, to preserve nature as we preserve art; too many changes have already taken place. Besides, to preserve nature as we do art — for example, to make forests into living museums — turns nature into art. To "restore" ecological communities to one of many possible earlier states may be a wonderful thing to do, but it involves human intervention, for we must use science and technology both to identify those states and to achieve them.

It is we who decide, moreover, what is "natural," for example, with respect to forest-fire policy in national parks and in managing populations of wild animals in the absence of extinct predators. Preservationists today, therefore, no longer think in terms of maintaining a hermetic separation between nature and humanity. Rather, they look for ways human beings may play a stabilizing, harmonizing role in or as part of the natural world.

Accordingly, many who stand in the tradition of Muir are concerned to guide and inform the human role we play in nature — not to keep apart from it. New sciences like conservation biology try to understand this appropriate human role — to understand how we may manage our economy to sustain the complexity and stability of nature and how we may manage the complexity and stability of nature to sustain our economy.

Even if we must modify the preservationism of Muir and Olmsted to make it relevant to our present circumstances, however, we need not embrace the "gospel of efficiency" associated with instrumentalists like Pinchot. Too many of us have lost faith in the ability of science and technology continually to subdue, control, and manipulate nature to facilitate economic expansion. As many of our writers, artists, and religious leaders suggest, we may succeed better by accommodating our interests and desires to the limits nature sets than by trying to push at those limits to accommodate our insatiable desires.

Many economists, like Herman Daly, have argued, therefore, that modern economic theory has failed to

address environmental problems realistically because it conceives of the economy as a closed system, in which abstract exchange value circulates in a loop between production and consumption, in splendid isolation from the larger ecological systems of which it is a part. In such an abstract circle of trading, in which goods and services are substitutable in terms of price, environmental problems are perceived as "tradeoffs" to be captured by markets or, when markets fail, by experts who can get the prices of things right.

This approach — which regards all environmental problems as problems of efficient resource allocation — neglects the general problems of aggregate resource depletion and the limited capacity of natural systems to carry the macroeconomy as a whole. Daly suggests the image of a boat that sinks when it is overloaded even though everyone in it has allocated his weight in an "optimal" or "efficient" way. The representation of nature as the boat that carries us — rather than a star that guides us or the materials we have on board — offers an important metaphor to supplement familiar images of "Nature" and "environment."

The Challenge to the Humanities

In a remarkable passage toward the beginning of *A Week on the Concord and Merrimack Rivers* (1849), Henry David Thoreau writes:

Late in the afternoon we passed a man on the shore fishing with a long birch pole, its silvery bark left on, and a dog at his side, rowing so near as to agitate his cork with our oars, . . . ; and when we had rowed a mile as straight as an arrow, with our faces turned towards him, and the bubbles in our wake still visible on the tranquil surface, there stood the fisher still with his dog, like statues under the other side of the heavens, the only objects to relieve the extended meadow; and there would he stand abiding his luck, till he took his way home through the fields at evening with his fish. Thus, by one bait or another, Nature allures inhabitants to all her recesses.

Among the writers of pre-Civil War America, Thoreau dealt most subtly with the relation between nature and our economic needs. The last sentence of this passage, for example, points out that we discover nature's secrets not only when we contemplate its beauty and power but also when we try to wrest a living from it. Today, science and technology take us to recesses in nature undreamed of in Thoreau's time. Yet the "bait" with which nature lures us to split the atom or break the genetic code is much the same as that which brought the fisherman to the river.

Thoreau's description of the scene on the riverbank reflects a sense of proper proportion between human-



ity, technology, and nature. Now that humanity has increased vastly in number and our technology has increased greatly in power, our problem from an economic as well as ethical and aesthetic perspective is to maintain proper proportion between economic activity and the natural world. Our task is not simply to control nature but to control ourselves so that the human economy can fit appropriately within the natural one.

It is easy to read a preservationist message in the famous remark in chapter two of *Walden* that "a man is rich in proportion to the number of things he can afford to let alone." In its context, however, this statement also suggests that from an economic point of view we must maintain intact the resources on which we depend. The fisherman, in satisfying his needs, does not destroy the river; he leaves it as he found it for another day. Similarly, we increase our wealth when we bring economic activity into a sustainable relationship with nature, for example, by renewing the resources we deplete and by maintaining the functioning of the ecological systems on which we depend.

An important challenge to the humanities in our time is to show us how we may regard nature not simply as a system of resources or raw materials for our use or, at the other extreme, as a preserve apart from economic life, but as the habitat in which we

and all other species live. The task of developing nature as habitat has been the traditional work of human culture.

The word "culture" derives from *colere* — to cultivate, to dwell, to care for, and to preserve. The attitude of loving care is the lesson the humanities can teach. The writers, artists, and theologians of the nineteenth century taught us to appreciate and revere the loveliness and power of nature, i.e., the beautiful and the sublime. We must now learn how to respect the complex and sometimes fragile ecological systems that support the diversity of life, including our own. If we must abandon the preservationist ideal of a pristine nature from which humanity is excluded, we must at the same time resist the conservationist view of nature as a mere resource for humanity's exclusive benefit.

—Mark Sagoff

Among the sources used in preparation of this article are Ralph Waldo Emerson, "Nature," in *Essays: Second Series* (Merrill Publishing Company, 1969); Perry Miller, *Errand into the Wilderness* (Harper & Row, 1964); Gifford Pinchot, *The Fight for Conservation* (Doubleday, 1910); Samuel Hays, "The Mythology of Conservation," in Henry Jarrett, ed., *Perspectives on Conservation* (Johns Hopkins Press, 1966); Herman Daly, "Toward an Environmental Macroeconomics," *Land Economics* 67 (1991).

Rights Past, Present, and Future

As we witness the disintegration of the Soviet Union and the growing assertion of ethnic and nationalistic claims in opposition to existing political boundaries, we encounter a striking phenomenon. At the same time as states come apart along ethnic and cultural lines, political rhetoric comes together under the once exclusively Western liberal banner of rights, freedom, and democracy. What are we to make of this historic convergence?

There is much to be learned about the contemporary rhetoric of rights from philosophic inquiry into fundamental human interests and liberties. But rights must also be viewed as historical achievements, as protections — devised and tested through time and practice — against many of the worst evils that can befall human beings, and especially those they can inflict on one another. From this standpoint, a key task of both practical philosophy and political debate is to reflect on these products of history: to search for underlying commonalities, to explore ambiguities of existing rights, to inquire whether, given added experience and changed circumstances, the purposes that initially guided the construction of particular rights might now warrant their extension or alteration.

Contemporary discussions of rights are shaped by a complex historical inheritance. The post-Reformation religious wars serve as a useful point of departure. Three different responses to this turbulent period have helped constitute our understanding of rights. To begin with, doctrinal clashes had helped spark an outburst of cruelty that shocked Europe. Leading humanists, chief among them Montaigne, reacted (in Judith Shklar's formulation) by "putting cruelty first" — that is, by identifying cruelty as the prime vice, by focusing on the fear cruelty engendered as the core evil, and by attempting to shape new political understandings and institutions that would reduce the amount of cruelty and fear in the world. This focus on cruelty is echoed in the Eighth Amendment's prohibition of cruel and unusual punishment, and it makes a dramatic reappearance as one of the Atlantic Charter's "four freedoms" — freedom from fear — in response to the twentieth-century renewal of doctrinally-driven brutality.

A second response to religious warfare was an enhanced focus on the value of human life and the formulation of rights of self-preservation. The locus classicus is Hobbes, but life is first among Locke's triad