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# *The Deep Ecology Movement: A Review*

George Sessions

Although Aldo Leopold recognized the significance of ecology much earlier, calling it “the outstanding discovery of the twentieth century,” it was not until the 1960s with the rise of the Age of Ecology that the wider public became aware of the science of ecology and its relevance to environmental matters. During that period the foundations were laid for a religious and philosophical revolution of the first magnitude. As G. Tyler Miller observed: “The ecological revolution will be the most all-encompassing revolution in the history of mankind.” Warwick Fox added that deep ecologists were contributing to “a ‘paradigm shift’ of comparable significance to that associated with Copernicus.” That new philosophical challenge was directed at the pervasive metaphysical and ethical anthropocentrism that has dominated Western culture with classical Greek humanism and the Judeo-Christian tradition since its inception.<sup>1</sup>

It is generally acknowledged that Rachel Carson’s *Silent Spring* ushered in what can appropriately be called the Age of Ecology. Her attack on pesticides coincided with increasing public awareness of the extent of pollution and the overall environmental destruction that had taken place since the Second World War. Carson’s indictment of pesticide use confirmed growing doubts concerning the technological ability of humans to manage the “resources” of the planet successfully. She also challenged anthropocentrism: “The ‘control of nature’ is a phrase conceived in arrogance, born of the Neanderthal age of biology and philosophy, when it was supposed that nature exists for the convenience of man.”<sup>2</sup>

Given the state of environmental deterioration by the early 1960s, the administration of John F. Kennedy was about to launch the third major conservation effort of the century (the first two occurred during the administrations of the two Roosevelts). Secretary of the Interior Stewart Udall signaled that effort with the publication of *The Quiet Crisis* in 1963. Like *Silent Spring*, it too was a best seller and outlined the “conservation” crisis. Although there was no extended discussion of Aldo Leopold, in a footnote Udall observed that *Sand County Almanac* was the one book that pointed to “a noble elegy for the American earth and a plea for a new land ethic.”

Udall’s book, however, reflected the dominant American anthropocentric “resource” approach to the environmental crisis. The revolutionary ecocentric ideas of Henry David Thoreau, John Muir, and Leopold either

were not understood or were ignored. Udall did point to changing attitudes in the 1960s towards the nature religions and "land wisdom" of the American Indians: "Today the conservation movement finds itself turning back to ancient Indian land ideas, to the Indian understanding that we are not outside of nature, but of it. . . . We are recovering a sense of reverence for the land."<sup>3</sup>

Many environmental historians, ecophilosophers, and anthropologists now agree that primal societies throughout the world practiced a spiritual "ecological" way of life in which everything was to be respected in its own right. This "ecocentric" religious approach accounts for their cultural success for thousands of years and can provide modern humans with historical models for the human/Nature relationship.<sup>4</sup>

Lynn White, Jr., brought the anthropocentrism issue into dramatic focus as the basis for the environmental debate. White argued in a 1967 article that orthodox anthropocentric Christianity must assume a large share of the responsibility for the environmental crisis as a result of desacralizing nature and producing a world view (metaphysics) that sees humans as separate from and superior to nature. He further argued that the ideologies that shaped modern, urban-industrial societies have failed to emancipate themselves from essentially Christian ideas, including human domination over nature and a belief in perpetual progress.

Another radical strain in White's analysis was his claim that Western cultural ideas of the domination and control of nature had shaped the development and thrust of modern science and technology. That argument challenged widely held opinions about the supposed "objectivity" and cultural neutrality of theoretical science. Because "modern science and technology are permeated with orthodox Christian arrogance toward nature," White claimed that we will have a worsening crisis "until we reject the Christian axiom that nature has no reason for existence save to serve man." White's solution to the environmental crisis was to suggest a return to the ecological egalitarianism of St. Francis whom he considered "the greatest spiritual revolutionary in Western history." St. Francis "tried to substitute the idea of the equality of all creatures, including man." He attempted, according to White, to dissuade humans from the idea of dominating nature and to "set up a democracy of all God's creatures."<sup>5</sup>

Clarence Glacken reinforced White's analysis by pointing out that the architects of the scientific revolution (Bacon, Descartes, and Leibniz) were all philosophizing within a Christian matrix. Modern science and the direction of technological society, were developed with the specific goal of conquering nature. And by that time, the anthropocentrism of classical Greek humanism (Plato and Aristotle) had already been absorbed into Christian doctrine and was exerting an independent influence.<sup>6</sup>

White's essay reached a wider audience when it was republished in the *Sierra Club Bulletin* and discussed approvingly in Paul Ehrlich's *The Population Bomb*. Along with other deep ecology classics of the 1960s, White's article was reprinted in several anthologies. Garrett Hardin's provocative

essay, "The Tragedy of the Commons," a philosophical and ecological sophistication of the anthropocentric position, also appeared in these anthologies.<sup>7</sup>

For their part, Christian theologians and scientists either denounced White's thesis or reexamined their own religious beliefs and values. Conferences were organized and received wide press coverage. White claimed with some justification to have created "the theology of ecology." As a consequence, many theologians now advocate a less exploitive attitude toward nature—referred to as "stewardship"—that has much in common with the orthodox position of conservationists. Few, if any, were willing to follow White in advocating St. Francis and ecological equality.<sup>8</sup>

Thus, what had begun as another wave of the conservation movement had turned by the late 1960s into a radical critique of the basic assumptions of modern Western society. Carroll Pursell called this a move "from conservation to ecology."<sup>9</sup> Much of this radical critique, however, was developed by professional biologists and ecologists relying on their scientific training and experiences, in addition to the literature of social critics such as Huxley and Orwell, and the Zen Buddhist vision of harmony with nature.

Even before White published his provocative essay, Marston Bates had chided professional philosophers for "dallying in their academic groves" when the need for a new ecologically-based philosophy was imperative. He pointed to the unnatural Christian separation of humans from nature and proposed St. Francis as the patron saint of ecologists. Through this period the widely read anthropologist Loren Eiseley also was focusing attention upon the narrow anthropocentrism and environmental destructiveness of modern man.<sup>10</sup>

Raymond Dasmann, who wrote influential books from a broad social perspective, was advocating a move to the "future primitive" and "ecosystem people" ways of life by the 1970s. According to John Milton, a self-professed Zen Buddhist, Zen taught that "there is really no distinction between the organism and its environment." And Frank Egler proposed a new world view called Human Ecosystem Science: "I look to Hinduism, Buddhism, and Taoism . . . as the womb from which a humanitarian-oriented Human Ecosystem Science may yet arise."<sup>11</sup>

Paul Shepard's essay, "Ecology and Man," was another landmark in the critique of Western anthropocentrism. Influenced by the Zen Buddhist views of Alan Watts, Shepard discussed the different metaphysics resulting from an ecological perception. He characterized ecology as the subversive science or subject: "the ideological status of ecology is that of a resistance movement. Its Rachel Carsons and Aldo Leopolds are subversive." Since the publication of his first book in 1967, Shepard has been one of the most provocative thinkers in the development of the emerging ecological world view.<sup>12</sup>

Ecologists have continued to provide philosophical direction for this revolution in thinking. The Canadian, John Livingston, combined ecological insight with a critique of Western anthropocentrism. He argued against the

treatment of plants and animals primarily as human resources. Livingston's colleague, Neil Everndon, pointed out that the idea of interrelatedness goes beyond the usual scientific sense of causal connectedness; from an ecological standpoint there are no discrete entities. Recently Everndon has critiqued anthropocentric "resourcism" and developed a phenomenological approach to philosophical ecology.<sup>13</sup>

In *The Arrogance of Humanism* David Ehrenfeld leaned heavily on the writings of George Orwell in developing his powerful critique of anthropocentric humanism and the failure of modern technology. He argued that the exclusive emphasis upon reason has divorced us from the crucial survival functions of instinct, emotion, and intuition. Ehrenfeld discussed the failure of viewing the world in terms of resources and referred approvingly to Charles Elton's ecocentric and religious reasons for protecting ecological diversity.

Anne and Paul Ehrlich argued in 1981 for the ecological necessity of vast expanses of unmanaged wilderness as species habitat. Nonhuman species, they claimed, have intrinsic value and the right to exist which is "the first and foremost argument for the preservation of all nonhuman species." More recently, Paul Ehrlich has claimed that "the main hope for changing humanity's present course may lie . . . in the development of a world view drawn partly from ecological principles—in the so-called deep ecology movement."<sup>14</sup>

The emergence of the Age of Ecology was, of course, heavily indebted to earlier writers. St. Francis was unique for attempting to divert mainstream Christianity back to a position of ecological equality. During the rise of modern science in the seventeenth century, Spinoza had attempted to undercut the materialistic scientism of Hobbes and the mind-body dualism and domination of nature themes of Descartes and to establish instead a holistic nonanthropocentric pantheism. His system influenced Goethe and other writers of the European Romantic movement, now understood as a nature-oriented, countercultural force aligned against the rise of the narrowly scientific industrial society. That countercultural force took shape in America in the Transcendentalism of Whitman, Emerson, and Thoreau. In the late nineteenth century, John Muir moved away from the subjectivism of Romanticism and Transcendentalism and arrived at the major generalizations of ecology through direct experience of ecological interrelatedness.

There were also forewarnings by George Perkins Marsh and John Stuart Mill. The latter could see no ultimate value in conquering nature and called for a "stationary state" in population and economics. At the beginning of the twentieth century, George Santayana attacked the anthropocentrism of the dominant Western philosophy and religion and called for a new "noble moral imagination" that would extend the democratic principle "to the animals, to inanimate nature, to the cosmos as a whole." In effect, Muir and Santayana at the beginning of the twentieth century were challenging America to develop an ecocentric philosophy and a new ecological way of life.<sup>15</sup>

After the First World War, the development of an ecological perspective continued mainly in the writings of literary figures such as D. H. Lawrence,

Robinson Jeffers, Aldous Huxley, and Joseph Wood Krutch. More recently Alan Watts, Gary Snyder, and Edward Abbey have carried on this tradition. Poets from T. S. Eliot to Archibald McLeish warned of the "diminishment of man" as a result of industrial society. Radical ecologists since the 1960s have gained inspiration from Thoreau and Muir, from the Zen Buddhism of Huxley, Watts, and Snyder, and from the antiutopian social critiques of Huxley and Orwell. In discussing the significance of the antiutopian novels for the human-nature relationship, Wayland Drew referred to an early novel by the Russian, Eugene Zamiatian. The dichotomy between wild nature and the technological society is sharply drawn in his book. Zamiatian claimed in defending wilderness that "the separation of man from nature is imperfect so long as man might recognize that a separation has occurred."<sup>16</sup>

A great deal of credit for developing the new ecological world view must go to the professional ecologists of the last twenty years. And behind their efforts stood the towering figure of Aldo Leopold. But we must also look to the literary critics and naturalists—from Thoreau and Muir to Jeffers, Huxley, Orwell, and Snyder—who prepared the soil for the Age of Ecology and gave it a wider and deeper perspective.<sup>17</sup>

The philosopher Wallace Matson has remarked that "great philosophy is reflection after the fact; it is the effort of thoughtful men to make sense of the world once again after the old picture has become no longer believable." By the early 1970s the critique of anthropocentrism began to bear fruit as efforts began independently by professional philosophers in the United States, Great Britain, Australia, and Norway to articulate the emerging ecological world view. This marked the beginnings of the rise of ecophilosophy and deep ecology as carefully developed philosophical positions.

In the United States, Thomas Colwell, Jr., was one of the first to discuss ecophilosophical issues in a systematic way. He assessed the implications of the ecological revolution for modern society, compared it with the Copernican revolution, and urged academic philosophy to take the human-nature relationship as its central concern. Colwell compared the ecological significance of the philosophies of Spinoza and John Stuart Mill and suggested a move in the direction of Spinoza.<sup>18</sup>

At a University of Georgia conference in 1971, Peter Gunter noted that ecology and environmentalism were movements towards holism and organicism. He urged academic philosophy to construct a new ecological world view as an alternative to anthropocentrism, atomism, and mechanism, and called for a "greening" of philosophers. At the same meeting, Eugene Odum and William Blackstone urged the adoption of Leopold's ecological conscience. Elsewhere, other American philosophers and theologians were advocating an ecological world view based on the organismic philosophy of Alfred North Whitehead.<sup>19</sup>

The political philosopher, John Rodman, offered a critique in 1973 of the anthropocentrism of both classical Greek and modern philosophy. Rodman sponsored a major conference, "The Rights of Non-Human Nature," in

1974 at Claremont, California, with many leading ecophilosophers participating. The meeting proved to be a major stimulus for the development of ecophilosophy in the United States. Since then Rodman has written a series of brilliant papers including a typology of ecophilosophical positions, a critique of the animal rights position, and an alternative to the standard ethical interpretation of Leopold's land ethic.<sup>20</sup>

During the same period Hwa Yol and Petee Jung also began developing an ecophilosophy based on the work of Martin Heidegger and Eastern philosophy. Michael Zimmerman followed with an examination of Heidegger's critique of Western philosophy as the foundation for the subjectivist technological mentality and the drive to dominate nature. It was, according to Zimmerman, a view of the world as a storehouse of raw material for the enhancement of man's power. Heidegger had called for a new way of thinking that would "let beings be." Zimmerman has continued to develop Heidegger's thought along ecological lines.<sup>21</sup> Another hallmark was the appearance of the journal *Environmental Ethics* in the spring of 1979. The international debate on environmental ethics, ecophilosophy, deep ecology, ecofeminism, and the critique of animal rights has been carried on within its pages.

In England, the world-famous philosopher Bertrand Russell pointed in 1945 to the dangers of valuing science primarily as technological power over nature. He warned of the "vast social disaster" that would result from the anthropocentric philosophies of Karl Marx and John Dewey which "tend to regard everything nonhuman as mere raw material." Unfortunately, Russell did not develop these ideas further; his last energies were devoted to nuclear disarmament campaigns.

The Spinoza scholar, Stuart Hampshire, later faulted contemporary Western ethical theory for its anthropocentrism. That is, states of mind (feeling, consciousness) are considered to be the only intrinsic good; the rest of nature is valued only to the extent to which it contributes to essentially human states of consciousness. Modern ethics, Hampshire thought, belittled and diminished humans and also involved a kind of arrogance in the face of nature—"an arrogance that is intelligible only if the doctrine is seen as a residue of the Christian account of this species' peculiar relation to the Creator." He asked whether nature could be "farmed by human beings for their comfort and pleasure without any restriction other than the comfort and pleasure of future human beings?" Hampshire proposed instead a more cosmic Spinozistic world view in which ecologically destructive acts would be prohibited by exceptionless norms.<sup>22</sup>

In Australia, the internationally known philosopher and historian of ideas, John Passmore, produced the first major work in ecophilosophy in 1974. Passmore's book, together with papers written by Australian National University faculty members, Richard Routley (now Sylvan) and Val Routley (now Plumwood), resulted in considerable interest in ecophilosophy among Australian scholars. Passmore and the Routleys were opponents in this

debate. Richard Routley argued that a mere "extension" of existing anthropocentric humanist ethics to the nonhuman world would be inadequate; it was necessary to move to a unique environmental ethic of the Leopoldian type. Routley questioned whether the three main Western human-nature views mapped out by Passmore—the despotic, the stewardship, and man perfecting nature—could be modified to do justice to ecological realities.

Thus, the ecophilosophical debate in Australia, as elsewhere, took the form of a shallow anthropocentric versus a deep ecological approach to environmental problems. Val Routley claimed that the "Western Domination Assumption" was at the basis of the three positions Passmore had outlined, wherein humans are free to modify and manipulate nonhuman nature without any concern for the intrinsic value of other species and ecosystems. Richard Routley called this "human chauvinism" and "species bias." The Routleys and Paul Taylor have recently provided devastating critiques of anthropocentrism and the idea of human superiority.<sup>23</sup>

John Passmore was motivated to write his book largely as a defense against the claims of the radical ecologists of the 1960s. He mentioned that several ecologists—as well as Lynn White and Victor Hugo—were calling for "a new ethics, a new metaphysics, a new religion" of ecology. He also pointed out that Aldo Leopold "was one of the first to suggest that the West now stands in need of a 'new ethic'—an 'ethic of conservation.'" Passmore rejected the "man as despot" view which he claimed had been the predominant interpretation of the Book of Genesis.

Passmore traced the second view, stewardship, to Plato and the post-Platonic philosopher, Iamblichus. As developed by the seventeenth-century humanist, Sir Matthew Hale, humans were to be stewards or farm managers for this "goodly farm of the lower world." The third view, man perfecting nature, Passmore traced to Stoicism and to Aristotle's view that "nature is at its best when it fulfills men's needs. . . . So to perfect nature is to humanize it." Passmore claimed that the third view came to full flowering within the idealist metaphysics of Hegel and from there was incorporated into the thinking of Marx, Herbert Marcuse, Pierre Teilhard de Chardin, and Ian McHarg.

Australian philosophy has a strong secular and positivistic caste to it, and both Passmore and the Routleys are part of that tradition. Passmore rejected the sacredness of nature, because it was an attitude incompatible with the Western scientific tradition, Bertrand Russell and Albert Einstein to the contrary. Passmore also rejected any metaphysical "philosophy of wholeness" which, he claimed, was wrapped up with the "mystical totalistic illusion" and led to political authoritarianism. Passmore and the Routleys disagreed primarily over the need for a new environmental ethic, one that the Routleys thought could be "as tough, practical, rational and secular as prevailing Western ethics."<sup>24</sup>

Passmore thought the two models of the human-nature relationship—the "stewardship" and "man perfecting nature" views were converging. He endorsed them as the West's unique contribution to a sound contemporary



approach to nature. In 1975, Passmore backed away from that narrow anthropocentrism: "We do need a 'new' metaphysics which is genuinely not anthropocentric. . . . The working out of such a metaphysics is, in my judgment, the most important task which lies ahead of philosophy."<sup>25</sup>

The first Norwegian ecophilosopher was Peter Zapffe who developed what he called a "biosophy" in 1941. But it was not until the 1960s, when there were demonstrations against the damming of rivers in Norway, that ecophilosophy continued. Sigmund Kvaloy's 1974 paper contained one of the first uses of the word "ecophilosophy." It was in the context of this Norwegian environmental milieu that the distinguished philosopher of science and linguistics, Arne Naess, delivered his lecture, "The Shallow and the Deep, Long-Range Ecology Movements," to the Third World Future Research Conference in Bucharest. Naess both described and defined the deep ecology movement into existence.<sup>26</sup>

Arne Naess argued that "the emergence of ecologists from their former relative obscurity marks a turning point in our scientific communities. But their message is twisted and misused." The shallow movement is a short-term, pragmatic reform approach, in his view, concerned mainly with the symptoms of environmental disease such as pollution and resource depletion. Its objective, Naess claimed, was anthropocentric and parochial—"the health and affluence of people in the developed countries." The long-range "deep" movement was proposing a major realignment in our thinking about humans and nature consistent with an ecological perspective. Naess claimed that the experiences of ecologists and others associated with wild nature gave rise during the 1960s to scientific conclusions and intuitions that were amazingly similar. These included the awareness of the internal interrelatedness of ecosystems; ecological egalitarianism (all species have an equal right to live and blossom); the principles of diversity and symbiosis; an anti social-class position; the appreciation of ecological complexity leading to the awareness of the "*human ignorance* of biospherical relationships." The ecological field worker "acquires a deep-seated respect, or even veneration, for ways and forms of life," the principles of local autonomy and decentralization.

Naess also claimed that "insofar as ecology movements deserve attention they are ecophilosophical rather than ecological:"

Ecology is a limited science which makes use of scientific methods. Philosophy is the most general forum of debate on fundamentals. . . . The significant tenets of the Deep Ecology movement are clearly and forcefully normative. They express a value priority system only in part based on results (or lack of results) of scientific research. . . . It is clear that there is a vast number of people in all countries . . . who accept as valid the wider norms and values characteristic of the Deep Ecology movement.

Naess's major work in ecosophy was published in Norway in 1976 and later translated into Swedish. While certainly on the scale of Passmore's *Man's Responsibility for Nature*, it is little known outside Scandinavia and is only now being published in English. Ecosophy is Naess's version of deep ecology; it is inspired by the science of ecology, Gandhi, and the philosophy

of Spinoza and is derived from the norm of universal self-realization. Naess continues to refine ecosophy and exhorts professional ecologists to take deep ecological stands.<sup>27</sup>

During the period 1978-1981, California sociologist Bill Devall and philosopher George Sessions further developed the shallow (or reform)/deep ecological distinction and used it as a basis for classifying and describing the various ecophilosophical positions. The distribution of these papers was widespread throughout the international community of ecophilosophy scholars and, by 1983, John Passmore announced that

it is now customary to divide the family of "ecophilosophers"—that limited class of philosophers who take environmental problems seriously—into two genera, the "shallow" and the "deep."<sup>28</sup>

Drawing upon Naess's original paper, Naess and Sessions (in April of 1984) drafted a more neutral deep ecological platform designed to appeal to a great many people coming from different philosophical and religious persuasions.<sup>29</sup>

While philosophers debate and refine the principles of deep ecology, its overall ideas and ways of life are being implemented in the everyday sphere. Deep ecology scholar and poet Gary Snyder is one of the main links to the international social movements known as bioregionalism and reinhabitation. And Dolores LaChapelle helps to reintroduce earth rituals among contemporary peoples. Activist organizations such as Greenpeace and Earth First! have adopted deep ecological and ecocentric principles as their guiding philosophy. And Green political parties, originating in West Germany and now spreading throughout the world, are finding the deep ecology platform congruent with their social and political aims.<sup>30</sup>

Aldo Leopold's influence on the thinking of radical ecologists and the development of environmental ethics, ecophilosophy, and deep ecology has been far-reaching. The availability of Leopold's ideas was greatly increased with the publication of Roderick Nash's *Wilderness and the American Mind* in 1967. Nash traced the development of modern American thought on wilderness from Thoreau and Muir to the scientific, ecological, and ethical thinking of Leopold and the statement of the secular and scientific "land ethic." For contemporary environmentalists only science had the prestige to convince a society of the validity of the ecological perspective. Nash became the major proponent of Leopold's thought and—following Leopold's analysis of the development and "extension" of ethics from humans to animals, plants, rocks, and ecosystems—he called for the "rights of rocks" and for "rounding out the American [ethical] revolution."<sup>31</sup>

Nash discussed the influence of Darwin, Muir, Schweitzer, Liberty Hyde Bailey, and Asian philosophy on Leopold. Others compared his thought with Zen Buddhism. Although Leopold seemed to have understood the magnitude of the ecological perspective—calling it "the outstanding discovery of the twentieth century"—he described it primarily in terms of an ethical and

esthetic revolution. Correspondingly, he referred to an “ecological conscience,” rather than an “ecological consciousness.” At a deeper level, Leopold seemed to envision the shift from an anthropocentric to an ecocentric world view: “we are only fellow-voyagers with other creatures in the odyssey of evolution.” Leopold’s deep experiential commitment was evident in his reference to “thinking like a mountain.” The shift for Leopold to ecocentrism was a tribute to his open-mindedness and sensitivity; he had been trained in the anthropocentric resource conservation ideology of Gifford Pinchot and had authored the ground-breaking textbook in “game” management. Leopold claimed that this “conversion” or “gestalt shift” took place when he was involved in killing one of the last wolves in Arizona.<sup>32</sup>

Early in his career Leopold wrote of the Earth as a living organism, a view inspired by reading the Russian philosopher, Peter Ouspensky. Susan Flader believes that orthodox scientific colleagues may have dissuaded Leopold from publishing his views. In deference to the prevailing scientific mechanistic view, he alternated between referring to the land as a “mechanism” and as a collective “organism.” But Leopold’s awareness of ecological relationships led him beyond the reigning scientific orthodoxy to an organismic understanding and an almost mystical sense of thinking like a muskrat, a wolf, and a mountain.<sup>33</sup>

Leopold also claimed that “the conqueror role is eventually self-defeating. . . . the biotic mechanism is so complex that its workings may never be fully understood.” That humility in the face of the ultimate mystery of the universe and natural processes can also be found in the writings of Loren Eiseley, in Rachel Carson’s criticism of the “control of nature,” and in Frank Egler’s view that “nature is not only more complex than we think, but it is more complex than we can think.” This emphasis by modern ecologists strikes at the heart of the Western domination assumption, challenges the main tenets of modern science, and provides the key to the “subversive” nature of ecology. Ecologists William Murdoch and Joseph Connell pointed out: “We submit that ecology as such probably cannot do what many people expect it to do; it cannot provide a set of ‘rules’ of the kind needed to manage the environment.”<sup>34</sup>

According to Aldo Leopold, man was “only a member of the biotic team.” An ecological view, “the combined evidence of history and ecology,” leads to the conclusion that “the less violent the man-made changes, the greater the probability of successful readjustment” of the ecological pyramid. That is a clear anticipation of what Barry Commoner called the Third Law of Ecology [Nature Knows Best]: that “any major man-made change in a natural system is likely to be detrimental to that system.” Leopold defined “land health” in terms of naturally evolving processes in dynamic equilibrium. He used undamaged wilderness as a base line to gauge the health of human-occupied ecosystems. That concept helps provide a basis for restoring damaged environments.<sup>35</sup>

Leopold’s formulation of the land ethic—“A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community”—

captures the ecocentric orientation of the ecological perspective. It implies a prudent, conservative, and minimally intrusive approach to altering natural ecosystems for human use. Leopold questioned the narrow material values and the ideas of progress of modern society and attacked the excessive use of economic criteria in making decisions affecting the environment. He would be appalled at the extent to which economics has become almost totally dominant in the anthropocentric society of the 1970s and 1980s. He would also be shocked at the wholesale destruction of forest ecosystems through the clear-cutting "management" practices of the United States Forest Service. One also wonders what he would think of the extensive manipulation of wildlife as a standard management tool.<sup>36</sup>

Whether Leopold envisioned the major changes needed to bring modern industrial societies back into line with ecological realities remains an open question. Would Leopold, like Raymond Dasmann and other contemporary ecologists, have advocated a move in the direction of "ecosystem people" ways of life, reinhabitation, and bioregionalism? Viewed in one way, the deep ecological movement has developed the implications of what it would mean to be a "plain member and citizen" of the biotic community.

Ecophilosophers in recent years have tried to refine and further develop Leopold's ethical and philosophical approach. There is criticism of Baird Callicott's overly "holistic" interpretation of Leopold that seems to discount the importance of the individual in the ecosystem. Jon Moline has attempted to weaken the "direct holistic" interpretation by suggesting Leopold was proposing an "indirect holism" not intended for case by case application. John Rodman attributes a deeper ecological interpretation to Leopold by suggesting a shift away from the theoretical formulation of the "land ethic." By viewing the world through the eyes of a muskrat, or by "thinking like a mountain," one comes to an awareness that all beings have a telos or good that is to be respected.<sup>37</sup>

A number of developments have emerged as "cutting edge" issues in ecophilosophy that can roughly be described as environmental ethics versus an ecological metaphysics, world view, or ontology of being; ethical hierarchies versus an egalitarian position; animal rights ethical theorizing versus an overall ecological world view; the rights of ecofeminism; the rise of the "new physics" and its relation to ecophilosophy; and the difference between the New Age/Aquarian Conspiracy and Deep Ecology. As will be evident, these issues overlap to a considerable degree. The beginnings of the movement coincided with the increasing professionalism of environmental ethics. Australian Peter Singer published his highly influential book, *Animal Liberation*, in 1975; and Holmes Rolston III in an important article brought modern ethical concepts to bear on the development of an environmental ethic.<sup>38</sup>

Rolston discussed Leopold's "land ethic" as the paradigmatic example of an ecological ethic and pointed to the problem of moving from the factual statements of ecological science to the formulation of the "land ethic." Most of the philosophical discussion of Leopold has focused on the technical aspects of his ethical theory. Among professional philosophers the tendency

has been to view the environmental challenge as one of developing a rational and defensible ethic of the environment. As a result of their highly specialized training, the philosophical community views "environmental ethics" as another form of "practical" or "applied" ethics. Having given up the traditional role of philosophy as cosmology and social criticism, most philosophers are unaware of the significance of the emerging ecological world view. For many, the phrase "ecophilosophy" brings to mind a new specialized type of philosophy. As Stuart Hampshire and others point out, modern Western ethical theory reflects the anthropocentric world view and, as such, perpetuates an arbitrary "arrogance in the face of Nature."<sup>39</sup>

The leading animal liberation theorists, Peter Singer and Tom Regan, have developed their positions by a process of "ethical extension," thus remaining within the modern tradition. Mental states or characteristics possessed by humans (rationality, pleasure, happiness) are claimed to be of sole intrinsic value. Nonhumans are allowed or "awarded" intrinsic value to the degree to which they are thought to possess those traits. Therefore, ethical hierarchies are established with humans having the highest degree of intrinsic value. In keeping with the contemporary metaphysics of isolated individuals, the emphasis is upon the ethical value of discrete atomistic individuals (human and non-human) which often results in conclusions that are profoundly unecological. For example, Tom Regan has recently argued that only humans and higher mammals have rights; all other forms of life have no importance other than their instrumental value to humans. Animal rights' theorist Steve Sapontzis has pointed out that this would be a morally better world if predators were eliminated.

For some, vegetarianism is claimed to be the only morally defensible position. Paul Taylor avoids most ethical hierarchies by arguing for a biocentric world view, thus avoiding many of the gaffes committed by animal rights' theorists. But that position is still an "extension" of modern ethical theory, argues against any kind of holism, and fails to see inherent worth in nonliving nature. The problem of the relation of the individual to the whole (ecosystem) provides the main stumbling block to that kind of theorizing. While the activist wing of the animal rights' movement has awakened the world to the abuse of animals, the theoretical base remains wedded to anthropocentrism and fails to reach an ecological perspective. Deep ecology theorizing based on the metaphysics of Spinoza or versions of Buddhism has fewer problems with the issue of the relationship of the individual to the whole.<sup>40</sup>

The ecological revolution has challenged modern Western ethics even in its adequacy for human-to-human relations. Stuart Hampshire and Alisdair MacIntyre argue that the system belittles and diminishes the dignity and potential of humans, because it lacks a conception of human telos or ideal of character. That line of criticism contends that the concept of "rights" is a fiction. According to MacIntyre, morality must be grounded in practices designed to promote a human telos, using Aristotle's ethics as an example. Hampshire has compared the telos (or self-realization) theories of Aristotle

and Spinoza and finds the latter to be superior. Arne Naess also believes Spinoza's ideal to be fruitful and has described what he calls the "ecological self"—a self that identifies not only with other humans, but also with non-human species and ecosystems. Michael Zimmerman also argues that Aristotle's conception of human telos is too anthropocentric. Martin Heidegger, he points out, developed a model of human telos that is more ecocentric. Heidegger would agree with MacIntyre that moral behavior must be rooted in a profound understanding of what it means to be human; ontology precedes ethics. For Heidegger, the telos of humankind involves learning to treat beings other than merely as objects for our purposes, or letting beings reveal themselves in ways appropriate to their own possibilities.<sup>41</sup>

Misunderstanding of deep ecology has resulted from assuming that its goal is to produce an ecological ethic in the sense of modern Western ethics. Genevive Lloyd examined Spinoza's philosophy from an ecological standpoint and concluded that the ethics of the system were anthropocentric. But Naess argued that Spinoza does not have an ethical system in the modern sense. He suggested that Spinoza was an opponent of moralism. He asked: "Do we need to shift to moralizing in order to find a satisfactory metaphysics of environmentalism?" For their part, deep ecologists still use ethical vocabulary such as "rights" and "obligations" without subscribing to the modern technical philosophical theories attached to those words. Naess describes ecological egalitarianism as an intuition experienced by those in the deep ecology movement, not an ethical theory to be defended by rational argument.<sup>42</sup>

It is significant that the Age of Ecology stems from the efforts of one woman, Rachel Carson, even though its groundwork can be traced to others. Carson combined scientific training in biology with emotional sensitivity to the ecological world, and she led the way in political activism.

The term *ecofeminism* was coined by the French writer Françoise d'Eaubonne in 1974. A few years later Theodore Roszak referred to the rise of *ecofeminism* as a "return of the Goddess." And Fritjof Capra has pointed to the patriarchal dominance over both women and nature in Western culture since Biblical times. The masculine emphasis upon scientific method and rational analytical thinking, he claimed, "has led to attitudes that are profoundly *antiecological*." Rational thinking is linear, whereas "ecological awareness arises from an intuition of nonlinear thinking." The environmental crisis, therefore, is a result of overemphasizing our masculine side and neglecting the feminine (intuitive wisdom, synthesis, ecological awareness, nurturing, and caring).<sup>43</sup>

Marti Kheel has recently criticized both animal rights' theory and holistic interpretations of Leopold's ecological ethic as versions of masculine rational ethical theory. She claims that animal rights' theorizing has produced ethical hierarchies with humans at the apex. On the other hand, ecological holistic theories result in a dualistic hierarchy from the other direction in which ecosystems have more value than individuals. *Ecofeminist*

holistic thought, Kheel claims, goes beyond dualisms and hierarchies to a position of ecocentric equality. Behavior is based on attitudes, caring, and intercommunication. The exclusive use of reason in ethical theorizing is a male preoccupation which leads to hierarchical thinking. Therefore, she calls for an integration of emotion and reason in addressing those issues.<sup>44</sup>

Some ecofeminists have criticized deep ecology for developing a rational ethical theory, but as Warwick Fox and others have pointed out, that is a misunderstanding of the intuition of biocentric egalitarianism. Others have pointed to problems in the deep ecological interpretation of the relation of the individual to the whole (ecosystem), but that issue still needs clarification. Several ecofeminists have criticized deep ecology because it is the product of male thinkers. Other writers recognize the obvious similarities between the two positions and work toward a common understanding.<sup>45</sup>

The new ecological world view challenges modern Western ethics and calls into question the metaphysics of the modern world view. Fritjof Capra showed how the atomistic mechanical view of seventeenth-century physics has been replaced in the twentieth century by a metaphysics of energy transformation similar in many ways to the Eastern metaphysics of Taoism, Hinduism, and Buddhism. Parallels with the ecological sense of interrelatedness also have been pointed out. Capra remarked: "I think what [the new] physics can do is help to generate ecological awareness. You see, in my view now the Western version of Taoism will be ecological awareness."<sup>46</sup>

Criticism of the objectivity of the modern scientific world view has been mounting. Morris Berman has recently outlined and endorsed this criticism from Lewis Mumford and Theodore Roszak to that of Husserl, Heidegger, and Wittgenstein. Others have pointed to the cultural assumptions of modern science, referring to it as a cultural construct.<sup>47</sup>

"Science," Andrew McLaughlin argued, "generates an image of nature as devoid of meaning or value, and this image makes moral limits on the human manipulation of nature appear irrational." The purely formal or abstract mathematical characterization of nature offered by modern physics presents an instrumentalized image that appears totally manipulable by humans. This ethics is one of domination and exploitation. The rise of the "new physics," McLaughlin contends, has changed the picture somewhat.

But even in the new physics view of reality, according to McLaughlin, we are led to believe that "the world of physics and chemistry is the 'real' world." When that picture is coupled with the desacrilization of nature—nature as a commodity, world economic markets, and a "thirst for power over nature,"—then "modern science and technology enter decisively into the formation of the human image of the world." If we are to evaluate the scientific image on the basis of its pragmatic success in manipulating nature, we must conclude that it is an environmental failure. McLaughlin argues that the scientific image holds no ontological or epistemological primacy over other views of nature. Alternate images (such as the "interconnected web" images of deep ecology and nonconceptual Buddhism) are superior to the scientific, McLaughlin points out, and "might lead to more joyful and sustainable patterns of being human with the Earth."<sup>48</sup>

Warwick Fox and J. Baird Callicott have claimed that the metaphysics of the new physics can provide a foundation for a deep ecological world view. Fox drew "cross-disciplinary parallels" between the "seamless web" views of Zen Buddhism and the statements of physicists such as David Bohm while emphasizing that deep ecology is based upon deep intuitions that go beyond the empirical data and theoretical principles of the sciences.<sup>49</sup>

The metaphysical revolution in physics, according to J. Baird Callicott, involves a change in our understanding of ethics. Modern Western ethics assumes the classical idea of discrete atomistic individuals. And the positivist fact-value distinction, also typical of modern Western ethics, is based upon the subject-object distinction. The new physics undermines both those views: "Quantum theory negates the subject-object, fact-value dichotomies to which modern value theory has dutifully conformed." Callicott concludes that "the central problem of modern classical moral philosophy—the problem of either managing or overcoming egoism—is not solved by the moral psychology implicated in ecology so much as outflanked."<sup>50</sup>

But Arne Naess argues that modern theoretical science has become so abstract that it cannot be understood as describing reality. He promotes gestalt perception as an adequate foundation for deep ecology. Experience in terms of gestalts also eliminates subject/object, fact/value dichotomies. Naess distinguishes between the world of gestalts that humans live in and the abstract conceptual theories of modern science. From this perspective, environmentalists and developers differ largely in terms of opposing gestalts.<sup>51</sup>

While Capra, Fox, and Callicott turn to the holistic metaphysics of the new physics as a basis for an ecological world view, McLaughlin and Naess turn away from abstract science to the experiences of the everyday world in the nonconceptual Zen Buddhist image, or in gestalt perception. Morris Berman sides with the latter. The holistic cybernetic thinkers of the 1980s are becoming too abstract, he claims, and have not fully overcome the "mechanical philosophy." Cybernetic holism dispenses with matter, according to Berman, and "falls prey to the same philosophical problems that plague modern science." It is "abstract and formal, capable of being bent to any reality," and appears to be "value-free." Cybernetic holism projects, Berman believes, "a total vision of reality that circumscribes an entire world." Berman distinguishes between two types of holism, "the one, a sensuous, situational, living approach to process," and the other, an abstract form characteristic of many philosophical spokesmen for "the New Age." The latter, now in a more appealing form, is the last phase of classical science. "The real issue," according to Berman, is not mechanism versus holism, but "whether the philosophical system is embodied or disembodied."<sup>52</sup>

What has been called the New Age/Aquarian Conspiracy movement is largely inspired by the writings of R. Buckminster Fuller and Pierre de Chardin. Both are highly anthropocentric and have an unquestioned faith in high technology and a belief that the destiny of humans is to manage the evolutionary processes of the Earth. Jeremy Rifkin claims that some New



Age planners want to eliminate evolutionary processes in order to bring about Algeny—the genetic manipulation and development of all life on Earth. While lip service is paid to ecological ideals, New Age ideology is in many ways antiecollogical. The New Age version of stewardship sees humans as acting as copilots of Spaceship Earth, making management decisions from information gathered through vast computer communications systems.<sup>53</sup>

Although he has been critical of the more extreme versions of genetic manipulation, Henryk Skolimowski comes as close as anyone to articulating the New Age vision in a systematic way. For him the world is sacred, a “sanctuary,” but humans are the priests of the sanctuary. Evolution has culminated in humans and that has resulted in a graded hierarchy with humans at the top. Reverential thinking, Skolimowski argues, results in a spiritual transformation of the Earth for human purposes. It is obvious that the deep ecological intuition of ecocentric egalitarianism and respect for natural ecosystems has failed to influence New Age thinkers.<sup>54</sup>

A sound contemporary cosmology failed to develop after the seventeenth-century scientific revolution, according to Stephen Toulmin. Instead, Descartes and his successors “set humanity over against nature, and converted the natural world itself into a mere ‘thing’ or ‘object.’” The new physics, Toulmin believes, provides a new opportunity to develop a sound cosmology, which goes beyond fact/value, subject/object distinctions. The new cosmology and theology of nature, he argues, is already developing based on the popular movements of “green philosophy” and “white philosophy,” an integration of ecology with spiritual psychology. Using John Muir and limnologist Evelyn Hutchinson as examples, Toulmin claims that ecology as pure science and ecology as social philosophy can be abstracted and separated, but no sharp divisions can be drawn in the real world. Pointing to the distinction between anthropocentric and nonanthropocentric environmental approaches, he argues that the cosmology and natural religion of the future will be essentially along deep ecological lines.<sup>55</sup>

Saint Francis was an isolated thinker, urging a return to an animistic ecological egalitarianism in the thirteenth century. As a result of the rise of the scientific/technological world view, and the modern version of the human domination of the Earth, a countercultural surge of nature-oriented thought developed in the eighteenth century with Rousseau and the Romantic poets and culminated in America with the deep ecological thought of Thoreau, Muir, and Santayana.

The end of the first wave of “deep ecology” can be dated fairly precisely. Muir tried to influence President Theodore Roosevelt during a visit to Yosemite in 1903. By 1908, Muir was being shunned and Roosevelt turned to the anthropocentric views of Gifford Pinchot and the scientific/technological resource management and development of nature as a human resource and commodity. That marked the beginning of the first conservation movement in the United States; the second conservation movement was instituted during

the administration of Franklin D. Roosevelt. It was during this period that the deep ecological thought of D. H. Lawrence, Robinson Jeffers, and Aldo Leopold was taking shape.<sup>56</sup>

What might have been a "third" conservation movement under President John F. Kennedy and Interior Secretary Stewart Udall turned into a second deep ecological movement and a questioning of anthropocentrism. That movement relied heavily upon the writings of Muir, Jeffers, Huxley, Eiseley, Watts, Lynn White, Abbey, and Snyder, but was most influential with the general public as a result of the scientific ecological writings of Aldo Leopold, Rachel Carson, Barry Commoner, and Paul Ehrlich. And during the Age of Ecology of the 1970s, the Sierra Club, under the leadership of David Brower, published influential exhibit books in the 1970s, popularizing wild nature and the ideas of Muir, Jeffers, Ansel Adams, and Nancy Newhall. The "deep" aspect of environmentalism merged temporarily with the anti-war movement and the "hippie" counterculture protests in the late 1960s.<sup>57</sup>

But the "greening" of America did not occur. The deep aspect of environmentalism peaked shortly after Earth Day in 1970; Congress passed environmental legislation; and environmentalism gradually became institutionalized, bureaucratized, and was, to a large extent, "co-opted." Most major environmental organizations followed suit. Environmentalism gradually moved in ever shallower channels resulting finally in the anti-environmental backlash of the Reagan administration.

But as we have seen, during the 1970s and 1980s, philosophers and other academics have been "doing their homework" in the United States, Australia, Norway, Great Britain, Canada, and elsewhere, and an intellectual foundation for a deep ecological world view is now largely in place. With the rapid rise within the last few years of reinhabitation; bioregionalism; ecofeminism; Green politics; activist groups like Earth First!; and a possible coalition with the antinuclear movement, the stage is set for the appearance of another major deep ecology movement.<sup>58</sup>

#### Notes

<sup>1</sup>G. Tyler Miller, Jr., *Replenish the Earth: A Primer in Human Ecology* (Belmont, CA, 1972); Warwick Fox, "Deep Ecology: A New Philosophy for Our Time?" *The Ecologist* 14 (1984), 194-204. For other attempts to describe the Age of Ecology see George Sessions, "Shallow and Deep Ecology: A Review of the Philosophical Literature," in *Ecological Consciousness: Essays from the Earth Day X Colloquium, University of Denver, April 21-24, 1980*, ed. Robert C. Schultz and J. Donald Hughes (Washington, DC, 1981), 391-462; and Sessions, "Ecological Consciousness and Paradigm Change," in *Deep Ecology: An Anthology*, ed. Michael Tobias (San Diego, 1985).

<sup>2</sup>Rachel Carson, *Silent Spring* (Boston, 1962), 261. See also Ralph Lutts, "Chemical Fallout: Rachel Carson's *Silent Spring*, Radioactive Fallout, and the Environmental Movement," *Environmental Review* 9 (Fall 1985), 210-25.

<sup>3</sup>Stuart Udall, *The Quiet Crisis* (New York, 1963), 24, 206. For a reaffirmation of this point, see Stan Steiner, *The Vanishing White Man* (New York, 1976), 113.

<sup>8</sup>See J. Donald Hughes, *American Indian Ecology* (El Paso, TX, 1983); Calvin Martin, "The American Indian as Miscalc Ecologist," in Schultz and Hughes, *Ecological Consciousness*; J. Baird Callicott, "Traditional American Indian and Western European Attitudes Toward Nature," *Environmental Ethics* 4 (1982), 293-318; and Richard White, ed., "Special Issue: American Indian Environmental History," *Environmental Review* 9 (Summer 1985).

<sup>9</sup>Lynn White, Jr., "Historical Roots of Our Ecologic Crisis," *Science* 155 (1967), 1203-7.

<sup>10</sup>Clarence J. Glacken, "Man Against Nature: An Outmoded Concept," in *The Environmental Crisis*, ed. Harold W. Helfrich, Jr. (New Haven, 1970). See also Glacken, "Reflections on the Man-Nature Theme as a Subject for Study," in *Future Environments of North America*, ed. F. Fraser Darling and John P. Milton (Garden City, 1966); and Glacken, *Traces on the Rhodian Shore: Nature and Culture in Western Thought from Ancient Times to the End of the Eighteenth Century* (Berkeley, 1967).

<sup>11</sup>Paul Ehrlich, *The Population Bomb* (New York, 1968), 169-72.

<sup>12</sup>For press coverage of the "Theology of Survival" conference hosted by John Cobb, Jr., at the Claremont School of Theology, see *Time*, June 8, 1970, p. 49. For contemporary Christian ecological theorizing, see John Carmody, *Ecology and Religion: Toward a New Christian Theology of Nature* (New York, 1983); Robin Attfield, *The Ethics of Environmental Concern* (New York, 1983); John Cobb, Jr., "Process Theology and Environmental Issues," *Journal of Religion* 4 (1980), 440-58; and Loren Wilkinson, *Earth Keeping: Christian Stewardship of Natural Resources* (Grand Rapids, MI, 1980).

<sup>13</sup>Carroll W. Pursell, ed., *From Conservation to Ecology: The Development of Environmental Concern* (New York, 1973).

<sup>14</sup>Marston Bates, *The Forest and the Sea: A Look at the Economy of Nature and the Ecology of Man* (New York, 1960); Loren Eiseley, *The Firmament of Time* (New York, 1960); and Eiseley, "The Last Magician," in *The Invisible Pyramid*, ed. Eiseley (New York, 1970).

<sup>15</sup>Raymond F. Dasmann, *The Last Horizon* (New York, 1963); and Dasmann, *The Destruction of California* (New York, 1965); Dasmann, *A Different Kind of Country* (New York, 1968); and Dasmann, "National Parks, Nature Conservation, and 'Future Primitive,'" *The Ecologist* 6 (1976). See also John Milton in Anne Chisholm, *Philosophers of the Earth: Conversations with Ecologists* (New York, 1972), 196-97; Frank Egler, *The Way of Science: A Philosophy of Ecology for the Layman* (New York, 1970); and David Barash, "The Ecologist as Zen Master," *American Midland Naturalist* 89 (1973), 214-17.

<sup>16</sup>Paul Shepard, "Ecology and Man: A Viewpoint," in *The Subversive Science: Essays Toward an Ecology of Man*, ed. Paul Shepard and Daniel McKinley (New York, 1969); Shepard, *Man in the Landscape: A Historic View of the Esthetics of Nature* (Boston, 1967); Shepard, *The Tender Carnivore and the Sacred Game* (New York, 1973); Shepard, *Thinking Animals* (New York, 1978); and Shepard, *Nature and Madness* (San Francisco, 1982).

<sup>17</sup>John A. Livingston, *One Cosmic Instant: Man's Fleeting Supremacy* (New York, 1973); and Livingston, *The Fallacy of Wildlife Conservation* (Toronto, 1981); Neil Everndon, "Beyond Ecology," *North American Review* 263 (1978), 16-20; and Everndon, *The Natural Alien: Humankind and Environment* (Toronto, 1985).

<sup>18</sup>David Ehrenfeld, *The Arrogance of Humanism* (New York, 1978); Anne and Paul Ehrlich, *Extinction: The Causes and Consequences of the Disappearance of Species* (New York, 1981), 48-52; and Paul Ehrlich, *The Machinery of Nature* (New York, 1986), 17-18.

<sup>19</sup>Paul Wienpahl, *The Radical Spinoza* (New York, 1979); George Sessions, "Western Process Metaphysics: Heraclitus, Whitehead, and Spinoza," in *Deep Ecology: Living as if Nature Mattered*, ed. Bill Devall and George Sessions (Salt Lake City, 1985); John Rodman, "Ecological Resistance: John Stuart Mill and the Case of the Kentish Orchid," paper presented to the American Political Science Association meeting, September 1977; George Santayana, *Winds of Doctrine: Studies in Contemporary Opinion* (New York, 1926), 186-215; William Everson, *Archetype West: The Pacific Coast as a Literary Region* (Berkeley, 1976); and Michael Cohen, *The Pathless Way: John Muir and American Wilderness* (Madison, 1984).

<sup>20</sup>For the literary contribution to the Age of Ecology, see Del Ivan Janik, "Environmental Consciousness in Modern Literature: Lawrence, Huxley, Jeffers, and Snyder," in Hughes and Schultz, *Ecological Consciousness*, 67-82; Leo Marx, "American Institutions and Ecological Wilderness," *Ontario Naturalist* (1972), reprinted in *Earth First!* 6 (1986), 20-21.

<sup>17</sup>For further discussion of the roots of the Age of Ecology, see "Ideological Roots Nurture Growth of Environmentalism," *Conservation Foundation Newsletter* (Washington, DC, 1979); Robert Cahn, *Footprints on the Planet: The Search for an Environmental Ethic* (New York, 1978); Stephen Fox, *John Muir and His Legacy: The American Conservation Movement* (Boston, 1981); and Donald Worster, *Nature's Economy: The Roots of Ecology* (San Francisco, 1977).

<sup>18</sup>Wallace I. Matson, *A New History of Philosophy* (New York, 1987), 2:253; Thomas Colwell, Jr., "Some Implications of the Ecological Revolution for the Construction of Value," in *Human Values and Natural Science*, ed. Ervin Laszlo and James B. Wilber (New York, 1970), 245-58.

<sup>19</sup>The conference papers are in *Philosophy and Environmental Crisis*, ed. William T. Blackstone (Athens, GA, 1974). See also Charles Hartshorne, *Beyond Humanism: Essays in the Philosophy of Nature* (Lincoln, NE, 1968); David Griffen, "Whitehead's Contribution to a Theology of Nature," *Bucknell Review* 20 (1972); and Charles Birch and John B. Cobb, Jr., *The Liberation of Life: From the Cell to the Community* (Cambridge, 1985).

<sup>20</sup>John Rodman, "The Dolphin Papers," *North American Review* 259 (1974), 3-26; Rodman, "Four Forms of Ecological Consciousness: Resource Conservation—Economics and After," 1976, unpublished manuscript; Rodman, "Theory and Practice in the Environmental Movement," in *The Search for Absolute Values in a Changing World* (New York, 1978); Rodman, "The Liberation of Nature?" *Inquiry* (Oslo) 20 (1977), 83-131; Rodman, "Paradigm Change in Political Science," *American Behavioral Scientist* 24 (1980), 49-78; and Rodman, "Four Forms of Ecological Consciousness Reconsidered," in *Ethics and the Environment*, ed. T. Attig and D. Scherer (Englewood Cliffs, NJ, 1983), 82-92.

<sup>21</sup>See Hwa Yol and Petee Jung, "The Ecological Crisis: A Philosophic Perspective, East and West," *Bucknell Review* 20 (1972), 25-44; Michael Zimmerman, "Toward a Heideggerian Ethos for Radical Environmentalism," *Environmental Ethics* 5 (1983), 99-131; and Zimmerman, "Implications of Heidegger's Thought for Deep Ecology," *The Modern Schoolman* 64 (1986), 19-43.

<sup>22</sup>Bertrand Russell, *A History of Western Philosophy* (New York, 1945), 494, 788-89, 827-28; and Stuart Hampshire, "Morality and Pessimism," *New York Review of Books* 19 (1973), 26-33, reprinted in Hampshire, ed., *Public and Private Morality* (Cambridge, 1978).

<sup>23</sup>John Passmore, *Man's Responsibility for Nature: Ecological Problems and Western Traditions* (New York, 1974); Richard Routley, "Is There a Need for a New Environmental Ethic?" *Proceedings*, vol. 1, Fifteenth World Congress in Philosophy, Varna, Bulgaria, 1973; Val Routley, "Critical Notice of Passmore's *Man's Responsibility for Nature*," *Australasian Journal of Philosophy* 53 (1975), 171-85; Richard and Val Routley, "Against the Inevitability of Human Chauvinism," in *Moral Philosophy and the Twenty-First Century*, ed. K. Goodpasture and K. Sayre (South Bend, IN, 1979); and Paul Taylor, "The Ethics of Respect for Nature," *Environmental Ethics* 3 (1981), 197-218.

<sup>24</sup>Bertrand Russell, *Mysticism and Logic* (1917; reprint, New York, 1957); Russell, "The Essence of Religion," in *The Basic Writings of Bertrand Russell*, ed. R. Egner and L. Dennon (London, 1961); and Albert Einstein, *The World as I See It* (New York, 1949), 24-29.

<sup>25</sup>John Passmore, "Attitudes Toward Nature," in *Nature and Conduct*, ed. R. S. Peters (New York, 1975).

<sup>26</sup>Sigmond Kvaloy, "Ecophilosophy and Ecopolitics," *North American Review* 260 (1974), 17-28; and Arne Naess, "The Shallow and the Deep, Long-Range Ecology Movements: A Summary," *Inquiry* 16 (1973), 95-100.

<sup>27</sup>Arne Naess, *Ecology, Community, and Lifestyle: Ecosophy T* (Cambridge, 1987). For a diagram of Ecosophy T, see Appendix A in Devall and Sessions, *Deep Ecology*. Recent papers by Naess include "A Defense of the Deep Ecology Movement," *Environmental Ethics* 6 (1984), 265-70; "Identification as a Source of Deep Ecological Attitudes," in Tobias, *Deep Ecology*, 256-70; "The Deep Ecology Movement: Some Philosophical Aspects," *Philosophical Inquiry* 8 (1986), 10-31; and "Intrinsic Value" in *Conservation Biology: The Science of Scarcity and Diversity*, ed. Michael Soule (Boston, 1986).

<sup>28</sup>See Bill Devall, "Streams of Environmentalism," unpublished manuscript (1979); George Sessions, "Ecophilosophy II Newsletter," (1979); Sessions, "Spinoza, Perennial Philosophy, and Deep Ecology," paper presented at Reminding Conference, San Rafael, CA (July 1979); Devall, "The Deep Ecology Movement," *Natural Resources Journal* 20 (1980), 299-322; Devall,

"Reformist Environmentalism," *Humboldt Journal of Social Relations* 6 (1979); Sessions, "Shallow and Deep Ecology," *Ecological Consciousness* (1981); and John Passmore, "Review of H. J. McCloskey, *Ecological Ethics and Politics*," *Age Monthly Review* (Australia, March 1983).

<sup>29</sup>The 1984 deep ecology platform, with extensive comments on each point, can be found in Devall and Sessions, *Deep Ecology*, 69-73; and Naess, "The Deep Ecology Movement."

<sup>30</sup>Gary Snyder, *The Old Ways* (New York, 1977); Snyder, *The Real Work: Interviews and Talks, 1964-1977*, ed. William Scott McLean (San Francisco, 1980); Snyder, "Good Wild Sacred," in *Meeting the Expectations of the Land: Essays in Sustainable Agriculture and Stewardship*, ed. Wes Jackson, Wendell Berry, and Bruce Coleman (San Francisco, 1984); Dolores LaChapelle, *Earth Festivals* (Silverton, CO, 1976); and LaChapelle, *Earth Wisdom* (Silverton, CO, 1978). For Green politics, Earth First!, and bioregionalism, see Fritjof Capra and Charlene Spretnak, *Green Politics: The Global Promise* (New York, 1984); Jonathon Porritt, *Seeing Green: The Politics of Ecology* (London, 1985); Kirkpatrick Sale, *Dwellers in the Land: The Bioregional Vision* (San Francisco, 1985); Sale, "The Forest for the Trees: Can Today's Environmentalists Tell the Difference?" *Mother Jones* 9 (1986); and Seth Zuckerman, "Living There," *Sierra* 72 (1987), 61-67.

<sup>31</sup>Roderick Nash, *Wilderness and the American Mind* (New Haven, 1967); Nash, "Do Rocks Have Rights?" *Center Magazine* 10 (1977), 2-10; Nash, "Rounding Out the American Revolution: Ethical Extension and the New Environmentalism," in Tobias, *Deep Ecology*, 170-81; and Nash, "Ecology Widens the Circle," in *A Companion to Sand County Almanac*, ed. J. Baird Callicott (Madison, 1987).

<sup>32</sup>Hwa Yol Jung, "The Splendor of the Wild: Zen and Aldo Leopold," *Atlantic Naturalist* 29 (1974), 214-17; Barash, "The Ecologist as Zen Master"; and Aldo Leopold, *A Sand County Almanac* (New York, 1949), 129-30.

<sup>33</sup>Aldo Leopold, "Some Fundamentals of Conservation in the Southwest," and Susan Flader, "A Commentary," both in *Environmental Ethics* 1 (1979), 131-48.

<sup>34</sup>Egler, *The Way of Science*; and William Murdoch and Joseph Connell, "All About Ecology," in *Western Man and Environmental Ethics: Attitudes Toward Nature and Technology*, ed. Ian Barbour (Reading, MA, 1973).

<sup>35</sup>Leopold, *Sand County Almanac*, 204-5; Barry Commoner, *The Closing Circle: Nature, Man and Technology* (New York, 1971), 41-45.

<sup>36</sup>For criticism of the manipulation of wild animals by wildlife biologists, see Morgan Sherwood, "The End of American Wilderness," *Environmental Review* 9 (Fall 1985), 197-209. For a defense of wildlife management and criticism of deep ecology, see Alston Chase, *Playing God in Yellowstone: The Destruction of America's First National Park* (Boston, 1986).

<sup>37</sup>J. Baird Callicott, "Animal Liberation: A Triangular Affair," *Environmental Ethics* 2 (1980), 311-38; Jon N. Moline, "Aldo Leopold and the Moral Community," *Environmental Ethics* 8 (1986), 99-120; and Rodman, "Four Forms of Ecological Consciousness Reconsidered."

<sup>38</sup>Peter Singer, *Animal Liberation* (New York, 1975); Holmes Rolston III, "Is There an Ecological Ethic?" *Ethics* 85 (1975), 93-109.

<sup>39</sup>See J. Baird Callicott, "Elements of an Environmental Ethic," *Environmental Ethics* 1 (1979), 71-81; Callicott, "Hume's Is/Ought Dichotomy and the Relation of Ecology to Leopold's Land Ethic," *Environmental Ethics* 4 (1982), 163-74; Callicott, "The Search for an Environmental Ethic," in *Matters of Life and Death*, ed. Tom Regan (New York, 1980), 381-424; Eugene Hargrove, "New Directions," *Environmental Ethics* 3 (1981), 291-92; and Hargrove, "On Teaching Environmental Ethics," *Environmental Ethics* 7 (1985), 3-4.

<sup>40</sup>For a critique of animal rights from an ecological perspective, see Rodman, "The Liberation of Nature?"; Callicott, "Animal Liberation"; Mark Sagoff, "Animal Liberation and Environmental Ethics: Bad Marriage, Quick Divorce," *Osgood Hall Law Journal* 22 (1984); and J. Baird Callicott, "Review of Tom Regan, *The Case for Animal Rights*," *Environmental Ethics* 7 (1985), 365-72. See also Paul Taylor, *Respect for Nature: A Theory of Environmental Ethics* (Princeton, 1986); Arne Naess, "Spinoza and Ecology," in *Speculum Spinozanum*, ed. S. Hessing (Boston, 1978); and Naess, "Through Spinoza to Mahayana Buddhism, or Through Mahayana Buddhism to Spinoza?" in *Spinoza's Philosophy of Man*, ed. Jon Wetlesen (Oslo, 1978).

<sup>41</sup>Stuart Hampshire, *Two Theories of Morality* (Oxford, 1977); Hampshire, *Freedom of Mind and Other Essays* (Princeton, 1971); Alisdair MacIntyre, *After Virtue: A Study in Moral*

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<sup>42</sup>Genevive Lloyd, "Spinoza's Environmental Ethics," and Arne Naess, "Environmental Ethics and Spinoza's Ethics: Comments on Genevive Lloyd's Article," both in *Inquiry* 23 (1980), 293-325; Naess, "Self Realization in Mixed Communities of Humans, Bears, Sheep and Wolves," *Inquiry* 22 (1979), 231-41; and Naess, "Intuition, Intrinsic Value and Deep Ecology: A Reply to Warwick Fox," *The Ecologist* 14 (1984), 201-3.

<sup>43</sup>Theodore Roszak, *Person/Planet: The Creative Disintegration of Industrial Society* (New York, 1978), 40-49; Fritjof Capra, *The Turning Point: Science, Society, and the Rising Culture* (New York, 1982), 40-42.

<sup>44</sup>Marti Kheel, "The Liberation of Nature: A Circular Affair," *Environmental Ethics* 7 (1985), 135-49.

<sup>45</sup>Ariel Salleh, "Deeper than Deep Ecology: The Eco-feminist Connection," *Environmental Ethics* 6 (1984), 339-45; Donald Davis, "Ecosophy: The Seduction of Sophia?" *Environmental Ethics* 8 (1986), 151-62; Jim Cheney, "Eco-feminism and Deep Ecology," unpublished manuscript, University of Wisconsin, 1986; Michael Zimmerman, "Feminism, Deep Ecology, and Environmental Ethics," *Environmental Ethics* 9 (1987), 21-44; Karen Warren, "Feminism and Ecology: Making Connections," *Environmental Ethics* 9 (1987), 3-20; and Don Marietta, Jr., "Environmentalism, Feminism, and the Future of American Society," *The Humanist* 44 (1984), 15-30.

<sup>46</sup>Fritjof Capra and R. Weber, "The Tao of Physics Revisited," in *The Holographic Paradigm and Other Paradoxes*, ed. K. Wilber (Boulder, Co, 1982), 229.

<sup>47</sup>Morris Berman, "The Cybernetic Dream of the 21st Century," *Journal of Humanistic Psychology* 26 (1986), 24-51. See also Berman, *The Reenchantment of the World* (Ithaca, NY, 1981); and Berman, *The Body of History* (New York, 1987).

<sup>48</sup>Andrew McLaughlin, "Images and Ethics of Nature," *Environmental Ethics* 7 (1985), 293-319.

<sup>49</sup>Fox, "Deep Ecology: A New Philosophy for Our Time."

<sup>50</sup>J. Baird Callicott, "Intrinsic Value, Quantum Theory"; and Callicott, "The Metaphysical Implications of Ecology," *Environmental Ethics* 8 (1986), 301-16.

<sup>51</sup>Arne Naess, "The World of Concrete Contents," *Inquiry* 28 (1985), 417-28. See also Naess, *The Pluralist and Possibilist Aspect of the Scientific Enterprise* (Oslo, 1972).

<sup>52</sup>Berman, "Cybernetic Dream," 45-51.

<sup>53</sup>Jeremy Rifkin, *Algeny* (New York, 1983); Rifkin, *Declaration of a Heretic* (Boston, 1985); and Marilyn Ferguson, *The Aquarian Conspiracy* (New York, 1980). For criticism of New Age and ecology, see Devall and Sessions, *Deep Ecology*, 142-44.

<sup>54</sup>Henry Skolimowski, *Eco-Philosophy: Designing New Tactics for Living* (Boston, 1981); George Sessions, "Review of Skolimowski's Eco-Philosophy," *Environmental Ethics* 6 (1984), 283-88.

<sup>55</sup>Stephen Toulmin, *The Return to Cosmology: Postmodern Science and the Theology of Nature* (Berkeley, 1982), 249-72.

<sup>56</sup>For a discussion of the Romantics and the rise of ecology, see Worster, *Nature's Economy*. For the split between Muir and Pinchot and Roosevelt, see Nash, *Wilderness and the American Mind*, 129-40; Cohen, *The Pathless Way*; and Fox, *John Muir and His Legacy*.

<sup>57</sup>Raymond F. Dasmann, "Conservation, Counter-culture, and Separate Realities," *Environmental Conservation* 1 (1974), 133-37; and Nash, *Wilderness and the American Mind*, 237-62.

<sup>58</sup>Capra, *The Turning Point*; Capra and Spretnak, *Green Politics*; Sale, "The Forest for the Trees"; and Charlene Spretnak, *The Spiritual Dimension of Green Politics* (Berkeley, 1986).