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8. From environmental ethics to environmental public philosophy: ethicists and economists, 1973–future

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1. INTRODUCTION: THE TWO HISTORIES OF ENVIRONMENTAL ETHICS

Environmental ethics has two histories, depending on one's understanding of the scope of ethics. If an ethic is interpreted inclusively as a collection of attitudes toward nature that can guide human actions, there is a long history of environmental ethics that goes back at least to Genesis 1, and even further into the oral traditions that shaped the dominant Western creation story. In this inclusive sense, environmental ethics has been with us, in some form, since the beginnings of human consciousness. Genesis 1 is, or at least conveys, an environmental ethic in this broad sense; it articulates the idea of human dominion, including the view that humans are made in the image of God, and incorporates the 'ethic' of human dominion over nature as an integral part of the Judaeo-Christian creation story. Chapter 2 of Genesis adds an obligation to act as stewards of God's creation, an idea that is elaborated elsewhere throughout the scriptures, so there may not be a single environmental ethic, but several, to be found there. The point is that in the broad, historical sense, and including varied cultures, many environmental ethics can be found in literature, myth, and religion. More directly, in the period running from the mid-nineteenth century to the middle of the twentieth century, we can see the elaborate and thoughtful environmental ethics developed by early conservationists, especially including Henry David Thoreau, George Perkins Marsh, John Muir and, above all, Aldo Leopold's eloquent and sophisticated land ethic.

In this chapter we are concerned mainly with a narrower sense of environmental ethics – of environmental ethics as a practice of professional philosophers. In this sense, environmental ethics began not so long ago, sometimes pinpointed as 1973–74, years in which there was a spate of articles and books published on the subject of environmental values (Routley, 1973; Passmore, 1974; Stone, 1974; Blackstone, 1974). A prominent event in the

narrower and briefer history of environmental ethics as a subdiscipline of philosophy was the initiation of the journal *Environmental Ethics* in 1979 and subsequent growth of interest and publications, in books and in serials, of topics on environmental values.

When one thinks about environmental values and theories for understanding these values, one might ask four questions, each of these leading to four different types of theories of environmental evaluation: (1) What is the nature of environmental value? Answers to this question can be called *ontological* theories of environmental value. (2) How can one measure environmental values? (To be answered by a theory of *measurement*.) (3) How can/should environmental values be employed in justifying proposed environmental policies? Answers to this question can be called *epistemological* theories of environmental value. (4) How should we, given disagreements about environmental values, proceed toward satisfactory policies? Answers to this question might provide a theory of the *process* of policy formation based on environmental values.

Given this classification, environmental ethics has concentrated mainly on questions of ontology, focusing mainly on specifying the *nature* of environmental values. Economists, by contrast, have for the most part taken the nature of environmental value to be resolved by their broad commitments to a market-value approach to the analysis of welfare; they have therefore concentrated mainly on the measurement question. In doing so, they have bypassed the ontological question, treating environmental values as a type of commodity value, and offered means to measure environmental values in terms of individual and aggregated willingness to pay. Given that ontology is a core area of philosophical study, it is perhaps not surprising that ontological theories of value were among the earliest topics addressed by environmental ethicists. What is more surprising is the extent to which the field continues to be dominated by these questions, despite the existence of a number of alternative intellectual paths toward better understanding of environmental values, and despite the extreme difficulty of, and lack of progress in solving, these deep, ontological issues about environmental value. As a result of their preoccupation with such intractable problems, environmental ethicists have made few contributions to actual discussions about what to do to improve the environment. The specialized nature of philosophers' concerns can be appreciated if we look in detail at the intellectual seeds that sprouted and became the subdiscipline of environmental ethics; to do so, we must look back to a 1967 article, 'The Historical Roots of Our Ecologic Crisis,' written by the historian, Lynn White, Jr, and published in *Science* magazine (White, 1967). We believe this short paper has shaped the subject-matter of environmental ethics because a particular interpretation of White's argument has catalyzed the philosophical debate about environmental values, and has given environmental ethics a rather unidimensional quality so far.

In the remainder of this section we examine White's formulation of the 'ecologic' problem and the response of environmental ethicists to it. Section 2 examines the development of environmental ethics as a field from its beginnings in 1973 until 1996, a period in which most professional environmental ethicists were engaged in a program that sought to 'extend' traditional, human-based ethical systems to apply to nonhumans in some way. This work, often referred to as 'nonanthropocentrism,' generally assumes that human individuals, as beings who have moral standing, can be correctly described as having 'intrinsic' value. Extensionists broaden moral standing by attributing intrinsic value also to some nonhumans, such as individual animals or ecosystems. While nonanthropocentrists sometimes call themselves 'radical,' we go on in section 3 to consider a more radical conceptual innovation, the rejection of moral individualism and the recognition that important environmental values may unfold on the communal scale, a scale that cannot be reduced to individual goods. This more radical innovation encourages a shift in the way we think about environmental values and valuation, shifting attention from ontological questions regarding the nature and measurement of values toward a more politically oriented process approach; section 4 is devoted to exploring the possibility of an environmental ethic conceived as a practical contribution to an environmental public philosophy. This approach begins with the assumption that the society holds multiple and sometimes competing values and experiments with multiple ways of measuring and expressing human values, embedding a pluralistic and experimental value discussion within an action-oriented, adaptive framework which is presented in section 5. Finally, the chapter closes with recommendations for encouraging more innovative and interdisciplinary work involving philosophers and economists.

First, let us begin with White's influential paper. White offered a broad-brush historical account of the ideas and social forces – science, technology, and, especially, the melding of the two – that have shaped Western culture's view of the human relationship to nature, and suggested that these features may be responsible for the degradation of modern environments in the West. White offered several criticisms of Western ideas and culture, including, for example, a brief reference to the conception of time as directional – a Christian idea as absorbed from the Hebraic tradition – that saw creation as a beginning of history, which had also an end. White suggested that this linear conception of time, which differs from the Greek conception of nature as cyclical, with no beginning or ending, has instilled in Western consciousness a directionality and a sense of purpose – and also a form of unjustified optimism – that treats all technological change as progress. Westerners, he seemed to be saying, are poor critics of technological proposals because we tend to be technological optimists by default. If developed, this line of reasoning, which encourages more critical evaluation of new technologies and of technological change, might have led

environmental ethicists more toward the analysis of proposed technologies and their long-term and unintended effects on social values. Had this happened, environmental ethics might today be a specialized form of the philosophy of technology, one that would address important questions of human value, but it would do so in the more practical context of evaluating technologically induced environmental change and its impact on core moral and social values.

This line of reasoning, however, has not been very important in environmental ethics in the years since White wrote. Environmental ethicists, instead, responded to another line of criticism, White's statement that Western Christianity 'is the most anthropocentric religion the world has seen.' White was of course referring to the creation story in Genesis 1, which is clear because he notes especially the claim that humans are made in the image of God and in an important sense separate from nature, according to the creation story. It was the charge that Western culture is 'anthropocentric' that provoked the first dozen or so papers and books that are clearly within the professional philosophical tradition. Similarly, early papers in the new journal, *Environmental Ethics*, responded in one way or another to White's criticism. Indeed, most early environmental ethicists took White's criticism to be valid and compelling, and proceeded to respond by proposing 'nonanthropocentric' ethical positions, which argued that nonhuman elements of the environment – elements of many different types from individual animals to species and ecosystems – had intrinsic value; and hence these elements should be considered morally considerable in human decision making (see, for example, Routley, 1973; Rolston, 1975, 1988; Regan, 1981, 1983; Callicott, 1989). Minority forces, in particular, the Australian philosopher John Passmore, argued to the contrary that the Western tradition has adequate intellectual and moral resources to criticize and reform environmental practices, that there are good human reasons to change current destructive practices, and that introduction of non-Western and nonanthropocentric ethical principles is unnecessary to correct environmentally damaging behaviors (Passmore, 1974). Passmore therefore rejected nonanthropocentric ethical theory as inconsistent with central moral principles of Western social thought, and unnecessary to support improved environmental policies. Much of the writing on environmental ethics since those early days has addressed this issue of anthropocentrism in one way or another. Indeed, some leading advocates of nonanthropocentrism *define* environmental ethics as simply the study of intrinsic value in nature (for example, Regan, 1981; Callicott, 1989).

The focus of environmental ethicists on anthropocentrism has had a deeply negative effect on interactions of environmental ethicists and environmental economists. As noted above, environmental ethicists concentrated on the nature of environmental value, hoping to articulate a new ontological theory. Environmental economists took it that environmental values must be a kind of common values, and proceeded to measure them as such. Since the discipli-

economics – especially as represented by its mainstream interpretation of economics as an aggregative science of individual human welfare – was a ready-at-hand example of an unapologetically anthropocentric discipline, environmental ethics became, for most practitioners, a discipline defined by its opposition to economics as a means of measuring the value of natural objects and anthropogenic impacts on natural systems. The result was polarization along disciplinary lines, with environmental ethicists developing arguments on the inadequacy of environmental economics as an *ontology* of environmental values, but formulating these arguments in a vocabulary that precluded the arguments having much effect on economists, who mostly are happy with their ontology and are working on problems of measurement and aggregation. Meanwhile, environmental economists either dismiss environmental ethicists as talking nonsense, or as trying to impose their own, specialized preferences on consumers. Worse, economists represent environmental ethicists' endorsements of intrinsic value, offered as assertions of a new ontology of natural value, as dollars-worth of 'willingness to pay' to protect 'existence' values. To environmental ethicists, not surprisingly, this 'category mistake' of treating principles as measurable willingness to pay is even more insulting than the charge that they speak nonsense. It did not help that philosophers also viewed economists as unquestioning advocates of economic growth at any cost, and saw their models as inimical to reasoned deliberation about what really matters in environmental protection (Sagoff, 1988). The two disciplines most likely to offer increased understanding of how we do and should value nature are thus trapped in a bifurcated discourse, each rejecting the other's ontological position, but doing so in a language that is not understandable – or at least considered inappropriate – by their opponents. Consequently the two disciplines can often present a united front within disciplinary lines, but this united front simply reflects their differing viewpoints as they are ossified into different languages, languages through which they can communicate with their disciplinary allies, but languages that ensure they will not hear, or at least not interpret, the arguments of their opponents. To put it simply, they operate within different paradigms.

Was this polarization and lack of communication inevitable? Perhaps not. Environmental ethicists, as noted above, might have explored White's concerns about our technological optimism and failure to develop a sense of fairness to the distant future because of this optimism. Was the polarization inevitable once White had introduced the label 'anthropocentric' and made his charge of anthropocentrism against Western culture? No. With hindsight, we can see that White's general critique, and especially the charge of 'anthropocentrism' can be given two rather different interpretations. White might have meant, as environmental ethicists have taken him to mean, (a) that anthropocentrism is an ontological theory of environmental value – the theory that all and only human

beings have intrinsic value and that only humans are morally considerable. But White never explicitly states this theoretical interpretation of the target of his criticism; in fact, the only explanation he gives of the term is by reference to the doctrine that humans are made in the image of God. White could as well be interpreted as simply (b) criticizing an *attitude* of human-centeredness, a kind of hubris about the importance of humans in the larger scheme of things. This charge of hubris ties nicely to White's other concerns about our optimism about technology and cultural progress, and requires no positing of intrinsic, ontological values in nature. The ancient Greeks – clearly anthropocentric in their beliefs and evaluations of nature – found the moral resources – in epic poetry, theatrical tragedies and in Aristotle's ethics – to criticize overweening pride, hubris, the temptation of humans to act on behalf of the Gods. They did so without broadening moral citizenship, nor by radically changing their ontology of values, as they saw no need to appeal to a moral anchor beyond the idea of living a worthy human life. Note that if one interprets White in the second way, no particular antidote, theoretical or otherwise, is predetermined; and on this reading agreement with him requires acceptance of no particular ontological theory of environmental value, except perhaps for a belief that human action taken in humility is more noble than action taken out of selfishness and overweening pride. Anthropocentrism, in this attitudinal sense, can be rejected without embracing an ontological theory that opposes it.

Moreover, White might have been understood to be expressing an explicit *political* concern about the environmental implications of a modern, democratized culture – one where greater and greater numbers of citizens have increasingly powerful and ecologically pernicious technologies at their fingertips – rather than a narrow philosophical argument for the distinct moral status of nonhuman nature. Had this interpretation taken hold, we would have found ourselves asking very different questions in the field, questions more accurately described as ones of 'environmental political theory,' perhaps, than environmental ethics. This, too, might have turned philosophical attention toward more productive institutional and procedural issues rather than tendentious ontological questions about the moral standing of nature. And, if the value explorations of environmental ethicists had extended beyond an ontology inimical to environmental economics, there might have been far more opportunities for collaboration across disciplines.

Early environmental ethicists, nonetheless, for reasons that were never made very explicit – and therefore are difficult to judge – chose to respond to White's charge of anthropocentrism as an attack on a *false theory*, the theory that (all and) only human beings have intrinsic value. Once the question was posed in this unfortunate manner, it is not surprising that environmental ethicists responded with an alternative, competing moral theory, one that claims some (or many) nonhuman entities have intrinsic value. As noted, this formulation

of problems in environmental valuation leads to polarized rhetoric and little communication, as economists and intrinsic value theorists agree about the importance of the ontological question, but disagree about where to draw the line between entities that are intrinsically valuable and those that are merely instrumentally valuable. We see, then, that the disciplinary polarization of discourse about environmental values, the topic of this chapter, was engendered at the very inception of the field of environmental ethics as a 'distinct' discipline, and this polarization has hampered discourse between environmental ethicists and environmental economists.

2. THE PERIOD OF EXTENSIONIST ENVIRONMENTAL ETHICS, 1973–96

Having defined Western environmental problems as due to acceptance of an anthropocentric ontology of value – a theory that guided economic measurement of environmental values – environmental ethics cast itself as a critical response to the basic ideas of economics (see, for example, Sagoff, 1988; Callicott, 1989). It is not surprising that collaborations with economists during this period were limited. The journal *Philosophy and Public Affairs* provided an organ for discussion of public values and a few papers in this journal dealt with important environmental issues, such as population and obligations to the future. A Congressional Fellows program has brought philosophers into contact with other policy analysts and activists, but only a few of the Fellows have concentrated on environmental issues. Especially notable were several projects organized by the Center – later, the 'Institute' – for Philosophy and Public Policy at the University of Maryland. Several collaborations with economists at Resources for the Future, especially with Allen Kneese and Clifford Russell, resulted in cross-over publications. These early attempts were mainly exercises in expressing divergent viewpoints within the covers of an anthology or report (see, for example, MacLean and Brown, 1983). More recently, a few philosophers have attempted to build more positively some areas of common intellectual ground (see, for example, Norton and Toman, 1997; Sagoff, 1998) in the USA. The British journal *Environmental Values*, founded in 1991, has stimulated discussion on the boundaries of philosophy and economics and regularly publishes high-quality work by both philosophers and economists. This journal has produced special issues and generally encouraged interdisciplinary research that has led to an active group debating issues such as the nature of preferences and the use of contingent valuation techniques to value nonmarket values in UK policy analyses (O'Neill, 1993; Foster, 1997).

Perhaps because of the polarization across disciplinary lines just described, interactions between environmental ethicists and environmental economists have mainly involved sparring about the true nature of environmental values. Participants from both fields have defended a general theory of environmental values that is both complete and at the same time comprehensive, as both disciplines seek to legitimize their methods and defend their intellectual turf. Within disciplines, this focus has led to articulation of disciplinary orthodoxies rather than to a diversity of understandings or an experimental approach to describing and analyzing environmental values. Despite very similar conceptual assumptions about the nature of environmental value, these two disciplines have largely gone their own way, failing to establish an effective cross-disciplinary dialogue about environmental values. Worse, the extra-disciplinary discussion between economists and environmental ethicists has not really been engaged, as members of each discipline remain trapped within their own theoretical structures and interpretations. What is needed is a discipline-independent discussion of the entire subject of environmental values and methods of valuation. This has not occurred, we have suggested, because the particular disciplines have developed and used their own language and definitions to describe their subject-matter, creating a communicative chasm between environmental ethics and economics.

To explain this early, and lingering, divergence briefly we resort to caricature, identifying two theories that represent the concept of value characteristic of environmental economics and environmental ethics. For convenience of reference, we call them Economism and Intrinsic Value Theory (IV Theory, for short), adopting the convention of capitalizing their names to make it clear that they refer to a theory that, while representative of the viewpoint of many members of the associated disciplines, may not be accepted by every member thereof. So considered, Economism can be defined as the theory that *all* environmental value is a kind of consumer value among other types, to be compared and balanced against other purchases that might be made with the consumer's, presumably limited, economic resources. This theory – here initially stated as an ontological theory – would have quite general consequences for the study of environmental values.

Only IV Theory – the theory that environmental values are to be understood as values intrinsic to nature itself, values that exist independently of human values – represents an alternative theory of competing scope. Although IV Theory comes in many forms, IV Theorists share a claim that intrinsic value is distributed in nature itself, not just in human individuals; and IV Theorists also take it as an obligation to protect intrinsic value, as possible, wherever it occurs. According to this theory, nonhuman elements of nature have intrinsic value. Since it is usually believed that human individuals have intrinsic value, IV Theory essentially achieves a universal theory of value by *extending* concepts

and principles from human ethics to include the nonhuman world or some elements of it.

We have identified these two competing theories as deserving of special consideration because of their importance in the current debate. Speaking technically, we can refer to these theories as claiming both *comprehensiveness* (or *completeness* in the vernacular of formal semantics) and the highest degree of *connectedness* (also known as *elegance* or *simplicity*). To say that a theory of environmental values is comprehensive is to say that it has sufficient semantic power to describe each and every type of environmental value that evaluators legitimately express. Economists thus tend to say that, if some proposed value cannot be expressed within the Economistic concepts and principles characteristic of their theory, then it is no environmental value at all. The Economistic theory is thus claimed to be complete with respect to the domain of environmental values. To say that a theory is, on the other hand, highly connected is to say that all of the types of values can be expressed and asserted by appeal to a very small number of basic principles and entities. The limiting case of connectedness has been referred to by environmental ethicists as 'moral monism,' the view that all moral quandaries have a uniquely correct solution according to a single, unifying principle. In monistic theories, the entire subject-matter recognized by the theory can be expressed in a single vocabulary and can be supported by a single unifying theory (Stone, 1987).

It is interesting that these two theories, Economism and IV Theory, espouse both comprehensiveness and the highest degree of connectivity – monism – in that these two goals for theory exist in a certain unavoidable tension. The more one insists on comprehensiveness over a subject-matter like environmental values, the greater the demands on one's ingenuity in reducing all experienced values to a single rubric. And, the more one insists on the reduction of all values to a given vocabulary, the more difficult is the task of capturing varied types of values as experienced by people with different viewpoints and worldviews. One of the interesting features of this conversation about the ontology and foundational languages, however, is that these two theories of value – and the languages that express them – have been evolved in differing academic disciplines, with differing vocabularies and conceptualizations of values and ethical concepts. Economism was developed in environmental economics, while IV Theory was constructed in the emerging field of environmental ethics; both offered comprehensive and connected theories, and they differed regarding the basic ontology of who or what is a 'morally considerable' individual, regarding, that is, who has standing to have their interests count.

In the 1970s and 1980s there were a few philosophers who turned their attention to ethical questions concerning inter-generational obligations (for example, Rawls, 1971; MacLean and Brown, 1983; Barry and Sikora, 1978; Partridge, 1981; Norton, 1982). John Rawls's treatment, in his influential book,

A Theory of Justice, is of perhaps special interest to economists. Rawls argued that all generations (choosing as rational choosers who stand behind a 'veil of ignorance' concerning their specific place (including temporal place) in a society, would bind themselves to maintain a 'fair savings rate,' an idea that is broadly similar to the ideas of weak sustainability theorists, such as Solow (1993) in mainstream economics. The philosopher Brian Barry (1978, p. 24; 1989) has also defended a highly aggregated approach to intergenerational moral comparisons. Aside from these exploratory works on intergenerational ethics, which mainly explore the application of concepts of equity to cross-generational contexts, most writings in the field of environmental ethics – from 1973 to the present – have dealt mainly with the extension of moral standing to nonhuman organisms and natural systems.

Early extensionism (for example, Routley, 1973; Rolston, 1975; Routley and Routley, 1979; Stone, 1974; see also Passmore, 1973, who dissented from this rush to extend the moral community to include nonhumans) simply addressed the question: is it intelligible – and perhaps true – to say that some elements of nature have intrinsic value? Also, the related question is asked: what does it mean to say that a natural object has intrinsic value? On the question of interpretation, it turned out under analysis that IV Theorists split roughly down the middle between 'strong' and 'weak' nonanthropocentrists. Strong non-anthropocentrists, represented by Rolston, Regan, and Paul Taylor, argued that the intrinsic value found in nature exists entirely independently of humans, human judgment, or human consciousness. For example, Rolston once said that natural objects 'generate' their own intrinsic value (Rolston, 1994). Weak IV Theory, on the other hand, espoused by J. Baird Callicott and a number of other ethicists, has explicitly recognized the need for a valuer to attribute value. Callicott therefore treats intrinsic value 'adverbially' – as a way in which humans value nature – a way that is analogous to the way a parent values a child 'for' itself, based on characteristics of the object – or the child – rather than according to selfish needs of the valuer (Callicott, 1989). It is not clear what difference this should make in policies advocated but, speaking theoretically and epistemologically, the difference is huge. Theoretically, strong intrinsic value would exist even if humans had never existed; it is a feature of natural objects that exists entirely independently of human cognition; it is therefore independent of human cultural differences and exists within nature itself. Strong intrinsic value is attractive to environmental ethicists because, if proved to exist, it would provide culturally independent arguments for environmental policies, arguments that would be persuasive even across cultures and worldviews. Weak intrinsic value, on the other hand, is attributed by human beings and these attributions cannot help but be affected by cultural and ideological differences across cultures. Whereas with strong intrinsic value, which is said to be 'discovered'

in nature – a characteristic of nature overlooked by anthropocentric cultures and theorists – weak intrinsic value is in an important sense creative and dynamic. Callicott, for example, argued that this kind of value was only perceptible once the science of ecology allowed us to expand our sense of what could be a 'whole', worthy of moral considerability.

Epistemologically, both of these theories are problematic. Rolston's strong intrinsic value apparently achieves considerable moral authority because of its universality and apparent independence of actual human experience; but at the same time, this authority demands that Rolston embrace a most difficult epistemological task – to provide evidence of intrinsic value beyond any particular human experiences (which are all, of course, particular cognitive events, occurring in a context and highly charged with cultural and other background meanings) (Norton, 1992, 2002). Callicott, on the other hand, treats attributions of intrinsic value to nature as relative to culture and worldview. Appeals to weak intrinsic values as premises in protectionist arguments therefore lack scope; they would not apply to those who do not accept a worldview that countenances intrinsic values in nature. The appeal of these arguments is thus restricted to those who accept the premise asserting intrinsic value. Apparently, then, weak IV Theorists can offer no culture- or worldview-independent reasons to act to protect nature and natural objects; their theories, understood in this way, provide only an *explication*, not an independent *justification*, of nonanthropocentric principles. Nonanthropocentrism, then, if taken to include thinkers as diverse as Rolston and Callicott, is not really a single ontological theory of environmental value; it represents, rather, a label that in fact comprehends several kinds of value and a variety of methods of value analysis (Norton, 2002).

Cutting across this puzzling ambiguity about the nature of the independence that is asserted for natural intrinsic value is another question: what types of beings can have intrinsic value?

Because of the speculative and exploratory tone of early work on nonanthropocentrism, little attention was paid to the *exact* nature of the natural objects that could be said to have intrinsic value, and there was no definitive understanding whether only individual organisms could have intrinsic value (on analogy with intrinsic value as usually attributed to human beings), or whether some composites, such as species or ecosystems, might have intrinsic value. In these early days, then, the literature of environmental ethics was not sharply separated from the growing and somewhat complementary – at least in their arguments critical of anthropocentrism – literature on animal rights and animal liberation (Regan, 1983; Singer, 1975). At first the use of a common label, 'nonanthropocentrists' or 'biocentrists,' papered over important differences; eventually, however, differences regarding what kinds of objects might have intrinsic value led to open schisms among academic environmental ethicists.

In 1981, Callicott published an influential essay, 'Animal Rights and Environmental Ethics: A Triangular Affair,' in the two-year-old journal, *Environmental Ethics* (included in Callicott, 1989). This article first noted the attack on anthropocentrism mounted by animal liberationists, whom he called 'Humane Moralists', and who were characterized as expanding moral considerability to include nonhuman organisms, especially animals, and often domestic animals. Then, articulating a version of Aldo Leopold's land ethic, Callicott argued that fully capturing the concerns of environmentalists such as Leopold would require attribution of moral standing not to individual animals – certainly not to domestic animals – but rather to species, ecosystems, and communities. Callicott, casting his lot with Leopold and declaring individualism inadequate to the task of building a distinctively environmental ethic, endorsed a robust holism that claimed 'the separate interests of the parts [are] acknowledge[d] to be subordinate to the health and well-being of the whole.' In response, the staunch ethical individualist, Tom Regan, declared Callicott and Leopold to be 'environmental fascists', advocates of running roughshod over individual welfare of humans and animals in pursuit of a higher, corporate good lodged in composite entities such as ecological communities.

Actually, Callicott's famous triangle represents a truncated quadrangle. By considering anthropocentric individualism, nonanthropocentric individualism, and nonanthropocentric holism, Callicott apparently missed the possibility of an *anthropocentric holism* – a theory that the broader good of the human species is so dependent upon whole systems of nature that we should seek policies that protect species and systems as a broad strategy for protecting present and future human interests and fulfilling commitments to live sustainably. This fourth viewpoint may prove the most productive because it inoculates environmental ethics from the unfortunate implication that policy-makers must always choose *between* human and nonhuman interests, allowing the creative search for convergent policies that serve both broad human interests for the present and future and the 'interests' of natural systems because they support those human interests. Norton (1991) has therefore proposed the 'convergence hypothesis,' a prediction that empirical examination will reveal that, if one takes all human interests into account (including the full breadth of human values in the present and in the future), and if one defines nonanthropocentric interests reasonably, then the policies required to comply with anthropocentric and nonanthropocentric values will converge. A recent study of public values and policy attitudes has offered some initial empirical support for this notion of convergence in the case of national forest management goals (Minteer and Manning, 2000).

Today, many environmental ethicists – disturbed by the apparent intractability and unclear policy implications of extensionism – whether individualist or holist, have begun to wonder whether the experiment of simply extending

standard ethical concepts such as welfare and rights to broader classes of entities, and the associated question of identifying beings who are morally considerable, represents the best formulation of questions concerning environmental values. These environmental ethicists, sometimes called 'weak anthropocentrists' or 'broad anthropocentrists,' attempt to avoid oversimplifying the range of human values, and often appeal to the principles of the American pragmatist movement (especially C.S. Peirce and John Dewey) as a philosophical rallying point for a new, more contextual and problem-based philosophy of the environment (Light and Katz, 1996).

3. BEYOND INDIVIDUALISM, HOLISM AND EXTENSIONISM

According to this emerging argument, the extensionist strategy fails not because it is too radical, but because it is not radical enough. Extensionists simply take traditional ethical theories and apply them to a broader reference class, without changing or refining those ethical principles. Since these principles were developed to characterize ethical relations among human individuals, it is at least worth asking whether they are likely to be appropriate for recognizing and describing all environmental goods. In the last section, we emphasized the difference between economists and most environmental ethicists regarding anthropocentrism; in this section we explore another assumption – one shared by economists and by many philosophers, including many environmental ethicists – that of ethical individualism. By individualism we mean the view that all goods must necessarily be goods accruing to individual, conscious beings. One specific, and highly influential version – familiar in the social sciences since World War II – is referred to as 'methodological individualism,' the theory that all benefits must be defeasible into goods of individuals, without remainder. Interestingly, ethical individualism, as defined here, is embraced by utilitarians, including economists, who measure units of individual human welfare, and it applies also to the two other two major strains of thought in moral theory, natural rights theories such as those of Kant, Locke and Jefferson, and contractual rights theories such as that of Rawls. Extensionist claims that nature has intrinsic value – nonanthropocentrism – can be seen either as an extension of utilitarianism (Singer, 1975) or of the tradition of rights theory (Taylor, 1986; Regan, 1983). The multiple forms of IV Theory, in other words, represent variations on either consequential ethics (when the focus is on happiness or suffering of individual, sentient beings, whether human or nonhuman), or extend the idea of obligations to individual persons to include obligations of moral agents to individual elements of nature. Because the

concept of rights, correlative to moral obligations in human ethics, has been so strongly associated with requirements for the treatment of human persons, most extensionists have avoided use of the term 'rights.' Instead, they have preferred to speak of natural objects as having 'intrinsic value,' value analogous to that which confers rights on humans, but value that differs from full-blown individual rights in some respects (see, for example, Taylor, 1986). The important point for the concerns of this section is that both forms of extensionist, nonanthropocentric approaches to environmental ethics begin their extensions from a thoroughly individualist perspective: goods to be protected – benefits, welfare, rights – are universally considered to be goods of human individuals.

We turn now to the possibility of a more radical critique of both contemporary ethical and economic thought by examining whether environmental goods are appropriately interpreted as individual goods in the sense often shared by economists and philosophers. Some environmental ethicists, mainly pragmatists who are impatient with speculative extensions of traditional theories, have urged a new approach to the field, one that encourages a more community-based, pluralistic approach to environmental values. We refer to this approach as radical (intellectually) because it questions, even attacks, assumptions that unite economists, many other social scientists, and traditional ethical theorists, by considering the possibility that environmental values include goods that cannot be defeasible, without remainder, into goods enjoyed by individuals, human or otherwise. Presently, we explain why we think it appropriate to call these values 'communal' values.

In this discussion, some fine distinctions are necessary to avoid confusion. Economists, of course, have shown considerable interest in (a) *aggregated* goods, (b) *public* goods, (c) *collective action/choices* to maximize individual goods, (d) *multi-criteria analyses* of policy outcomes, and (e) *institutions* to maximize individual goods. Aggregated goods, as noted above, are calculations based on units of welfare of individual humans – a thoroughly individualistic concept. Public goods are defined by economists as goods that are nonexclusive and (sometimes) nonrival; but, again, these goods are measured as aggregated benefits of individuals. Economists have also embraced game theory, including, of course, iterative games and multi-actor models, extending rational behavior to apply to collective behavior in search of maximizing aggregated individual interests; and economists have experimented with some forms of multi-criteria analyses. One particularly popular form of multi-criteria analysis has arisen among the group of scholars who call themselves 'ecological economists.' The ecological economists insist on seeking both economic efficiency and protecting 'natural capital.' Proponents of this new subdiscipline, however, have for the most part left the individualistic conception of value unquestioned, as natural capital is characterized in terms

of Hicksian income (Daly and Cobb, 1989) and the value of ecological systems is often represented in terms of 'ecological services' (Costanza et al., 1997; Dailey, 1997) which are in turn expressed in monetary units representing values experienced by consumers. A few ecological economists have gone further, insisting that true sustainability requires measurement of physical as well as economic trends; one interesting approach in this direction – ecological footprinting – holds promise eventually to offer a useful physical measure of the impacts of consumptive practices on ecological systems (Wackernagel and Rees, 1996).

Finally, economists have greatly increased their interest in institutions lately, but it is important to divide economic work on institutions into phases. Early advocates of institutional economics (Veblen, 1919; Commons, 1934) questioned basic assumptions of the mainstream, individualistic economic paradigm – questioning, for example, the dominant use of partial equilibrium models and the assumption of consumer sovereignty as they emphasized that individual preferences change dynamically in context. This early work, which had important affinities with the work of the pragmatist philosopher John Dewey, understood economics within a context of dynamically forming and changing contexts of an evolutionary system. By challenging consumer sovereignty and the associated assumptions of fixed and well-ordered individual preferences, these Old Institutionalists called into question the existence of a single, aggregatable concept of the good. They also recognized the important role of institutions in affecting and changing attitudes, which meant they envisioned a kind of economics in which non-individual, emergent goods might be recognized. The Old Institutionalists, that is, avoided theoretical commitment to the view that the good of a society is the aggregated good of all individuals. This approach, however, has been eclipsed by economists who can be called New Institutionalists, who have accepted the assumption that the goal of institutions is to maximize aggregated welfare of the society which supports them, and who study institutions mainly to understand how to use them as instruments to this goal (see, for example, Williamson, 1987; North, 1990). Only a few economists (Nelson and Winter, 1985; Arthur, 1989) have begun to raise some of these questions in a more dynamic, evolutionary context in which individualism and consumer sovereignty become more problematic. In the sense defined here, all of these experiments except the Old Institutionalism and evolutionary economics remain individualistic – they explore alternative ways to describe, analyze and maximize individual welfare. So it seems fair to say that economics today is, with few exceptions, a thoroughly individualistic discipline.

What is interesting is that almost all writers on ethics, including many extensionists among environmental ethicists, have likewise accepted this individualistic theory about the nature of the good. Those who, like Callicott (1989), endorse ecosystem values as intrinsic and 'holistic', do so by essen-

tially turning ecosystems and species into moral individuals (Norton, 1996). This shared acceptance of an ethical bias toward values that are values of whole individuals is important to both ethical and economic theorists because it holds open the possibility of commensurability among all types of values. This approach at least keeps alive the hope that all value can be measured in a single theoretical vernacular, a belief that, as noted above, is referred to as 'moral monism' (Stone, 1987; Callicott, 1990).

Pragmatist philosophers, whose thought is anchored in the work of Charles Sanders Peirce and John Dewey, have recently challenged this shibboleth of most economists, many social scientists and many ethical theorists; pragmatic environmental philosophers criticize all of these individualistic theoretical approaches as being inadequate to characterize or measure what we might call 'communal goods.' This is truly a radical proposal in that it requires modification in the basic understanding of value in both economics and philosophy.

As the terms of debate shift away from environmental ethics as having an exclusive focus on intrinsic value of natural objects, a new departure in environmental thought, one that is independent of the simple charge of anthropocentrism, opens up. Explorations of the limits of individualism – explorations of assumptions that have been shared by economists and environmental ethicists – may identify some common ground for shared concepts and at least productive disagreements between ethicists and economists. A good starting-point for this discussion is a reconsideration of Garrett Hardin's (1968) classic analogy of human population growth as a 'Tragedy of the Commons.' This paper, and its now-ubiquitous analogy, has been reprinted many times and, while it has been criticized on both historical and logical grounds, has nevertheless proved powerful because it highlights a recurring dilemma in environmental policy formation. Indeed, far from remaining simply a metaphor for human population growth, the mental model of a tragedy of the commons has been expanded as an explanatory device to account for all kinds of failures of decision-making and consequent negative impacts on social values in situations where individual choice leads to collective ruin. For economists, the tragedy of the commons can be cured, or at least significantly mitigated, by assigning property rights in resources, creating incentives for individuals to protect the productive capability of their own parcels. The economic treatment involves the privatization of the common resource as represented by the pasture. Private goods that were once derived from the commons are now derived from one's personal property; a public good has been transformed into private goods; in principle, this privatization provides a reason for private owners to protect the productive features of the resource. The economists' interpretation of the tragedy can be, and has been, questioned on a number of points. First, there is strong empirical evidence that privatization of the commons is not *necessary* in order to protect the public good of the pasture. Political scientists have shown

through detailed case studies, including the management of the high pastures of the Swiss Alps, that cooperative management of common resources has been accomplished successfully for hundreds of years without deterioration of the resource (see, for example, Ostrom, 1991), suggesting that the problem is with *open access* to resources, rather than a problem caused by common *ownership*. The mathematical bioeconomist Colin Clark (1974) has shown that private ownership is not *sufficient* in all cases to protect productive resources; under reasonable assumptions regarding discount rates and opportunities for investment, Clark showed – by distinguishing between maximizing rent over indefinite time and maximizing income over given periods of time – that a private owner of a resource may maximize income and profits by extinguishing the resource by overexploitation and reinvestment of the larger profits in other high-return ventures. Clark concludes, 'In view of the likelihood of private firms adopting high rates of discount, the conservation of renewable resources would appear to require continual public surveillance and control of the physical yield and the condition of the stocks' (p. 634). The result that privatization is neither necessary nor sufficient for protection of common resources apparently follows within a standard, individualistic interpretation of public goods.

The economists' understanding of the tragedy as an ownership problem can also be questioned at a deeper level, however. The shift from public to private ownership of the pasture replaces public goods with private goods, a move that is justified if methodological individualism is true. The benefits of the resource are fully transferable, on the economists' assumptions about value, without remainder, into private accounts. On the assumption that all goods are defeasible into private goods, the privatization process is simply an execution of the principle of methodological individualism. Consider, however, the counter-argument that there are goods, what might be called 'communal' goods, involved in the protection of a resource. These, one might argue, are analogous to 'emergent qualities' in biological evolution, and cannot be understood or translated into an aggregation of individual goods. This topic, obviously, is too involved to be fully explored in this review chapter, and must be left for later discussion; the present point, however, is not to establish the existence of emergent community values, but only to establish that it is at least sensible to talk about goods that are not defeasible into individual goods – they are goods that emerge at the level of communities and cannot be adequately represented or measured as aggregations of individual goods.

One can also think of the tragedy of the commons in another way – one inspired by Aldo Leopold's (1949) brilliant simile of 'thinking like a mountain.' Leopold, who opened his essay criticizing his own failed wolf-and-deer policies, said, 'Only the mountain has lived long enough to listen objectively to the howl of a wolf.' He goes on to suggest that the mountain has an interest in having wolves because, ecologically, they protect against overgrazing of ranges by

deer. What is interesting is that Leopold's personification of the mountain need only be metaphorical; the harm to the mountain translated, over time, into harm to humans. But humans, who tend to analyze situations in terms of individual self-interest, are likely to miss the communal good of maintaining the pasture (or the mountain) over generations of users. This good need not, that is, be interpreted as a nonanthropocentric good; but it is also not, Leopold argues, capable of being expressed on the same level, at the same scale, as are individual, economic values. Leopold's endorsement of nonindividualistic, but human, values illustrates an alternative to the economists' approach to the tragedy of the commons. One can argue that the good of protecting the commons for future generations of users is a good that is expressed and representable at the level of community; as an ecologist might say, it emerges at the level of multi-generational interactions of populations of species, including but not limited to the human species. This 'ecological-scaled' value is not, on this view, defeasible into individual values. It exists on a different level and a different temporal and spatial scale. The tragedy occurs, on this view, because it posits individual, selfish decision-makers in a context in which each of their interests causes them to act in a way that destroys a higher-level value that emerges only on a multi-generational, communal scale (Norton, 1995; 1996).

This communal interpretation of the tragedy of the commons therefore opens up a new fault line among theories of value, a fault line that separates not economists from environmental ethicists, but individualistic economists and individualistic environmental ethicists from ones who recognize incommensurable human values, including communal values. Such values can be identified, perhaps even measured precisely, but they cannot all, in principle even, be aggregated meaningfully with other values from other levels.

By thinking of environmental goods in communitarian terms, one strikes at the heart of both the economists' and monistic environmental ethicists' core commitments to a single, commensurable measure of value. One opens up the possibility of a truly pluralistic and multi-voiced discussion of environmental values, a discussion that, for example, avoids discounting future benefits by treating them as expressible in a noncommensurable vocabulary that includes reference to communal goods. According to this viewpoint, public goods have an irreducible communal or social aspect and economic calculations aggregating individual benefits cannot capture the nature of decisions that involve choices between aggregated individual goods and communally based goods. Here, critics of economics can find support within the literature of economics itself, since it can be shown that no calculation of individual goods that fulfills minimal conditions of 'rationality' can represent the freely chosen good of democratic participants in a free society (Arrow, 1963; Sen, 1970a, 1970b; Sager, 1997). This result, which means that the most interesting questions in environmental policy cannot be accurately treated as optimization problems,

was corroborated in a classic paper in planning theory (Rittel and Webber, 1973). 'Wicked' problems – problems that require the balancing of competing social values – resist optimization solutions because the question of which values to prioritize cannot, itself, be solved optimally.

This line of reasoning, and its implied strategy for environmental ethicists, is to treat normative issues regarding the environment as those requiring cooperative action based on public deliberation, attention to fair democratic processes, and to the building of institutions. These issues open up a new frontier for discussions between ethicists and economists, especially regarding collective choices and ways in which communities can design institutions that help citizens with diverse values and goals decide, in cooperative fashion, how to protect goods that go beyond questions of individual self-interest. Environmental ethics, on this reading, is therefore a *political* pursuit, one focused on the public processes of communication and justification rather than the metaphysical probing of the fundamental nature of environmental values.

But if we are to move in this direction and view questions of environmental ethics in terms of the workings of democratic processes and deliberative institutions within which environmental values as communal goods may be advanced, it is clear that the political culture of liberalism – the philosophical backbone of Western industrial democracies – raises some serious concerns about the potential of this agenda. This is especially true if we believe that the classical liberalism associated with Kant, Locke and Bentham (and, in a somewhat more complicated fashion, J.S. Mill) is guilty of the accusation – made by both radical and reformist critics – that it has historically supplied little more than moral justification and cover for the *laissez-faire* economic order widely thought to be responsible for modern ecological degradation. Indeed, the near consensus view of noneconomic environmental theorists is that the Western liberal tradition, tied to the notion of individual preference satisfaction and linked with an unfettered industrial capitalism, is incapable of motivating and justifying the kind of cooperative social action required to achieve most environmentalist goals. This would seem to be particularly true, if one believes, as we do, that such goals hinge on considerations of communal value and politically coordinated behavior rather than on individual utility maximization and the satisfaction of preferences and desires formed exogenously from the political system. The liberal tradition thus appears to fall into the same pit as (neoclassical) environmental economics (which should be no surprise given the intellectual linkages between the two projects): it presupposes methodological individualism, both in its theory of preference formation and its model of political choice. And, as an ethical principle cast predominantly in the language and commitments of individual rights, it would seem to promise to support little more than an adversarial and atomistic politics of environmental concern, where notions of the common good are muffled, and often

completely drowned out, by the clamor of private interests jockeying for social or economic position.

If this were the end of the story, the prospect of creating a liberal political culture capable of supporting environmental values as communal goods would indeed be quite dim. But fortunately that rich tradition has more promising philosophical resources available to work with than this. In particular, we would suggest that the 'reconstructed' liberalism developed by John Dewey in the first decades of the twentieth century provides a critical corrective to the moral and methodological individualism of the earlier classical versions. For Dewey, the notion of a fixed, 'ready-made' liberal self acting from the basis of previously formed preferences was a fallacy inasmuch as it discounted the social and cultural conditioning of citizens. In fact, Dewey saw the self as a 'moving thing,' an entity constantly growing and developing over time through intelligent interaction with the larger environments – both human and natural. In this understanding, and in concert with the Old Institutionalists discussed above, social arrangements and institutions therefore are not charged with merely satisfying 'given' individual preferences; rather, the *institutions and associations themselves* are powerful forces shaping the moral growth and development of the individual as an 'effectively' free self and democratic citizen (Dewey, 2000, pp. 46–7). Dewey termed his position 'Renascent liberalism,' a revamped liberal project propelled by his method of 'social intelligence,' or the directed means by which communities adapt to new areas of experience over time. This adaptation was to be accomplished by the deliberate adjustment and transformation of shared goals and values in the face of ever more inclusive experience. Dewey's reformed liberalism thus provided the grounds for social action by focusing on the open and evolving character of democratic communities. And by emphasizing their ability to learn to grapple with problematic situations in all areas of lived experience, Dewey empowered citizen action in the full sweep of technical, political, and, most significantly, moral contexts.

Dewey's most profound philosophical contribution may well have been his application of experimental intelligence to the moral realm. Committed to the amelioration of the problems of citizens rather than the problems of philosophers, Dewey sought to develop a process of social inquiry whereby individuals, as cooperative problem-solvers committed to democratic methods and values, would systematically work through the myriad problematic situations that arise in human experience, whether they be primarily moral or cognitive in nature. As a result of this move, ethics for Dewey was a thoroughly contextual, 'bottom-up' affair driven by specific social problems and dilemmas rather than abstract philosophical puzzles and indulgent speculations. Furthermore, he saw this moral inquiry as a thoroughly empirical business. By his lights, this was an enterprise that required a clearly articulated naturalistic method of logically testing moral goods by evaluating their experiential import and practical con-

sequences. As Dewey understood it, the experimental method of inquiry employed in the natural sciences was not different in kind from the practice of moral inquiry; it was only more technically refined and more institutionalized than experimental methods in the ethical realm (Dewey, 1920; 1929).

This approach to moral experience was a radical departure from the more deductivistic and principle-driven style of ethical reasoning found in much of the Western ethical tradition. Moreover, Dewey's naturalism was strongly at odds with the leading non-naturalistic ethical theories and methods of the canon, such as Kantian transcendentalism, to name only the most influential alternative. But most importantly for our claims here, and as mentioned above, Dewey's naturalism had the important effect of making his approach to ethics compatible with the ontological commitments and especially the methods of the social and natural sciences. Dewey's insight on this count – his articulation of a unified logic of inquiry – opens up the possibility of more interdisciplinary models of human values, and does much to clear the philosophical ground for a conceptually integrated language of valuation to be spoken across the sciences and the humanities.

If Dewey's reconstructed liberalism and moral theory of the early and middle twentieth century pointed the way toward a new institutional framework for articulating public values and community goals (Lee, 1993), contemporary democratic theorists such as Benjamin Barber have variously carried on and extended key elements of Dewey's project. Like Dewey, Barber offers a robust politics of social engagement and democratic citizenship. In particular, Barber's 'strong democracy' – rejecting classical and contemporary 'thin' liberal accounts focused on private goods and metaphysical commitments to individualism and atomism – offers a bold participatory politics of transformation that owes much to Dewey's insights into the creation of public values through free and open discussion of community goals. In Barber's model, only socially engaged, democratic citizens, shaped and enabled through civic education and public debate and discussion, will be able to build a political community 'capable of transforming dependent, private individuals into free citizens and partial and private interests into public goods' (Barber, 1984, p. 132). Barber views community, public goods and citizenship as the three constituent elements of an authentic, 'strong' democratic public (*ibid.*, p. 133–4).

In the same vein, though planted more in the theoretical soil of critical theory than Anglo-American liberalism, Jurgen Habermas has advanced a sympathetic moral and political project geared toward the justification of community norms (Habermas, 1993, 1996). Instead of arguing for a particular substantive account of any particular moral good or set of goods, Habermas offers a public procedure (what he terms 'practical discourse') for testing the normative validity of publicly articulated values.

Accordingly, Habermas's 'discourse ethics' emphasizes the articulation of discursive rules that will secure free, fair and open deliberative processes and promote reasoning about public interests and goods rather than private, individual preferences and interests. Habermas's work – which he describes as 'post-metaphysical,' emphasizes the presuppositions and conventions of communication in service of cooperative action. By noting the implicit acceptance by participants in public deliberation of norms of discourse – such as respect for other participants and their views – Habermas offers norms derived from commitment to cooperative action as a substitute for the unwavering principles of the environmental ethicists and the selfish desires of economists. Further, his explorations in 'ideal speech communities' may open up new areas for social science research, such as research on public deliberation within ecosystem and watershed management processes.

Despite their differences, with Dewey, Barber and Habermas we see the refashioning of moral inquiry into a public process of deliberation and normative argument among diverse citizens who share the goal of acting cooperatively in search of intelligent social action in response to perceived problems. This project has much to offer forward-thinking environmental ethicists who have moved beyond the extensionist program and have rejected the gravitational pull of monistic nonanthropocentrism in favor of a pluralistic and process orientation toward questions of environmental value. It also provides a framework supportive of more institutional treatments of environmental values as communal goods not fully captured by private-utility-maximizing models. Therefore, ethicists and economists searching for new normative ground for their environmental programs along political lines have a potential common foundation awaiting development.

4. ENVIRONMENTAL ETHICS AS A PUBLIC PHILOSOPHY OF ADAPTIVE MANAGEMENT

In light of the previous discussion, we suggest that environmental ethicists embrace the deliberative model of ethics as politics and explore the implications of inquiry into environmental values as a democratic process of identifying and justifying community environmental goals through free and open public deliberation. Environmental ethics, in our view, must be thought of as a *public* philosophy, one that recognizes the irreducible plurality and yet communal nature of environmental values articulated in diverse normative vocabularies and experiential contexts. This means that environmental ethicists and environmental economists who seek to collapse such pluralism into a single theory of value, whether intrinsic value or consumers' willingness to pay, are

failing to develop fully comprehensive and sufficiently democratic accounts of environmental goods. As a consequence, those choosing this path are incapable of offering much critical insight into the creation and defense of strategies and processes for resolving conflicts between competing environmental and social interests.

A truly public philosophy of the environment would recognize the descriptive and normative validity of ethical pluralism and would work to fashion a more practical and activist philosophical mission for environmental ethics. Such an agenda would emphasize the development of a contextual model of moral inquiry into environmental problems whereby citizens work together to resolve specific environmental disputes and set common goals for their communities. Here is one area where philosophy, if practiced at a local level at which real environmental problems are encountered, can actually make significant and lasting practical contributions to democratic processes of environmental valuation and policy formation. By helping stakeholders identify, clarify and evaluate environmental and social claims introduced into the flow of argument and debate in public environmental deliberation, environmental ethicists can play a major role in the development of the conditions necessary for social action on behalf of collectively endorsed environmental ends. Likewise, economists contribute to the same process by identifying ways to achieve proposed goals at least cost to economic goals.

In effect, what is being suggested here is that most discussion of environmental values has progressed, logically, from general questions of ontology and how to measure all types of environmental value (questions 1 and 2, above) toward questions of justification and process (questions 3 and 4). What may be more useful is to reverse this progression and begin by examining the processes by which particular environmental disputes are addressed and by asking what various theories of value can be offered as interpretations and clarifications of particular, on-the-ground debates about what to do in particular situations. If, that is, environmental ethicists and environmental economists could set aside their disagreements about the ultimate nature of environmental values and recognize that individuals – as participants in particular policy debates and deliberations – appeal to a multiplicity of values, members of the two fields might be effective in articulating, comparing and prioritizing the multiple values that are articulated by individuals and interest groups in actual public processes.

In order for this to happen, however, environmental ethics needs to adopt a more empirical approach to environmental values and goals; by an empirical approach, we mean something like Dewey's view of science and social action, and of social learning as a real possibility of democratically organized communities. On this count we believe that adaptive management, an emerging paradigm of environmental management developed by C.S. Holling and others

in the late 1970s, provides the scientific and philosophical framework for this activist and empirical agenda (Holling, 1978; Walters, 1986; Lee, 1993; Gunderson et al., 1995). Adaptive management is, above all, *experimental* management, an approach that acknowledges the cognitive and political challenges of understanding and acting in the face of complex natural and social phenomena. Recognizing the dynamic and unpredictable character of ecological processes, adaptive managers expect surprises, and yet strive to design methods and manipulations of environmental systems that reduce this uncertainty through directed management practices. As a consequence, social institutions engaged in and affected by the management process must be structured in a manner that promotes a flexible, iterative process through which citizens can learn about the dynamics of the natural world as they voice and revise their values and goals in light of increasing information and evidence.

As we can see from even this cursory treatment of the adaptive management paradigm, many of Dewey's ideas are quite pertinent. The first, which has been discussed above, is his treatment of science and ethical inquiry as subject to the same pattern of inquiry. He simply denied there is a problem about the 'fact-value gulf' and embraced the idea that we resolve ethical dilemmas through experience, especially through community-based and community-sensitive, participatory experience. Because Dewey and the pragmatists engage values in real situations, with important stakes for communities, values are as open to revision in the face of new experiences as are uncertain beliefs. In real situations, values can be so compelling that they provide solid planks for undertaking experiments and reducing uncertainty by the judicious use of science within a management process. When engaged in active, adaptive management, we are encouraged to find refuge in consensus wherever possible and compromise otherwise; an epistemological community can be built upon shared social values. At other times, experience leads us to reconsider some of our values; at these times, values, like other beliefs, can be undermined by experience. For example, many US cities – especially our city of residence, Atlanta – have over the past few decades carried out an experiment in unlimited suburban growth. This experiment was animated by a certain value, the value of individual freedom and unlimited mobility, a value that is observed in the pervasive choice to travel in single-occupant vehicles. Time will tell whether residents in the future will consider this experiment a success; if not, they may come to question the values on which it was predicated.

Another Deweyan idea, 'social learning,' once refurbished and modernized, can serve us well as a guide to adaptive management. This idea has important implications for environmental policy process, and it also has implications for the way we think of stakeholders, the general public and professional policy-makers and bureaucratic managers. Dewey's concept of social learning provides a broad framework for understanding the goals of adaptive management within

a diverse and democratic society. Here the purpose is not to seek to reduce environmental values to a simplified, single notion of economic or intrinsic good, but rather to design a process that allows citizens to introduce and, consequently, learn about the complex plurality of environmental and social values in a deliberative process.

This idea of social learning also requires an important shift in the role of environmental managers and experts involved in managing resources. Dewey perceived that the growth in complexity of modern industrial societies was such as to bewilder the layperson; so he conceived of communities as capable of strategically organizing themselves to incorporate directed, mission-oriented science at specific areas of uncertainty and disagreement (Dewey, 1927; Funtowicz and Ravetz, 1995). Dewey also saw that, under the best conditions, such an organization might lead to a cooperative interaction of the public and experts, unified by a shared goal of protecting an important environmental feature of their place, working together to learn about and discuss openly both the goals and also the methods of environmental management.

It is encouraging that a recent National Research Council report (1996) strongly endorses such an iterative, participatory and deliberative process in the management of risk, including choices regarding regulatory goals. The 1996 report – in direct and stark contrast to earlier approaches to risk management (National Research Council, 1983), which urged the isolation and serial treatment of scientific assessment and deliberation about values – advocates deliberation as essential to the characterization of risk. If the ideal of deliberation in search of cooperative action could be achieved in an open, iterative process of community-based adaptive management – through the use of citizens' advisory committees in conjunction with blue-ribbon scientific panels, for example – it may be possible for the community to cooperate to reduce uncertainty, to adjust environmental goals and to engage in management activities that both improve local conditions and at the same time contribute to the learning curve with regard to environmental values more generally.

The upshot is that we need an approach to environmental values and valuation that fits comfortably into the experimentalist framework of an adaptive management process. Such an approach must recognize the dynamic and transformative potential of environmental values as citizens enter into deliberation over community futures; it must also encourage the articulation of multiple, diverse values and proposed courses of action by stakeholders. This normative variation and the ensuing process of inquiry and experimentation are part of the selective process of adaptation, helping managers and citizens move toward more intelligent and sustainable environmental policies. The adaptive management paradigm can therefore be instrumental in helping to reconstruct environmental ethics as a public and pragmatic philosophy of the environment,

one that traffics in the real-world problems, plans and policies of communities struggling to adjust to their changing ecophysical contexts.

5. TOWARD A PLURALIST AND EXPERIMENTAL ANTHROPOCENTRISM

If we choose to follow the above line of argument in environmental ethics, we expand the field's framing of normative discourse beyond its conventional and narrowly defined anthropocentric and nonanthropocentric languages. The focus on the public process of value articulation and its connection to social action gives rise to a broader understanding of environmental values as communal goods requiring a politics of validation and justification, rather than as philosophical values requiring metaphysical founding. Here we have the emergence of a broad, democratic humanism: public environmental values are multiple and multi-vocal; they are expressed in a variety of normative discourses not exhausted by the limited grammars of utility maximization, intrinsic value, or any other single-criterion formulation. We should expect this to remain the case as long as human experience continues to grow and evolve as it reaches into and is conditioned by complex and dynamic ecological systems.

Our line of argument, further, directs us toward a form of anthropocentrism that is pluralist and experimental in attitude. It is pluralist in recognizing that participants in public deliberation derive values from nature in many ways and express these values in many ways. The adaptive approach to management is experimental, admitting we do not know how best to measure environmental values, and encourages experimentation with multiple methods for improving our understanding of what people value. One very useful exercise for a community is to try to choose 'integrative indicators,' indicators that will 'stand in' for multiple values. For example, the indicator 'percentage of ground area with pervious surfaces' can be easily measured and may prove representative of the values of advocates of green space, of biological diversity, of water quality, and of anti-sprawl. In some communities, perhaps, such an indicator can be agreed upon as a useful guide to policy, even if the various interest groups involved could never agree on the ultimate values that justify pursuing such a specific objective (Norton, 1991).

The proposed system of valuation, and the broader framework of adaptive management into which it is embedded, is, it must be acknowledged, anthropocentric in one sense, a sense which we will call 'methodological anthropocentrism.' By emphasizing as we do that valuation of public goods is part of a broader, deliberative and political process, we must insist that all values that are expressed in this discourse are human values, expressed and

experienced by humans. Methodologically, then, we insist that all values be expressed as reasons that humans should act in certain ways and not others. They are understood, then, not as reified, human-independent values or as preferences formed exogenous to public decisions, but rather as ways that some humans do indeed value nature, and as possibly persuasive reasons to act or choose specific policies. This insistence, while limiting reasons based on values to human reasons, is nevertheless consistent with nonanthropocentrism in the broader sense that it recognizes, empirically, strong evidence in people's words and practices that they do indeed value nature intrinsically, that is, for reasons that have nothing to do with their own, selfish goals (Spash, 2000). References to intrinsic values in nature – and the desire to protect natural systems from further harm – are thus understood as one competing value espoused by some humans who express these values in conflict with other participants in the debate who have different and competing values. But they are not the presumptive moral 'trumps' or conversation-stoppers that many ethicists believe them to be. Rather, they are simply one way of speaking about nature that may or may not prove helpful in resolving specific environmental policy disputes (Minteer, 2001). The key point about participants is that they have decided – despite their recognition that other participants will seek to protect or enhance values they reject – to enter the process and to seek cooperative solutions to environmental problems, even if this requires compromise on efficiency measures or moral principles.

By focusing on *process*, then, one delays clashes over ontology, and poses the question of how to evaluate environmental changes in a more tractable, concrete form: what methods of valuation prove (have proven) helpful to real communities in responding to real environmental problems and disagreements about what to do about them? (Leach et al., 2001; Leach et al., under review) By trying to better understand value discourse and evaluation methods as endogenous to the adaptive management process, we hope to deflect attention away from ontological disagreements and a priori claims about the nature of all environmental value, and toward empirical studies of experiments in making evaluation procedures useful in actual management situations.

The primary message for environmental ethicists and environmental economists is that both camps need to move toward a more communal and pluralistic understanding of environmental values. This attitudinal and procedural shift requires, among other things, the relaxation of the demands of individualistic and monistic philosophical foundations and methods of analysis. If this change in perspective and commitments is accomplished, we believe that both fields will be able to play a more active and meaningful role in public environmental discourse, and the fields will also identify shared intellectual problems that will encourage interdisciplinary collaboration and increased communication between environmental ethicists and environmental economists.

To pull together the claims we have made throughout this chapter, then, and in preparation for the conclusion, we can offer the following set of suggestions for environmental economists and environmental ethicists who are willing to move beyond exclusivist, monistic theories (and ontologically driven accounts of environmental values in general) in favor of a more deliberative and process-oriented approach to evaluation of environmental change. While our remarks have been more historical than prospective, it should be clear that we think there is a rich future of collaboration between environmental ethics and environmental economics, provided a more pragmatic, deliberative and democratic approach is pursued in both fields.

First, we must stop thinking of methodological individualism as the only way to learn about human values and behavior. Even if we can usefully represent *some* values as having costs in competition with other consumer choices, it does not follow that calculation and aggregation of individual willingnesses to pay are the only useful ways of representing or studying environmental values. Therefore, instead of viewing environmental values as the outcome of the aggregation of individual preferences and utility functions, or as intrinsic to nature, we need to think of environmental value articulation as the product of social, deliberative and political processes – ones in which citizens advance and assess normative claims in an explicitly public context, a context in which real policy choices are open and real values are at stake. In this understanding, social commitments, norms and, especially, institutions are the foundational elements of environmental valuation, including, of course, institutions with strong economic dimensions. Through the give-and-take of public debate, environmental policies emerge as democratically validated social goals, supported by collectively assessed norms and values constructed through a fair process of deliberation, in which advantages and disadvantages – including, of course, costs and benefits – are considered and debated publicly. Methodological pluralism would support undertaking a variety of interdisciplinary comparisons of different evaluation techniques used in different situations, a trend that may already be well under way (Leach et al., 2001, Leach et al., under review; Norton and Steinemann, 2001). Programs such as the Environmental Protection Agency's Water and Watersheds program and joint programs of EPA and the National Science Foundation (including a joint workshop, Community Based Environmental Decision Making on 9 May 2000) have recently encouraged experimentation in new ways to learn about public values and to develop more effective processes that will empower communities to undertake actions to solve problems based on cooperative, community action. Researchers in Europe have already developed alternative techniques for understanding and interpreting environmental values through work with small groups (Burgess et al., 1988, 2000).

Second, we must reject the neoclassical economic notion of consumer sovereignty, especially in its most general form (Norton, 1994; Norton et al., 1998). Not only are environmental claims something more than the subjective desires of individual consumers; they are not properly conceived of as 'given,' unchanging entities that must be accepted as unquestioned articulations of public value. We must, as is explained by Funtowicz and Ravetz (1990, 1995), undertake mission-oriented science, both in the natural and social sciences. This includes science directed at questioning currently held values and goals. This change by no means challenges the authority of individuals to hold and express their desires and values in public debate. It only directs us to endorse a process by which such desires and values may be put to the critical test of public argument and scrutiny. It is clear that one of the potential outcomes of public deliberation is that citizens may revise their opinions, and even change their minds completely, when their beliefs are thoughtfully challenged by others (Gundersen, 1995). This dynamic, transformative aspect of environmental commitments, we believe, only underscores the necessity for more process-oriented methods of valuation.

Third, we must replace the fact–value distinction with a more relational, pragmatic model of moral and scientific inquiry in which the study of human values and the study of natural systems can jointly contribute to better decisions regarding the environment. This change will require rethinking decision models, such as the sequential risk analysis model (risk assessment/risk management) model, still popular at the Environmental Protection Agency, that sharply separates the gathering of facts about risk from social decisions about how to respond to it (National Research Council, 1983). Making decisions in a more iterative, deliberative framework in which articulated values shape scientific research, and in which values are revisited in the light of new scientific findings, will provide a more accurate and effective way to study and improve public decision-making (National Research Council, 1996; EPA, Science Advisory Board, 2000). This shift will require, in our view, that attention of researchers be shifted from the development of abstract, one-size-fits-all models of environmental decision-making to the tailoring of decision models to particular decision contexts in local situations in which there are some agreements and some disagreements. These consequences and disagreements can guide researchers to questions that are locally relevant, focusing attention on uncertainties that stand in the way of collective action. Such locally relevant research may not resemble the complex and abstract, general models of values and valuation preferred by economists and philosophers, but they may, if successful, point the way, from the bottom up, toward more general theories of environmental value and some consolidation of pluralistic expressions of values.

Fourth, we should accept and account for the empirical validity and normative force of value pluralism regarding the natural world (Minteer and Manning,

1999). Citizens express their environmental commitments in a variety of ways and in a range of normative languages, and the reduction of this diversity into a single type or vocabulary of value, as ethicists and economists often seek to do, simplifies the social and moral complexity of human experience. Most objectionable is the degree to which this approach disenfranchises public values that do not fit within settled, pre-defined categories, and how it seems to favor an isolated element of the moral situation (for example, intrinsic value, or preference satisfaction) at the expense of a more complete and inclusive accounting. Dewey, in fact, saw such reductionistic approaches to value as the improper singling out of particular aspects of a moral situation for special authority and emphasis, and regretted the implications of this practice for effective moral inquiry. Instead, he argued, as do we, that the *entire* experiential context be taken into account when a problematic situation requiring thoughtful decision-making and coordinated action arises. Therefore we must be attentive to all of the ways in which people express their environmental commitments in specific settings and situations requiring judgment.

Finally, and speaking directly to environmental economists, alternative frameworks that accommodate these methodological and substantive commitments need to be explored and developed. We believe that one promising direction lies with institutional or 'evolutionary' economic approaches, now gaining explicit attention in environmental circles (for example, Bromley, 1989; Jacobs, 1994; Hodgson, 1997; and Faucheux, 1997). Institutionalists, drawing from a tradition running back to Veblen and Galbraith, among others, depart from neoclassicists in ways particularly conducive to the environmental valuation agenda we have advocated here. Specifically, adherents of this school reject consumer sovereignty and the notion of exogenous, 'given' preferences for goods and services in favor of an understanding that emphasizes the dynamic nature of such interests and the constitutive power of cultural meanings and institutions for citizens' desires and attitudes. Moreover, an institutional economic approach endorses methodological and substantive pluralism concerning environmental values. Indeed, institutionalists (in the 'old' sense) focus on the actual, rather than hypothetical, economic behavior of individuals in specific cultural contexts, and open the door for a more empirical, and consequently more inclusive accounting of the varying socio-psychological underpinnings of economic values; research directed at problems such as this would involve a significant departure from neoclassical economic models. As a result of these commitments, institutionalists see individuals' preferences as objects of analysis rather than as presumptively accepted claims that must be satisfied (Jacobs, 1994). The socio-cultural focus of this approach also comports well with the deliberative methods of environmental value formation advocated here, and in that sense might provide a means for economists and process-oriented ethicists to join forces in environmental inquiry. Rich opportunities

may open up for collaborations between economists and philosophers, as well as collaborations among these, together, with cognitive psychologists, to engage in interdisciplinary research on the development, formation and reformation of social values in deliberative situations (Gundersen, 1995).

6. CONCLUSION

Environmental ethics and environmental economics have both suffered from a tendency to begin their study of environmental values by committing, implicitly or explicitly, to a monistic ontological viewpoint, which reduces their flexibility in recognizing and describing observable patterns of human valuation of natural objects. This same inflexibility in describing observed values has – because the practitioners of both fields have for the most part committed themselves to inimical ontological understandings of the nature of environmental value – prevented economists and philosophers from identifying a set of shared intellectual problems. To break the resulting logjam in environmental discourse, we have suggested that it will be necessary and desirable to turn attention to the way environmental values and deliberation about them function in active political discourse, carried out in local situations, plagued by uncertainty, and riven by cross-currents of differing values and competing interests. By concentrating on actual decision processes, we can describe diverse values and identify disagreements that block consensus and collective actions. The attention would then shift to specific disagreements; and we countenance the possibility that increasing knowledge through pilot projects and limited experiments, and increasing deliberation, will uncover or create shared values, shared objectives and collective actions that can be undertaken to further reduce uncertainty and disagreement.

The social sciences and philosophy, collectively, have a responsibility to direct research at community-based environmental policy formation and to study the processes by which communities collectively articulate management goals and identify management indicators that are expressive of widely held social values (EPA, SAB, 2000). The topic of such studies should be, we believe, the identification of the conditions under which communities, faced with difficult problems and competing demands on limited resources, can engage in productive deliberation, and under what conditions social learning takes place in such processes.

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