

## CHAPTER 44

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## ENVIRONMENTAL ETHICS, SUSTAINABILITY SCIENCE, AND THE RECOVERY OF PRAGMATISM

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### 1 THE CHALLENGE OF SUSTAINABILITY SCIENCE

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SUSTAINABILITY science has emerged over the past two decades as a "transdisciplinary" field devoted to studying and steering the interactions between social and natural systems into more "sustainable trajectories" (see, e.g., NRC, 1999; Clark and Dickson, 2003; Kates, 2012). As a mission-oriented science focused on both understanding and shaping human-nature relationships, sustainability science would seem to benefit from a close collaboration with environmental ethics. After all (and as this volume illustrates), environmental ethics is the field devoted to understanding the character and structure of environmental values and clarifying the responsibilities these create for moral agents and for society as a whole. This project would appear to be quite relevant to a new science tasked with supporting the maintenance of social-environmental systems for the long run.

The argument for such an alliance could be pushed even harder. One of the distinctive aspects of sustainability science is its embrace of interventions into ecological systems to design solutions for an increasingly human-dominated planet. A strong argument could be made that it therefore *should* be informed by the sense of ethical restraint and concern for nature preservation articulated by environmental ethics to help it set appropriate standards for such interventions. The converse is also true: environmental ethics would benefit from a significant collaboration with sustainability science. And this argument can also be pushed harder: the field of environmental ethics *ought* to adopt a more praxis-oriented approach, that is, it should engage actual and pressing sustainability problems at the intersection of science, value, and society. As sustainability scientists pursue lines of research that may reduce human pressure on biodiversity and ecosystems, environmental ethics can help clarify and justify such efforts, while also proposing moral limits for scientific and technological interventions in nature in the era of planetary stewardship.

Yet this collaboration, as important as it may be for both fields, does not appear to be happening. No doubt one reason is the stubborn methodological and cultural divide between ethics and the natural sciences. Despite its normative character and ubiquitous "transdisciplinary" rhetoric, sustainability science still aspires to be a "Science," committed to naturalistic methods and empirical metrics. Environmental ethics, on the other hand, has privileged itself as primarily a prescriptive field, typically one with only a broadly metaphysical connection to ecological science and with little historical interest in issues emerging in applied ecological problem solving (Minteer and Collins, 2008).

Yet I think there is also a more particular philosophical incompatibility between environmental ethics and sustainability science, one that merits further attention. Specifically, there appears to be a significant ethical disparity between these two fields that share the aim of improving our environmental condition but that approach this goal from very different moral vantage points. This division, I believe, needs to be examined and rethought if we wish to see the development of a more ethically inclusive sustainability science *and* a more pragmatic and cooperative environmental ethics that can contribute to sustainability practice moving forward.

### 2 PRAGMATISM AND ENVIRONMENTAL ETHICS

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But what exactly does it mean for environmental ethics to be more "pragmatic"? Philosophical pragmatism is a heterogeneous tradition, with distinct and not always compatible "paleo" and "neo" varieties. In its classical mode, that is, the tradition represented by the work of American philosophers Charles Sanders Peirce, William James, and John Dewey, pragmatism may be characterized as a loosely organized collection of theories about truth, meaning, inquiry, and value. Chief among the original pragmatist commitments is the rejection of foundationalism, that is, the denial of the idea that knowledge and belief must be grounded in a class of certain, fixed, and basic beliefs. Pragmatism thus challenges the traditional epistemological commitments of both rationalism and empiricism, rejecting, in Dewey's phrase, philosophy's "quest for certainty" and adopting a more experimental and fallibilistic view of knowledge (Minteer, 2012).

This prominence of inquiry is another distinctive feature of the tradition. For classical pragmatists philosophical inquiry is a process or method modeled after the sciences, but it is a generic method that they believed could fruitfully be applied across all realms of experience, including to aesthetic and ethical questions. As naturalists, pragmatists stress the basic continuity of human experience, an insight that leads them to reject any sharp ontological division between fact and value. This in turn has a special bearing on discussion of ethics: facts about human experience ultimately provide evidence for moral judgments. Inquiry and experience, however, are ongoing, so this evidence is always capable of being overturned in light of successive experience (Anderson, 1998).

Classical pragmatists such as Peirce and Dewey privileged the epistemic qualities of what they saw as the self-correcting nature of the community (Bernstein, 1997). For Peirce, who was more wedded to a metaphysical view of science than Dewey, truth would emerge from the well-run, collective experimental process over the long run. For Dewey, this was the more democratic method of "social intelligence," a method that would allow the community

of citizens (not just scientific and technical experts) to solve public problems more effectively and develop more secure and widely shared values in the process.

The rejection of foundationalism and the emphasis on the method of inquiry and experience lead pragmatists to support a strongly pluralistic view of value and the good. James described a "multiverse," a pluralistic universe in which we continually experience variety and difference so that any singular or reductionist view of the good can only ever be partial and contingent (James, 1909). Dewey would build his model of moral philosophy upon this insight by suggesting that since experience teaches us that new ethical situations and novel problem contexts are always present, rigid adherence to any single moral principle trades adaptability for an illusory sense of security.

The pragmatic turn in environmental ethics that began in the 1990s (see, e.g., Norton, 1991; Light and Katz, 1996) largely followed the path set down by the early American pragmatists. "Environmental pragmatists" were motivated to reconstruct environmental ethics as a more engaged, experimental, and adaptive form of inquiry, one that embraces the value pluralism of society and argues for accommodating this variety in environmental decision-making and practice. Although the classical pragmatists did not write much about conservation or environmental protection, the human—environment continuity reinforced by their naturalism provides what might be considered an "ecological" view of the human self in which the individual is seen as thoroughly enmeshed in larger natural and cultural—historic systems.

As environmental pragmatism evolved its proponents also defended their work as offering a more methodologically naturalistic and interdisciplinary approach to environmental ethics (Minteer and Manning, 1999; Norton, 2003). Some writers also tapped into the tradition's political and epistemological commitments, suggesting that a pragmatic environmental ethics was more compatible with democratic norms and processes—and that it offered as well an effective means for bridging the chasm between ethical theorizing and environmental decision-making (e.g., Norton, 2005; Minteer, 2012). Others expanded environmental pragmatism's methodological and axiological dimensions, potentially widening the constituency for the new approach beyond devotees of the classical model (e.g., Light, 2000, 2002; Weston, 2009).

Despite the growth and diversification of the approach, the response to environmental pragmatism by nonanthropocentric theorists has mostly been negative. Pragmatism has been conflated with all manner of vices in environmental ethics, including economism, utilitarianism, and political expediency (see, e.g., Rolston, 1998; Callicott, 1999, 2002; Eckersley, 2002). It has been branded as an arrogant humanism that can offer only an exploitative instrumentalism toward nature. Pragmatism, of course, has a long history of being misunderstood by critics (see, e.g., Mumford, 1926). But the reception of pragmatism in environmental ethics is clearly a result of the field's idiosyncratic historical development. Since the early 1970s, many environmental ethicists, including those closely linked with the field's academic founding, have searched for a radically different ethic for the human-nature relationship, one that would be marked not by the humanism of the conventional Western philosophical worldview (such as pragmatism), but by a nature-centered worldview privileging nonhuman organisms, populations, and ecosystems (see, e.g., Routley, 1973; Rolston, 1975). As the field developed in the 1980s and 1990s, the nonanthropocentric argument frequently took on an exclusivist character: the nonanthropocentric ethic *had* to be adopted to guarantee good environmental policy (see, e.g., Rolston, 1994; Katz, 1997; Callicott, 1999).

### 3 THE ASCENT OF SUSTAINABILITY SCIENCE

Although environmental ethics is still a comparatively young field, sustainability science is even younger. Like conservation biology (which organized in the mid-1980s), sustainability science emerged as a fundamentally normative science intended to help steer society toward a desired end, that is, an ecologically supportable, just, and prosperous human future. It remains a rather diffuse science, however, with a fuzzy historical lineage and unclear disciplinary margins. Indeed, it is not always clear today who should be counted as a "sustainability scientist" (including, perhaps, to the scientists themselves). All of this makes pinning down an "environmental ethic" for sustainability science difficult. Still, we can make progress on this question by looking at some of the key policy documents and statements that have informed this new field since the 1980s.

There is, for example, the well-known formulation found in the United Nations World Commission on Environmental and Development report, *Our Common Future* (aka the Brundtland report) in 1987, which defined sustainable development as "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987: 43). This attention to human needs would be repeated a dozen years later in the similarly named, *Our Common Journey* (1999), an influential US National Research Council report that in hindsight set the agenda for sustainability science. The report directed that a "sustainability transition" should "be able to meet the needs of a much larger but stabilizing human population, to sustain the life support systems of the planet, and to substantially reduce hunger and poverty" (NRC, 1999: 31). Although the "life support systems" language incorporates an acknowledgment of nonhuman species and ecosystems, the context makes it clear that these are primarily important for their ability to sustain human life rather than for their own sake.

As sustainability science developed out of this larger policy discourse in sustainable development beginning the late 1990s, it retained the focus on human welfare while introducing the scientific model of coupled human and natural systems, a framework that would become associated with the new field. It proved to be a powerful formulation. Defining sustainability science in an important 2001 article in *Science* magazine, Kates et al. described the field as an attempt "to understand the fundamental character of interactions between nature and society" in a way that would also allow society to guide these interactions toward paths that were more socially desirable and enduring (Kates et al., 2001: 641). Others quickly followed suit, including Harvard University's William Clark, one of sustainability science's most prominent intellectual architects. Writing in the *Proceedings of the National Academy of Science* (PNAS) in 2007, Clark described how the coupled systems approach would provide the scientific foundations for the field's engagement with human needs and environmental problem solving (Clark, 2007).

PNAS would become one of the leading scientific outlets for work in the new field, with the journal's website describing sustainability science as: "an emerging field of research dealing with the interactions between natural and social systems, and with how those interactions affect the challenge of sustainability: meeting the needs of the present and future generations while substantially reducing poverty and conserving the planet's life support systems" (<http://sustainability.pnas.org/>). In 2006, a special sustainability science section was added

to the publication; that same year the journal *Sustainability Science* was launched. Both events suggested a growing disciplinary and institutional organization for the new field.

The novelty of sustainability science appears to reside in its specific problem focus rather than in any bold new disciplinary content (Clark, 2007). It is envisioned as an attempt to use the coupled-systems understanding of nature-society interrelationships in order to chart a more productive, durable, and equitable developmental pathway. In doing so, it draws from other natural and social scientific and technical fields, including most prominently ecology, engineering, economics, and, to a lesser but perhaps increasing degree, science and technology studies (Miller, 2013).

Furthermore, the anthropocentrism of this new field is clear: ecological systems (and the nonhuman-populations and processes they contain) are viewed as essential life support systems for society, with their management fueled by a concern for maintaining a range of human benefits within and between generations. And unlike the vision of strong nonanthropocentric preservationists in environmental ethics that have at times turned away from development concerns when nature is significantly threatened (e.g., Rolston, 1996; Katz, 1997), the discussion of "well-being" in sustainability science discussions frequently emphasizes poverty alleviation and hunger eradication, thus carrying forth the original values and wider policy mission of sustainable development as the framework emerged in the early 1980s.

This does not mean that the ethical foundations of this new science are not valid commitments. The forward-looking anthropocentrism and social equity concerns motivating sustainability science comprise a legitimate and important value system, and in many respects are a corrective to the historical emphasis on a narrower form of nature preservationism and the study of more pristine landscapes in ecology. Still, it is true that a deeper concern with conservation values, with wildness, and so on—that is, a concern for nature protection for its own sake—is not really a part of sustainability science discourse.

#### 4 STRATEGIES FOR RECONCILIATION

If nonanthropocentrism is the position most closely identified with environmental ethics historically (and the moral outlook that typically defines the field to many non-philosophers, including environmental scientists), and if a liberal anthropocentrism has emerged as the dominant value system supporting sustainability science, we might have a problem. That is, we might have a problem if we wish to encourage a more significant collaboration between environmental ethics and sustainability science. These rival ethical foundations certainly would appear to frustrate any effort to form useful alliances between the two fields.

Which way forward? One option would be to simply embrace the prevailing nonanthropocentric model of environmental ethics and reject sustainability and sustainability science as too anthropocentric (e.g., Newton and Freyfogle, 2005). The problem with this strategy, however, is that it is not very realistic: the sustainability agenda is not going away. It is also not a politically attractive option for environmental ethics given the field's flirtations with misanthropy over the years. Doubling down on a strong nonanthropocentrism will not only subvert collaborative efforts, it will weaken the influence of environmental ethics in sustainability science programs and practices.

A second option would be to attempt to achieve greater compatibility within a "convergence" model. That is, we could try to make the empirical claim that both normative-ethical systems ultimately lead to the same policy agenda. This is the argument of the environmental pragmatist Bryan Norton, who has long defended a "convergence hypothesis" suggesting that the philosophical differences between nonanthropocentrism and a pluralistic anthropocentrism do not preclude practical agreement on policies to protect wild species and ecosystems (thus making nonanthropocentric claims unnecessary). Although there appears to be strong support for Norton's theory, including empirical work, many nonanthropocentric environmental ethicists have and continue to reject his thesis (see, e.g., Callicott, 2009; Katz, 2009).

If the convergence argument remains a nonstarter for philosophers who want to defend the necessity of the nonanthropocentric position, we might consider a third strategy. This tack might not make the two fields more collaborative but it would at least not put them into open conflict. We could settle on a disciplinary "zoning": environmental ethics and sustainability science could be viewed as separate domains of research and practice, with orthogonal environmental value frameworks. Sustainability scientists would continue to focus on those environmental dynamics and problems concerning present and future human well-being (e.g., the study and enhancement of urban ecosystems, ecosystem services), while environmental ethicists would continue to emphasize the preservation of wildlands and natural areas, endangered species, and so on—for their own sake. Environmental ethicists would thus continue to commit their collaborative energy to other fields, such as conservation biology, which has long been identified with nonanthropocentric arguments for biodiversity preservation (e.g., Soulé, 1985).

The problem with this tactic, however, is that the field of conservation biology is changing. It is being pushed into a more anthropocentric model of "conservation science" less centered on wilderness and endangered species conservation and more oriented toward ecosystem services, resource management, and the agenda of sustainable development (see, e.g., Kareiva and Marvier, 2012). Although this effort is encountering serious resistance in the conservation community (see, e.g., Foreman, 2012; Soulé, 2013), consigning nature-centered environmental ethics to conservation biology nevertheless promises to become more complicated by the gravitational pull of the sustainability worldview.

Finally, and mirroring the first strategy, we could simply dismiss environmental ethics as too nonanthropocentric and as irrelevant to sustainability science. As with the first path, this is not an attractive option if we wish to encourage fruitful collaboration between the fields. Unfortunately, however, it may be the current de facto "strategy" in sustainability science. A revealing analysis published in *PNAS* of scientific paper titles containing the terms "sustainable development" and/or "sustainability" over the past three decades produced an interesting "word cloud" graphic that, among other things, was noticeable for the absence of terms evoking explicit ethical regard for nature (Bettencourt and Kaur, 2011; see also Kates, 2011).

#### 5 RECONSTRUCTING THE NARRATIVE

Obviously, none of these options are satisfying if we desire a closer collaboration between environmental ethics and sustainability science. But if the fast developing and increasingly

influential field of sustainability science is to enrich and expand its ethical vision beyond a fairly traditional anthropocentrism, and if environmental ethics is in turn to achieve more significant societal and policy impact by influencing the agendas and practices of this new science, then I believe that we need to find ways to close the philosophical gap that exists between them. One way this can be done, I would suggest, is by rethinking the established narrative of environmental ethics.

As we have seen, the traditional account promulgated by environmental ethicists suggests that there is a stark contrast between anthropocentric and nonanthropocentric ethics. This judgment is often supported by a narrative reinforcing the dualism of environmental ethics, a historical account that draws from the pioneering work of first generation environmental historians such as Roderick Nash (1967) and Donald Worster (1977), among others. The bifurcated structure of the narrative, for example, conservation versus preservation, anthropocentrism versus biocentrism, and so on, also assumes a moral directionality: the emergence of nonanthropocentric ethics in the 1970s becomes for many philosophers the fullest and mature expression of the moral tradition of Thoreau, John Muir, Aldo Leopold, and Rachel Carson.

This account has been enormously influential in the development of American environmental ethics. But it greatly simplifies the intellectual and ethical diversity and richness of environment thought. In particular, it reduces the complex pluralism and pragmatism of the tradition into a polarized clash of ideologies that bears little resemblance to the more nuanced projects those environmental writers who laid the moral groundwork for the rise of environmental ethics in the 1970s.

Indeed, a more careful reading reveals that in fact pragmatism has always coursed through the American environmental tradition. Although the classical pragmatists did not devote much attention to environmental questions of their day, a broadly pragmatist sensibility runs through the work of key early twentieth-century progressive conservationists and planners, including both well-known and lesser-known thinkers such as Liberty Hyde Bailey, Lewis Mumford, Benton MacKaye, and Aldo Leopold (Mintteer, 2006). Despite their differences, this diverse group of influential environmental writers emphasized (as did the philosophical pragmatists) the significance of human experience in the environment and its role in shaping and transforming belief and value. And, in sympathy with classical pragmatists such as Dewey, a clear democratic and civic impulse animated their environmental projects: natural values and civic ideals about the good community were mutually reinforcing, each seen as necessary for the promotion of the other.

Most intriguingly for current environmental ethics, these early environmental pragmatists accepted the pluralism of environmental values, implicitly denying through their own work any necessary schism between nature-centered and humanistic moral outlooks. Furthermore, theirs was a vision that supported an understanding of responsible human agency in nature: human environmental action was not to be disparaged *a priori*. Instead, it was to be judged by its ability to successfully adjust and adapt human affairs to a changing landscape. As Leopold wrote in the Foreword to his 1949 classic, *A Sand County Almanac*:

We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect. There is no other way for land to survive the impact of mechanized man, nor for us to reap from it the esthetic harvest it is capable, under science, of contributing to culture (Leopold, 1949, p. viii).

These words remind us just how sophisticated and layered Leopold's environmental ethic was. It deftly combined a quasi-nonanthropocentric regard for the biotic community with a frank realism about the task of ecological sustainability ("There is no other way for land to survive . . ."). In Leopold's moral system we are to venerate the land (ecosystem), but we are also expected to use it wisely and to benefit from this use. Leopold thus was neither a narrow biocentrist nor a conventional (i.e., managerial) anthropocentrist; rather, he embraced elements of a respect for nature ethic within a greater concern for the cultural, aesthetic, and economic sustainability of the community.

As mentioned previously, Leopold's assimilation of a respect for nature ethic within a broader and non-exploitative instrumentalist vision is shared by many of the most prominent voices in the American environmental tradition that similarly avoided creating any sort of ontological division between natural and human values. Environmental pragmatism is thus not a development of philosophers in the 1990s: it is a significant part of the intellectual heritage of environmental ethics. Dismissing it therefore undercuts the field's own philosophical foundations. The recovery of pragmatism as a "third way" tradition, one running between dogmatic preservationism and utilitarianism, reveals what has been lost in narrowing the pluralism and complexity of this tradition to a simplified nonanthropocentrism (Mintteer, 2006).

## 6 ENVIRONMENTAL PRAGMATISM VERSUS PROMETHEANISM

This pragmatist counter-narrative in environmental ethics provides the anchor point for building a more significant collaboration with sustainability science. It advances an understanding of environmental ethics that does not place the traditional nature-centered moral project at odds with the more anthropocentric or prudential concern with human well-being and flourishing. Rather, it knits them together, linking human aesthetic, cultural, and economic interests—and an acceptance of responsible human agency—with the holding of a proper attitude toward nonhuman nature, that is, a moral outlook toward other species and the environment as a whole.

A pragmatist environmental ethics that acknowledges the interplay of intrinsic and instrumental values of nature in human experience is better suited to influencing the values and goals of a developing sustainability science. It offers a moral grounding that can help widen the vision of the latter so that sustainability becomes more than a question of maintaining a desirable level of human welfare and development: it becomes as well a question of our obligation to protect biodiversity and promote ecological integrity. The pragmatist tradition accommodates this preservationist insight while recognizing the strong societal and scientific interest in establishing and stewarding a healthy human-environment relationship.

Interestingly, many of those who profess to be environmental pragmatists today seem to miss these nuances. Consider, for example, the argument of environmentalists Michael Shellenberger and Ted Nordhaus, authors of the controversial "death of environmentalism" thesis and founders of the Breakthrough Institute, a progressive environmental think tank. Self-described "pragmatists," they reject the essentialism driving nature preservationism and

the “politics of limits” that they argue is curtailing human ambition and innovation in the environmental movement. For them, environmentalism remains stuck in the muck of preservationism. In their provocative book, *Break Through* (2009), Shellenberger and Nordhaus single out Rachel Carson for special criticism, suggesting that her negative remarks in *Silent Spring* about the “arrogance” driving the human desire to control nature have had disastrous consequences for human-environment relations. As they put it, “It is this reality—human agency—that most bothers environmentalists like Carson. For her, human attempts to control Nature inevitably end in tragedy” (Nordhaus and Shellenberger, 2009: 134).

Although they are right to take environmentalism to task for some of its ideological excesses, Nordhaus and Shellenberger misread Carson—and misconstrue pragmatism. They are correct that Carson condemned the attitude of human arrogance toward nature as manifest in the use of “biocides” like DDT. But her environmentalism was far from an assault on human agency in nature. For example, just a few lines before the “control of nature” remark in *Silent Spring* highlighted by Nordhaus and Shellenberger, Carson wrote the following:

Through all these new, imaginative, and creative approaches to the problems of sharing our earth with other creatures there runs a constant theme, the awareness that we are dealing with life—with living populations and all their pressures and counter-pressures, their surges and recessions. Only by taking account of such life forces and by *cautiously seeking to guide them into channels favorable to ourselves* can we hope to achieve a reasonable accommodation between the insect hordes and ourselves (Carson, 2002 (orig. 1962): 296; emphasis added).

Carson (like Leopold) did not condemn significant human activity in nature. Rather, she argued that such manipulations should be much more intelligent and more careful, and they should be informed by a deeper ecological understanding. This more enlarged ecological sensibility, she wrote, offered the only hope for reconciling human will and environmental health over the long run.

The danger in some of the current appropriations of pragmatism in environmentalism is that the humility, caution, and contingency of the tradition is disregarded in the desire to be fresh, innovative, and different, that is, to “break through” the historical logjams of environmental politics and policy that have stifled progress and hamstrung environmental ethics. But pragmatism, we should remember, is not Prometheism. It is more accurately viewed as a midpoint on a continuum between strongly nonanthropocentric and anthropocentric poles in environmental thought (Figure 44.1).

So, for example, when “pragmatists” like Nordhaus and Shellenberger (2009) write that, “Whether we like it or not, humans have become the meaning of the earth” (p. 272), they are expressing a Promethean view that is actually quite foreign to the pragmatism of philosophers such as John Dewey. Although Dewey’s humanism and perspectival anthropocentrism is well known, it falls well short of the kind of full-blown ontological anthropocentrism embraced by Nordhaus and Shellenberger. “Humanity is not, as was once thought, the end for which all things were formed,” Dewey wrote in *The Public and its Problems* (1927). “It is but a slight and feeble thing, perhaps an episodic one, in the vast stretch of the universe” (p. 345).

I have mentioned that the classical pragmatists did not say much about what we would today consider environmental concerns. That is certainly true. But if we take a wider view about what counts as an “environmental ethic,” we find in many places an articulate expression of respect and humility toward nature. For example, in Dewey’s major statement on

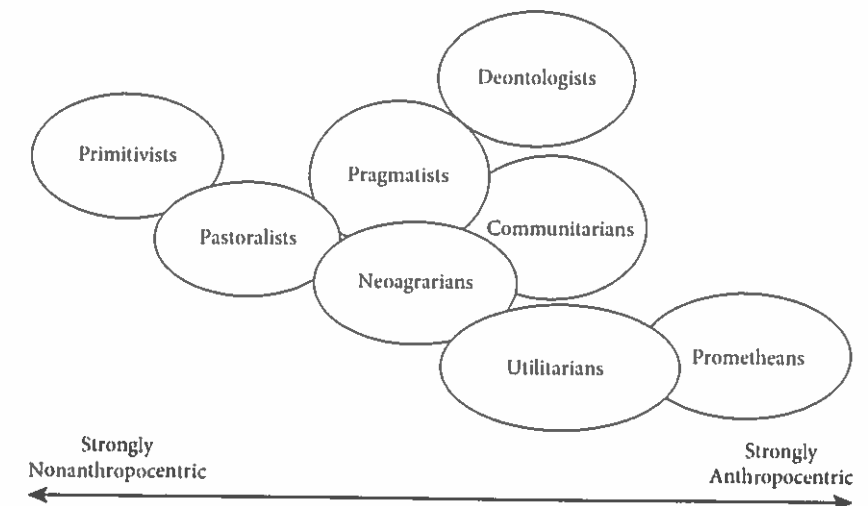


FIGURE 44.1 Expanding the Moral Vision.

religious experience, *A Common Faith* (1934), he writes of the attitude of “natural piety,” which suggested a veneration of the enabling conditions of lived experience; that is, the natural and social processes that support and help to shape human life. We are parts of a larger whole, Dewey reminds us, and we forget this profound social and environmental embeddedness at our peril. But for Dewey (as with Leopold and Carson), we are also parts of nature with a difference: we possess “intelligence and purpose,” and so we have the ability—and, importantly, the responsibility—to carefully adapt both nature *and* ourselves to achieve a more harmonious and sustainable state (Dewey, 1934: 18).

## 7 CONCLUSION: MEETING IN THE MIDDLE

In order to build a stronger collaboration between sustainability science and environmental ethics, both fields will need to expand their moral vision. Environmental ethics must take responsibility for the intelligent shaping of a more sustainable future in a manner that does not dismiss legitimate human values and interests. The pragmatist environmental tradition offers a way to rethink some of the calcified assumptions and arguments of the field and come to an understanding that retains a respect for nature while recognizing that this attitude should not trump wise interventions in nature to promote valued human *and* natural goods.

For its part, sustainability science must adopt a *genuinely* pragmatic attitude of restraint and precaution when considering interventions in environmental systems. This posture is all the more essential as we puzzle through the implications of life in the Anthropocene, which requires a sense of humility in the face of proposed large-scale interventions in earth systems (e.g., geoengineering) as part of a broader shift toward a “planetary manager” worldview (see Rolston, this volume). An ethically broadened sustainability science can help provoke an explicit and authoritative public discussion about which human-environment trade-offs

should simply not be made given our powerful commitments to nature preservation, even as we confront the realities of a rapidly changing world. And it should encourage the protection and provision of societal pathways to promote respect for nature as constitutive of human well-being in addition to its more traditional managerial and development aims.

In his stimulating account of sustainability, cultural historian Ulrich Gruber arrives at a basic moral truth about the idea that has provoked so much international discussion and debate in policy and scientific circles. "Let it be—to forego something that is within one's power—that wisdom is inscribed in the concept of sustainability. That is its great strength" (Grober, 2012: 190). An authentically pragmatic environmental ethics in the "age of humans," rather than justifying our more Promethean impulses, can help a young sustainability science acknowledge the full extent of natural and human values at stake in the daunting but vital search for a more sustainable future.

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