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The Oxford Handbook of
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CHAPTER 10

HOW ECOLOGICAL COLLECTIVES ARE MORALLY CONSIDERABLE

J. BAIRD CALLICOTT

In the context of environmental ethics, “ecological collectives” may be understood to refer to transorganismic levels of biological organization: populations within species; species within biotic communities; biotic communities and associated ecosystems within landscapes; landscapes within biomes; biomes within the biosphere. These ecological collectives are among the principal objects of ethical concern among many environmentalists and environmental professionals, such as conservation biologists and ecological restorationists (Groom et al., 2006). When we hear slogans such as (a) Save the Florida Panther!, (b) Save the Marbled Murrelet!, (c) Save the Kanza Prairie!, (d) Save the Big Thicket!, (e) Save the Rainforest! we hear morally charged pleas on behalf of (a) a regional population of cougars, (b) an endangered seabird species, (c) a biotic community and its associated ecosystem, (d) a landscape (as ecologists define it, a regional mosaic of biotic communities and associated ecosystems), and (e) a biome (or major type of vegetation found around the world). As ethical concern about global climate change grows more urgent, when not specifically a concern for humans that are adversely affected by it, ethical concern about climate change is directed to the biosphere. We now realize that so-called “individual organisms” (including human organisms) are also ecological collectives, composed not only of billions of such organisms’ own cells, but also of billions of microbes representing hundreds of species (Gilbert et al., 2012). Thus eventually all ethics will perforce follow the model of the ethics of ecological collectives expounded here.

1 ETHICAL THEORY

One major task of moral philosophy is to “justify” commonly felt moral concerns—sometimes called “moral intuitions.” Moral philosophers do so by means of ethical theory. Among other things, an ethical theory identifies the proper objects of ethical concern—called “moral ontology” from the Greek *ontos* (“being”)—and provides reasons why those

entities and not others should be the beneficiaries of ethics. In the history of Western moral philosophy, going back more than 2,500 years, most ethical theory was devoted to justifying the moral intuition that individual human beings and not other kinds of beings are the rightful beneficiaries of ethics. In a word, Western moral philosophy has been predominately anthropocentric (human-centered). A task for many environmental ethicists has been to construct a non-anthropocentric moral ontology—and thus to justify recently emerging moral intuitions about other-than-human beings and the more-than-human natural world.

New theoretical developments in a science, such as astronomy or physics, build upon and are continuous with the theories that precede them, even though some theoretical developments in a science are so different from past theory that they are characterized as revolutionary (Kuhn, 1962). Similarly, new developments in moral philosophy build upon and are continuous with the ethical theories that precede them, even though some theoretical developments in moral philosophy are so different from past theory that they, too, may be characterized as revolutionary. A non-anthropocentric moral ontology constitutes such a revolutionary development in ethics. Some non-anthropocentric moral ontologies, however, diverge more radically than others from the anthropocentric ontologies that precede them. A similar circumstance exists in the case of revolutionary theories in science. For example, even though he made the Earth a planet orbiting the sun—rather than the other way around, as astronomers (with a few rare exceptions) had assumed up until the sixteenth century—Nicolas Copernicus conservatively believed that the orbits of the planets (including that of the Earth) were circular not elliptical, as later realized by Johannes Kepler (Kuhn, 1957). Kepler's was thus a more radical departure from past astronomical theory.

Just as astronomers had long assumed that the celestial bodies move in circles, ethicists had long assumed that moral ontology should be conceived in essence-and-accident terms. How can we moral philosophers justify the moral intuition that human beings are the sole proper beneficiaries of ethics? The classical way is to posit an essential characteristic unique to humans that renders humans the rightful—and exclusive—beneficiaries of ethics. Aristotle claimed that rationality was that essential characteristic. All other characteristics—color, ethnicity, gender, race, religion—are “accidents” (that is, nonessential characteristics) “*qua*” ethics (that is, so far as ethics is concerned). One had to be a natural-born, adult, male person to be a citizen of Athens, but one need only be a rational animal (which is how Aristotle defined what a human being is) to be a beneficiary of ethics—to be a “moral patient” in the jargon of contemporary moral philosophy. Just as Copernicus conservatively stuck with using circles to plot the orbits of the planets in his revolutionary non-geocentric astronomy, so some environmental philosophers conservatively stick with an essence-accident approach to moral ontology in theorizing their revolutionary non-anthropocentric ethics.

2 CONSERVATIVE NON-ANTHROPOCENTRIC MORAL ONTOLOGY

In the essence-accident anthropocentric ethic of Immanuel Kant, the class of moral agents (those capable of acting ethically) and the class of moral patients is coextensive, specified by rationality. Tom Regan (1979) pulled the linchpin holding the circle of moral patients onto

the axis of rationality with what he called (somewhat insensitively) the "Argument from Marginal Cases." If rationality is not to be something purely metaphysical, believed by an act of faith to exist in all and only human beings, but something actual and empirically ascertainable, we should be able to determine its presence or absence by specifying markers of rationality and observing whether or not a being exhibits them. Some human beings—the so-called "marginal cases"—do not exhibit those markers: human infants are prerational; human adults who are severely disabled mentally are nonrational; and older humans suffering from advanced dementia are postrational. If rationality is the essential property of a moral patient, then the human marginal cases do not qualify and therefore may be treated in the same way as other beings who do not qualify as beneficiaries of ethics are treated: used as subjects of painful and often fatal medical experiments; hunted for sport; or sent to abattoirs and slaughtered for pet food. The prospect of treating orphaned human infants, the severely disabled mentally, and senior citizens suffering from advanced dementia in such ways is thoroughly abhorrent.

To avoid this repugnant conclusion, moral philosophers have three choices: (1) admit that the rationality criterion was just a ruse and that anthropocentrism is an arbitrary, unjustified restriction on the class of moral patients; (2) make of rationality a mysterious metaphysical property that cannot be empirically ascertained; or (3) abandon the rationality criterion and select and justify some other essential characteristic that qualifies a being for ethical concern, that renders a being "morally considerable." The first alternative is unphilosophical, because it provides no justification at all for anthropocentric ethics. The second alternative is dangerous, because it opens up a Pandora's box of other non-empirical properties that would narrow the class of moral patients by excluding some humans—such as the so-called "Curse of Cain," once used by racists to exclude people of color from the class of moral patients (Schwartz, 1997). There remains only the third option, and so the Argument from Marginal Cases set revolutionary moral philosophers off on a quest for a new moral essence that would admit the marginal cases into the class of moral patients. The stronger motive for such a quest, however, was the increasingly common moral intuition that using animals as involuntary subjects in medical experiments, as "game" for human hunters, and slaughtering them for food is also abhorrent. The proposed new moral essences would indeed admit the human marginal cases into the class of moral patients, but would also admit some non-human beings into it as well.

Just as Aristarchus in the third century BCE provided Copernicus with a precedent for a non-geocentric astronomy, in the eighteenth century CE Jeremy Bentham, founder of utilitarianism, provided a precedent for a non-anthropocentric ethic. While the classical utilitarians were anthropocentrists for all practical purposes, Bentham realized that in defining, as he did, good and evil in terms of pleasure and pain, respectively, utilitarianism was nonanthropocentric in theory if not in practice. Non-human animals experience pleasure and pain and thus should be regarded as legitimate beneficiaries of ethics. Accordingly, the first proposed new moral essence, "sentience" (the capacity for experiencing pleasure and pain), was not really new (Singer, 1975). Just as "animal liberation" is built on classical utilitarianism, Regan built "animal rights" on modified Kantian deontology—from the Greek *deon*, meaning (duty). He argued that being a self-conscious "subject of a life," which can go better or worse from the subject's own point of view, should be the essence of a moral patient. Being the subject of a life is a more restrictive moral essence than sentience, which would open the class of moral patients at least to all vertebrates, but would almost certainly exclude plants and microbes. Almost simultaneously, philosophers motivated by more expansive moral intuitions proposed still

more inclusive moral essences: being alive (Goodpaster, 1978); being conative (Feinberg, 1974); and being a "teleological-center-of-life" (Taylor, 1981). The latter two are different ways of naming the same thing—the property of striving toward a goal (a *telos* in Greek). All three of these proposed morally essential capacities admit more or less the same beings into the class of moral patients—all organisms from microbes to plants to animals.

I will skip over the ingenious justifications that various revolutionary moral philosophers have offered, each in defense of a preferred moral essence, because doing so would exceed the scope of this chapter. I should note, however, that all the accidental (non-essential) characteristics of thus selected members of the class of moral patients are no less morally irrelevant than such characteristics as gender, race, ethnicity, sexual orientation, religious affiliation are in the essence-accident form of anthropocentric ethics. Thus all who exhibit the essential characteristic are entitled to *equal* moral consideration—whether they are human subjects of a life or simian subjects of a life; human sentient beings or reptilian sentient beings; human living beings/conative beings/teleological centers of life or insect living beings/conative beings/teleological centers of life. This is called the "principle of equality" or "principle of impartiality" (Singer, 1972).

In revolutionary non-anthropocentric ethics, while the class of moral patients becomes more inclusive, the class of moral agents must remain limited to rational beings, because we cannot expect the human marginal cases and non-human animals—let alone insects, microbes, and plants—to be morally considerate, nor can we hold them responsible for those of their actions that adversely affect moral patients (including human moral patients). Thus the principle of equality or impartiality has also been denominated a "rational principle" (Rachels, 1990). For unequally to consider morally beings that equally qualify for moral consideration is inconsistent; and consistency, the law of noncontradiction, is the most basic law of logic, the most basic rule of rational thought and action.

3 ECOLOGICAL COLLECTIVES REQUIRE A MORE RADICAL NON-ANTHROPOCENTRIC ETHICAL THEORY

This predominant essence-accident form of ethical theory cannot, however, be made to include ecological collectives, although Lawrence E. Johnson (1991) tried to do just that. He argued that species can be understood—as some philosophers of biology (Ghiselin, 1974; Hull, 1976) suggest—to be spatially and temporally protracted individual living things and that ecosystems, as Odum (1969) claimed, exhibit developmental strategies (with which human moral agents can interfere or which we can frustrate). Ecosystems, Johnson argued, were, in effect, conative (goal-seeking) entities. Johnson's species-as-legitimate-moral-patients argument, however, is based on a notion of species that is so eccentric as to have no more than a handful of adherents; and the idea that ecosystems are teleological entities has been abandoned in ecology (Pickett and Ostfeld, 1995).

Ethical concern for endangered species populations, such as the Yellowstone cutthroat trout; whole endangered species, such as the horned toad; biotic communities and their associated ecosystems, such as tamarack-sphagnum bogs; landscapes, such as oak savannahs; and

biomes, such as cloud forests, greatly exceeds the ethical concern that many environmentalists and environmental professionals feel for individual living/conative/teleological centers of life, such as a mesquite tree or a fire ant—if for such beings they feel any ethical concern at all. For many environmentalists and environmental professionals ethical concern for ecological collectives also exceeds their ethical concern for individual sentient beings, such as a garter snake, or even individual subjects of a life, such as an opossum. To justify such moral intuitions, a more radical revolution in moral philosophy is required. It cannot be done within the constraints of the prevailing essence-accident form of ethical theory.

Fortunately, there is one ethical theory, which also hails from the philosophically fertile eighteenth century, that does not incorporate an essence-accident moral ontology. It was most fully and effectively articulated by David Hume. A moral agent is not compelled by reason to accord equal consideration to equally qualifying moral patients by virtue of their exhibiting some essential capacity or characteristic, but is motivated to act ethically by a certain special set of feelings or emotions called the “moral sentiments.” Qua ethics, human emotions may be divided into two classes—self-oriented feelings and other-oriented feelings. The latter are the moral sentiments and they are common to the human species—in two senses: (1) all psychologically normal humans experience them; and (2), in contrast to the self-oriented feelings, other-oriented feelings are shared.

Among the moral sentiments are sympathy, charity, and benevolence. But also among them are feelings—such as loyalty and patriotism—that are oriented not to human persons but to human institutions, such as religions and countries. Passions for collectives, such as a sports team, can rise to a fever pitch. A team’s complement of athletes is ephemeral; and a gifted athlete, when traded to a rival team, goes from an object of adoration to one of scorn—indicating that the sentiment of loyalty is directed to the collective, not distributively to its individual athletes. Many of my fellow American patriots love their country but loathe those of its citizens who differ racially, religiously, or politically from them.

Because the moral sentiments are the same in all psychologically normal humans, disagreements about moral particulars turn not on differing emotional constitutions, but entirely on the subordinate, yet crucially important role that reason plays in moral deliberation, choice, action, and judgment. Therefore, if convincing reasons are offered for making ecological collectives the objects of the moral sentiments traditionally oriented to various human collectives—as patriotism is oriented to nations—then ecological collectives will fall within the purview of non-anthropocentric environmental ethics.

4 THE BIOLOGICAL ACCOUNT OF THE ORIGINS AND CULTURAL EVOLUTION OF ETHICS

The theory of moral sentiments enjoyed little currency in twentieth-century moral philosophy. It was and still remains the theory of choice in the biological account of ethics initiated by Charles Darwin in the *Descent of Man* and dialectically elaborated in the twentieth and twenty-first centuries.

The existence of ethics among humans presented Darwin’s creationist opponents with a phenomenon that would appear to be recalcitrant to an explanation by descent with

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not, however, be made to (1) tried to do just that. He of biology (Ghiselin, 1974) individual living things and vital strategies (with which ecosystems, Johnson argued, species-as-legitimate-moral-is so eccentric as to have no are teleological entities ha

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modification and natural selection. How could actions benefitting others and costly to the actor be anything but maladaptive for individuals competing with others in the struggle for existence? It would seem that natural selection would favor selfish behavior indifferent to the welfare of others and reward those individuals who were the most devious, treacherous, brutal, and violent with survival and reproductive success. Any tendency to share resources with others or to put oneself in harm's way to defend others from attack would surely be nipped in the bud. Therefore, the only plausible explanation for the fact that humans are moral beings is that human ethics is the hallmark of Providence in the soul of man.

Darwin solved this problem simply and elegantly. For many animals and especially for *Homo sapiens*, the struggle for existence can only be successfully prosecuted collectively. Prolonged human infancy and childhood require equally prolonged parental care and nurturing, motivated and sustained by what Darwin (1874: 101) calls "the parental and filial affections." As to descent with modification, these affections might well chance to extend to other relatives—grandparents to grandchildren and vice versa, aunts and uncles to nieces and nephews and vice versa—in which case, an extended family or clan might form. And as to natural selection, in competition with nuclear family groups, extended-family bands would have the advantage—and so these more widely cast familial affections would spread throughout the species. Without moral restraint, the unity and solidarity of these *ür*-societies would be shattered and their erstwhile members scattered and forced to pursue life's struggle as solitaries—thus doomed to die prematurely without surviving offspring. As Darwin (1874: 120) colorfully put the point: "No tribe could hold together if murder, robbery, treachery, etc., were common; consequently such crimes within the limits of the same tribe 'are branded with everlasting infamy' . . ."

Immediately, Darwin (1874: 120) adds, "but excite no such sentiment beyond these limits." The *raison d'être* of ethics being to hold the group together, the limits of the community and the limits of ethics are coextensive. The competitive advantage of group size, degree of organization, and in-group discipline led to a merger of small clans into tribes, tribes into nationalities, and nationalities into nation states. And with the emergence of each new social collective, the scope and complexity of ethics expanded and evolved: "As man advances in civilization and small tribes are united into larger communities, the simplest reason would tell each individual that he ought to extend his social instincts and sympathies to all the members of the same nation, though personally unknown to him" (Darwin 1874: 126). That brought the state of ethical development up to Darwin's own time, when nation states were beginning to emerge from the union of fractious principalities in Europe. Presciently, Darwin (1874: 126–127) looks forward to our time when the global village is emerging: "This point being once reached, there is only an artificial barrier to prevent his sympathies extending to the men of all nations and races."

5 THE LAND ETHIC: AN EVOLUTIONARY- ECOLOGICAL THEORY OF ENVIRONMENTAL ETHICS

In "The Land Ethic," Aldo Leopold clearly alludes to Darwin's account of the origin and cultural evolution of ethics. Leopold (1949: 202) begins by noting that ethics have progressed over the 3,000 years of recorded Western civilization going back to "the wars in Troy." He

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characterizes “[t]his extension of ethics . . . as a process of ecological *evolution* . . . which has its origin in the tendency for interdependent groups to *evolve* modes of cooperation” (Leopold, 1949: 202, emphasis added). Leopold then (1949: 203–204) succinctly summarizes Darwin’s account of the origin and evolution of ethics: “All ethics so far evolved rest upon a single premise: that the individual is a member of a community of interdependent parts. His instincts prompt him to compete for his place in that community, but his ethics prompt him also to co-operate (perhaps in order that there may be a place to compete for).”

Leopold (1949: 204) next notes that ecology “simply enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land.” This newly discovered community membership calls for “a land ethic [which] changes the role of *Homo sapiens* from conqueror of the land-community to plain member and citizen of it. It implies respect for his fellow-members, and also respect for the community as such” (Leopold 1949: 204). The land ethic is able ethically to enfranchise ecological collectives, such as biotic communities, because the moral sentiments may target social wholes (collectives) as well as fellow-members thereof, not being constrained by an essence-accident moral ontology. As to other ecological collectives, Leopold (1949: 210–211) attributes a “biotic right” to “continuance” for non-human species. When he characterizes “land” as “a fountain of energy flowing through a circuit of soils, plants, and animals” he is characterizing it as an ecosystem (Leopold, 1949: 216). So Leopold explicitly includes biotic communities, their species populations, and their associated ecosystems—three of the most commonly identified ecological collectives—within the purview of ethics.

6 THE SPECTER OF “ENVIRONMENTAL FASCISM” EXORCISED

“A thing is right,” Leopold (1949, 224–225) concludes, “when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise.” Fellow members of the biotic community, initially mentioned as meriting respect, are not mentioned in this summary moral maxim of the land ethic. That would seem to license conservation biologists and ecological restorationists, guided by the land ethic, to control irruptive or invasive species that compromise the integrity, stability, and beauty of biotic communities by killing their specimens—respectfully of course. The very reason for the emergence of environmental ethics is that *Homo sapiens* is an irruptive and invasive species, compromising the integrity, stability, and beauty of biotic communities all over the world. But *Homo sapiens* is no less a plain member and citizen of the biotic community than *Rattus norvegicus* or *Odocoileus virginianus*. If the land ethic licenses environmentalists to kill invasive Norwegian (brown) rats and forest-destroying white-tailed deer, then it should also license them to kill environmentally destructive humans down to a population size that is compatible with preserving the integrity, stability, and beauty of representative biotic communities. That too is an abhorrent conclusion. For this reason, Regan (1982) accused the Leopold land ethic of “environmental fascism”—of making the good of the biotic community trump that of its individual members, including its human members.

Whether the charge of environmental fascism sticks to the land ethic or not turns on the logical interpretation of "when" in Leopold's summary moral maxim. It could be interpreted *either* as "if" or as "if-and-only-if." Does "when" denote merely a sufficient condition or *also* a necessary condition? If the latter, the Leopold land ethic is indeed guilty of environmental fascism and should be shunned as entailing abhorrent consequences; if the former, the land ethic is exonerated, because things other than preserving the integrity, stability, and beauty of the biotic community could also be right. That Leopold (1949, p. 205) meant by "when" just "if" (a sufficient condition) not "if-and-only-if" (also a necessary condition) is indicated by his characterization of the land ethic as an "accretion"—which means an added layer, as when each year a tree adds on a new ring. The land ethic adds a new layer of ethics over all our other ethics generated by our multiple community memberships—our familial duties, our professional ethics, our civic responsibilities, our humanitarian moral obligations. Identifying and justifying the principles guiding choice among these many community-generated ethics when their indications conflict is a complicated problem, the solution to which exceeds the scope of this chapter. Suffice it to say that the Leopold land ethic does not trump the very basic and well-established humanitarian ethical obligation not to commit mass-murder in order to preserve the integrity, stability, and beauty of biotic communities.

7 THE BIOLOGICAL ACCOUNT OF THE ORIGIN AND EVOLUTION OF ETHICS AFTER THE MODERN SYNTHESIS

Darwin's account of the origin and evolution of ethics satisfied Leopold and other biologists interested in the matter during the first half of the twentieth century. But during the 1930s and 1940s, Julian Huxley (1942) and others effected the Modern Synthesis of Mendelian genetics and Darwinian descent with modification and natural selection. Evolutionary theory became all about genes competing for representation in future generations; and Richard Dawkins' (1976) characterization of genes as "selfish" became evolutionary orthodoxy. Darwin had explicitly appealed to "group selection" in developing his natural history of ethics, but after the Modern Synthesis, group selection became anathema (Williams, 1966). Thus, the evolutionary account of the origins and evolution of ethics had to be recast in terms of the selfish gene. The question that Darwin confronted had to be asked anew: How could ethics possibly exist?—when selfish genes rule.

To simplify matters, a surrogate for ethics was posited—altruism, defined as self-sacrifice. The hypotheses offered to explain the existence of altruistic behavior throughout the animal kingdom were "kin selection" and "reciprocal altruism" (Hamilton, 1964; Trivers, 1971). Animals might be disposed to sacrifice themselves for others if those others shared a significant fraction of the altruists' selfish genes—half in the case of siblings; a fourth in that of cousins; and so on. And animals might be heritably inclined to benefit others if they could expect a return of benefits equal in value from similarly inclined others in the future. The kin-selection hypothesis seemed to be confirmed by the haplodiploidal social insects, the most altruistic animals on Earth, the females of which share three-fourths of their genes; and

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the reciprocal altruism hypothesis seemed to be confirmed by prisoner-dilemma game theory (Wilson, 1975).

Kin selection and reciprocal altruism, however, eventually proved to be inadequate to account for the evolution of anything like cooperative human societies and the ethics that make them possible, and so group selection returned to favor under the more general rubric of “multi-level selection” (Wilson and Wilson, 2007; Novak et al., 2010). According to Samuel Bowles and Herbert Gintis (2011: 198–199), kin-selection and reciprocal altruism are “peculiarly ill-suited to explain the distinctive aspects of human cooperation,” but which can be explained only by appeal to “gene-culture coevolutionary and multi-level selection processes.” Gene-culture coevolution is the idea that just as the capacity for enculturation is a heritable human trait, culture is among the environmental conditions exerting selective pressure on the human genome (Henrich and McElreath, 2007).

The evolutionary foundations of the Leopold land ethic, specifically tailored to fit ecological collectives, are thus entirely vindicated by recent developments in the biological tradition of ethical theory traceable to Charles Darwin and through Darwin to David Hume. While its evolutionary foundations have been vindicated, the ecological foundations of the Leopold land ethic are challenged by the paradigm shift from the “balance-of-nature” to the “flux-of-nature” in ecology (Pickett and Ostfeld, 1995).

8 THE VIABILITY OF THE ESSENCE-ACCIDENT ETHICAL THEORY IN TWENTY-FIRST-CENTURY MORAL PHILOSOPHY

Consider the state of play for the twentieth-century’s dominant essence-accident form of ethical theory in the twenty-first-century global village. Rational moral agents are bound to give equal consideration to each and every *moral patient* whom their actions might affect, irrespective of the accidents of spatial and temporal distance and, according to many, irrespective of the accident of species (Singer, 1972; Singer, 1975). One is contemplating buying a cell phone? Can one universalize the maxim of one’s action? Whose interests might one’s action affect? We moral agents now live in a world in which one’s every action—what clothes one wears, what food one eats, what mode of transportation one uses—affects hundreds, sometimes thousands, sometimes millions, sometimes even billions of extant and future moral patients (Asma, 2013). The prevailing essence-accident form of ethics is simply impracticable; to even try to guide one’s actions by it would drive a conscientious moral agent crazy (Asma, 2013). For less conscientious moral agents, absent any other way to think about ethics, it leads to “moral corruption” (Gardiner, 2011).

Moreover, the requirement in the essence-accident form of twentieth-century moral philosophy that the essential characteristic of a moral agent is rationality and that moral actions are motivated by impartial reason, not the moral sentiments, is theoretically untenable because it does not hold up to the scrutiny of the twenty-first-century scientific analysis of ethics. In a synoptic paper published in *Science*, Jonathan Haidt (2007: 998) validates the sentiment-based theory of ethics going back to Hume: “Evolutionary approaches to morality generally suggest affective primacy. Most propose that the building blocks of human

morality are emotional (e.g., sympathy in response to suffering, anger at nonreciprocators, affection for kin and allies)."

8.1 Toward a New Moral Ontology

How might we better conceive of ourselves as moral beings? I suggest we think of ourselves as nodes in skeins of social and environmental relationships. Along with one's biological endowments, they constitute the very fabric of one's being. In imagination, peel back these relationships one by one and at the end of that process there is nothing of oneself remaining. These relationships are also the very fabric of ethics. They generate a suite of nuanced moral duties and obligations—not a one-size-fits-all "principle of impartiality, universality, equality, or whatever" (Singer, 1972: 232). The duties and obligations one has to family and family members differ from those one has to neighbors and neighborhood, which differ from those one has to one's country and its fellow citizens, which differ, in turn, from those one has to the global village and its fellow denizens.

One is also a plain member and citizen of a biotic community, the duties and obligations to which were set out by Aldo Leopold in "The Land Ethic" and have been further expounded by environmental philosophers since the 1970s. As well, one is a member of mixed human-animal communities, which memberships also generate a suite of nuanced duties and obligations (Midgley, 1984). Pets are ersatz family members and are owed food, shelter, medical care, and affection. But unlike actual family members one may euthanize them when they grow old and infirm. Other animals are our associates in sport, work, and war—polo ponies, draft horses, cutting horses, work elephants, seeing-eye dogs, bomb-sniffing dogs. The revulsion that many beefeaters experience at the thought of eating horsemeat is precisely because the kind of mixed community humans have traditionally shared with horses is different from that we have shared with cattle. And although we slaughter and consume cattle and other animals for food, our communal relationships with such animals are fraught with duties and obligations that industrialized agriculture has egregiously abrogated.

With the advent of global climate change, we should become cognizant of how exquisitely we *Homo sapiens* are adapted to the climates of the Quaternary and how dependent the emergence of agriculture and human civilization has been on the climate of the Holocene. There are many moral reasons why we should do everything in our power to mitigate global climate change, but as Derek Parfit (1984) has demonstrated, giving equal consideration to the interests of *presently indeterminate* future moral patients is not among them. Unstinted, global climate change probably will suddenly bring about a new geological era with a climate like that on Earth thirty-five million years ago (Kiel, 2011). That would almost surely precipitate the collapse of global civilization. As the current custodians of global civilization, we have a fiduciary responsibility to it. Should it collapse, the human population would be decimated, its surviving members dispersed into mutually hostile bands led by warlords.

I fervently hope that my son and grandson enjoy the same Holocene climate that I have enjoyed during my lifetime. I can and will bequeath an inheritance to them and to them alone. But I cannot bequeath to them and them alone the climate to which our species is adapted and with it a viable human civilization. That we can only do collectively. So not only should we think of ecological collectives as beneficiaries of ethics—to reconceptualize

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ourselves as moral beings in relational, communal, and collective terms is a matter of the greatest urgency for twenty-first century moral philosophy (Callicott, 2013).

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