# 11—A MORAL EARTH:

# FACTS AND VALUES IN GLOBAL ENVIRONMENTAL CHANGE

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Joy and Woe are woven fine
A Clothing for the soul divine
Under every grief and pine
Runs a joy with silken twine.
William Blake, Auguries of Innocence

## DEPARTURE

### A transformed earth

Above my childhood home in the U.S. Pacific Northwest is a peak that somehow got the oxymoronic name of Canyon Mountain. I've ascended this peak quite often, passing clearcuts covered with snow and forests cleared by fire. And when I'd get to the top I'd climb an old navigational beacon, look out at the forests of southern Oregon, and witness firsthand the magnitude of the human transformation of nature. As far as I could see, they had been altered by human hands, plundered of their original timber wealth and then—with varying degrees of success—replanted to produce more. Aside from the effects of fires that roam the hills of southern Oregon in the dry summers, these forests have undergone a magnitude of environmental change in the last half-century unmatched by nonanthropogenic forces over the last several millenia.

Each one of us has, from our youth, encountered a transformed earth. The dynamic biophysical processes that shape the world around us have been joined in the last several millenia by the transformative power of humans, who have altered the earth's landscapes, utilized its vast resources, profoundly modified its biota, and to a certain extent influenced its major biogeochemical cycles. The human transformation of nature is no monolithic process: it has been intentional as well as accidental, ephemeral to long-lasting, both local and global. Yet, overall, it has vastly accelerated in magnitude and spatial extent over the last several hundred years. The earth—at least the critical, thin life-supporting biosphere enveloping the earth—is now in many ways a product of humankind.

Global environmental change is, one could reasonably say, a fact. But it is not just a fact: the tremendous recent surge of scholarly and lay interest in global environmental change is driven as much by concern as curiosity. Indeed, facts and values are found together in many accounts of global environmental change. Consider the following two summaries, for example. Even though the first was written from the perspective of geography, which (this volume aside) resides primarily in the realm of facts, and the second from the perspective of environmental ethics, which concerns itself more with values, they are remarkably similar:

> Its ingredients have become well-known. Massive burning of Amazonian forests, indiscriminate logging in South-east Asia and food and fuel needs of Africa's fast-growing population are destroying tropical rain forests, the Earth's richest repositories of biodiversity. Soil erosion, desertification, improper irrigation, inadequate recycling of organic matter and excessive use of farm chemicals are reducing the extent and the quality of arable lands. The Antarctic ozone hole and a possibility of its Arctic duplicate are causing fears of extensive damage to crops, animals and human health. And the anticipation of rapid climatic change is moving nations toward a formulation of global co-operative policies designed to forestall the burdens of reduced harvests, declining economies and masses of environmental refugees (Smil 1994: xii).

> In the late 1980s, the second wave of the twentieth century's environmental crisis began to crest. Word reached the public that a "hole" in the planet's protective membrane of ozone had been discovered over the Antarctic.…Each spring the hole has grown larger. Because of the continuing increase in carbon dioxide and other "greenhouse" gases in the earth's atmosphere, most scientists now agree that the planet will warm up, with potentially disastrous environmental consequences. The assault on Earth's girdle of moist tropical forests, home to half the planet's complement of species, has intensified. Our generation may preside over a rare episode of abrupt, mass species extinction.…The environmental crisis—discovered in the industrial West in the 1960s, plastered over with regulative legislation in the 1970s, then forgotten only to return with a vengeance in the 1980s—is now global in scope and focus (Callicott 1994: xii-xiii).

There are no valueless facts, no factless values here; Smil, a geographer, and Callicott, an environmental ethicist, both speak fact-values, value-facts in their assessments of global environmental change.

## Well-worn paths, constraining perspectives

This essay asks a question it will not answer: what are the ethical implications of global environmental change? I ask this question because, in contrast to the reams of literature that have recently emerged on the biophysical, political, and economic dimensions of the phenomenon, relatively little inquiry has been explicitly devoted to the ethics of global environmental change (Callicott and a few others aside; see for instance Jamieson 1996). Yet, ironically, the moral terrain of global environmental change has already been too well traversed, the principal routes too well demarcated, to allow us passage without finding ourselves in a preestablished rut. I thus will not answer this question because I do not believe we are ready to do so.

This non-answer first requires a bit of terminological distinction between ethics and morality. I use the term "moral" to refer generally to existing, often taken-for-granted schemes of good/bad, right/wrong, and so forth. I use the term "ethics" to refer to intellectual reflection on morality. When I argue that we cannot yet consider the ethics of global environmental change because its moral terrain is too deeply rutted, what I intend to warn against is the sort of ethical journey that mindlessly follows existing, highly partial perspectives on coming to moral terms with global environmental change.

In their place, I will suggest an alternative manner of departure, one that recognizes, as suggested in the above narratives, that analyzing the ethics of global environmental change is not so much a matter of adding values onto a primarily factual discourse as of carefully exploring the values

contexts that already enframe the ways we make sense of global environmental change. This approach is informed by my identity as a geographer. I consider ethics as a geographer because I believe that ethical questions are too important to leave for only philosophers (whose intellectual rigor I do not question) to clarify—let alone answer—for the rest of us. Geography offers a very important perspective for ethical reflection, one that has only begun to be elaborated in our discipline.

Indeed, geography and ethics run deep in the meaningful fabric of our lives, whether or not we identify ourselves as geographers and/or ethicists (and, of course, most people don't). Geography (literally, "earth writing") and ethics (moral reflection) matter at a very fundamental level, because we inhabit a moral earth. It is moral precisely because we inhabit it. The values we have woven into our existence on Earth are not necessarily the best ones possible, nor certainly are they self-evident, but there is never some value vacuum we must fill; the earth is already a moral place.

Understanding ourselves geographically as inhabitants of a moral earth may not lead to tidy resolution of the complex ethical questions surrounding global environmental change, but it will at least remind us that they are already there—indeed, the worth of ethical reflection often lies in the reflective attitude itself as much as the elusive answers we seek. From the perspective of a moral earth, values issues are not beyond the pale of science, restricted to policy implications, or some human add-on to a biophysical phenomenon. Global environmental change is about facts and values: it concerns facts because there are indeed more and less factually robust ways of understanding it, yet it also concerns values because there is literally no way that we can utter a sensible statement about the biophysical process of global change and its implications without bringing our (moral) humanity into the mix. Rather than follow some purification ritual of fact-value separation, then, I suggest that we proceed from the axiomatic point of departure that facts and values are—as joy and woe—woven fine.

## REFLECTION

### Facts

Global environmental change is as much a product of science as an emerging reality (Buttel, Hawkins, and Power 1990; Wescoat 1993; Wynne 1994). It has roots in a number of scientific disciplines (The Economist 1995), and has benefited from post-World War II international research efforts running from the International Geophysical Year of 1957-58 to the ongoing International Geosphere-Biosphere Program (IGBP), launched in 1986 (International Council of Scientific Unions 1986). But atmospheric science has played a special and leading role (Fleagle 1994), due in no small part to space technology competition between the once-Soviet Union and the United States and the related post-Cold War desire to keep space budgets aloft: the National Aeronautics and Space Administration (NASA), for instance, is slated to receive fully three-quarters of projected 1998 U.S. Global Change Research Program funding (Subcommittee on Global Change Research 1997: 79).

Though scientists themselves do not manifest a settled position on the facts of global environmental change—after all, science is not simply an accumulation of facts, and at any rate research budgets require questions more than answers as justification—it is not surprising that the dominant moral perspective on global environmental change today privileges facts over values, arguing that the imperative is to get the facts straight and design appropriate corrective policy measures where necessary (Herrick and Jamieson 1995). The values decisions inherent in

policymaking should be primarily informed by good science; in this way, the fuzzy realm of values is offered some secure footing in the less inherently contestable realm of facts. Consider this summary to the first Intergovernmental Panel on Climate Change (IPCC) report, a statement of crucial significance to the ongoing debate over climate change policy:

> This…report considers the scientific assessment of climate change. Several hundred working scientists from 25 countries have participated in the preparation and review of the scientific data. The result is the most authoritative and strongly supported statement on climate change that has ever been made by the international scientific community.…It will inform the necessary scientific, political and economic debates and negotiations that can be expected in the immediate future. Appropriate strategies in response to the issue of climate change can now be firmly based on the scientific foundation that the report provides (Houghton, Jenkins, and Ephraums 1990).

The notion that science-as-facts is fundamental to evaluating environmental change can, however, be taken in the opposite direction; indeed, one of the major criticisms of concern over global environmental change is that it is based more on hype than science. Gregg Easterbrook, for instance, argues that anthropogenic greenhouse gas contributions are insignificant in the biophysical scheme of things:

> The present rate of increase in human-causes greenhouse forcing…works out to about 0.002 percent per annum of the total effect.…People assume that the twentieth-century increase in artificial carbon dioxide emissions has an overwhelming impact on nature. From nature's way of thinking the impact may still be so minor it is difficult to detect (Easterbrook 1995: 23).

Easterbrook calls for "ecorealism," based on the principles that "logic, not sentiment, is the best tool for safeguarding nature; that accurate understanding of the actual state of the environment will serve the earth better than expressions of panic" (Easterbrook 1995, xvii).

Whether or not these sorts of counterassertions are correct, they do suggest the fragility of this perspective. As supporting facts are called into question, the whole moral house of cards collapses. Ethical inquiry becomes silenced in cases where their very complexity leads to disagreement over factual matters. And thus emerges a particular problem in adopting this perspective on facts and values: as spatial scale increases, so often does complexity, such that environmental change at the global scale becomes in many ways a much more difficult factual matter than the environmental changes that have taken place in the forests I wandered as a child. This echoes the argument of Anthony Weston:

> This earth eludes us.…It eludes the computer modelers, who still, apparently, even now, have no idea where a billion tons of carbon dioxide—a seventh or more of the total dumped into the atmosphere from human sources—goes every year, though some of them confidently go on to predict, or deny, global warming anyway. And this earth eludes our fatalism. Prediction is dangerous, as E.F. Schumacher once said, especially about the future (Weston 1994: 176).

The problem with this perspective is not, however, simply that facts are contestable or elusive. It is also resides within the very term "fact," which derives from the Latin factum, meaning a deed or something done. The most common understanding is that a fact is an item of knowledge that is

true by virtue of its correspondence to reality. To assert, for example, that it is a fact that anthropogenic emissions have boosted greenhouse gas concentrations in the atmosphere is to claim that this knowledge-statement is true because it corresponds to actual occurrences. Facts are true knowledge-claims about reality. Fictions, in contrast, are demonstrably false knowledge-claims about reality, hence the apparent need to distinguish between the two—between "eco-facts and eco-fiction," as the recent title goes (Baarschers 1996).

Thus the realms of ontology (derived from the Greek einai, to be) and epistemology (derived from episteme, the Greek word for knowledge), are conflated in this sense of "fact"—my Random House Dictionary, for instance, defines a fact as "Something that actually exists; reality; truth." In addition to its fairly naive correspondence theory of truth, a major problem with this conflation of ontology and epistemology lies in what Roy Bhaskar (1975) has termed the "ontic fallacy." According to the ontic fallacy, knowledge is reduced to reality, truth-assertions point immediately to the conditions they assert to be true, our ways of understanding appear as faithful mirrors of the things we strive to understand. This sense of "fact" then masks the very human qualities of facts about global environmental change. The perspective that privileges facts therefore privileges far more than what most people think of as facts.

## Values

Clearly there is a need to look at global environmental change in a manner that takes values more seriously than the previous perspective; and indeed a values-based perspective on global environmental change has thrived in the recent past. Yet there are, predictably, pitfalls with championing values as well. Consider the following observation made by the President of the Royal Society of Canada in the preface to a book on global environmental change:

> The human being is an animal that has moved out of ecological balance with its environment. Humankind is a wasteful killer and a despoiler of other life on the planet. This normal and apparently acceptable behaviour has been licensed by a belief that our use of the Earth's resources is God-given, and encouraged by an economic system that emphasizes short-term profit as a benefit.…Humankind is now dominant in effecting perhaps irreversible change on the Earth's surface, and I suggest that we do not know enough to decide how to run this planet (McLaren 1991: xiv).

McLaren's account is not at all squeamish about values. But is this ethics? It feels more like an unfettered proclamation of right and wrong, founded on a fairly settled (and generally apocalyptic) reading of the facts of global environmental change, than a critical reflection on morality. It thus resembles in important ways the perspective that privileges facts—though of course to the dogmatic factist it must feel like the tail wagging the dog.

Outside of the strictly scientific literature on global environmental change, values run rampant. They influence many of the overriding themes in recent popular books about global environmental change: witness the earth poised in the balance between destruction and preservation (Gore 1993), the imperative to heal the planet (Ehrlich and Ehrlich 1991), or the need to adopt new metaphors of the earth such as Gaia (Myers 1993) and to achieve a steady-state economics that values the earth (Daly and Townsend 1993). Even the undergraduate environmental science curriculum has moralistic moments; for instance, students can take a telecourse on environmental science with a study guide entitled Race to Save the Planet (Wolf 1996).

I do not wish to be overly critical; as with the factist perspective, a genuine impulse underlies efforts in this vein. Take, for instance, the abundant literature on crafting a new "earth ethic." Environmental philosopher Holmes Rolston states:

> The home planet is in crisis.…Our modern cultures threaten the integrity, stability, and beauty of Earth and thereby of the culture superposed on Earth. Beyond the vision of one world is the shadow of none. We are searching for an ethics adequate to respect life on this home planet (Rolston 1996: 162).

As Rolston's passage suggests, a strong sense of looming and existent crisis leads authors in this genre to argue for the need to craft a new normative ethics, to fashion a moral imperative to "heal the earth" (Harrington 1990). A number of metaphors are invoked, from thinking of the earth as a garden (Allsopp 1972) to conceiving of the earth inclusively as a scene of plenishment, where good and pain alike must be embraced (Ross 1995). Many are attempts to bring religion to bear in crafting an earth ethic (Stone 1971; Murphy 1989; Rasmussen 1996); one recent work in this genre explicitly intends to build a global environmental ethic based on the spiritual and other traditions of diverse cultural groups of the world (Callicott 1994).

Though the attempt to craft an earth ethic is laudable, it is more of an ethics of "being ethical" or "doing good" than ethics as critical reflection on being ethical or doing good. As such, it resembles McLaren's preface, Gore's Earth in the Balance, and the other works cited above in promulgating a fairly clear sense of right and wrong. Yet values are rarely evaluated as simply as this. Where the factist perspectives discounts values, its alternative celebrates values in an excessively unreflective manner.

**Interests**

A third prevalent perspective on facts and values in global environmental change offers an important corrective to the two other perspectives discussed above. Consider the following statement from a recent text on global environmental change:

> We must therefore ask two…crucial questions. How far is global environmental change really about the advanced countries of the North keeping their control (hegemony) over the poorer countries of the South? And, how far is global environmental change about scientists persuading concerned governments to continue to fund their expensive research, despite the fact that few people really want it, or actually benefit from it? (Moore, Chaloner, and Stott 1996: 198).

From this perspective, the predominant factors at work in making claims about global environmental change are the political, economic, cultural, or other interests that motivate an individual or group; facts and values are then lined up to support a particular platform of interests.

Consider, for a moment, Earth Summit 1992, formally known as the United Nations Conference on Environment and Development (UNCED), held in Rio de Janiero. Earth Summit 1992 gathered the heads of state from over 100 countries of the world, with 178 states participating altogether, to discuss global environmental problems and find ways to solve them that embraced the need for what has become known as sustainable development. Maurice Strong, Secretary-General for UNCED, summarized the motivation for the Earth Summit in a manner suggestive of the moralistic perspective above:

> We, the world community, now face together greater risks to our common security through our impacts on the environment than from traditional military conflicts with one another. We must now forge a new "Earth ethic" which will inspire all peoples and nations to join in a new global partnership of North, South, East, and West.…Earth is the only home we have; its fate is literally in our hands (Strong 1992: 115).

Yet development scholar and critic Wolfgang Sachs was not so enamored of Earth Summit, stressing its political motivations:

> As ecological issues have moved to the top of the agenda of international politics, environmentalism appears in many cases to have lost the spirit of contention, limiting itself to the provision of survival strategies for the powers that be. As a result, in recent years a discourse on global ecology has developed that is largely devoid of any consideration of power relations, cultural authenticity and moral choice; instead, it rather promotes the aspirations of a rising eco-cracy to manage nature and regulate people worldwide (Sachs 1993: xv).

And from a very different political viewpoint, Walter Kaufman similarly questioned the scientific basis of UNCED:

> As environmentalists began their massive public relations campaign for the Rio summit, many scientists recognized that propaganda was again to be passed off as science. They saw that committees meeting to prepare the summit's agenda had few scientists, and those who were included were seldom specialists in the area being discussed.…the Rio summit would have noble motives, eloquent speeches, and a distinct unscientific bias" (Kaufman 1994: 84-5).

Privileging interests over values and facts is, however, rarely thoroughgoing, as to be entirely consistent one would have to cynically dismiss one's own perspective as little more than interests-based. Indeed, though Sachs questions the dominant values underlying Earth Summit, he still points to the possibility of "cultural authenticity and moral choice"; and while Kaufman dismisses the factual basis underlying UNCED, his very critique suggests that good science was ignored. Thus, the cynical eye informed by this perspective seems generally to gaze outward rather than inward; it is a perspective of the other.

The error with this perspective lies not in its truistic assertion that interests play a major role in the ways people come to moral terms with global environmental change; indeed, we all legitimately speak out of certain interests, and this must be recognized in designing more participatory approaches to crafting policy responses. Rather, the problem lies in the extent to which the interests-based perspective suggests a reductionistic attitude toward facts and values while retaining its own moral voice. From this cynical extreme, the politics of the other washes out any hope of epistemological or ethical clarification, while the politics of the self are somehow more genuine.

## A moral earth

Rather than attempt to purify our understandings of values as from the factist perspective, or celebrate some unfettered normativity as from the moralistic perspective, or smother values entirely (save, perhaps, our own) as from the cynical side of the interests perspective, I offer another way to think of values in the context of global environmental change. Some geographers

have argued that our identities and our ideas of the world around us are linked. Anne Buttimer has observed that "humanus literally means 'earth dweller'" (Buttimer 1993: 3)—that, whether or not one enjoys looking at maps or celebrates Earth Day, our lives are fundamentally geographical. Robert Sack argues that our lives are fundamentally geographical because our identities are constituted in relation to the real and imagined places we inhabit—hence the title of his most recent work, Homo Geographicus (Sack 1997). And Clarence Glacken has argued that conceptions of nature through Western history abound with references to the fitness of the earth as a home for humans, an "orderly harmonious whole, fashioned either for man himself or, less anthropocentrically, for the sake of all life" (Glacken 1967: 36).

The geographical tradition of conceptions of self-in-relation-to-the-world predates the last few decades, and certainly has been expressed in far stronger terms than the above. The French geographer Elisée Reclus began his first volume of L'Homme et la Terre with the statement, "L'Homme est la nature prenant conscience d'elle-même" ("Man is nature becoming self-conscious") (Reclus 1905), which one commentator summarizes as the argument that "Humanity must come to understand its identity as the self-consciousness of the earth, and that it must in its own historical development realize the profound implications of this identity (Clark 1997: 119).

Even more grandiose notions have emerged from the geographical tradition. In 1834, a man well into his sixties wrote a letter to a close friend, tracing the contours of an unfulfilled dream:

> I have the crazy notion to depict in a single work the entire material universe, all that we know of the phenomena of heaven and earth, from the nebulae of stars to the geography of mosses and granite rocks.…It should portray an epoch in the spiritual genesis of mankind—in the knowledge of nature. But it is not to be taken as a physical description of the earth: it comprises heaven and earth, the whole of creation.…My title is Cosmos (quoted in Botting 1973: 257).

This was no idle dreamer. The man was Alexander von Humboldt (1769-1859), an explorer and naturalist, famous in his time, a friend of Jefferson and Goethe, author of, among other publications, a thirty-volume chronicle of his research travels to Central and South America, and, by many accounts, a founder of modern geography. Humboldt's vision was "impressed…with the analytical potential of Enlightenment science, and equally convinced of the values proclaimed by its romantic critics" (Buttimer 1993: 170). As his biographer, Douglas Botting, stated, "Humboldt saw nature as a whole and man as part of that whole" (Botting 1973: 259).

When I suggest that we understand ourselves as inhabitants of a moral earth I am simply turning on its head the longstanding geographical tradition of viewing human identity in relation to the earth. It is realization of a world already laden with moral meanings, and not anthropomorphic excess, that leads me to suggest this as an alternative point of departure for reflecting on the ethics of global environmental change. The earth is a moral place by virtue of being inhabited by people who have acted in certain morally-relevant ways, and justified their actions and condemned others with reference to existing moral notions.

What are the implications of this perspective? The most fundamental theoretical implications are twofold. First, facts and values are not as separate as the two distinct terms imply (Proctor 1998). Given the dual, ontological/epistemological contribution to a "fact" as suggested above, this means that reality, knowledge, and ethics are intertwined. This very important point is one a geographer would not miss—and indeed, the connections between ethics and ontology are the

focus of Nicholas Low and Brendan Gleeson's essay elsewhere in this volume, as are the connections between ethics and epistemology in Tim Unwin's essay. The second major implication is the positional and relational notion that values connected to our outer worlds (the earth) and inner worlds (our identities) are joined. As Paul Roebuck's essay elsewhere in this volume argues, the Enlightenment-derived objectivist notion of nature as manipulable other has driven a wedge of incomprehension between our senses of self and the world.

One brief example should illustrate the values-embeddedness of global environmental change, and its relations to senses of self. We need look no further, in fact, than the value-added modifier "global." Many commentators on global environmental change seem to feel as if this were the one true moral scale of things, where all subglobal others pale in comparison:

> Immersed in the world ecosystem, we have not grasped the meaning of our true environment. We have fragmented our surroundings, and constructed fields of knowledge, disciplines, educational systems, departments—an entire culture of arts and sciences—around the fragments. But revelations from outer space of the environmental whole, interpreted by ecological understanding, are challenging age-old ideas of human preeminence and purpose that have brought the world to the brink. The unity is the ecosphere—literally the home-sphere, the global 'being' whose inseparable physical/biological parts have evolved together for 4.6 billion years (Rowe 1991: 331).

Critics have argued, however, that the very sense of "global" implied in global environmental change is a logical conclusion to the longstanding process in which modernity has conferred a separated view of the earth, a view of people as not so much inhabitants as onlookers (Ross 1991: 221; Ingold 1993; Cosgrove 1994). Indeed, even von Humboldt has been accused of contributing to this tradition of "world-as-exhibition" (Gregory 1994: 40). Separating our identities from the world, separating facts from values, our concern over global environmental change thus reproduces the flawed perspectives we invoke to make moral sense of it. The perspective of a moral earth aims to make explicit the moral threads that weave through our existing webs of significance, a project which must necessarily precede asking how these webs could be woven differently.

## RETURN

How would the forests of southern Oregon now appear to me from the perspective of a moral earth? They probably would not look markedly different, at least at first glance. I would still see the evidence of transformation—by fires, insect infestations, and certainly logging—and variable regrowth, the interwoven natural and human history of the landscape. But I believe I would see more than the facts of history: I would also see in the landscape historical traces of the moral imaginations of people who lived there, as well as people who lived far away. Those who lived close by worked the forests, lived in community with those who did, or otherwise built and justified their identities around the rapidly-transforming landscape. Those who did not, those whose only connection to southern Oregon was as a source of resource-based capital or building material, nonetheless had in their moral imaginations of progress or well-being or stability a material thread tying them to the region. I would, from this perspective, see myself in a different light as well, as a person whose identity and moral sensibilities have been shaped by growing up in, then moving far away from, this small forest community. I would thus become more aware

that the good and bad I see in human-induced environmental change reflects in complex ways the good and bad I see in myself.

One possible objection to the perspective of a moral earth arises from the consideration that notions such as good/bad and right/wrong sound like platitudes to many of us; why, then, need we over-moralize everything? My response is that, along with less ideal-typical polarities—justified/unjustified, honorable/reprehensible, understandable/inadmissible, sly/devious, and so forth—these are the moral tensions that accompany our practical engagement with the earth and with each other. Our moral imagination is inescapably a part of our earthly lives. To conceive, then, of a moral earth is not so much to look at everything with colored glasses as to notice the moral threads running through our practices and their traces on the earth.

I, for one, find a great deal of rich content for ethical analysis in the existing moralities I observe around me. This point of departure for doing ethics is not perhaps as intellectually glamorous as others—indeed, I often feel as if I remain on the ground long after others have done loops and spirals around me (perhaps this is why I am a geographer and not a philosopher). To readers who are still looking for the final answer—even a tentative answer—on whether, for whom and in what ways global environmental change is a good or bad thing, I can only hope that they will take the next steps in this direction. My humble contribution is to observe that this question can never be posed, much less answered, in a moral vacuum: the fact-values, value-facts of global environmental change are simply too compelling for us to ignore this question nor, more generally, to ignore our presence on a moral earth.

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