

Introduction

Unearthing the Process Roots of Environmental Ethics

Properly dating the birth of an idea or a movement unavoidably involves a degree of arbitrariness. Ideas are “in the air” decades before they become explicitly thematized in the work of a prescient scholar. And so it is with the field of environmental ethics. One could rightly note that philosophers, mystics, and poets have written on environmental themes for millennia. And it is certainly true that the historical roots of the ecological crisis go very deep indeed. Nevertheless, the birth of environmental ethics is seen as taking place in the last third of the twentieth century. As the Center for Environmental Philosophy’s “Very Brief History” puts it, “the inspiration for environmental ethics was the first Earth Day in 1970 when environmentalists started urging philosophers who were involved with environmental groups to do something about environmental ethics.”¹ As they go on to note, in the late 1960s small groups of scientists, theologians, and historians had begun discussing the growing ecological crisis, with Rachel Carson’s 1962 *Silent Spring* perhaps the greatest catalyst of thought. Much of the framing of early discussions over how to conceive of the ecological crisis were established by historian Lynn White Jr.’s “The Historical Roots of the Ecologic Crisis” in 1967 and ecologist Garrett Hardin’s “Tragedy of the Commons” the following year, both in the journal *Science*. Responses and reactions to these essays dominated the discussion in the subsequent years, but philosophers largely “sat on the sidelines.”² Also important was the republishing of Aldo Leopold’s³ “The Land Ethic.” Although the essay had been published in Leopold’s *A Sand County Almanac* in 1949, it was not widely read until it was republished in 1970.

Philosophers do finally get into the game. The first academic conference explicitly focusing on environmental ethics was organized by William Blackstone at the University of Georgia in 1972. The Norwegian philosopher Arne Naess began the Deep Ecology Movement in 1973 with the publishing of his essay “The Shallow and the Deep, Long-Range Ecology Movement.” And Holmes Rolston III is credited with publishing in 1975 the first mainstream journal article explicitly on environmental ethics, “Is There an Ecological Ethic?” in the journal *Ethics*.⁴ Finally, Eugene Hargrove gave a name and a voice to the fledging field when he founded the journal *Environmental Ethics* in 1979.⁵ (See table I.1.) From here the field grew and expanded to take its current shapes. In many ways, the field is, if not in its infancy, still in its adolescence.

Part of what is missing in this account is the outsized roles that process philosophers—scholars inspired by the thought of Alfred North Whitehead (1861–1947)—played in the birth of environmental ethics. Indeed, it is possible (though, as we will see, perhaps not likely) that Whitehead’s work was a chief inspiration for Leopold, whom J. Baird Callicott describes as the “father” and “founding genius” of environmental ethics.⁶ However, the role of process philosophers in the inception of environmental ethics is

Table I.1. Key dates in the history of environmental ethics

1949	Publishing of Aldo Leopold’s <i>A Sand County Almanac</i>
1962	Rachel Carson publishes <i>Silent Spring</i>
1967	Lynn White Jr. publishes “The Historical Roots of the Ecologic Crisis” in <i>Science</i>
1968	Garrett Hardin publishes “The Tragedy of the Commons” in <i>Science</i>
1970	First Earth Day is held and Leopold’s <i>Almanac</i> becomes widely available in a new issue
1972	William Blackstone organizes the first environmental ethics conference
1973	Arne Naess publishes “The Shallow and the Deep, Long-Range Ecology Movement” in <i>Inquiry</i>
1975	Holmes Rolston III publishes “Is There an Ecological Ethic?” in <i>Ethics</i>
1979	Eugene Hargrove founds the journal <i>Environmental Ethics</i>

Source: Author provided

often forgotten or omitted, and Whitehead's thought is largely unknown by mainstream environmental philosophers. Let's grab a spade and unearth some of these forgotten process roots of environmental ethics.

The first clue regarding the significance of Whitehead is provided by Hargrove, in his 1979 contribution to the inaugural volume of the journal *Environmental Ethics*, "The Historical Foundations of American Environmental Attitudes." Interestingly, he begins by noting, "In large measure, my views are in agreement with many of Whitehead's major themes in *Science and the Modern World*, especially those which deal with a Romantic reaction to science."⁷ Hargrove goes on to employ Whitehead to defend the claim that the historical foundations of American environmental attitudes run far deeper than Passmore and others had recognized. He (Hargrove) suggests that some of the roots can be traced back to Whitehead.

In Whitehead's *Science and the Modern World* there is an even stronger and more spirited environmentalist-style position than [William] James'. Whitehead's aim is to combat science's and philosophy's "assumption of the bare valuelessness of mere matter [which] led to a lack of reverence in the treatment of natural or artistic beauty" and brought about two evils: "one, the ignorance of the true relation of each organism to its environment; and the other, the habit of ignoring the intrinsic worth of the environment which must be allowed its weight in any consideration of final ends." Indisputably, this aim is also an environmentalist aim.⁸

Given its lapse into obscurity in the middle of the twentieth century, it is easy to forget that Whitehead's work at Harvard in the 1920s was met with great excitement and his 1925 *Science and the Modern World* was read widely by the educated public. Here we see Hargrove rightly noting Whitehead's emphasis on both interdependence and intrinsic value—key themes within environmental ethics.

However, Hargrove does not merely point to Whitehead to illustrate the deep historical roots of American environmental attitudes. He also claims that Whitehead's *Science and the Modern World* may have been a key inspiration for Leopold's land ethic.

Most interesting of all is the similarity of some of Whitehead's comments and those of environmentalist Aldo Leopold. There are long passages in the last chapter of *Science and the Modern World*, for instance, which could easily have served as the source of some

of Leopold's ideas, and which suggest that Leopold's notion of community could be derived from Whitehead's theory of organism without much difficulty. In one place especially Whitehead speaks of "associations of different species which mutually cooperate," and he refers to the forest environment as "the triumph of the organization of mutually dependent species." A few lines further on he adds that, "every organism requires an environment of friends, partly to shield it from violent changes, and partly to supply it with its wants." It is a small step from Whitehead's "environment of friends" to Leopold's "biotic community," one that requires no detours into Oriental philosophy or religion.⁹

As we will consider in chapter four, in addition to noting the similarity between Whitehead's "environment of friends" and Leopold's "biotic community," Hargrove might also have noted the similarity between Leopold's ethical dictum to "preserve the integrity, stability, and beauty of the biotic community"¹⁰ and Whitehead's claims that "morality is always the aim at that union of harmony, intensity, and vividness which involves the perfection of importance for that occasion"¹¹ and "the real world is good when it is beautiful."¹² Though the concept of environmentalism or environmental ethics would have been foreign to Whitehead, Hargrove is right to note that Whitehead's work anticipates by decades many of the concepts that became central to environmental thought, such as the centrality of constitutive interdependence and interrelation, the recognition of the intrinsic value of reality, the significance of environment, beauty as a moral concept, and the preferencing of the metaphor of organism over mechanism. We will develop and explore each of these themes throughout this volume.

For now, it is enough to note that, if Hargrove is correct that Leopold may have derived his concept of biotic community from Whitehead, and if Callicott is correct that Leopold is environmental ethics' "father," then Whitehead may be seen as an intellectual grandfather of the field of environmental ethics. Yet it is also important to note the tentative nature of Hargrove's claims regarding Leopold and Whitehead. He observes the "similarity" of Leopold's and Whitehead's ideas and suggests that Whitehead's thought "could easily have served as the source" for Leopold's biotic community. Unfortunately, Hargrove does not cite any documentary evidence to support his claims, though he does repeat them in their entirety a decade later in his *Foundations of Environmental Ethics*.¹³

To my knowledge, no one has refuted Hargrove's claims. However, Pete A. Y. Gunter—himself an eminent Whitehead scholar and environmental ethicist—does make the parenthetical comment in a 2000 article that “Leopold was unaware of Whitehead.”¹⁴ Unfortunately, there does not seem to be any definitive documentary evidence by which to adjudicate Hargrove's and Gunter's conflicting claims. Leopold's personal library has been dispersed, and a search of the Leopold archives at the University of Wisconsin reveals no reference to Alfred North Whitehead. Further, Curt Meine, Senior Fellow at the Aldo Leopold Foundation, confirms Gunter's assessment, stating that he is “not aware of any documentary evidence that Leopold was aware of Whitehead.”¹⁵ This is also the view of the eminent environmental historian Susan Flader, who has written extensively about Aldo Leopold.¹⁶ However, she notes that “just because I can't recall anything doesn't mean Leopold never encountered Whitehead's thought in his reading, but I rather doubt that he would have sought out Whitehead's work.”¹⁷

Overall, there simply is insufficient evidence to make a claim with any high degree of confidence that Leopold was aware of Whitehead's work. Yet the absence of evidence is not evidence of absence. In the end, Hargrove's claims remain in their tentative formulation. It is possible that Whitehead's thought was among the ideas “in the air” that affected Leopold's own thought in ways that are not traceable through documentary evidence. Nevertheless, even if there is no *direct*, traceable, genealogical conceptual dependence from Whitehead to Leopold, it is clear that, in anticipating the central concepts that came to define environmental ethics, Whitehead is nevertheless rightly seen as a founding grandparent of and inspiration for environmental ethics. Thus, Hargrove is right to note that the foundations of environmental ethics should be traced at least as far back as Whitehead's philosophy of organism. This claim is further supported by the role of Whitehead scholars, who actively participated in the originating conversations that gave birth to the field of environmental ethics.

As mentioned earlier, Blackstone organized the first academic philosophy conference on environmental ethics—and two years later published the proceedings as the first anthology on the topic¹⁸—in 1972 at the University of Georgia. What is often forgotten is that three eminent process philosophers, Charles Hartshorne, John B. Cobb Jr.,¹⁹ and Gunter participated in that first conference. Furthermore, in that same year (1972) Cobb published the now ironically titled book *Is it Too Late? A Theology of Ecology*, which is likely the first monograph written explicitly on environmental ethics.²⁰

Moreover, although Rolston is very rightly seen as a father of environmental ethics, his 1975 article in the journal *Ethics* is not the first academic essay on environmental ethics in a mainstream journal. That honor arguably goes to Hartshorne, who published “Beyond Enlightened Self-Interest: A Metaphysics of Ethics” in *Ethics* one year before Rolston, in 1974.

Also often omitted or forgotten in accounts of the history of the origins of environmental ethics is that the first doctoral dissertation on the topic was completed in 1976 at Bryn Mawr College by Susan Armstrong under the direction of the Whitehead and Hegel scholar George R. Kline. Her topic was *The Rights of Nonhuman Beings: A Whiteheadian Study*. Thus, the first dissertation on environmental ethics was Whiteheadian. Finally, it is important to note that in 1979 the first two issues of the journal that gave the field its name, *Environmental Ethics*, included articles by the process philosophers Hartshorne and Cobb.²¹ (See Table I.2.) Accordingly, although it is still speculative whether Whitehead *directly* influenced Leopold, by any reasonable measure, Whitehead scholars were key participants in the conversations that shaped the fledgling field of environmental ethics.

Unfortunately, despite this early influence, the significance of Whiteheadian thought gradually fades into obscurity. There are, no doubt, many reasons for this, many of them having more to do with larger trends within philosophy. The story of these shifts and trends is complex and multifaceted and will be pieced together and explored gradually throughout this book. As we will discuss at length in chapter one, part of Whitehead’s story from academic rock star to obsolescence tracks the trajectory of twentieth-century metaphysics itself, which was attacked and then abandoned by both Anglo-American and continental philosophers. Beyond this, although leading process philosophers such as Hartshorne and Cobb were no doubt respected contributors to the first conferences, anthologies, and journal issues, their subsequent focus on developing “process theology” led many within mainstream philosophy to view Whitehead’s thought with suspicion. This was not helped by many process philosophers’ penchant for seemingly insular scholastic debates. Over time, the diminished reputation of and interest in process thought meant that retiring Whitehead scholars at top-tier, doctoral-granting institutions—such as Emory University, Vanderbilt University, University of Chicago, and Yale University—were replaced with philosophers focusing on more fashionable topics; many previously productive academic wells ran dry.

Trends unique to environmental ethics also cut against Whitehead scholarship. For instance, despite significant lines of convergence, deep

Table I.2. The forgotten process roots of environmental ethics

1925	Whitehead's Lowell Lectures are published as <i>Science and the Modern World</i> , potentially serving as inspiration for Leopold's land ethic
1949	Publishing of Leopold's <i>A Sand County Almanac</i>
1962	Rachel Carson publishes <i>Silent Spring</i>
1967	White publishes "The Historical Roots of the Ecologic Crisis" in <i>Science</i>
1968	Hardin publishes "The Tragedy of the Commons" in <i>Science</i>
1970	First Earth Day is held and Leopold's <i>Almanac</i> becomes widely available in a new issue
1972	Cobb publishes the first monograph on environmental ethics
1972	Blackstone organizes the first environmental ethics conference at University of Georgia
	In attendance at the conference are process philosophers Hartshorne, Cobb, and Gunter, all of whom also contributed to the published proceedings of the conference
1973	Naess publishes "The Shallow and the Deep, Long-Range Ecology Movement" in <i>Inquiry</i>
1974	Hartshorne publishes what is arguably the first article on environmental ethics, "Beyond Enlightened Self-Interest: A Metaphysics of Ethics" in <i>Ethics</i>
1975	Rolston publishes what is often considered the first journal article on environmental ethics, "Is There an Ecological Ethic?" in <i>Ethics</i>
1976	Armstrong defends the first dissertation on environmental ethics, "The Rights of Nonhuman Beings: A Whiteheadian Study," at Bryn Mawr College under the direction of Kline, a Whitehead and Hegel scholar
1979	Hargrove founds the journal <i>Environmental Ethics</i>
	Hartshorne publishes "The Rights of the Subhuman World" in the first issue and Cobb publishes "Christian Existence in a World of Limits" in the second issue of <i>Environmental Ethics</i>

Highlighted portions indicate contributions of process philosophers.

Source: Author provided.

ecologists—perhaps the most metaphysically inclined environmental ethicists—ultimately rejected Whitehead’s metaphysics in favor of Spinoza’s. At issue for deep ecologists (e.g., George Sessions, Bill Devall, and John Rodman) and some ecofeminists (e.g., Val Plumwood) was the centrality within Whitehead’s metaphysics of a hierarchical conception of reality and of value, a topic that will be central to chapter five.²² Perhaps most puzzling of all is the failure of second-generation Whitehead scholars such as Susan Armstrong to make the case for Whitehead and process thought within the scholarship. Though, as we will discuss in detail in section three of this chapter, Armstrong wrote an early article advocating for the importance of Whitehead as a foundation for environmental ethics, she never published a monograph systematically developing the project.²³ Furthermore, despite being the lead editor of a major textbook on environmental ethics, Armstrong did not include a single essay discussing process thought’s significance for environmental ethics.²⁴ These omissions are in keeping with a confounding trend within Whitehead scholarship. For too long, process scholars have claimed that Whitehead’s philosophy *would be* an ideal metaphysical basis for an environmental ethic, but they subsequently failed to develop and defend this claim in a systematic manner. The pattern has been to devote perhaps an article or a chapter in a larger work to the topic, but a systematic philosophical defense of a Whiteheadian environmental ethic has been conspicuous in its absence. My own dissertation and first book, *The Ethics of Creativity*, sought to begin to address this omission.²⁵

Let us briefly take stock of what we have concluded so far: (1) elements of Whitehead’s philosophy of organism anticipated the development of environmental ethics by half a century; (2) though no definitive documentary evidence is available, Whitehead’s thought may have influenced Leopold, whose land ethic is often credited as a chief intellectual source of environmental ethics; and (3) regardless of the actual influence of Whitehead on Leopold, process philosophers were key contributors to the discussions that constituted the field of environmental ethics. It was process philosophers deeply influenced by Whitehead’s philosophy of organism who wrote the first dissertation, participated in the first conference, (arguably) published the first article in a major journal, and wrote the first monograph on environmental ethics. On any reasonable measure, Whitehead and the philosophy of organism are rightly celebrated as among the chief intellectual grandparents of environmental ethics. Given this, let us begin to consider what *philosophically*—beyond these historical and genealogical roots—Whitehead’s speculative metaphysics has to offer in the development

of an adequate environmental ethics. We should begin with an overview of Whitehead's distinctive process ontology.

The Philosophy of Organism

Deeply influenced by developments in late nineteenth and early twentieth-century physics—from Clerk Maxwell's theory of electromagnetism, which was the subject of his doctoral thesis at Trinity College in Cambridge, to relativity theory and early quantum theory—Whitehead defended what might best be called an event ontology. As I will discuss in detail in chapter six, reality is not composed of static, isolated, lifeless, inert substances brought into accidental relations by unflinching laws of nature that necessarily determine the course of reality. As Whitehead put it in his "First Lecture" at Harvard University, September 25, 1924, "Half the difficulties of philosophy result from an exaggerated emphasis on the abstract entity as though it were capable of independent reality."²⁶ Whitehead realized before most that reality is composed of nothing but constitutively interdependent events—what he variously calls "actual entities" or "actual occasions." Though a stone appears to be an inert substance that passively endures through time, contemporary physics has revealed that stones, and everything else, are nothing but a riot of vibrating atomic activity with complex bonds creating molecular patterns. As Whitehead explained to his students at Harvard:

Reality is not static: it is a process of becoming. This fluent character of the togetherness of things was already emphasised in Greek philosophy: All things flow, said Heraclitus. Indeed the fact is too obvious to escape notice. But unfortunately things which are too obvious often escape receiving their due emphasis. The result is that there has been a tendency to give an account of reality which omits this essential processional character of the togetherness of things. It is then held that what is processional cannot be real. The fluent togetherness of things is then given a lower place as mere appearance, and we are left with a world in which the appearance which passes is contrasted with the reality in the background, exempt from passage. This train of metaphysical thought has the unfortunate effect of separating philosophy from science. For science is concerned with our experience of the passage of things in their fluent togetherness.

Whereas, on this metaphysical theory, philosophy is concerned with the ultimately real which lies behind the superficialities which lie within the scope of science.²⁷

Ours is an open-ended, processive cosmos, a creative becoming of vibratory vectors of energy defined by mutual dependence and interrelation. Thus, in contrast to modern metaphysics (e.g., Descartes's dualistic metaphysics), Whitehead contends that every moment, every achievement of becoming is itself a unique perspective on the whole of reality; it is a valuation. Accordingly, there is no "valueless, vacuous actuality."²⁸ As I will discuss in chapters two and three, this commits Whitehead to a truly capacious theory of value. Nothing is a bare fact, devoid of value. To exist, Whitehead contends, is to be a subject relating to and affected by the rest of reality and then thereby to become an object for future occasions in the "creative advance."²⁹ Indeed, Whitehead calls this the "reformed subjectivist principle," that "apart from the experiences of subjects there is nothing, nothing, nothing, bare nothingness."³⁰ The full meaning and significance of this breathtaking position will be considered gradually, repeatedly, and in detail throughout the present volume, but let us also explore it briefly here.

Western thought has too often proceeded under the assumption that human subjects are fundamentally different than—an exception to—the rest of reality. "Experience" has been interpreted narrowly to refer to an active cognitive subject surveying a world of passive objects. As Whitehead notes in his 1931 Presidential Address to the American Philosophical Association, "Objects and Subjects," no topic has "suffered more" at the hands of philosophers than the subject-object relation.³¹ Though it is unavoidably the seat of our experience, we should reject Descartes's invitation to take the thinking subject as ontologically basic. Whereas Descartes "conceives the thinker as creating the occasional thought," Whitehead's philosophy of organism "inverts the order, and conceives the thought as a constituent operation in the creation of the occasional thinker. The thinker is the final end whereby there is the thought."³² Consciousness and thought are undeniably important, but they are late-stage, high-grade forms of experience; they are not ontologically basic.³³

By reducing the subject-object relation to the knower-known relation, philosophers are in danger of committing what Whitehead calls the "fallacy of misplaced concreteness."³⁴ Too many thinkers proceed under the assumption that their abstract formulations, whether linguistic or mathematical, can, in principle, adequately characterize reality. Though an essential tool

for thought,³⁵ language will always fall short; it can never fully do justice to reality. “Words and phrases must be stretched towards a generality foreign to their ordinary usage; and however such elements of language be stabilized as technicalities, they remain metaphors mutely appealing for an imaginative leap.”³⁶ It is perhaps for this reason that Whitehead often turns to the poets, whose rich use of metaphor may capture a share of the texture of reality omitted by the mathematically precise, but necessarily reductive, accounts of the scientist.³⁷ With Wordsworth, Whitehead believes that too often “we murder to dissect.”³⁸ Simplification and reduction are useful, but we must not forget that they are necessarily partial formulations—abstractions standing in place of concrete reality. We do great violence to reality when we mistake an abstraction for what is concrete.³⁹

Part of the problem with taking the knower-known relationship as fundamental is that it fails to adequately represent the *constitutive* nature of relations. Knowing is always at arm’s length, as it were; a subject *has* knowledge of the object. Cognitive relations are external to the subject; they do not affect or constitute what the subject *is*.⁴⁰ I can intellectually *understand* what joy is—I can have knowledge of it—but that does not *make* me joyful. Feelings, on the other hand, are internal and constitutive. When I am fearful or angry, it is not a sterile cognitive state. I don’t *have* anger or know anger, I *am* angry. It is part of what I am at that moment. It is this sense of internal, constitutive relatedness that Whitehead has in mind in arguing in “Objects and Subjects” that “the basis of experience is emotional.”⁴¹ To capture this insight, Whitehead argues that it is not “comprehension” that is the most basic form of relation, but “prehension,” from the Latin root “to grasp.” Prehension is the most basic form of relation between individuals. To understand this claim, it will be helpful to situate it within the context of Whitehead’s complex metaphysics of becoming.⁴²

Whitehead envisions a cosmos that is pluralistically populated by individuals referred to as “actual entities” or, equivalently, “actual occasions.”⁴³ Actual occasions, according to Whitehead, “are the final real things of which the world is made. There is no going behind actual entities to find anything more real. They differ among themselves: God is an actual entity, and so is the most trivial puff of existence in far-off empty space.”⁴⁴ Though not in a crude building-block way, actual occasions are the stuff of which the universe is made. Borrowing a phrase from William James, Whitehead describes actual occasions as “drops” of experience; they come entirely or not at all.⁴⁵ Whitehead refers to the becoming of an actual occasion as *concrecence* (from the Latin *concrecere*, to grow together). In *concrecence*, the actual

occasion brings together or “prehends” past actual occasions or its “actual world.” In the “datum” phase of concrescence, the incipient occasion arises out of a sea of intense feeling that surges up from its past. The budding event comes to this sea of “feeling” through a particular perspective of the world, a world as already “settled.” The settlement of the world is affected by the limitation of “received decisions” of past actual occasions, which impose themselves on every future occasion. Thus, the first phase concerns the reception of past, achieved occasions as “objects” that serve as the “real potential” for its own aesthetic self-determination.⁴⁶ It is from this datum that the occasion will begin its process of self-determination.⁴⁷

The passive reception of the given datum in the first phase is followed by the occasion’s active synthesis of this datum in the “process” phase. In this second phase of concrescence, the nascent occasion renders determinate its relationship to each of the elements in its given datum. Specifically, the nascent occasion renders its relationship to each past occasion determinate either by affirming it through what Whitehead calls “positive prehension,” thereby making it a part of itself, or by ignoring it through “negative prehension,” thereby excluding it from itself. “The ‘process,’ [therefore,] is the addition of those elements of feeling whereby these indeterminations are dissolved into determinate linkages attaining the actual unity of an individual actual entity.”⁴⁸ Paradoxically, then, in becoming itself, the entity resolves the question as to what it is to be. This is what Whitehead calls the “principle of process”: the determination of that which was indeterminate progressively constitutes *what* the entity is.⁴⁹ In a sense, then, the actual occasion creates itself out of its environment by rendering its relations to its actual world determinate. In this limited sense, it is *causa sui*.

When all indetermination has been removed and the process of self-determination is complete, the entity achieves “satisfaction.” “It belongs,” Whitehead explains, “to the essence of this subject that it pass into objective immortality. Thus its own constitution involves that its own activity in *self*-formation passes into its activity of *other*-formation. It is by reason of the constitution of the present subject that the future will embody the present subject and will re-enact its patterns of activity.”⁵⁰ In satisfaction, an occasion’s subjective immediacy perishes, and it becomes “objectively immortal” in the sense that it becomes a “stubborn fact” that all future occasions must take into account. Accordingly, satisfaction marks the shift from the occasion as “subject” or actuality in attainment, to the occasion as “superject” or attained actuality.⁵¹

The transition from self-formation to other-formation marks the final stage of concrescence. For, *qua* satisfied, an entity becomes a “decision” that is then transmitted to succeeding actual occasions. “The final stage, the ‘decision,’ is how the actual entity, having attained its individual ‘satisfaction,’ thereby adds a determinate condition to the settlement of the future beyond itself.”⁵² This is the “principle of relativity”: that it is in the nature of every being that it is a potential for becoming. Thus, the circle closes on itself: “the many become one and are increased by one.”⁵³

According to this philosophy of organism, then, the most basic form of relation is not a subject that *has* knowledge of an object, but a subject that comes to *be* by being affected by others.⁵⁴ Following Plato’s *Sophist*, Whitehead recognizes that to exist, to be real, is to affect and be affected.⁵⁵ The most fundamental relations are constitutive; the object affects, gets inside the subject.⁵⁶ As we will explore at greater length in chapter six, this means that the world is not composed of static subjects that *have* relations. Rather, each dynamic subject *is* its relations. An important implication of this view is that it utterly rejects the invidious dualism that bifurcates the world into subjects and objects. Instead, according to this view, “subject and object are relative terms.”⁵⁷ Every individual is at once a subjective unification of experience *and* an object for others; it is a subject-superject.⁵⁸ This is the most basic characterization of actuality. “The oneness of the universe, and the oneness of each element in the universe, repeat themselves to the crack of doom in the creative advance from creature to creature.”⁵⁹

Notice that in this view, not only is subjectivity not best understood in cognitive terms, but it is also not limited to human beings. *Every* energetic pulse of reality is in a meaningful sense a subjective center of experience. Subjectivity is not limited to human knowers; it reaches into the deepest depths of reality. “Apart from the experiences of subjects there is nothing, nothing, nothing, bare nothingness.”⁶⁰ This unique form of pansubjectivism washes away the final vestiges of dualism, irrevocably reshaping the contours of the philosophical landscape.

Given this organic, processive event ontology, human subjects are not an *exception* to the general metaphysical principles at work in the universe, but rather an *exemplification* of the same principles that define every form of existence. A process event ontology unmask the invidious anthropocentrism that have for too long infected ethics. The difference between human subjects and nonhuman subjects is ultimately a matter of degree, not kind. There is no bifurcation, no ontological chasm separating human subjects

from the rest of reality. Yet, in recognizing the seamless fabric of reality, we need not rush headlong to the embrace of a great ontological leveling, either. The difference between human subjects and nonhuman subjects is a matter of degree, “but it is a difference of degree which makes all the difference.”⁶¹ Or, as Whitehead puts it elsewhere, “the Rubicon has been crossed.” Though beyond the experience of subjects there is “bare nothingness,” not every subject is as complex as every other. In the creative advance, the emergence of complex living beings brings with it the achievement of more intense possibilities for beauty and value, as well as more devastating forms of violence.⁶²

Though the window of creativity open to many simple events (e.g., an electron) is narrowly circumscribed by the potentiality left by past events, there is always some (even if negligible) ontological indeterminacy and novelty at even the most basic levels of reality. Though universally affected and limited, nothing is *wholly* determined by what precedes it. As we’ve seen, the results of this position are as much axiological as they are ontological. To exist, to be actual, is to be a unique achievement of value. “At the base of existence is the sense of ‘worth,’” Whitehead tells us. “It is the sense of existence for its own sake, of existence which is its own justification, of existence with its own character.”⁶³ There is no vacuous actuality; each occasion of reality, no matter how simple, fleeting, or seemingly trivial, is a unique, irreplaceable achievement of beauty and value. Given such a conclusion, perhaps it should not be surprising that many Whitehead scholars have long argued that Whitehead’s metaphysics would be an ideal foundation for environmental ethics. Let us consider the first person to explicitly make this case.

Whitehead’s Metaphysical System as a Foundation for Environmental Ethics

Ten years after defending the first doctoral dissertation on environmental ethics (“The Rights of Nonhuman Beings: A Whiteheadian Study,” 1976), Susan Armstrong⁶⁴ published in the journal *Environmental Ethics* “Whitehead’s Metaphysical System as a Foundation for Environmental Ethics.”⁶⁵ In this article, Armstrong defends two central claims: (1) environmental ethics would benefit from an adequate metaphysical foundation, and (2) of the candidate metaphysical systems, Whitehead’s philosophy of organism is most adequate. Though I differ from Armstrong on several important points, I

find her central theses to be essentially right. Indeed, there is a sense in which these two claims are the thesis of the present work. Let's begin with a review of her argument.

Armstrong's approach is to outline and then explain five key "tenets" of Whitehead's thought that are "crucial to a compelling environmental ethic."⁶⁶ Given this basis, she then suggests how Whitehead's system avoids many of the difficulties plaguing the alternatives (e.g., utilitarianism, deontology, the land ethic, Spinoza). For Armstrong, the five tenets of Whitehead's thought most relevant to environmental ethics are:

1. Each individual thing is irreplaceably valuable because each thing is a novel, creative contribution to the world.
2. Each thing is inseparably related to all other things.
3. Each thing experiences its own process of self-creation and hence is intrinsically valuable because it is self-significant.
4. The differences between things are due to differences in organization of constituent elements.
5. There is purposiveness in the natural order, a striving toward novelty, harmony, complexity, and intensity of experience.⁶⁷

Given our overview of Whitehead's thought in the previous section, these points should begin to be familiar. Indeed, we've explored how Whitehead's rejection of vacuous actuality leads him to contend that each individual thing is "irreplaceably valuable" as in Armstrong's first tenet. The significance of this position for making progress in the protracted debates over intrinsic value will be discussed at greater length in chapters two and three.

Armstrong's second tenet draws attention to the metaphysical centrality of interrelation in Whitehead's thought. For many environmental ethicists, the focus on interrelation derives from the influence of biology and ecology, which reveal a world in which organisms are parts of complex webs of interdependence. This is in direct contrast to modern, Enlightenment worldviews that defined individuality in terms of independence.⁶⁸ As Armstrong rightly notes, Whitehead's metaphysics offers a deeper, *metaphysical* basis for this biological emphasis on interrelation: "While many thinkers simply assert that everything is related to everything else, Whitehead's metaphysics offers a reasoned account of the universe in which interrelatedness is crucial. It is crucial because each actual occasion is internally related to all past actual

occasions (concreta): the content of each actual occasion is made up of its integration of the contents of past actual occasions. Thus, if the environment is different, the actual occasions are different in their very natures.”⁶⁹ As we’ve seen, for Whitehead, it is not merely plants and animals and their environments that are interrelated. According to what he calls the “principle of relativity,” internal relatedness (i.e., constitutive interdependence) is the most basic feature of reality itself.⁷⁰ In an important sense, individuals *are* their relations.⁷¹

The third tenet is closely related to the first. In keeping with the “reformed subjectivist principle” mentioned previously, Whitehead’s philosophy of organism can, with appropriate qualifications, be described as pansubjectivism or panexperientialism. Without significant qualification, labels such as these are likely to confuse and distort as much as they reveal about Whitehead’s position. Readers are encouraged not to put too much weight on them at this point. We will examine these claims in detail throughout, especially in chapter six. To *be* is to be a unique center of “experience,” but experience here is used in an entirely noncognitive sense. Part of the claim, as we will gradually come to understand as we become more familiar with Whitehead’s distinctive metaphysical project, is that, since nothing in reality is purely passive or wholly determined, every actual entity partly determines its relation to other, past events, and thereby determines what it is. It is in this very basic sense of the cutting off or resolving of indeterminacy that even the most fleeting and trivial puff of existence in far-off space has “experience.”

Armstrong points out that the “use of *experience* in this broad sense allows Whitehead to assert that each thing has intrinsic value because it experiences its own existence. Intrinsic value resides only in the experiencing of value.”⁷² This is key, Armstrong notes, because it provides a metaphysical basis for the repudiation of anthropogenic theories of value, according to which nonhuman entities can have instrumental value as means for us, but never intrinsic value as ends in themselves. As Armstrong explains, “because for Whitehead intrinsic value resides in the fact that all actual occasions enjoy their own self-creation, no *one* quality or property is arbitrarily singled out to provide intrinsic value, such as rationality, self-consciousness, sentience, and so forth. Such arbitrariness, according to Callicott, is the ‘nemesis’ of naturalistic theories of value.”⁷³ This claim is at the heart of the current project. As we will see in chapters two and three and indeed throughout this volume, *grounding environmental ethics in Whitehead’s metaphysics of organism may allow for the resolution of the central and most “recalcitrant*

problem” for environmental ethics concerning the nature, scope, and meaning of intrinsic value.

For Armstrong, the fourth tenet of Whitehead’s system relevant to environmental ethics concerns the ontology of individuality, a key problem of metaphysics for millennia and the subject of chapter six. Whitehead’s philosophy of organism takes to heart an evolutionary worldview according to which differences of kind result from the accumulation of differences of degree. For Whitehead, this is a feature not only of living organisms, but of reality as such. All differences of kind—such as between living and nonliving or mental and physical—are the result of the accumulation of differences of degree. There is no “bifurcation” in the fabric of reality.⁷⁴ Thus, as Armstrong notes, “the differences in kind which we observe, such as between living and nonliving, plants and animals, animals and human beings,⁷⁵ are all due to differences in organization of the constituent actual occasions of each entity.”⁷⁶ There are real and even morally significant differences between different kinds of individuals, and we do find the emergence of novel kinds. But neither of these facts implies that there is any absolute gap in the fabric of reality; we reject all ontological bifurcation. Notably, these views are in keeping with significant trends within contemporary metaphysics and philosophy of mind.⁷⁷

Finally, we have Armstrong’s fifth tenet: there is “purposiveness in the natural order, a striving toward novelty, harmony, complexity, and intensity of experience, which is part of what we mean by the presence of divinity in the world process and which allows us to make comparative value judgments.”⁷⁸ This tenet seems to contain two related but distinct aspects, both concerning teleology. The first part concerns the aim of our cosmos toward “novelty, harmony, complexity, and intensity.” For Whitehead, though the process of the universe is open, it does have an overall aim. To appropriate a phrase Holmes Rolston uses to describe ecosystems: the universe has a heading, though it has no head.⁷⁹ It is teleologically oriented, though in a rather unique way, as we will see in chapter seven on teleology.

The second part of this fifth tenet concerns “comparative value judgments.” Differences in the “complexity, intensity, harmony, and novelty” of different individuals yields a hierarchy of value.⁸⁰ Every occasion of existence is equal in *having* value, but not every occasion has value *equally*. Roughly speaking, the hierarchy tracks the complexity and intensity of experience. This hierarchy of value becomes a significant point of concern for some otherwise-sympathetic environmental ethicists and is the focus of chapter five. Indeed, the role of hierarchy within Whitehead’s system as it relates to ethics

is one of three ways in which I disagree with Armstrong's interpretation of Whitehead and its relationship to environmental ethics. In "Foundations," Armstrong contends that moral agents have "a greater obligation toward entities with more significant experience."⁸¹ It is, I contend, this (arguably invidious) use of hierarchy that brings some deep ecologists and ecofeminists to reject Whitehead's work.⁸²

Both deep ecologists and ecofeminists should be natural allies of process philosophers, especially given the former's all-too-rare interest in explicitly grounding environmental ethics in a metaphysical system. Both groups of scholars came to the conclusion that Whitehead's thought embraces a hierarchical conception of value that functionally reduces it to a form of anthropocentrism. Unfortunately, their concern is only confirmed in Armstrong's interpretation from "Foundations" that moral agents have "a greater obligation toward entities with more significant experience."⁸³

However, as I argue at length in chapter five, there is a better interpretation of the role of Whitehead's axiological hierarchy within a moral philosophy. I agree with Armstrong and Whitehead that there is an ontological and axiological hierarchy. There are real and meaningful differences in the integrated complexity of different beings, and these differences permit important differences in the intensity of experience available to them. The human brain, for instance, is the most complex thing we have so far discovered in the universe. Thus, it is accurate to note not only that there is a hierarchy of value, but also that humans are high on this hierarchy. *However*, the relationship of this metaphysical fact does *not* function morally in the way Armstrong contends.

As I argue in chapter five, it is in the movement between description and prescription that "anthroparchy" hangs. The recognition of the hierarchical structure of reality does not neatly translate to moral significance, though it is relevant to it. The aim of morality is *not* simply to give preference to the beings with the greatest depth of intrinsic value, which would indeed resolve into an invidious form of anthropocentrism as critics contend. Rather, for Whitehead, the aim of morality is the same as every other process: the creation of beauty and value. Thus, though it is the case that human moral agents are capable of more intense value than, say, a bee, birch, or bear, our *moral* obligation in each situation is to affirm the greatest amount of beauty and value that is possible in each situation taken as a whole. A being's "position" in an onto-aesthetic hierarchy is relevant to, but not strictly determinative of its moral significance. At times it will be the case that to achieve the greatest degree of beauty and value possible in

a particular situation it will be necessary to sacrifice the interests of beings capable of more intense intrinsic value. Put more directly, just because humans are capable of a higher degree of intrinsic value does not thereby mean that their interests *automatically* outweigh the interests of other beings because *the aim of morality is not the satisfaction of the interests of the most valuable beings involved, but rather the creation of the greatest whole of value and beauty possible in that situation.*

This points to the second significant difference between Armstrong's interpretation and my own. Although Armstrong, like many Whitehead scholars writing in the 1970s and 1980s, does not draw attention to it, Whitehead is unambiguously clear in characterizing the aim of process in aesthetic terms: "the teleology of the universe is directed to the production of beauty."⁸⁴ As I explore in chapter four, our processive cosmos is fundamentally kalogenic; it is beauty generating.⁸⁵ Beauty is the ultimate aim of every process, including ethics. A Whiteheadian moral philosophy sees the actions of moral agents as that species of process characteristic of large-scale organisms who are complex enough to be conscious and free enough to be responsible. Though healthy adult humans may be the only moral agents of which we are aware—and in this sense morality may have emerged (become possible) with the evolution of human beings—the *aim* of morality is the same as that of all process: the preservation and creation of harmonious and intense beauty and value. Put syllogistically: all process aims at the production of beauty and value, and morality is a species of process; therefore, morality aims at the production of beauty and value.⁸⁶

Building on and extending Armstrong's work, in the present project I demonstrate that, grounded in Whitehead's philosophy of organism, it becomes possible for environmental ethics to make meaningful progress on key debates over intrinsic value (chapters two and three), beauty (chapter four), non-invidious hierarchy (chapter five), the nature of individuality and the relation of subject and objects (chapter six), teleology (chapter seven), and the naturalistic fallacy (chapter seven). I will demonstrate that Whitehead's fallibilistic, naturalistic event ontology allows for the recovery of systematic, speculative metaphysical thought without a revanchist movement toward a necessitarian *philosophia perennis* (chapter one). Explicitly and intentionally grounding environmental ethics in environmental metaphysics also makes it possible to return to one of environmental philosophy's founding impulses: the development of a more fundamentally non-anthropocentric worldview (chapter nine). In this way, the present project is fundamentally at odds with and will come to terms with the policy turn advocated by many envi-

ronmental pragmatists (chapter eight). Thus, taken as a whole, the present project attempts to demonstrate that to make philosophical progress on key debates and problems within environmental *ethics*, philosophers should also explicitly engage in environmental *metaphysics*.