

ANTHROPOCENE IMAGINARIES:  
GEOPHILOSOPHY, POLITICAL THEOLOGY, AND THE PLANETARY FUTURE

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## ABSTRACT

### ANTHROPOCENE IMAGINARIES

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The Anthropocene is the name proposed by scientists for a new geological epoch in which human activity has become a dominant influence on planetary processes. More specifically, the concept of the Anthropocene alerts us to the fact that the environmentally destructive activities of a certain subset of our species have recently brought about a radical shift in the functioning of the Earth System, rendering the planet more unstable and unpredictable than it was for the last 10,000 years. As a result of the ongoing ecosocial violence of extractive capitalism, our “new human epoch” is now marked by multiple crises, including climate disruption, ocean acidification, rising sea levels, and an emerging sixth extinction event. In recognition of the ways in which these crises magnify our interdependence with nonhuman worlds, this dissertation argues that the Anthropocene not only unveils the unsustainability of current societal structures, but also destabilizes imaginaries of humanity, nature, and divinity that have served to justify ecosocially unjust ways of life. Applying a transdisciplinary method that draws on the earth sciences and environmental humanities, philosophies of process and new materialisms, and ecological and political theologies, this dissertation responds to the emergence of the new epoch in two interrelated ways: first, by critically analyzing the mutually amplifying socio-political, geological, and ideological forces that sustain our Anthropocene crises; and second, by constructing a postmodern “planetary imaginary” that may help to support and motivate efforts to realize an ecosocially just future. The work of Charles Taylor is employed to analyze the philosophical and theological

dimensions of the “dominant modern imaginary,” which is shown to be based on human exceptionalism and the secularist image of nature as a deanimated, devalued, and desacralized machine. In an attempt to short-circuit this imaginary, and to cultivate an “earthbound” (Bruno Latour) existential orientation, this dissertation’s planetary imaginary is theorized as a “geophilosophy” (Gilles Deleuze), which conceptually redistributes animacy and intrinsic value to nonhuman worlds. Drawing on Mary-Jane Rubenstein’s “pantheologies” and Catherine Keller’s panentheism, geophilosophy is then translated as “geotheology,” which resacralizes the nonhuman through an immanent conception of divinity. Finally, this dissertation utilizes geotheology in conjunction with political theories of climate change to propose a radically democratic political theology, which is deployed in resistance to the secularized theology of omnipotence that fuels old and new forms of political sovereignty in the Anthropocene.

## DEDICATION

For my parents, Kris and Rick, who have constantly encouraged me and supported me along the way.

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## CHAPTER ONE

### INTRODUCTION:

#### TOWARD A PLANETARY IMAGINARY

*...the earth constantly carries out a movement of deterritorialization on the spot, by which it goes beyond any territory: it is deterritorializing and deterritorialized. It merges with the movement of those who leave their territory en masse, with crayfish that set off walking in file at the bottom of the water, with pilgrims or knights who ride a celestial line of flight.*

-Gilles Deleuze and Felix Guattari<sup>1</sup>

*There was never a time when human agency was anything other than an interfolding network of humanity and nonhumanity; today this mingling becomes harder to ignore.*

-Jane Bennett<sup>2</sup>

### **I. Unsettling the Modern**

It happened on an otherwise unexceptional day in February 2000. Just outside Mexico City, the Nobel Prize-winning atmospheric chemist Paul Crutzen stunned a room full of other scientists by announcing the birth of a new geological epoch—one which is dominated by human influences. He called it the Anthropocene—“the new age of humans”—which conceptually enfolds multiple anthropogenic environmental impacts, including unprecedented changes to the climate, oceans, land-use, and biodiversity. While there had been a number of earlier attempts to name the phenomenon of humanity’s expanding influence over the planet, Crutzen’s term was the first to gain

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<sup>1</sup> Deleuze and Guattari, *What Is Philosophy?*, 85.

<sup>2</sup> Bennett, *Vibrant Matter*, 31.

significant traction around the world.<sup>3</sup> The Anthropocene has since provoked the wider public's curiosity and has become broadly accepted within the earth science community, even as it awaits formalization by stratigraphers. The concept has also inspired the work of academics across disciplines, with a growing body of literature on the subject continuously emerging. Indeed, among such scholars, the notion of a 'new human epoch' has released a seemingly endless cascade of socially significant and existentially potent questions and criticisms about power, time, responsibility, hope, capitalism, agency, extinction, democracy, nature, justice, and more. It is as if those of us who are lured by this geological concept have woken up in a strange new world and subsequently felt the need to rethink just about everything. But why is this the case? Why is this somewhat esoteric scientific term so apparently capable of unsettling our common assumptions and habits of thought?

To answer this question, perhaps we should consider whether the announcement of a new epoch would have such an impact if some other organism was the primary driver of current planetary shifts. Imagine for a moment that scientists had informed the public that the activities of, say, honeybees (Latin: *apis mellifera*) have made such an enormous impact on the Earth System that we no longer live in the Holocene. In support of this proposal, some scientists then suggest that if alien geologists were to arrive on our planet in a million years to study it, they would be particularly impressed by traces of honeybees in the strata corresponding to our geological time period.<sup>4</sup> The Economist

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<sup>3</sup> Crutzen's most important early article on the subject is Crutzen, "Geology of Mankind: The Anthropocene." I will provide a thorough analysis of Crutzen's work in chapter two.

<sup>4</sup> Here I am adapting the famous thought experiment proposed in Zalasiewicz, *The Earth After Us*.

might have then published a different magazine headline in the spring of 2011: “Welcome to the Apiscene.”<sup>5</sup> This would be undoubtedly an important scientific discovery, and it would probably increase human interest in the activities of honeybees—which are indeed fascinating.<sup>6</sup> In terms of the official Geologic Time Scale, our fictional Apiscene would also be novel in the sense that it would mark the first time that the actions of a single living species were the primary drivers of irreversible Earth system changes. As historian Yuval Noah Harari points out, “Since the appearance of life, about 4 billion years ago, never has a single species changed the global ecology all by itself.”<sup>7</sup> Indeed, even the Great Oxygenation Event that marks the Proterozoic eon—when photosynthesizing microbes first oxygenized the atmosphere—involved dozens, or even thousands of cyanobacterial species.<sup>8</sup> In terms of geohistory, our terraforming bees would therefore seem to be quite the overachievers.

Even so, it is unlikely that the idea of a ‘new honeybee epoch’ would have the power to challenge our thinking in any fundamental way. After all, as with other officially recognized slices of deep time on the Geologic Time Scale, such as the Carboniferous and Cretaceous periods (named after coal and chalk, respectively), the Apiscene would be named after yet another *nonhuman* entity. It would not therefore immediately seem to imply anything about the nature of humans or our societies. By contrast, the Anthropocene is a distinctively muddling term that geologically intermingles

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<sup>5</sup> For the original article, see “Welcome to the Anthropocene,” *The Economist*.

<sup>6</sup> These honeybees will make a reappearance in the final chapter through my engagement with Seeley, *Honeybee Democracy*.

<sup>7</sup> Harari, *Homo Deus*, 72.

<sup>8</sup> Ellis, *Anthropocene*, 132. See also Lewis and Maslin, *The Human Planet*, 56.

the human with the nonhuman. But this blurred image does not then sit easily with the human exceptionalism that typically characterizes modern thought. While an Apiscene epoch would not therefore directly challenge the reassuring modern image of humans as uniquely external spectators of slow-moving natural processes, the unruly Anthropocene provides no support to these older territorial demarcations. Indeed, considering the extreme challenges that climate disruption now poses to human societies, today it no longer seems possible to honestly believe that we remain heroically in the foreground with nature more or less passively in the background. And this realization, it seems to me, raises a critical question: how did so many of us ever come to imagine the existence of this bifurcation between ourselves and nature?

In the context of Earth's 4.6 billion years, the roughly 10,000-year period of climatic stability during the Holocene appears practically as an oasis amidst the turbulence of geohistory. While comparatively brief, this geological epoch endured long enough to enable the rise of agricultural and industrial civilizations around the world. Particularly for the minds of many Western intellectuals, the relative stability of the planet during the Holocene also eventually seemed to support the idea that nature changes only gradually, and in modernity, that its changes are predictably ordered by mechanistic laws. Even modern storytellers often adopted these ideas. As novelist Amitav Ghosh writes, "the nineteenth century was indeed a time when it was assumed, in both fiction and geology, that Nature was moderate and orderly: this was a distinctive mark of a new and 'modern' worldview."<sup>9</sup> By thus conceiving of nature as the stable, and

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<sup>9</sup> Ghosh, *The Great Derangement*, 22.

very nearly timeless foundation upon which the drama of human histories unfolds, the mutual relevance of nature and societies became obscured for many modern people.

This division of nature and societies also influenced the views of numerous modern philosophers.<sup>10</sup> Such thinkers often distinguished sharply between a unitary material realm of mechanical objects and indisputable facts on the side of nature, and a plurality of human subjects and disputable values on the side of societies. As Whitney Bauman suggests, this bifurcation of nature later enabled the modern Western split between religion and the secular, which distinguishes human activities that are private, other-worldly, and dependent on a supernatural faith from those which are public, this-worldly, and objectively grounded in natural reason and facts.<sup>11</sup> “Religion” was thus depoliticized and isolated as a cultural phenomenon with little connection to nature or ecology. By contrast, “the secular” came to signify not only that which is non-religious, but also “the natural” and “the rational,” as Timothy Fitzgerald points out, making it appear as the exceptional “ground from which to *observe* and *order* the world.”<sup>12</sup> For the moderns, this notion of a purely secular standpoint then supported a sharp division of labor between science and politics, with scientists revealing the order of nature, and politicians bringing order to societies.<sup>13</sup> Ultimately, as Bruno Latour argues, to be modern

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<sup>10</sup> Here I am thinking especially of Descartes (whose philosophy I return to in section four) and John Locke (whose theory of primary and secondary qualities is criticized in chapter three).

<sup>11</sup> Bauman, *Religion and Ecology*, 23.

<sup>12</sup> Fitzgerald, “Encompassing Religion...” 235. Emphasis added.

<sup>13</sup> On this “division of labor” between science and politics, see Latour, *Politics of Nature*, 4–5.

*just is* to be involved in the activity of carving up reality in terms of such dichotomies as nature/society, fact/value, reason/faith, secular/sacred, and science/politics.<sup>14</sup>

The late medieval fracturing of the earlier Christian vision of an integral cosmos, along with an increasingly mathematized view of matter, significantly facilitated the construction of such binaries by introducing a sharp metaphysical rupture between divinity and world, as ecotheologian Michael Northcott has shown.<sup>15</sup> As a result of this rupture, creativity, agency, mystery, and purpose were progressively expelled from nature and subsequently concentrated into the divine will and human subject. The material world—now increasingly deanimated, devalued, and desacralized—thus gained a new level of autonomy and transparency for analysis, so it could then be objectively known and manipulated by a reductionist form of modern science. As environmental historian Jason Moore submits, “For early modern materialism, the point was not only to interpret the world but to control it: ‘to make ourselves as it were the masters and possessors of nature’ (Descartes).”<sup>16</sup> In turn, the newly secularized image of nature influenced a parallel secularization of societies: an unfettered capitalist economy could then limitlessly exploit a passively objectified nature, and the liberal state could claim a secularized form of sovereignty unconstrained by any more-than-human power or (now privatized) “religion.” Beginning with the early modern liberalism of Thomas Hobbes, secularist politics thereby tried to eliminate “the possibility that the factions may invoke a higher

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<sup>14</sup> Latour thus describes modernity as an act of “purification” that results in “distinct ontological zones” of the human, the nonhuman, and a “crossed-out God, relegated to the sidelines.” Latour, *We Have Never Been Modern*, 10–13.

<sup>15</sup> Northcott, *A Political Theology of Climate Change*, 42–43.

<sup>16</sup> Moore, *Capitalism in the Web of Life*, 20.

Entity—Nature or God—which the Sovereign does not fully control,” as Latour insists. It thus permits “*no transcendence whatsoever*, no recourse to God, or to active matter...or even to mathematical Ideas.”<sup>17</sup>

In the new human epoch, however, this entire modern imaginary of interlocking binaries is arguably being called into question, as nature no longer appears as a stable backdrop for our actions. By magnifying the precarious entanglements of human societies with an increasingly unstable Earth System, the Anthropocene effectively blurs every sharp line previously drawn to divide humans from nature—and so also values from facts, politics from science, sacred from secular, and so on. As such, “the distinction between human and natural histories...has begun to collapse,” as postcolonial historian Dipesh Chakrabarty argues.<sup>18</sup> Put differently: having realized the geological agency of our species, we now find ourselves plunged into deep time as one geohistorical force among others—alongside asteroids, volcanoes, tectonic plates, and microbes. And so, as our profound interdependence with the rest of the natural world increasingly comes into focus, we—particularly we who are ‘modern’—must now reconsider the mutual relevance of nature and societies, science and politics, ecology and sacrality. The announcement of an anthropogenic shift in the Earth’s geology is therefore ‘unsettling,’ it would seem, not only because it unveils the unsustainability of current societal structures, but also because it points to the need for a fundamental transformation of the dominant modern imaginary. Latour makes this point particularly clear:

What makes the Anthropocene an excellent marker, a ‘golden spike’ clearly detectable beyond the frontier of stratigraphy, is that the name of this

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<sup>17</sup> Latour, *We Have Never Been Modern*, 19. See also Latour, *Facing Gaia*, 147–50.

<sup>18</sup> Chakrabarty, “The Climate of History: Four Theses,” 207.

geohistorical period may become the most pertinent philosophical, religious, anthropological, and...political concept for beginning to turn away for good from the notions of “Modern” and “modernity.”<sup>19</sup>

Following this provocative suggestion from Latour, in this dissertation, I interpret the Anthropocene as a geohistorical event that signals a planetary-scale crisis, as well as a conceptual ‘golden spike’ that has recently been injected into modern imaginaries. In turn, I respond to this epochal rift in the Earth’s geology and human imaginaries through a series of critical and constructive analyses of the Anthropocene’s radical implications for philosophy, ecopolitics, and theology. In the broadly Tillichian—but non-confessional—way that I will use the latter term in this project, theology pertains to that which *ultimately matters*.<sup>20</sup> Especially in the Anthropocene, theological thinkers such as myself must not therefore ignore the matter of the Earth that forms our common creaturely ground. In my explorations of certain constructive theologies in the final chapter of this project, I therefore mind our species’ embeddedness in wider planetary ecologies, while also upholding *immanent* concepts of divinity that blur secular/sacred and God/world divisions. Such theologies may then provide support to a this-worldly—indeed, “earthbound”—existential orientation, which I will argue is crucial for surviving and thriving in the Anthropocene.<sup>21</sup> In this sense, I seek to develop what can be described as a *planetary imaginary*, which takes the theoretical forms of *geotheology* and

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<sup>19</sup> The stratigraphic term ‘golden spike’ will be explained in chapter 2. Latour, *Facing Gaia*, 116.

<sup>20</sup> Tillich, *Systematic Theology*, 1: 12. By “non-confessional,” I mean that I am not doing theology in a way that is self-limited to a specific religious confession, creed, or text. As a theological thinker, I do not presuppose the givenness of any form of supernatural revelation. While my background in (and appreciation for) certain forms of Protestant Christianity will be evident in this project, I am nevertheless trying to think theologically in a more expansive mode.

<sup>21</sup> For my initial attempt to develop an “earthbound” theology (which is a term that I borrow from the works of Latour and Roland Faber), see Roberts, “Toward an Earthbound Theology.”



*geophilosophy* in later chapters. Although appearing in often subtle and secularized ways, specifically theological concerns are crucial drivers of my scholarly engagements throughout this project. Indeed, even the key but seemingly *non*-theological concepts that I will utilize—such as ‘imaginary’ and ‘geophilosophy’—are significantly developed on the basis of theological concerns about concepts of transcendence, immanence, creativity, power, sacrality, apocalypse, and hope. It is in chapter four, however, that this project will become most explicitly theological through my efforts to integrate insights from political theories of climate change and theologies of divine immanence.

Apart from its important role in the life of many confessional religious communities, constructive forms of theology arguably remain vital today as ways of conceptually responding to perennial human questions of ultimate meaning, purpose, and value—and, not to mention, the challenging questions about religious and spiritual pluralism that arise in the wake of *any* response to such questions. In the Anthropocene, these sorts of existential questions will not soon disappear—and in fact, their intense importance for human life will likely be amplified in the coming years. And yet, in our secular age, it is certainly no secret that theology has long lost its earlier status as the ‘queen of the sciences.’ Indeed, for a growing number of secular people, the discourse of theology no longer seems to offer anything meaningful to our world. From my perspective, theology therefore needs to be pursued in a *transdisciplinary* way if its crucial relevance for confronting current planetary crises is to be more broadly recognized and affirmed.

Over the course of the first three chapters (including the current one), I therefore attend closely to recent work in the environmental humanities, the earth sciences, and

ecological philosophies. Each of these studies will largely proceed without explicit reference to “theology” as such—even as they ultimately serve to inform the *theopolitical* work that I pursue in the fourth chapter’s analysis of climate politics in the Anthropocene. With the goal of energizing diverse movements for planetary justice, in chapter four, I also utilize the pluralizing discourse of postsecular theory as a critical strategy for ecopolitical activism. The scale and complexity of our ecological crises arguably intensifies the need to think across religious and secular boundaries, for while the Anthropocene (as I interpret it) does not erase differences of identity, power, or responsibility—indeed, it in some ways *magnifies* these—it enfolds humanity as a species facing a deeply uncertain planetary future. It is this growing sense of uncertainty about the future that I consider in the concluding pages of chapter four, with a contemplation on the meaning and importance of hope in a time of escalating ecosocial crises.

This dissertation can therefore be understood as a transdisciplinary intervention into the dominant imaginary that initially emerged in the modern West, but which is now destabilized by the geo-conceptual shock of a new epoch. Drawing on philosophies of process and the new materialism, along with ecological and political theologies, the subsequent chapters of this dissertation will unfold as stages in my effort to respond constructively to the Anthropocene’s unsettling of the modern imaginary, including the latter’s interlocking conceptual binaries of society/nature, human/nonhuman, secular/sacred, and divinity/world. In closely related ways, these hierarchical binaries have long provided ideological support to certain forms of dominating power that remain operative today. Utilizing Catherine Keller’s terminology, I describe and theorize these forms of power throughout this project as theistic, secularist, and human

“exceptionalisms.”<sup>22</sup> In turn, I aim to challenge each of these exceptionalisms by short-circuiting their underlying conceptual binaries through a *counter*-exceptionalist framing of my planetary imaginary.

In chapter two, this imaginary is outlined in creative interchange with Earth System science and Gaia theory, while in chapter three, it will be expressed more fully as a geophilosophy, primarily through my ecological readings of the works of William James, Alfred North Whitehead, and Jane Bennett. In the final section of chapter four, this planetary imaginary takes an explicitly theological turn through my engagements with the writings of Keller and Mary-Jane Rubenstein, whose immanent notions of divinity inspire my conception of geotheology. The latter dimension of my project will also be theorized as a *radical political theology*, which I deploy as an urgently necessary counter-vision to traditional forms of theism and anti-democratic conceptions of the political that are likewise rooted in the dominating logic of exceptionalism—or what Jeffrey Robbins calls “the theopolitical rule of the one.”<sup>23</sup> As we will begin to see later in this chapter, this theopolitical exceptionalism is generating serious challenges for democratic politics in the Anthropocene. Responding effectively to these challenges, I

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<sup>22</sup> Keller, *Political Theology of the Earth*, 46, 137. The way that I deploy these terms largely follows Keller’s usage. While I will continue to clarify each throughout this project, a few definitions here will be helpful. To conceive of particular beings (e.g., humanity, divinity), ideologies (e.g., secularism), or sociological groups (e.g., secularists) as “exceptional” is to place them over and above all other beings, ideologies, or groups (respectively). Each are thereby “withdrawn” from their dependent interrelations with other beings, ideologies, or groups. Thus, for *theistic exceptionalism*, divinity is rendered a metaphysically exceptional being over the rest of reality. For *human exceptionalism*, the human species and societies are seen as uniquely independent from and privileged over the rest of nature. For *secularistic exceptionalism*, secularist groups and imaginaries are privileged as singularly “rational” (or otherwise superior) over religious groups and imaginaries. And as I will suggest in section four of this chapter, the secularist exceptionalism of the dominant modern imaginary also “extracts” the sacred from nature.

<sup>23</sup> Robbins, *Radical Democracy and Political Theology*, 5–6.

will argue, thus requires a distinctively *theopolitical* response that goes beyond a secularist mode of ecopolitics.

While the modern architecture of conceptual binaries has long served to empower the destructive environmental actions of a certain subset of our species, I suggest throughout this project that these are beginning to break down at an ideological level today—thus prying open new conceptual spaces to construct alternative imaginaries that do not readily lend support to exceptionalist forms of power. As such, in my interpretation of the concept, the Anthropocene is paradoxical: on the one hand, it points to an unprecedented and dangerous rupture in the Earth System due to modern anthropogenic forcings; on the other hand, it serves as a conceptual lure *beyond* the dominant modern imaginary and *toward* postmodern ways of thinking that may better support efforts to realize an ecosocially just future. Partly due to my current involvement with the EcoCiv Institute, I am inclined to envision such a future in terms of an “ecological civilization.”<sup>24</sup> Unlike today’s globalized neoliberal order of extreme inequalities, eroding democracies, and environmental degradation, an ecological civilization would be based on “a social, economic, and political philosophy that places *the common good*—of humanity, and of the planet—above all else,” as Philip Clayton and Justin Heinzekehr write.<sup>25</sup> At the same time, in light of the multiplicity of human needs, values, and identities within our planetary commons, this vision must also now be

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<sup>24</sup> For an introduction to the concept of an ecological civilization, see Clayton and Schwartz, *What Is Ecological Civilization?*

<sup>25</sup> Clayton and Heinzekehr, *Organic Marxism*, 9.

pluralized in terms of “*common good(s)*.”<sup>26</sup> Any attempt to realize an ecological civilization will thus require a radically new becoming of societies with the Earth—an “absolute deterritorialization,” as Deleuze and Guattari provocatively put it, “even to the point where this calls for a new earth, a new people.”<sup>27</sup>

Unfortunately, however, we must pause to ask: is it already too late for such revolutionary civilizational changes to materialize? Considering the persistent political inertia in addressing current environmental crises, hoping for a large-scale political shift toward radical democracies that prioritize ecosocial justice over endless economic growth might indeed now seem like mere utopianism. Furthermore, many countries are already being severely challenged by global climate disruption, and the U.N.’s Intergovernmental Panel on Climate Change (IPCC) has made it increasingly clear that we are quickly running out of time to avoid extreme climate breakdown. Doing so requires a rapid transformation of the global carbon economy at a scale that “has no documented historic precedent,” according to a recent IPCC report.<sup>28</sup>

For some, such news only seems to confirm that our fate is sealed—that “we’re doomed,” as Roy Scranton argues.<sup>29</sup> Any sort of optimism about progressing into a serene planetary future does now appear unjustifiable. Even in a best-case scenario, the severe challenges of anthropogenic climate change—both for human communities and

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<sup>26</sup> The term “common good/s” is proposed in Johnson-DeBaufre, Keller, and Ortega-Aponte, *Common Goods*, 5.

<sup>27</sup> Deleuze and Guattari, *What Is Philosophy?*, 101.

<sup>28</sup> Coninck and Revi, “Chapter 4: Strengthening and Implementing the Global Response,” 8.

<sup>29</sup> Scranton, *We’re Doomed. Now What?*

the wider living world—will likely remain with us for decades.<sup>30</sup> So here is the question: however difficult the path may be, might we still hope for an eventual transition to an ecological civilization in the Anthropocene? Or is it time to admit the impossibility of such a shift and focus instead on adapting to the unavoidable climatic turbulence of a post-Holocene world? Such questions are not easily answered—and indeed, whether they can be answered at all remains questionable—but I will be circling around and working through them throughout this project, particularly in chapter four.

For now, I want to offer a deeper introduction to some of the major themes I will be engaging in subsequent chapters, beginning by taking a closer look at our new planetary context and the origins of our current geo-crisis. Following this analysis, I introduce the ideas of a number of ecologically attuned scholars and writers whose works importantly magnify the Anthropocene’s radical implications for human societies and imaginaries. Finally, I conclude this chapter by engaging the work of Charles Taylor, whose theory of “modern social imaginaries” significantly informs my thinking throughout this dissertation. As we will see, Taylor’s critical analysis of the dominant modern imaginary of our secular age provides crucial historical and philosophical context for the planetary imaginary that I ultimately unfold.

## **II. A New Earth**

As will become clear in chapter two, unresolved questions remain concerning when the Anthropocene began, whether it should actually be called something else, and what it might mean for the future of humanity. There I will provide a thorough analysis

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<sup>30</sup> Romm, *Climate Change*, loc. 2360-2404.

of current scientific debates about these questions in order to better understand our geohistorical present and potential planetary futures. But here it is important to note that, in the midst of these ongoing debates about the Anthropocene, scientists and scholars of the new epoch have converged on at least this one fundamental claim: through a variety of ecologically destabilizing activities, human societies have irreversibly altered Earth history.<sup>31</sup> As a leading group of geoscientists explain, “the Anthropocene represents a new phase in the history of both humankind and of the Earth, when natural forces and human forces became intertwined, so that the fate of one determines the fate of the other.”<sup>32</sup> Today, it is quite commonly assumed—or even explicitly argued—that humans brought about this new phase of geohistory unintentionally. For example, Brian Swimme and Mary Evelyn Tucker describe the various global environmental shifts of the Anthropocene as the “*unintended* consequences” of our attempts to improve the world through modern industrialism.<sup>33</sup> Similarly, geoscientist James Lovelock asserts that humanity has “*unknowingly* declared war on Gaia.”<sup>34</sup> While such ‘accidental Anthropocene’ narratives are not *entirely* false, a closer examination of modern history reveals a more complex story about the origins of our planetary crises.

Perhaps the most significant of our recent planetary shifts is anthropogenic climate change—a phenomenon that only even started to become understood by the general public in the late 1980s. Since then, humans around the world have increasingly

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<sup>31</sup> Lewis and Maslin, *The Human Planet*, 269.

<sup>32</sup> Zalasiewicz et al., “The New World of the Anthropocene,” 2231.

<sup>33</sup> Swimme and Tucker, *Journey of the Universe*, 102. Emphasis added.

<sup>34</sup> Lovelock, *The Revenge of Gaia*, 10. Emphasis added.

recognized that greenhouse gas emissions—particularly those produced by the continued burning of fossil fuels—are causing the Earth’s climate to rapidly and dangerously break down. On the other hand, it is less commonly recognized by the general public that the greenhouse effect has, in fact, been understood by scientists since at least the early 19<sup>th</sup> century. Moreover, the first scientific prediction of global warming can be traced all the way back to 1896.<sup>35</sup> By the late 1950s, “all the scientific facts about enhanced CO<sub>2</sub> and potential global warming were assembled,” as earth scientist Mark Maslin points out.<sup>36</sup> Furthermore, as environmental historians have clarified in recent years, many of the negative socio-ecological consequences of deforestation, pollution, species extinctions, and other defining aspects of the recently theorized Anthropocene have been clearly acknowledged by multiple scientists and writers since the 19<sup>th</sup> century.<sup>37</sup> As such, some of the most pressing environmental issues that are wrapped up in this currently popularized geological term are not exactly new revelations. Indeed, many modern people—particularly those in positions of power—have long known about the socio-ecological dangers of what Naomi Klein calls “extractivism,” which is an ideology that has deeply shaped the dominant modern imaginary towards “a non-reciprocal, dominance-based relationship with the earth, one purely of taking.”<sup>38</sup>

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<sup>35</sup> Romm, *Climate Change*, loc. 617.

<sup>36</sup> Maslin also cites a 1959 *Scientific American* article that predicted a 3°C rise in the earth’s average temperature by the end of the 20<sup>th</sup> century. Although this overestimated the actual current temperature increase of 1.15°C, it does show that warnings about the climate are decades older than many seem to realize. Maslin, *Climate Change*, 14.

<sup>37</sup> Bonneuil and Fressoz, *The Shock of the Anthropocene*, 174–81.

<sup>38</sup> Klein, *This Changes Everything*, 169.



To be sure, earlier scientists, writers, and politicians who knew about such environmental challenges could not have *entirely* grasped the full consequences of extractivism and the industrial-capitalist societies that this ideology has supported. Heightened awareness of climate disruption was aided in the 1980s by new data about global temperatures, along with the rise of the environmental social movement.<sup>39</sup> More importantly, a deeper understanding of nearly all of our environmental challenges required the scientific concept of the Earth as a non-totalized “system,” which was not widely accepted by scientists until the 1990s.<sup>40</sup> As I argue in the next chapter, this is partly why the current idea of the Anthropocene could only have emerged when it did. Consequently, the Anthropocene is not simply a fashionable new word for the ecological crisis, but rather marks a crucial shift in scientific knowledge, human history, and planetary evolution.

Even so, as environmental historians Christophe Bonneuil and Jean-Baptiste Fressoz have compellingly argued in *The Shock of the Anthropocene* (2016), the following historical fact needs to be recognized: for the last two centuries in Europe and North America, there has existed an astonishingly widespread and clear recognition that industrial-capitalist societies negatively impact natural environments in ways that severely endanger the future flourishing of life. As Bonneuil and Fressoz demonstrate in their examination of modern environmental discourses, while many ordinary people (e.g., concerned fishermen, factory workers) have long had some knowledge of the dangerous ruptures between modern industrial societies and natural environments, these empirical

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<sup>39</sup> Maslin, *Climate Change*, 15–19.

<sup>40</sup> See Hamilton, *Defiant Earth*, 11. I explore the concept of the Earth System in chapter two.

realities have been especially well-known among leading intellectuals, scientists, and political elites.<sup>41</sup> Unfortunately, such environmental knowledge was largely ignored or repressed. It is at least partly for this reason that we now live in the Anthropocene.

Consider the writings of 19<sup>th</sup> century English economist William Stanley Jevons, who explicitly recognized the long-term unsustainability of coal, even as he argued for the necessity of its continued use to support imperial expansion.<sup>42</sup> Consider also the French polymath Comte de Buffon, who, like Jevons, expressed serious concerns about the long-term sustainability of modern industrial societies. Nevertheless, Buffon ultimately argued that Europe’s “civilized nature” must continue its onward global expansion by asserting its industrialized power over the “raw” natural world.<sup>43</sup> Intriguingly, Buffon even anticipated contemporary geoengineering theories when he suggested that “Man” should intentionally “modify the influences of the climate he lives in and set, so to say, the temperature to the convenient point.”<sup>44</sup> Finally, consider also the ecological warnings from the 19<sup>th</sup> century socialist thinker Charles Fourier, who resisted the kind of imperialistic politics that Buffon and Jevons supported. In 1821, Fourier sounded the alarm about industrial capitalism’s potential to dangerously impact local climates—and as Bonneuil and Fressoz demonstrate in their work, Fourier was definitely not alone in calling attention to this climatic concern.<sup>45</sup>

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<sup>41</sup> Bonneuil and Fressoz, *The Shock of the Anthropocene*, 172.

<sup>42</sup> Jevons, *The Coal Question*, 375–76. See also Bonneuil and Fressoz, *The Shock of the Anthropocene*, 195.

<sup>43</sup> Regarding Buffon, see Bonneuil and Fressoz, *The Shock of the Anthropocene*, 177–78.

<sup>44</sup> Cited in Bonneuil and Fressoz, 18.

<sup>45</sup> Bonneuil and Fressoz, 227–29.

After unearthing numerous additional examples of this sort of environmental awareness over recent centuries, Bonneuil and Fressoz conclude that the geological rupture of the Anthropocene is to a great extent the consequence of *intentional* human actions since the Industrial Revolution:

The conclusion that forces itself on us, disturbing as it may be, is that our ancestors destroyed environments in full awareness of what they were doing. Industrialization and the radical transformation of environments that it caused by its string of pollutions went ahead despite environmental [knowledge]... The historical problem, therefore, is not the emergence of an ‘environmental awareness’ but rather the reverse: to understand the schizophrenic nature of modernity, which continued to view humans as the products of their environment at the same time as it let them damage and destroy it.<sup>46</sup>

From the perspective of such a devastating historical critique, the extractivism of today’s political and corporate elites—many of whom now seem to recognize clearly the unsustainable nature of this ideology—ought to be understood as merely furthering the long modern process of knowingly damaging natural environments.<sup>47</sup> As such, the disconcerting history of modern environmental reflexivity suggests that the Anthropocene must not *merely* be understood as an accident caused by basically innocent actors, but rather *primarily* as a catastrophic failure of political will and ethical

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<sup>46</sup> Bonneuil and Fressoz arguably overstate their case when they claim that “our ancestors destroyed environments in *full* awareness of what they were doing.” Environmental knowledge undoubtedly *has* improved over time, as I have already argued in this chapter. Even so, their main argument is plausible: environmental reflexivity runs throughout much of modernity, and it did very little to prevent environmental destruction. Bonneuil and Fressoz, 196–97.

<sup>47</sup> This applies broadly, from green-growth neoliberals to climate-denying libertarians. But at this moment, I am thinking about two examples. First, ExxonMobil, which produced accurate scientific reports in the 1990s about the growing threat of anthropogenic climate change, and yet heavily invested in further extraction of oil while publicly downplaying—even denying—the existence of climate change. The second example is the recent revelations that the Trump administration has simultaneously denied the existence of climate change while also using mainstream climate science to support environmental deregulations. Their argument is that the planet is already committed to extreme climate change, so further deregulations won’t matter. See Eilperin, Dennis, and Mooney, “Trump Administration Sees a 7-Degree Rise in Global Temperatures by 2100.”

responsibility that continues into the present—particularly at the hands of those in power. To narrate the Anthropocene as little more than an unforeseen consequence of modern industrialism is thus not only ahistorical. It is also depoliticizing. While presenting a misleading picture of scientists-as-saviors for their ostensibly recent environmental revelations, such a narrative also lets those in positions of social influence, authority, and privilege off the hook for perpetuating ecosocial violence in their extractivist pursuits of profit and power. The Anthropocene may in a certain sense be the cumulative result of all human actions over time, but responsibilities are *profoundly* unequal, as the interconnected histories of extractivist economies and imperialist politics reveal.<sup>48</sup> Despite recent fascinations with “Big History”—which reframes human histories within the longer time scale of planetary evolution—this discourse must not be allowed to eclipse the comparatively “little histories” of colonialism, capitalism, and imperialism, for it is largely *these* extractivist forces that created the planetary crisis we now face as a species.<sup>49</sup> This is why, in his seminal essay on climate change, Chakrabarty rightly argued for the need to hold together “intellectual formations that are somewhat in tension with each other: the planetary and the global; deep and recorded histories; species thinking and critiques of capital.”<sup>50</sup>

Through a highly differentiated but nevertheless common geohistorical process, modern industrial societies have therefore generated a ‘new earth.’ Clearly this is not the

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<sup>48</sup> For accounts of these histories, see Malm, *Fossil Capital* and Hickel, *Less Is More*.

<sup>49</sup> Big History is now recognized as a multidisciplinary academic field. It was pioneered by historian David Christian and is currently popularized by writers like Harari. The recent work of Lewis and Maslin (2018) is unique within this genre for its critical attention to histories of colonialism and capitalism, which I explore in chapter 2.

<sup>50</sup> Chakrabarty, “The Climate of History: Four Theses,” 213.

*post-capitalist* new earth imagined by Deleuze and Guattari in their ecophilosophical writings, nor is it anywhere close to the realization of a new earthly “*shalom*” that is hoped for in biblical prophetic traditions. For now, these sorts of inspiring visions remain unactualized possibilities for the other-worlding of this world. What our future will ultimately look like on this anthropocenic new earth thus remains uncertain—but composing any form of planetary conviviality during this mess of a human epoch will undoubtedly be challenging. We will therefore have to get used to the idea that we are now ‘exiles’ from our old planetary home, with its more hospitable climate and flourishing ecosystems. For this reason, it seems to me that ecoactivist Bill McKibben was entirely right to suggest in 2011 that we must now begin to think of ourselves as living on a different planet called “*Eaarth*,” since we—or rather *some* of us—have effectively replaced the “Earth” of the Holocene.<sup>51</sup>

Having therefore ushered in a new epoch in which the entire Earth System has been destabilized by human actions, it now seems clear that we have become a distinctively powerful species on this planet. But should our terraforming powers now qualify us as *gods*? Do our capacities to reshape planetary systems suggest that we have in some sense become *divine*? In fact, a number of writers have recently made suggestions along these lines. Thus, according to Harari and Mark Lynas, our species may now be deified with titles like “the God-Species” and “*Homo Deus*.” But as I will suggest in the third chapter of this project on post-humanist theories and process thought, it seems far wiser to adopt less hubristic names for ourselves, such as Latour’s

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<sup>51</sup> McKibben, *Eaarth*, 2–3. Italics added.

“earthbound,” Donna Haraway’s “terrans,” or Michael Hogue’s “*terra bestiae*.”<sup>52</sup> Such names may inspire alternative, ecologically attuned stories about *Homo sapiens* that do not simply double down on modern human exceptionalism. They might thereby help to *de-exceptionalize* human imaginaries for the Anthropocene.

On the other hand, if we *are* now to be deified, as Lynas and others believe, it seems to me that we would have to be seen as gods facing our own possible extinction over the coming centuries. The Nietzschean idea of the death of God thus takes on renewed significance in the Anthropocene. As earth scientists have made clear, although a full-blown sixth mass extinction event might still be avoided, our environmentally destructive actions continue to push the biosphere toward such a catastrophe—one that would be devastating for our currently powerful species as well.<sup>53</sup> Might the *anthropoi* eventually be completely undone as a consequence of our own actions? Unfortunately, the dominant modern imaginary permits one to evade this question, due to its foundational picture of the human as progressively transcending the limitations of nature.<sup>54</sup> This perspective thus dangerously obscures what William Connolly calls “the fragility of things”—for as the Anthropocene reveals so decisively, our species, along

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<sup>52</sup> Latour, *Facing Gaia*, 248; Haraway, *Staying with the Trouble*, 49; Hogue, *American Immanence*, 3.

<sup>53</sup> For a nuanced discussion of the current science of the global biodiversity crisis, see Lewis and Maslin, *The Human Planet*, 247–51.

<sup>54</sup> Here I am thinking of the recent work of Steven Pinker, who highlights many ways in which humans have made “progress” over recent centuries. While he is clear that continued progress is not *inevitable*, his brand of technocratic optimism often obscures the full reality of our increasingly fragile relationship with the Earth system. For example, he implausibly downplays the potential for a sixth extinction event in Pinker, *Enlightenment Now*, 133.

with many others, is profoundly dependent on a relatively stable Earth System.<sup>55</sup> And in that sense, we quite clearly do *not* represent any sort of planetary exception.

In fact, one of the potential effects of the Anthropocene is to intensify awareness of our species' embeddedness within the turbulence of deep time—and in turn, to demolish any notion that we are a privileged exception *from* it. The concept of the Anthropocene might thereby better enable us to understand our current moment in geohistory as but “the latest in an array of upheavals—some of them desperately harmful to the whole biosphere—that have emerged and reverberated within earth’s systems,” as Jeremy Davies suggests.<sup>56</sup> Instead of a merely gradual process of slow changes that have accumulated over time, we may then begin to see geohistory as something more like an improvised drama without any predetermined outcome—one that is filled with amazing beauty and creativity, to be sure, but also with frequent periods of intense suffering and sudden catastrophes for living things. Our radical contingency as a species thus becomes ever more apparent today.<sup>57</sup> As Elizabeth Kolbert writes, “Among the many lessons that emerge from the geologic record, perhaps the most sobering is that in life, as in mutual funds, past performance is no guarantee of future results. When a mass extinction occurs, it takes out the weak and also lays low the strong.”<sup>58</sup> In other words, as anthropologist Richard Leakey cautions us, “*Homo sapiens* might not only be the agent of the sixth

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<sup>55</sup> Connolly, *The Fragility of Things*.

<sup>56</sup> Davies, *The Birth of the Anthropocene*, 30.

<sup>57</sup> Davies, 9.

<sup>58</sup> Kolbert, *The Sixth Extinction*, 268.

extinction, but also risks being one of its victims.”<sup>59</sup> Somewhat ironically then, the human epoch would tragically morph into an entirely *post*-human epoch.

This disturbing possibility of another mass extinction that could wipe out our species is just one of multiple reasons to question modern narratives of unstoppable human sovereignty over the planet. Consider also the current scientific framework of “planetary boundaries,” which situates the environmental issue of biosphere integrity alongside eight others, such as climate change, ocean acidification, and deforestation. For reasons that will be clarified in the next chapter, crossing these empirically defined boundaries radically alters the functioning of the planet—perhaps irreversibly.<sup>60</sup> As Maslin and Simon Lewis explain, “The basic idea [of planetary boundaries] is to limit human influence within the Earth system to levels which keep it within Holocene-like conditions, as these are the only known conditions in which farming cultures and large-scale civilizations can flourish.”<sup>61</sup> One of the indicators that we are presently living in the Anthropocene is that we have already transgressed a number of these boundaries.<sup>62</sup> Consequently, the entire planet is now responding in ways that are beginning to strain societal structures. Moreover, while many of us still presume a quasi-linear relationship between human actions and the Earth System, geoscientists now warn of feedbacks, tipping points, and nonlinear dynamics that make it impossible to predict perfectly how

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<sup>59</sup> Cited in Kolbert, 268.

<sup>60</sup> Steffen et al., “Planetary Boundaries.”

<sup>61</sup> Lewis and Maslin, *The Human Planet*, 251.

<sup>62</sup> Crossed boundaries include climate change, nitrogen and phosphorous cycles, deforestation, and biosphere integrity.



the planet will respond to continued anthropogenic forcings.<sup>63</sup> Partially self-organizing nonhuman powers that resist noetic capture are thus amplified in the Anthropocene. Our world is beginning to feel strangely topsy-turvy.

For these reasons, philosopher Isabelle Stengers has argued that we must now reckon with what she calls the “intrusion of Gaia.” Inspired by the geoscientific theory of Lovelock and Lynn Margulis—yet another topic I will explore in the next chapter—Stengers’s concept of Gaia challenges every attempt to deify the anthropos, for it signifies a “*forgotten form of transcendence*: a transcendence deprived of the noble qualities that would allow it to be invoked as an arbiter, guarantor, or resource; a ticklish assemblage of forces that are indifferent to our reasons and projects.”<sup>64</sup> To rephrase Mary’s revolutionary Magnificat for today, it may rightly then be said that Gaia’s destabilizing powers are now intervening to “bring down the powerful” humans from their thrones while “lifting up the lowly” nonhumans. As a geological form of transcendence that is indifferent to the entire modern project, Gaia ultimately threatens to “scatter the proud” and to “send the rich away empty.”<sup>65</sup> However, because Gaia’s ‘intruding’ forces are also indifferent to class divisions, they will also tragically wreak havoc on the poor as well—as indeed is already taking place in the Anthropocene. With the ‘intrusion of Gaia,’ in other words, what was previously pushed off into the background of modern imaginaries is now bursting—sometimes violently—into the

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<sup>63</sup> Steffen et al., “Trajectories of the Earth System in the Anthropocene.”

<sup>64</sup> Stengers, *In Catastrophic Times*, 47. Emphasis added.

<sup>65</sup> Luke 1:46-55

foreground, with formerly inanimate objects now appearing as animated agents, including the Earth itself.

From a similar point of view, ecophilosopher Timothy Morton has argued that in the Anthropocene, “reality itself intervenes on the side of objects”—which means that ontological bifurcations between humans and nonhumans are breaking down. As I will suggest in chapter three, this “quake in being” has already cracked the philosophical foundations of modern humanism.<sup>66</sup> Moreover, the modern dream of capitalist economies and secularized forms of sovereignty that could operate unconstrained by more-than-human powers is now rattled by the eruptions of nonhuman forces into societies. In response to this situation, neoliberals are now attempting to maintain their worldview’s status as the hegemonic political-economic ideology of our time, in part by trumpeting “green growth” (i.e., the view that we can absolutely decouple rising GDP from environmental impacts)<sup>67</sup>—even as they work to expand the global imperial network of extractivist corporations and dominant states.<sup>68</sup> However, as Connolly submits, precisely because the Anthropocene now forces wider recognition that “the human estate is both imbricated with and periodically overmatched by a cosmos composed of multiple, interacting force fields moving at different speeds,” a politics beyond neoliberalism, anthropocentric humanism, and dogmatic forms of secularism now needs to be pursued.<sup>69</sup>

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<sup>66</sup> Morton, *Hyperobjects*, 20.

<sup>67</sup> This neoliberal assumption is importantly criticized in Ward et al., “Is Decoupling GDP Growth from Environmental Impact Possible?”

<sup>68</sup> On the idea of neoliberalism as a global “imperial network,” see Hardt and Negri, *Multitude*, xii.

<sup>69</sup> Connolly, *The Fragility of Things*, 7.

It is precisely this kind of ecopolitical vision that I defend in later chapters through my engagements with theories of post-humanism, radical democracy, and post-secularism.

### **III. Aspirational Earthmasters**

Even if one rejects the modern assumption of human exceptionalism, the following question may still need to be taken seriously: is it not in fact the case that humans are now capable of exercising massive—even nearly *god-like*—control over the planet? Some would certainly say so, as evidenced by current debates about geoengineering theories. I will closely examine this urgent issue in chapter four, but the general idea of geoengineering that is now being advanced by certain technocratic scientists, politicians, and billionaires is to manipulate the planet through various technological means, ranging from carbon dioxide removal systems to solar radiation management. The ultimate goal of geoengineering is to reduce, or even eliminate the negative effects of anthropogenic climate change. Rather predictably, such technologies are appealing to those whose positions of power tend to make them resistant to the idea of a civilizational shift to fully decarbonized economies and ecologically constrained politics. Indeed, some geoengineering enthusiasts even argue openly for humans to ‘play god’ with the Earth System, as when transhumanist Ronald Bailey calls on humans to become “guardian gods of Earth,” or when Lynas insists that we must now understand ourselves as the God-species.<sup>70</sup>

As ethicist Clive Hamilton argues, these aspiring “earthmasters” evidently see “no ethical or other obstacle to total domination of the planet,” and most of their proposals

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<sup>70</sup> Bailey, “Better to Be Potent Than Not”; Lynas, *The God Species*.

appear as conservative efforts to maintain the status quo of carbon capitalism.<sup>71</sup> In her journalistic account of geoengineering, Klein concurs with Hamilton’s skepticism about such technologies. She thus describes geoengineering as “the last tragic act in [the] centuries-long fairy tale of control,” and points out that it is being pursued primarily by a group of men in Europe and the U.S.—a “geoclique,” as she puts it.<sup>72</sup> According to the logic of this geoclique, if technology will eventually be able to control the planet’s thermostat, why not continue with business-as-usual, fossil-fueled capitalism for as long as possible? As we will see in later chapters, there are very serious political, ethical, and technological questions about how such technofixes could actually be implemented. Even so, with the continued intensification of global climate disruption, it is becoming ever-more likely that large-scale geoengineering projects will be deployed in the not-too-distant future. This is precisely why Hamilton and Klein have each issued warnings to pay careful attention to the technocratic proposals of these aspiring earthmasters.

In their own critique of geoengineering, Bonneuil and Fressoz situate such proposals in the context of a wider technocratic narrative of the Anthropocene, which they suggest may serve to legitimize neoliberalism’s attempt to stabilize—and ultimately accelerate—human control over the planet. On their reading, this narrative effectively pitches techno-capitalist solutions to current crises as a kind of “anthropocenic gospel,” and in turn projects modern science as “savior” of the masses.<sup>73</sup> This secularized ‘gospel’

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<sup>71</sup> Hamilton, *Earthmasters*, 18.

<sup>72</sup> Klein, *This Changes Everything*, 267.

<sup>73</sup> Bonneuil and Fressoz, *The Shock of the Anthropocene*, 73, 84.

promises universal salvation through a new “eco-technocratic government,”<sup>74</sup> and to transform our fears of planetary catastrophe into the “giddiness of [human] omnipotence.”<sup>75</sup> Bonneuil and Fressoz thus contend that this gospel now provides ideological support to an anti-democratic “*geopower*,” which they theorize as an emerging form of planetary sovereignty that posits the “Earth as a ‘system’ to know and govern as a totality, in all its components and functions.”<sup>76</sup> Considering the extreme complexity of our Anthropocene context, the rest of us—the planetary 99%, as it were—could easily then become a “passive public that leaves solutions to the geocratic experts,” Bonneuil and Fressoz warn.<sup>77</sup>

As I will argue in chapter four through an interdisciplinary engagement with political theology, these increasingly influential geocratic narratives of planetary control are significantly empowered at an ideological level by a secularized theology of divine sovereignty (as the above analysis of *geopower* subtly serves to indicate). As such, the emerging regime of geosovereignty arguably calls for an explicitly theopolitical critique and democratic counter-imaginary that “is not erected around the problem of sovereignty” (Foucault).<sup>78</sup> One would then need to imagine humanity and divinity otherwise than as exceptionalist geosovereigns. Taking some inspiration from Haraway, this is precisely what I attempt in later chapters by reading our anthropocenic upheavals

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<sup>74</sup> Bonneuil and Fressoz, 93, 95.

<sup>75</sup> Bonneuil and Fressoz, 85.

<sup>76</sup> Bonneuil and Fressoz, 87–88.

<sup>77</sup> Bonneuil and Fressoz, 93.

<sup>78</sup> Foucault, *The Foucault Reader*, 63.

as “the last gasps of the sky gods.”<sup>79</sup> The democratizing counter-visions of both geophilosophy and geothology might thereby support resistance to what Bonneuil and Fressoz describe as “the scientific illusion that ecological awareness and ‘salvation’ can only come from scientists and not also from the struggles and initiatives of other Earthlings and citizens of the planet.”<sup>80</sup>

Although Haraway distances herself from the discourse of political theology, on my reading of her work on the Anthropocene, she perceptively underscores the way that a secularized imaginary of divine power underlies neoliberal visions of a planetary “technofix.” For Haraway, the modern faith that “technology will somehow come to the rescue of its naughty but very clever children,” is not only dangerously naïve—scientifically, ethically, and politically—but essentially “*amounts to the same thing*” as a religious faith that “God will come to the rescue of his disobedient but ever hopeful children.”<sup>81</sup> Both forms of faith thus pin their hope on what Haraway calls “technoid sky gods,”<sup>82</sup> which, in her view, ultimately offer ways of *looking away* from the uncertainties and ambiguities of earthly realities—of refusing to “*stay with the trouble*,” she argues.<sup>83</sup>

Translating this theopolitical hermeneutic into an explicitly *apocalyptic* register, I want to propose that we might now see the aspiring earthmasters of the Anthropocene as effectively mimicking the figure of God in Revelation 21:1-2. In this climax of the New

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<sup>79</sup> Haraway, *Staying with the Trouble*, 57.

<sup>80</sup> Bonneuil and Fressoz, *The Shock of the Anthropocene*, 287.

<sup>81</sup> Haraway, *Staying with the Trouble*, 3.

<sup>82</sup> Haraway, 186. Endnote 57.

<sup>83</sup> Haraway, 3. Emphasis added.

Testament, John of Patmos envisions God bringing about the eschatological new creation through a kind of supernatural ‘technofix’: “Then I saw a new heaven and a new earth; for the first heaven and the first earth had passed away, and the sea was no more. And I saw the holy city...coming down out of heaven from God.” Thus, in this vision of a final earthly transformation, “an urban architecture supersedes the organic topologies of earth and sea,” as Keller notes.<sup>84</sup>

The anthropocenic earthmasters do not seem to have strayed very far from this ancient apocalyptic script of top-down technofixes, as John’s eschatological hope in a supernatural intervention has today taken the form of a secularized hope in technological transformations. The Earth essentially remains in the same position: subordinated to a controlling figure of transcendence—a supernatural Deity then, the technoscientific Anthropos now. Either way, nature is viewed as that which must be actively mastered by more powerful minds, men, and machines.

Ecofeminist theologian Rosemary Radford Ruether has long called attention to the gendered symbolism within these kinds of cosmic imaginaries, with the patriarchal image of a “male monotheistic God, and the relation of this God to the cosmos as its Creator, [reinforcing] symbolically the relations of domination of men over women, masters over slaves, and (male ruling-class) humans over animals and over the earth.”<sup>85</sup> Writing from a similar point of view, Keller points out that such symbolism can be discerned within the above-cited verses from Revelation 21. In her reading of this passage, John’s image of the annihilated “sea” recalls the mythical *tehom*, or the “chaos”

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<sup>84</sup> Keller, *Apocalypse Now and Then*, 80.

<sup>85</sup> Ruether, *Gaia and God*, 3.

of creation, which was often (if not always) personified as an evil female sea monster in opposition to a conquering male warrior deity. This ancient imaginary of an otherworldly God imposing order on the chaos of creation thus “maintains a general squeamishness toward all things mortal, fleshy, feminized, unpredictable, and complex,” Keller argues.<sup>86</sup>

Building on these crucial insights from Ruether and Keller, what I want to suggest is that the modern imaginary of today’s male-dominated geoclique has, in a certain sense, retained this ‘general squeamishness’ toward materiality. That is to say, rather than addressing the extractivist neoliberal processes that are intensifying current planetary crises, these aspiring earthmasters hope to conserve the present global order by eliminating material uncertainties and conquering climatic chaos through mechanisms of geological control. But arguably, this indicates that they have not yet sufficiently broken away from the dominant modern picture of nature as a controllable machine.

In the earlier modern Newtonian and Cartesian imaginaries, nonhuman nature was largely stripped of creative agency and inherent value, and subsequently reduced to externally related bits of inanimate matter. As Whitehead argued in the last century, moderns thereby transformed “nature into a dull affair, soundless, scentless, colourless; merely the hurrying of material, endlessly, meaninglessly.”<sup>87</sup> The practical consequence of this imaginary was a reductionist conception of nature as totally predictable—at least in principle—and therefore as fully susceptible to human management and control. This reductionist imaginary has, in turn, historically provided support to extractive capitalism’s ongoing exploitation of the planet by “cheapening” nature itself—along with

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<sup>86</sup> Keller, “No More Sea: The Lost Chaos of the Eschaton,” 196.

<sup>87</sup> Whitehead, *Science and the Modern World*, 54.



the various forms of life that modern thought has closely associated with it, including indigenous peoples, women, slaves, and nonhuman animals.<sup>88</sup> Unfortunately, this imaginary has not at all died out today. Indeed, as Rubenstein points out, in addition to the aspiring geoengineers of the Anthropocene, a modern mechanistic worldview remains influential among “classical physicists, ‘many-worlds’ quantum theorists, mathematical realists, neo-Darwinian biologists, and those bio-cognitivists who privilege material reduction over emergence or plasticity.”<sup>89</sup>

However, as I have indicated in earlier sections of this chapter, it is precisely this reductionist modern imaginary that is becoming increasingly difficult to defend today. To utilize another somewhat provocative biblical metaphor: like the risen Christ on the third day, the formerly “dead” nature of the moderns now almost seems to have been resurrected through Gaia’s deterritorializing powers, as nonhuman agencies and self-organizing processes increasingly contest human sovereignty over the Earth. Of course, nature in its full concreteness—despite its Holocene “slowness”—never really “died” in the first place. Nevertheless, in the Anthropocene, it has arguably never been more evident in human history that the Earth *actively refuses* to be fully controlled by us.

In recognition of this reality, Latour follows Stengers (who is herself inspired by Whitehead) when he insists that we should now replace the mechanistic image of “Nature” with the nonmodern image of Gaia. In Latour’s ecophilosophy, Gaia thus signifies a lively planetary assemblage of more-than-human powers that actively resist

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<sup>88</sup> Rubenstein, *Pantheologies*, 117–18. On the idea of “cheap nature,” see Moore, *Anthropocene or Capitalocene?*, 78–115.

<sup>89</sup> Rubenstein, *Pantheologies*, 116.

total mastery. “And if Gaia cannot be compared to a machine,” Latour submits, then “it cannot be subject to any sort of *re-engineering*.”<sup>90</sup> In resonance with this philosophical challenge to geoengineering, biologist Sallie Chisholm likewise argues that such technologies are in serious tension with current scientific views of the Earth System:

Proponents of research on geoengineering simply keep ignoring the fact that the biosphere is a player (not just a responder) in whatever we do, and its trajectory cannot be predicted. It is a living breathing collection of organisms (mostly microorganisms) that are evolving every second—a ‘self-organizing, complex, adaptive system’... These types of systems have emergent properties that simply cannot be predicted.<sup>91</sup>

As I will continue to suggest throughout this dissertation, these kinds of scientific and philosophical imaginaries of an agentially responsive planet ultimately have the effect of redistributing powers of creativity, animacy, and even transcendence to Gaia herself. And arguably, in doing so, they also importantly challenge any notion that these capacities are the concentrated properties of a sovereign God or Anthropos. As such, the (ostensibly) exceptionalist powers of divinity and humanity are now becoming *diffused*, as Latour suggests, for the “result of such a distribution of final causes is not the emergence of a supreme Final Cause, but a fine *muddle*.”<sup>92</sup> Precisely what this ‘muddling’ of planetary powers implies for counter-exceptionalist thinking in the Anthropocene is what I will be exploring in subsequent chapters of this project.

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<sup>90</sup> Latour, *Facing Gaia*, 96.

<sup>91</sup> Cited in Klein, *This Changes Everything*, 267.

<sup>92</sup> Latour, *Facing Gaia*, 100.

#### **IV. Shifting Imaginaries**

Throughout this chapter, my central thesis has been that the advent of a new human epoch poses significant challenges to the dominant modern imaginary, which I have suggested is fundamentally shaped by notions of human exceptionalism and reductionist views of nature. But this entire discussion now raises an important question: what precisely do I mean by “*imaginary*”? Stepping back from my earlier analyses of Anthropocene crises and contemporary ecotheories, here I want to flesh out what I am trying to get at with this term, and also to clarify certain characteristics of modern imaginaries that I will continue to challenge in later chapters. To do so, I look to the work of Charles Taylor, who has developed the idea of “social imaginaries” in his study of the rise of our modern secular age.

Like Northcott and Latour, Taylor tracks the emergence of the dominant modern imaginary in its close connections to earlier theological and philosophical disputes. As will become clear in what follows, certain features of the modern imaginary that Taylor analyzes are relevant to the eco-theo-political concerns driving my project, including the exceptionalist image of humans as ‘bounded’ individuals and reductionist conceptions of nature. By following the way that Taylor traces the emergence of our secular age, my primary goal here is to gain some clarity about how these images and ideas became sedimented within modern imaginaries in the first place—and thus, how they might be most effectively challenged and constructed otherwise. Moreover, Taylor’s work serves to advance my efforts to think beyond the modern secular/religion binary (which I return to in chapter four through a critique of secularist exceptionalism in modern politics).

Indeed, as we will see, the idea of social imaginaries provides a powerful way of analyzing the complex historical entanglements of theological and secular ideas.

For Taylor, “social imaginaries”—like “worldviews,” or *Weltanschauungen*—signifies basic understandings of reality that inform our engagements in the world, but which also seem so obvious that most people rarely feel the need to talk about them. According to Taylor, whereas *theories*, strictly speaking, belong to abstract modes of thought, *imaginaries* inform our embodied background assumptions about reality, often in the form of images or stories. As such, imaginaries need not be expressed or analyzed in metaphysical terms—although they *can* be, at least to a certain extent. Furthermore, because imaginaries typically reside at the subliminal “level of unchallenged common sense,” they can be difficult to critique or reform apart from periods of social crisis or upheaval.<sup>93</sup> Social imaginaries also tend to be shared among large and diverse groups of people, even as they are often informed (and sometimes intentionally *reformed*) by the theories, images, and ideas of smaller groups of writers, artists, and intellectuals.

Crucially, however, Taylor’s conception of social imaginaries is not based on an idealist understanding of history, whereby ideas would have independent causal force apart from material factors. The causal arrow of historical change is rarely so one-sided. As such, in order to understand the formation of social imaginaries, the transformative powers of ideal and material forces must be analyzed together. Moreover, human *and* nonhuman material forces must be accounted for in such analyses, attending to the ways in which political, economic, *and* environmental factors shape human imaginaries over

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<sup>93</sup> Taylor, *A Secular Age*, 575.

time.<sup>94</sup> For Taylor, the formation of social imaginaries thus involves a multifaceted dynamic of “translation,” whereby ideas and theories permeate larger groups as images and stories, even as imaginaries are also affected by various material forces. Theories thereby become “glossed,” Taylor suggests, or “schematized in the dense sphere of common practice”—which is a process that involves any number of mutually modifying transactions between ideas, material forces, and previously embodied imaginaries.<sup>95</sup>

Complex processes of translation are therefore what enable the formation of common understandings of social realities in terms of a community’s intersubjective norms and practices. As such, imaginaries must be understood as “both factual and ‘normative,’” Taylor suggests, since they provide “a sense of how things usually go, but this is interwoven with an idea of how they ought to go...”<sup>96</sup> But crucially, imaginaries not only have to do with exclusively human interactions. They also always already include “a background understanding of *what entities are*,” or an implicit ontology.<sup>97</sup> Taylor thus extends the relevance of imaginaries beyond the realm of human interactions to encompass our perceptions of the natural world and reality as such:

It is in fact that largely unstructured and inarticulate understanding of our whole situation within which particular features of our world show up for us in the sense that they have. It can never be adequately expressed in the form of explicit

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<sup>94</sup> It must, however, be admitted that Taylor’s own analysis of modernity is sociocentric—i.e., he focuses almost exclusively on the human side of things: “what we see in human history is ranges of human practices which are both at once, that is ‘material’ practices carried out by human beings in space and time, and very often coercively maintained, and at the same time, self-conceptions, modes of understanding. These are often quite inseparable...” Taylor, 212. By contrast, I note that Michael Northcott offers an ecologically attuned analysis of Western imaginaries. He suggests that the Little Ice Age likely had a major impact on Christian theology in the middle ages. Northcott, *A Political Theology of Climate Change*, 42.

<sup>95</sup> Taylor, *A Secular Age*, 176.

<sup>96</sup> Taylor, 172.

<sup>97</sup> Taylor, 95. Emphasis added.

doctrines, because of its very unlimited and indefinite nature. That is another reason for speaking here of an ‘imaginary’, and not a theory.<sup>98</sup>

This more expansive sense of imaginaries then provides the basis for Taylor to trace some of the radical transformations that occurred within them during Western transitions out of medieval Christendom and into modernity.

At the center of Taylor’s analysis of modern imaginaries is what he calls “the immanent frame.” Signifying the constructed socio-conceptual space that is widely shared among modern persons today, the immanent frame contrasts sharply with any potentially transcendent socio-conceptual order. It is that which is commonly imagined by moderns as our *natural* context, as opposed to any *sacred* or *supernatural* realm that may or may not exist. It thus provides support to the modern distinction between religion and the secular.<sup>99</sup> Of course, things were not always this way. The immanent frame had to be constructed over time through a multiplicity of ideal and material forces.

To demonstrate the magnitude of the shift toward an immanent imaginary, Taylor points to three key features of premodern imaginaries that preceded it: 1) an *enchanted world* that was filled with spiritual agents and moral forces; 2) a *hierarchical society* that was grounded in something ‘higher’ than human action and ordinary time; and 3) a hierarchical and humanly meaningful *cosmos* that pointed beyond itself to something ‘more.’<sup>100</sup> By contrast, Taylor argues that the dominant modern imaginary involves: 1) a *disenchanted world* that is not obviously populated by supernatural forces or more-than-

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<sup>98</sup> Taylor, 173.

<sup>99</sup> Taylor, 542. For an illuminating analysis of this concept in Taylor’s project, see Warner, VanAntwerpen, and Calhoun, *Varieties of Secularism in a Secular Age*, 12–14.

<sup>100</sup> Taylor, 25–26.

human agents; 2) a *horizontal society* that is constructed and sustained through the ongoing interactions of human individuals within ordinary time and space;<sup>101</sup> and 3) a *universe* that is immanently ordered by mechanistic laws that are not obviously related to human meanings, sacred realities, or transcendent purposes.<sup>102</sup>

In short, whereas the sources of meaning and worldly order were readily understood as transcendent or sacred for premodern persons, these sources become (at least potentially) conceived in entirely immanent or secular terms for moderns. Of course, this does not mean that all of us who are “modern” inhabit the immanent frame in the same way. Far from it. Many modern persons still believe in supernatural and sacred forces, for example, even as most of us recognize these beliefs as *contestable* in a way that they were not for premodern imaginaries. This is why Taylor acknowledges multiple, mutually fragilizing “spins” or “takes” on immanence: as religiously “open” to something beyond, as naturally “closed” within itself, or as in some way “cross-pressured” between these positions.<sup>103</sup> However, Taylor’s key point here is that the majority of modern persons presume an immanent frame as the *natural starting point* and *shared context* for all thinking and acting in the world—which then inclines us toward certain views of nature, the human self, religion, and society. But this raises a crucial question: how did we who are modern end up inhabiting this radically new socio-conceptual space?

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<sup>101</sup> Taylor, 29–43.

<sup>102</sup> Taylor, 59–61. My analysis of Taylor’s notion of the immanent frame is significantly informed by Smith, *How (Not) To Be Secular* (see especially chapter one, “Reforming Belief: The Secular as Modern Accomplishment,” 26–46).

<sup>103</sup> Taylor, 548–49.

One of the most important historical factors that enabled the shift to an immanent imaginary was the co-emergence of distinctively modern senses of the self and the natural world. Taylor's analysis of this process is complex, but here I want to draw out a few of his key insights that relate to my earlier discussions of human exceptionalism and our shifting perceptions of nature in the Anthropocene. In the enchanted cosmos of our premodern ancestors, human selves were imagined as inherently "porous," Taylor explains, and thus as essentially open to being influenced by more-than-human powers, invisible beings, moral forces, and "charged" objects. As such, minds, experiences, purposes, and meanings were not necessarily understood to be the exclusive properties of humans. More-than-human forms of agency were readily imagined in various ways—as mind-like or spiritual, personal or impersonal, benevolent or malevolent, invisible or embodied, and so on. Persons could therefore become possessed or inspired by unseen spirits, bodies could be ensouled, and evil forces could cause various misfortunes. All of this appeared as *common sense* for premodern imaginaries of an enchanted cosmos.<sup>104</sup>

In the specifically Christian and monotheistic vision of an enchanted cosmos, the material world was not only animated and 'charged' in the senses just described; it was also inherently linked to the divine life. In the Aristotelian view of nature that influenced medieval Christian theology, each entity was seen as having its own created essence, normative pattern, or intrinsic purpose, which gave it some degree of divinely gifted autonomy, goodness, and sacrality.<sup>105</sup> As such, the created world "testified to divine purpose and action," Taylor explains, so the cosmos was not just enchanted, but divinely

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<sup>104</sup> Taylor, 26–30.

<sup>105</sup> Taylor, 97.



ordered from top to bottom.<sup>106</sup> Thus, for Thomas Aquinas, the natural and the supernatural were not neatly separable, but rather formed an integral whole, with nature suspended from supernature. All of creation was in this way intrinsically connected to divine transcendence, participating in the infinite being of the Creator.<sup>107</sup> It followed that one could not sharply divide faith from reason, knower from known, or the sacred from politics. All were integrated within a divinely ordered and hierarchical cosmos.

However, in the late middle ages, the premodern imaginary of an enchanted and divinely ordered cosmos started to break down and evolve in new directions. Contrary to standard secularist assumptions, this shift in imaginaries did not occur through a process of simply *subtracting* religious ways of thinking from the world to get to an ostensibly “natural” secular core; rather, it unfolded through a series of specifically theological revolutions in Western thought. Thus, as Taylor explains, the shift partly came about through the theological “nominalist revolution,” which generated a new conception of the natural world that would infuse the modern imaginary over a long process of translation.<sup>108</sup> For the Scotist-Occamite tradition of nominalist theology, the Aristotelian realism of essences that informed Aquinas’s vision of an integral cosmos was rejected in favor of a picture of nature in which purpose is entirely extrinsic to created things.<sup>109</sup> On

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<sup>106</sup> Taylor, 25.

<sup>107</sup> C.M. Lacugna beautifully captures this Thomistic imaginary of the God-world relation: “Creation is the *relation* to the Creator. From the side of God creation is an emanation, a self-communication, an act of efficient causality, the *productio rerum in esse*. From our side, creation is *the relation of dependence*.” Lacugna, *God for Us*, 160.

<sup>108</sup> Taylor, 97. Whitehead also saw nominalism as dominating modern thought—something he was not untroubled by, even though that did not then lead him to retreat to a premodern worldview. See Whitehead, *Adventures of Ideas*, 129.

<sup>109</sup> Taylor, *A Secular Age*, 73.

this view, finite entities are not to be seen as instances of divinely grounded essences or universals; rather, only particular entities themselves have ontological reality, whereas universals are mere abstractions or conventional names that we use to relate similar entities. In this way, nominalism severed the metaphysical link between Creator and creation that Aquinas had maintained, and it consequently prepared the way for the modern imaginary that would sharply divide supernature from nature, transcendence from immanence, faith from reason, sacred from society, and knower from known.<sup>110</sup>

In developing their bifurcating ontology, the nominalist's motivations were mainly theological—namely, to ensure that God's exceptional power and absolute goodness were in no way limited by the intrinsic purposes and normative patterns of finite entities, on the conviction that *only* God's sovereign will should ever define such things. In this way, theological nominalism reimagined divinity as an *absolute metaphysical exception* from the world. But according to Taylor, theological nominalism was ironically a “disenchanted move” that allowed for the modern secular image of nature as an immanently self-sustaining machine to take root in Western thought:

Now [nominalism], of course, is at first in the service of God's purposes; but the shift will not be long in coming to a new understanding of being, according to which, all intrinsic purpose having been expelled, final causation drops out, and efficient causation alone remains. There comes about what has been called the “mechanization of the world picture.” And this in turn opens the way for a view of science in which a good test of the truth of a hypothesis is what it enables you to effect. This is the Baconian view.<sup>111</sup>

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<sup>110</sup> Taylor is certainly not the first philosopher or theologian to link late medieval Christian nominalism to the emergence of modern thought. While rejecting the premodern realism of essences as a form of idealism that swallows up the individual, Tillich argued in the last century that nominalism's elimination of “participatory” knowledge led to a modern dualistic epistemology of control: “Knowledge, therefore, is not participation [for the nominalist]. It is an external grasping and controlling of things.” Tillich, *Systematic Theology*, 1: 177–78.

<sup>111</sup> Taylor, *A Secular Age*, 98. Connolly makes similar arguments in Connolly, *Pluralism*, 140–41.

By the 17<sup>th</sup> century, the substance dualism of René Descartes fully incorporated this picture of nature as a closed causal system, while also supporting an extreme form of anthropocentrism with its exceptionalist image of human selves as sharply distinct from machine-like nonhumans.<sup>112</sup> If nominalism helped to set the stage for this worldview by extracting God from creation and externalizing the knower from the known, Descartes's ontological bifurcation between *res cogitans* and *res extensa* can be understood as the culmination of these prior conceptual revolutions by making the human subject an absolute exception from the rest of nature—thus mirroring the nominalist version of theistic exceptionalism.<sup>113</sup> After the Cartesian turn, Taylor contends, minds were thus reimagined as the bounded and internal spaces of humans alone, which effectively elevated our species beyond all others, while also enabling moderns to feel more impervious to any more-than-human power. Taylor thus describes the dominant modern anthropology in terms of “the buffered self,” in contrast to the more vulnerable, porous self of premodern imaginaries.<sup>114</sup> This ‘buffered’ anthropology must be seen as yet another disenchanting move, Taylor insists: “As a bounded self I can see the boundary as a buffer, such that the things beyond don’t need to ‘get to me’ ...this self can see itself as invulnerable, as master of the meanings of things for it.”<sup>115</sup>

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<sup>112</sup> Descartes, *Discourse on Method and Meditations on First Philosophy*, 32–33.

<sup>113</sup> For a more explicitly ecological critique of Descartes from the perspectives of a scientist and theologian, see Birch and Cobb, *The Liberation of Life*, 70–75. In their view, it is possible that “Descartes has influenced the background thought of scientists more than any other philosopher.” (71)

<sup>114</sup> Taylor, *A Secular Age*, 37–38.

<sup>115</sup> Taylor, 38.

Consequently, the chasm between humanity and nature widened radically after Descartes, with ‘buffered selves’ composing societies on one side, and mechanized nonhumans constituting nature on the other. By effectively stripping the latter of any meaningful senses of agency, purpose, value, and sentience, it then became possible to “relegate all thought and meaning to the realm of the intra-mental,” Taylor asserts—which in turn supported intensely anthropocentric conceptions of modern politics and societies in general.<sup>116</sup> From this point of view, moderns could also deny that nonhuman animals have any real capacity to suffer under human mistreatment. To the extent that the nonhuman world retained any meaning or value beyond its utility for industrial societies, these would have to be *imposed* on them by human minds. As for nonhuman experiences, these could henceforth be denied as anthropomorphic projections. And undoubtedly, such ideas about nature were extremely convenient for the extractive capitalist economies that were increasingly exploiting the natural world as a mere resource.

Today, both nominalist theology and Cartesian philosophy have of course been challenged by competing perspectives. Even so, Taylor is persuasive in arguing that our secular age has been profoundly affected by these intellectual revolutions. Centuries on, their specters still haunt Western imaginaries. Each provided theoretical grounds for the specifically modern bifurcations of secular over sacred, divinity over world, and humans over nature.<sup>117</sup> These binaries have thereby supported what I earlier described as

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<sup>116</sup> Taylor, 131. For a related argument that Cartesian philosophy effectively desensitized modern persons to the suffering of animals, see Northcott, *A Political Theology of Climate Change*, 66.

<sup>117</sup> For a more detailed survey of Western views of nature, with critical attention to the ambiguous influences of various religious cosmologies, Romanticism, Transcendentalism, Darwinism, and 20<sup>th</sup> century continental philosophy, see Grim and Tucker, *Ecology and Religion*, 43–61. For a more specifically scientific mode of analysis, see Birch and Cobb, *The Liberation of Life*.

secularist, theistic, and human exceptionalisms—all of which have fueled extractivist practices of modern societies for centuries by devaluing, desacralizing, and deanimating more-than-human worlds. None of this is to say that the best way to then *challenge* these particular binaries and exceptionalisms is to retreat to the Thomistic theism, Aristotelian metaphysics, and supernatural view of the cosmos that shaped premodern imaginaries. In fact, as will become evident in later chapters on geophilosophy and geotheology, my view is that certain minoritarian—and immanent—theo-philosophical perspectives that emerged within and beyond modernity offer crucial constructive resources for shifting imaginaries in directions that may better support the emergence of an ecological civilization.

Arguably, our present geohistorical juncture not only requires this sort of reconstructive work on modern habits of thought (for ethical, political, and spiritual reasons); it also generates new possibilities for such efforts to have a real influence on wider social imaginaries. Indeed, as Taylor has indicated, social imaginaries are more susceptible to shifting under conditions of intense uncertainty and crisis—which might then explain why many of the ecotheorists discussed earlier in this chapter have explicitly identified the Anthropocene as a time to reimagine our worlds. Stengers thus reads the inception of the new epoch as having “the power to make us think, feel, imagine, and act,”<sup>118</sup> while Connolly interprets the present as a time when “hegemonic nature/culture bifurcations, secular/sacred divisions, life/nonlife dichotomies, center/periphery relations, and science/faith struggles...are rattled by the advent of the Anthropocene.”<sup>119</sup>

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<sup>118</sup> Stengers, *In Catastrophic Times*, 27.

<sup>119</sup> Connolly, *Facing the Planetary*, 3.

In fact, along with theorists like Stengers, Connolly, Latour, and Haraway, a growing number of thinkers across academic disciplines are now responding to our geological upheavals by reimagining the anthropos in ways that are intensely attuned to the ecology of planetary actors within which we are enmeshed. Thus, the “nonhuman turn” within the humanities and social sciences, with its renewed attention to the realities of animacy and creativity throughout the more-than-human world, aims to counter the human exceptionalism of the dominant modern imaginary—even as its conceptual redistributions of agency to nonhumans also arguably challenge theistic and secularist exceptionalisms.<sup>120</sup> It is as if this nonhuman turn now calls for critically retrieving certain elements of premodern imaginaries that were rejected by the moderns—not, to be sure, through a simple return to an enchanted or pre-nominalist supernatural cosmos, nor by refusing immanent imaginaries, but rather through deeper acknowledgments of our material relations and continuities with more-than-human powers.

And yet, if human imaginaries are always inevitably shaped by the intertwining of ideal *and* material forces of various kinds, then incipient shifts in thinking and imagining in the Anthropocene are undoubtedly being precipitated by something more than just academic theories. While political and economic processes are also certainly impacting such shifts, that which is driving the current deterritorialization of modern imaginaries arguably exceeds even these powerful material forces. Indeed, perhaps it is now time to recognize nonhuman actors—including Gaia ‘herself’—as playing an equal, or even

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<sup>120</sup> See Grusin, *The Nonhuman Turn*. On this conceptual challenge to theism and secularism—an issue that I explore in further detail in chapters three and four—see Latour, *Facing Gaia*, 280.

greater role in this process than human ideas and political-economic processes. Might it therefore be possible, as Ghosh wonders, that nonhuman actors are

...fully capable of inserting themselves into our processes of thought? And if that were so, could it not also be said that the earth has itself intervened to revise those habits of thought that are based on the Cartesian dualism that arrogates all intelligence and agency to the human while denying them to every other kind of being?<sup>121</sup>

In the Anthropocene, I want to suggest that we are indeed now being summoned by the Earth itself to recognize more fully our constitutive entanglements with nonhuman worlds, and to learn how to relate to these worlds in ways that nurture ecologically attuned modes of existence. What follows in this project is therefore a series of attempts to respond to this Gaian lure. In the next chapter, I take a closer look at scientific accounts of the Anthropocene, Gaia, and the Earth System as vital conceptual resources for developing a new planetary imaginary.

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<sup>121</sup> Ghosh, *The Great Derangement*, 31. Emphases added.

CHAPTER TWO  
ANTHROPOCENES:  
BEGINNINGS AND BECOMINGS OF THE NEW EPOCH

*The Anthropocene is the sign of our power, but also of our impotence.*  
-Christophe Bonneuil and Jean Baptiste-Fressoz<sup>1</sup>

*He explained that the Earth—the Deterritorialized, the Glacial,  
the giant Molecule—is a body without organs.  
This body without organs is permeated by unformed,  
unstable matters, by flows in all directions,  
by free intensities, by mad or transitory particles.*  
-Gilles Deleuze and Felix Guattari<sup>2</sup>

**I. Narratives of the Anthropocene**

It has only been two decades since Paul Crutzen proposed his initial theory of the Anthropocene, but the term has since become so influential as to inspire two award-winning documentary films,<sup>3</sup> multiple museum and art exhibits,<sup>4</sup> a flurry of interdisciplinary conferences, three academic journals,<sup>5</sup> a handful of podcasts,<sup>6</sup> various

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<sup>1</sup> Bonneuil and Fressoz, *The Shock of the Anthropocene*, xi.

<sup>2</sup> Deleuze and Guattari, *A Thousand Plateaus*, 40.

<sup>3</sup> Burtynsky, Baichwal, and de Pencier, *Anthropocene: The Human Epoch*; Bradshaw, *Anthropocene: The Movie*.

<sup>4</sup> Anthropocene exhibits were scheduled at The Natural History Museum of Los Angeles (2019), The Carnegie Museum of Natural History of Pittsburgh (2018), and The Art Gallery of Ontario (2019).

<sup>5</sup> These include *The Anthropocene Review*, *Elementa: Science of the Anthropocene*, and *Anthropocene*.

<sup>6</sup> See *Generation Anthropocene*, *The Anthropocene Reviewed*, and *Cultures of Energy* podcasts.



musicians,<sup>7</sup> and a diversity of published writings that are accumulating rapidly. A glance at relevant books in online stores reveals the concept's influence across a wide range of disciplines, with such titles as *Film in the Anthropocene* and *Anthropocene Feminism*. At the time of this writing, Google Scholar lists approximately 170,000 publications related to the idea, while a website search for the Anthropocene turns up over five million hits. As such, whatever the stratigraphers ultimately conclude about the official geological status of the term, its wider influence beyond the sciences suggests that it has already begun to reshape human imaginaries. At least from a cultural point of view, we would therefore already seem to be living in a new human epoch.

Having been inserted into the popularized lexicon of environmental terms like *sustainability* and *carbon footprint*, the Anthropocene has now become associated with a number of divergent narratives.<sup>8</sup> For example, neoliberal “ecomodernists” like Mark Lynas, Erle Ellis, and their colleagues at The Breakthrough Institute promote the creation of a “good Anthropocene.” For them, the announcement of a human epoch indicates that our species has gained impressive new capacities for planetary control. Thus, in an article for *The Breakthrough Journal*, Ellis argues that the Anthropocene ought to be celebrated as “a new geological epoch ripe with human-directed opportunity.”<sup>9</sup> Ecomodernists thus prefer not to frame the advent of the Anthropocene primarily as a dire threat to societies, nor as a sign of humanity's short-sightedness, but rather as an “amazing opportunity” to

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<sup>7</sup> For example: Nick Cave's “Anthrocene,” Grimes's *Miss Anthropocene*, John Luther Adams's “Become Ocean,” Bjork's *Utopia*.

<sup>8</sup> Bonneuil develops an important critical analysis of some of these narratives in Hamilton, Gemenne, and Bonneuil, *The Anthropocene and the Global Environmental Crisis*, 17–31.

<sup>9</sup> Ellis, “The Planet of No Return: Human Resilience on an Artificial Earth,” 43.

accelerate modern civilizational progress.<sup>10</sup> As such, they argue that we should embrace our role as pilots of Earth by becoming its techno-capitalist managers—thus defying calls from grassroots environmentalists to end the modern drive to transcend nature, radically scale down consumption, and acknowledge ecological limits to growth.<sup>11</sup> “Nature no longer runs Earth,” writes Lynas, “We do. It is our choice what happens here.” We are therefore “the God Species,” he claims.<sup>12</sup>

Diametrically opposed to such Promethean narratives are writers like Roy Scranton and Clive Hamilton, for whom the Anthropocene marks a planetary rupture that has already likely determined the imminent collapse of current societal structures. In that sense, their work suggests an eco-catastrophist reading of the Anthropocene. Modern humans irreversibly destabilized the planet, they insist, and neither God, technology, nor societal changes can save us from the catastrophic consequences of this situation. At least for the foreseeable future, we will be increasingly overwhelmed by climatic chaos, for “‘Gaia has been enraged,’ and sends extreme events before which our powers appear puny.”<sup>13</sup> Thus, as Scranton argues, “For humanity to survive in the Anthropocene, we need to learn to live with and through the end of our current civilization.”<sup>14</sup>

Yet another narrative has emerged in the work of ecotheorists like Jason Moore and Donna Haraway. For them, the new epoch is more accurately named the

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<sup>10</sup> Ellis, “Neither Good Nor Bad.”

<sup>11</sup> For an overview of Breakthrough’s “post-environmentalism,” see Asafu-Adjaye et al., *An Ecomodernist Manifesto*.

<sup>12</sup> Lynas, *The God Species*, 8.

<sup>13</sup> Hamilton, *Defiant Earth*, 45.

<sup>14</sup> Scranton, *Learning to Die in the Anthropocene*, 21.

“Capitalocene,” because it was the capitalist world-system that caused the geological shift—and not therefore “humanity as an undifferentiated whole” or “Species Man,” as some scientists have seemed to suggest.<sup>15</sup> The Anthropocene term is also anthropocentric, Moore and Haraway claim, which makes it “captive to the very thought-structures that created the present crisis.”<sup>16</sup> Consequently, if collapse can still be avoided, Moore and Haraway argue that moderns need to develop radically new ways of thinking and living beyond the confines of techno-capitalist modernity.<sup>17</sup>

While largely agreeing with such critiques of capitalism and human exceptionalism, Dipesh Chakrabarty nevertheless makes a compelling argument in favor of the Anthropocene concept. As noted in chapter one, for Chakrabarty, the Anthropocene suggests that “the distinction between human and natural histories...has begun to collapse.”<sup>18</sup> Humans have thus become *geohistorical* agents. The Anthropocene therefore requires us to think beyond the limited histories of modern capitalist societies, and to conceptually resituate ourselves as one species among others within the bumpiness of geohistory and the boundaries of the Earth System. Only by thus relating the ‘smaller’ histories of capital to the universal history of life on this planet might we become capable of confronting the “shared catastrophe that we have all fallen into,” Chakrabarty insists.<sup>19</sup>

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<sup>15</sup> Moore, *Anthropocene or Capitalocene?*, 81; Haraway, *Staying with the Trouble*, 47.

<sup>16</sup> Moore, *Anthropocene or Capitalocene?*, 84.

<sup>17</sup> Moore, 114; Haraway, *Staying with the Trouble*, 55–57.

<sup>18</sup> Chakrabarty, “The Climate of History: Four Theses,” 207.

<sup>19</sup> Chakrabarty, 218.

Interpretations of the Anthropocene are thus multifarious, and the preceding outline of four of them is not meant to be comprehensive. In the wake of such discursive pluralizations, the Anthropocene has continued to spark debates between critics and supporters of the idea, with a number of important questions being raised about its scientific status and social implications. If we are already living in the Anthropocene, when did it begin, and which anthropic forces caused this shift in the Earth System? Are critics right that the Anthropocene concept must be resisted as a dangerous expression of human exceptionalism, abstract universalism, and technocratic hubris—or might it inspire alternative values and imaginaries? Was there anything novel about Crutzen’s original proposal, or did he merely popularize older ideas about a human-dominated planet? Is there enough scientific evidence to support official recognition of a new epoch, or is the Anthropocene just a popular term that draws attention to environmental challenges? What does this recent epochal swerve seem to suggest about the future of human societies? In this chapter, I explore and begin to suggest some answers to these questions. By thus engaging some of the most significant issues relating to the Anthropocene, I will be attempting an interdisciplinary reading of the major literature on the subject while also continuing to unfold a transdisciplinary interpretation of the concept that is crucial for the geophilosophical and theopolitical imaginaries developed in subsequent chapters of this dissertation. This chapter can therefore be understood as an effort to understand more fully our current geohistorical context through a deep analysis of the Anthropocene concept, including its historical development and scientific underpinnings. The two chapters that follow this one will then build upon this chapter’s geohistorical and scientific considerations.

Theologians and philosophers of religion are only just beginning to work with the idea of the Anthropocene. While such scholars have engaged the relevant debates taking place within the humanities and social sciences, few have also grounded their work in close readings of the natural sciences that provide the empirical basis for the idea.<sup>20</sup> For example, religion scholar Whitney Bauman has written a significant critique of the Anthropocene, but he never directly references any major scientific articles on the subject.<sup>21</sup> Philosopher of religion Mary-Jane Rubenstein has likewise challenged certain discourses of the Anthropocene, but she does not engage the relevant work of Earth System scientists or stratigraphers in detail.<sup>22</sup> Rather than pursuing a more extensive analysis of the Anthropocene, both of these scholars thus ground their critiques primarily within the environmental humanities. In each of their important engagements with Anthropocene studies, theologians Michael Northcott and Catherine Keller do interact with some of the relevant sciences, but not in a central way for either of their projects.<sup>23</sup>

To be sure, all of these scholars provide vital perspectives on the Anthropocene, and a number of their writings have inspired my thinking on the subject. But unlike any of their projects, here I develop an interpretation of the concept by way of a sustained

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<sup>20</sup> An exception is Hogue, who deeply engages the geosciences in Hogue, *American Immanence*.

<sup>21</sup> Bauman, “Climate Weirding and the Queering of Nature.” By “major,” I mean the five or six articles that are now widely recognized as foundational for the subject (e.g., by Crutzen, Steffen), all of which are discussed in this chapter.

<sup>22</sup> Her engagement with Anthropocene discourses can be found in Rubenstein, *Pantheologies*, 128–36. While her reading of Gaia theory is relevant to the science of the Anthropocene (as indicated by my citations of her work in the final section of this chapter), Rubenstein does not explicitly make this connection. She never references the stratigraphic version of the Anthropocene, and only implicitly notes the Earth System version by citing Crutzen’s first article on the subject—which is only the sketchiest outline of his theory and does not represent current Anthropocene science.

<sup>23</sup> Northcott, *A Political Theology of Climate Change*, 21–26; Keller, *Political Theology of the Earth*, 69–104.

engagement with the sciences of the Anthropocene, with the goals of tracing its historical development, understanding its distinctiveness as a scientific idea, and evaluating its implications for human societies and imaginaries. Without attending closely to the scientific literature on the Anthropocene, it might be tempting to conflate the idea with one narrative—such as eco-modernism, for example—and then to reject it as an essentially anthropocentric, technocratic, and totalizing concept.<sup>24</sup> However, here I hope to show that the Anthropocene need not be interpreted in such ways when it is understood through the lenses of Earth System science and stratigraphy. Moreover, in light of its growing cultural popularity and usage among scientists, to frame the Anthropocene explicitly in *opposition* to human exceptionalism, technocratic hubris, and abstract universalism is a crucial task, for the concept can indeed be deployed in such troubling ways. I thus concur with Bruno Latour when he responds to Haraway’s critique of the Anthropocene term by insisting that “we should keep it precisely to ‘stay with the trouble!’”<sup>25</sup> At the same time, although I will suggest that certain ways of framing the Anthropocene are more defensible than others, grappling with the complexities of our planetary crises will require attending to insights from multiple narratives—each of which imply alternative imaginaries that open and foreclose certain possibilities for ecopolitical action today. As Christophe Bonneuil argues, “The various Anthropocene

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<sup>24</sup> As Maria Antonuccio argues, this is exactly what Eileen Crist seems to do in her critique of the Anthropocene. Although Crist criticizes Anthropocene “discourses” as such, her critique arguably only applies to an ecomodernist version of the concept. Deane-Drummond, Bergmann, and Vogt, *Religion in the Anthropocene*, 126–29. For Crist’s critique, see Moore, *Anthropocene or Capitalocene?*, 14–33.

<sup>25</sup> Latour, *Facing Gaia*, 100. Footnote 77.

narratives we tell are performative; they preclude or promote some kinds of collective action rather than others, and so they make a difference to the becoming of the Earth.”<sup>26</sup>

Throughout this chapter, I will therefore shuttle between and through a number of disciplinary boundaries, bridging critical reflections on the Anthropocene with the work of earth scientists. I recognize that such an engagement is not without certain discursive challenges. Because natural scientists tend to utilize specialized terminology in their writings—like most academics—interpretative attempts by scholarly outsiders such as myself risk oversimplifying their work. However, this interdisciplinary experiment is arguably a risk worth taking, partly because it can provide empirically rooted insights into the planetary instabilities that are beginning to strain current societal structures. It can also bring greater clarity to ongoing debates about the socio-political implications of the Anthropocene. Moreover, the earth sciences now suggest a way of understanding the Earth that, in my view, importantly challenges the modern secularist view of nature as a deterministic machine. This geoscientific perspective is thus crucial for the planetary imaginary that I am unfolding in this project. But before exploring this new view of the Earth, we will need to gain a clear understanding of the scientific basis for the Anthropocene—beginning by engaging the work of Paul Crutzen.

## **II. Beginnings of the Anthropocene**

The narrative of Crutzen’s epiphany about the Anthropocene has today become almost legendary. The story begins in Cuernavaca, Mexico in February 2000 at a conference on Earth System science. According to one witness, Will Steffen—another

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<sup>26</sup> Hamilton, Gemenne, and Bonneuil, *The Anthropocene and the Global Environmental Crisis*, 30.

prominent chemist—while Crutzen was listening to his colleagues present their research, he increasingly appeared frustrated by their references to the Holocene (“entirely recent”) epoch. At that time, scientists still generally agreed that the Holocene names our present geological epoch, having begun at the end of the last glacial period about 10,000 years ago. But Crutzen could no longer accept this view. All of the sudden, he interrupted his colleagues: “Stop using the word Holocene. We’re not in the Holocene anymore. We’re in the...the...the...(searching for the right word)...the Anthropocene!”<sup>27</sup> The room then went quiet. “Everyone was in shock,” as Crutzen recounts the event, “I just made up the word very suddenly.”<sup>28</sup> By the meeting’s conclusion, however, his colleagues were buzzing with curiosity about Crutzen’s claim that human societies had recently pushed the Earth into an entirely new and unstable state.

This dramatic account of the Anthropocene as an abrupt revelation notably parallels other origin stories in the history of science—most famously, when Isaac Newton ‘suddenly’ realized the laws of gravity after an apple dropped on his head. But as science writer Jeremy Davies points out, “historians of science are constitutionally skeptical of Eureka moments, and the most convincing accounts of how scientific paradigms change usually give low priority to singular flashes of inspiration...”<sup>29</sup> Perhaps unsurprisingly then, Crutzen has since clarified that his idea did not come to him *ex nihilo*—or even all that suddenly—but rather had a longer history of development than its origin story suggests. It turns out that he was already thinking along the same

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<sup>27</sup> Steffen, “Commentary,” 486–90.

<sup>28</sup> Quoted in Angus, *Facing the Anthropocene*, 28.

<sup>29</sup> Davies, *The Birth of the Anthropocene*, 42.



conceptual lines at least five years earlier. When Crutzen won the 1995 Nobel Prize in Chemistry, he asserted in his acceptance speech that “human activities had grown so much that they could compete and interfere with natural processes.”<sup>30</sup> This is the key insight that Crutzen later developed into the idea of the Anthropocene: a geological time characterized by “human dominance of biological, chemical, and geological processes on Earth,” as he now describes it.<sup>31</sup>

However, the Anthropocene term turns out to have other beginnings. In the first place, its history can be traced back two decades earlier in the work of American marine biologist Eugene Stoermer (1934-2012). Shortly after Crutzen made his initial proposal, he learned that Stoermer had already used the Anthropocene term in a number of scientific articles.<sup>32</sup> As Stoermer later explained, “I began using the term ‘anthropocene’ in the 1980s, but never formalized it until Paul contacted me.”<sup>33</sup> After their initial communications, the two scientists agreed to co-author a short essay with the goal of sparking a wider scientific discussion about the Anthropocene.

In their May 2000 article, Crutzen and Stoermer argued that the “expansion of mankind, both in numbers and per capita exploitation of Earth’s resources” justifies the “use of the term ‘anthropocene’ for the current geological epoch.”<sup>34</sup> As examples of human impacts on the Earth System, they cited rising global population numbers, fossil

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<sup>30</sup> Crutzen, “My Life With O<sub>3</sub>, NO<sub>x</sub>, and Other YZO<sub>x</sub>s,” 200.

<sup>31</sup> Crutzen and Schwägerl, “Living in the Anthropocene.”

<sup>32</sup> Kolbert, *The Sixth Extinction*, 108.

<sup>33</sup> Steffen et al., “The Anthropocene,” 843.

<sup>34</sup> Crutzen and Stoermer, “The ‘Anthropocene,’” 17.

fuel emissions, and species extinction rates, along with massive alterations to forests, coastal wetlands, and the nitrogen cycle. They suggested that the epoch might have begun in the late 18<sup>th</sup> century, roughly coinciding with James Watt’s invention of the steam engine in 1784, because it was at this time that the “global effects of humanity”—especially the dramatic rise in greenhouse gas (GHG) emissions—became clearly detectable in the Earth System. While expressing concerns about the growing challenges humans are facing in the new epoch, they concluded on a note of cautious optimism: “An exciting, but also difficult and daunting task lies ahead of the global research and engineering community to guide mankind towards global, sustainable, environmental management.”<sup>35</sup> The article successfully generated wider discussions among geoscientists. It also eventually drew criticisms from some scholars within the humanities and social sciences for its emphasis on technocratic solutions to environmental challenges, and for its language of “mankind” as a monolithic force—as if all *anthropoi* had equally caused the Anthropocene shift.<sup>36</sup>

It should now be clear that even though Crutzen was a key player in the development of the Anthropocene concept, his theory was dependent on the work of others. But the Anthropocene turns out to have still earlier beginnings. In fact, the Anthropocene term first appeared in the work of Russian geologist Aleksei Pavlov (1854-1929).<sup>37</sup> Writing in 1922, Pavlov viewed the present age as falling within an

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<sup>35</sup> Crutzen and Stoermer, 17–18.

<sup>36</sup> For important examples of such critiques, see Malm and Hornborg, “The Geology of Mankind?”; Moore, *Anthropocene or Capitalocene?*

<sup>37</sup> Neither Crutzen nor Stoermer initially realized that Pavlov coined the word. Their oversight was likely due to varying translations of Pavlov’s term, which was often anglicized as “Anthropogene.” See Lewis and Maslin, *The Human Planet*, 37.

“Anthropogenic system (period) or Anthropocene.”<sup>38</sup> Following Pavlov, Russian geologists often then used the term to signify the geohistorical period in which humanity acted as a major planetary force. By contrast, until the work of Stoermer and Crutzen, the Anthropocene was not used among Western scientists. What might account for this terminological split? Mark Maslin and Simon Lewis suggest that the split was due to differing political ideologies, with Russian communist collectivism offering a more receptive intellectual milieu for the Anthropocene than Western capitalist individualism:

The use of the term Anthropocene by Russian geologists soon after the October Revolution in 1917 is more obvious when it is placed in context. The post-revolution Marxist view of global collective human agency transforming the world politically and economically requires only a modest conceptual leap to arrive at a view that the same agency is a driver of increasingly global ecological and environmental change. The world, its environment included, would be transformed for the betterment of all. Of course, in the early days of the Soviet Union ideas proclaiming revolutionary change were not merely accepted, but welcomed, unlike in the West.<sup>39</sup>

As such, the Russian Anthropocene concept differed from Crutzen’s later theory in part because its teleological narrative of collective human agency provided ideological support to revolutionary politics. Furthermore, the Russian Anthropocene encompassed a longer period of time than Crutzen later proposed. In fact, the former was consistently used to name “the time since the first humans evolved about 160,000 years ago,” as Marxist scholar Ian Angus notes.<sup>40</sup> Consequently, it did not name a relatively recent

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<sup>38</sup> Cited in Lewis and Maslin, “Defining the Anthropocene,” 173.

<sup>39</sup> Lewis and Maslin, *The Human Planet*, 38. Emphasis added.

<sup>40</sup> Angus, *Facing the Anthropocene*, 27. A few scientists have argued for an “ancient” Anthropocene, whether with the mastery of fire 2 million years ago, the anthropogenic Megafauna Extinction 50,000 years ago, or the early stages of the agricultural revolution. However, it now looks like only three, basically modern dates are seriously being considered: the so-called Orbis Spike in 1610, the Industrial Revolution in the 18<sup>th</sup> century, and the post-1950s Great Acceleration. The current consensus appears to be forming around the latter date. See Lewis and Maslin, “Defining the Anthropocene.”

rupture in the Earth System, as Crutzen argued. Rather, the Russian Anthropocene concept was situated within a “gradualist” framework of geological time, which did not conceive of planetary evolution as involving sudden catastrophes or abrupt system-level shifts.<sup>41</sup> This conceptual difference is the result of divergent scientific paradigms: the Russian Anthropocene concept preceded the late-20<sup>th</sup> century development of Earth System science, which, as we will see later in this chapter, provided a new perspective on the functioning of our planet as a *complex adaptive system*—the latter of which is a foundational idea for Crutzen’s Anthropocene.

Beyond these comparisons to Pavlov’s work, it is now widely recognized that there were other earlier conceptual analogues of Crutzen’s Anthropocene. Already in his article with Stoermer, Crutzen listed a few such precursors, such as Italian geologist Antonio Stoppani’s identification of the present as an “Anthropozoic era” in 1873.<sup>42</sup> Crutzen also acknowledged that the Russian geochemist Vladimir Vernadsky, along with the Jesuit priest Teilhard de Chardin, had jointly proposed another similar idea in the 1920s: the “noösphere,” which for them named “the world of thought, to mark the growing role played by mankind’s brainpower and technological talents in shaping its own future and environment.”<sup>43</sup> Although unnoted by Crutzen, Vernadsky was influenced

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<sup>41</sup> The 19<sup>th</sup> century geologist Charles Lyell made the influential argument for gradualism—that is, the notion that the historical evolution of the Earth has always proceeded by the slow accumulation of gradual changes, and never through sudden planetary catastrophes like mass extinctions (or anthropogenic climate change, for that matter). Only after 1980 did modern geologists begin to agree that the latter are hugely important in the trajectory of the entire Earth System. For a historical account of these issues, see Kolbert, *The Sixth Extinction*.

<sup>42</sup> Presciently, Stoppani argued that humans had become a “new telluric force, which in power and universality may be compared to the greater forces of earth.” Cited in Crutzen and Stoermer, “The ‘Anthropocene.’”

<sup>43</sup> Crutzen and Stoermer, 17.

by Pavlov’s idea of a human-dominated planetary period, explicitly affirming the latter’s notion of an “*anthropogenic era*” in the 1940s.<sup>44</sup> Vernadsky even developed a theory of the Earth as a single ‘organism,’ thus making him an early pioneer of what would become an influential idea for geoscientists like Crutzen—namely, the Gaia hypothesis, which was advanced by James Lovelock and Lynn Margulis in 1974.<sup>45</sup>

In 2002, Crutzen—now working without Stoermer—wrote a far more influential essay on the Anthropocene titled “Geology of Mankind.” In this article, Crutzen largely recapitulated the earlier Anthropocene theory that he had proposed with Stoermer:

For the past three centuries, the effects of humans on the global environment have escalated. Because of these anthropogenic emissions of carbon dioxide, global climate may depart significantly from natural behavior for many millennia to come. It seems appropriate to assign the term ‘Anthropocene’ to the present, in many ways human-dominated, geological epoch, supplementing the Holocene...<sup>46</sup>

Crutzen thus reaffirmed his view that the new epoch began with the Industrial Revolution. While citing numerous examples of anthropogenic impacts on the Earth System (e.g., extinctions, deforestation), he continued to suggest that unprecedented GHG emissions might offer the most significant, clearly detectable evidence for defining the new epoch. In both of his early articles, Crutzen noted that recent geological analyses of air trapped in polar ice cores indicate an 18<sup>th</sup> century “beginning of growing global concentrations” of GHGs. He was thus implying a *stratigraphic* approach to tracking and defining the new epoch—although it would take a few more years before stratigraphers themselves would seriously study the Anthropocene.

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<sup>44</sup> Cited by John Bellamy Foster in the forward to Angus, *Facing the Anthropocene*, 11.

<sup>45</sup> Lovelock and Margulis, “Atmospheric Homeostasis by and for the Biosphere.”

<sup>46</sup> Crutzen, “Geology of Mankind: The Anthropocene.”

Besides these continuities between the articles, there are two major differences between them that must be recognized. In the first place, Crutzen argued in 2002 that only a minority of humans were responsible for destabilizing the Earth System—having “been caused by only 25% of the world population,” he asserts.<sup>47</sup> While this numerical estimate is certainly debatable, it marks a significant shift in his Anthropocene theory. The term’s prefix *anthropos* can also be challenged as falsely totalizing. But even at this early stage, Crutzen saw the need to differentiate “mankind” in order to indicate unequal responsibilities for the geological shift. Moreover, he later noted that the Anthropocene “seems set to create substantially more losers, globally, than winners.”<sup>48</sup> This assertion points to an ethically and geopolitically significant truth: the consequences of planetary destabilization will remain *highly* unevenly felt across societies.

Crutzen’s proposal is thus grounded in acknowledgments of extreme global inequalities, both *causally* and *consequentially*. This is in accordance with recent data on climate change and global inequality, which reveals that the U.S. and Europe are jointly responsible for around two-thirds of the extra carbon released into the atmosphere since the Industrial Revolution. By contrast, Africa is only responsible for 3% of additional carbon emissions<sup>49</sup>—even as it has been identified as a part of the world that is disproportionately impacted by climate disruption.<sup>50</sup> Further complicating matters, we now know that only 100 large companies are responsible for 71% of added GHGs since

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<sup>47</sup> Ibid.

<sup>48</sup> Zalasiewicz et al., “The New World of the Anthropocene,” 2231.

<sup>49</sup> For a summary of this data, see Lewis and Maslin, *The Human Planet*, 389.

<sup>50</sup> Serdeczny et al., “Climate Change Impacts in Sub-Saharan Africa.”

1988.<sup>51</sup> This fact underscores the need to consider vastly unequal responsibilities for climate change *within* countries, and not just between them. Thus, if one follows Crutzen’s view that rising GHGs are the key indicator of recent global change, the termination of the Holocene largely appears to have been caused over the last few centuries by a relatively small number of wealthy *anthropoi* from Western nations that are predominately white, capitalistic, and overdeveloped. On this reading, the Anthropocene does not then essentially obfuscate inequalities, nor does it provide cover for extractive capitalism’s primary causal role in destabilizing the Earth System. Rather, it is “implicitly identified as a colonial phenomenon driven by the for-profit extraction of resources, whether land or fossil fuels, and the externalization of ecological social costs,” as Michael Hogue submits.<sup>52</sup>

Crutzen’s second new point in his 2002 article has drawn more attention from critics: he suggested that dealing with environmental challenges in the Anthropocene “may well involve internationally accepted, large-scale geo-engineering projects, for instance to ‘optimize’ climate.”<sup>53</sup> As we will see in my close analysis of this issue in chapter four, the most frequently discussed and technologically plausible geoengineering scheme is “solar radiation management,” which aims to counteract global warming by injecting sulfate aerosols into the stratosphere to reflect more sunlight back into space. While this proposal is seen as a serious option by certain technocratic politicians, billionaires, and scientists like Crutzen, critics of the theory argue that it may have the

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<sup>51</sup> Riley, “Just 100 Companies Responsible for 71% of Global Emissions, Study Says.”

<sup>52</sup> Hogue, *American Immanence*, 59.

<sup>53</sup> Crutzen, “Geology of Mankind: The Anthropocene.”

unintended effect of *worsening* climate disruption.<sup>54</sup> Moreover, as ethicist Willis Jenkins points out, such technologies raise difficult ethical and political questions:

...apart from a human conversation about shared responsibilities, geoengineering would simply inscribe into the atmosphere unresolved questions about power. Who decides, pays for, and conducts geoengineering? For what objectives and whose interests? How to politically mandate something that affects every creature of earth and binds future generations to its decisions?<sup>55</sup>

As indicated by my critique of geoengineering in chapter one, I concur with Jenkins's skepticism about such proposals. For reasons that will be further clarified in chapter four, I thus join the growing chorus of critics who oppose this aspect of Crutzen's work.

While Crutzen's effort to differentiate human responsibilities for the planetary shift indicates a crucial course correction away from his totalizing language of "mankind," his openness to geoengineering ultimately served to intensify concerns about his earlier emphasis on technocratic solutions to environmental crises. Thus, some of his critics beyond the earth sciences would later suggest that the Anthropocene appears as "a techno-scientific pitch" for humans to gain control over the planet,<sup>56</sup> and that the concept's accompanying social apparatus "tends to be top-heavy and bureaucracy prone."<sup>57</sup> For such critics, Crutzen's support of geoengineering thus further discredited the concept of the Anthropocene. However, such critiques did not appear in print for

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<sup>54</sup> For a recent scientific analysis showing the huge risks and uncertainties involved in "enhancing the Earth's albedo [reflectivity]," see Fasullo et al., "Persistent Polar Ocean Warming in a Strategically Geoengineered Climate." For other critiques of geoengineering, see Mann and Toles, *The Madhouse Effect*, 117–29; Klein, *This Changes Everything*, 256–90.

<sup>55</sup> Jenkins is directly challenging Crutzen on geoengineering in this quotation. See Jenkins, *The Future of Ethics*, 32.

<sup>56</sup> Moore, *Anthropocene or Capitalocene?*, 25.

<sup>57</sup> Haraway, *Staying with the Trouble*, 49.



almost a decade after Crutzen’s first two Anthropocene articles were published.<sup>58</sup> In the meantime, his proposal continued to evolve and gain traction among other scientists.

In 2007, Crutzen co-authored another major essay on the Anthropocene. It would become “the first peer-reviewed account of the Great Acceleration”—the now-standardized name for the era since 1945 when human impacts on the Earth System increased at an exponential rate.<sup>59</sup> Comparable in style to popular Big History writers like Yuval Noah Harari, the article presents a sweeping account of the evolution of humans and societies “from hunter-gatherers to a global geophysical force,” with the primary goal of highlighting our ever-growing disturbances of natural environments.<sup>60</sup> With the construction of stone tools and weapons over two million years ago, followed by the mastery of fire around a million years ago, our ancient bipedal ancestors “put us firmly on the long path towards the Anthropocene,” according to the authors. Each of these evolutionary developments enabled significant intensifications of human powers in relation to other natural forces. And while the emergence of language and the rise of agriculture thousands of years ago also had the long-term effect of amplifying human impacts on environments, Crutzen and his co-authors insist that it was not until the Industrial Revolution that humans affected the functioning of the entire Earth System.

As such, even though humans have long shaped environments—causing extinctions, clearing forests, affecting carbon cycles, and so on—it was only *after*

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<sup>58</sup> According to Davies, the concept of the Anthropocene migrated into other disciplines in 2009 with Chakrabarty’s influential article, “Climate of History.” It then became a “mainstream” concept in 2011 after a collection of essays were published on the topic in the *Philosophical Transactions of the Royal Society*. See Davies, *The Birth of the Anthropocene*, 51.

<sup>59</sup> Angus, *Facing the Anthropocene*, 42.

<sup>60</sup> Steffen, Crutzen, and McNeill, “The Anthropocene: Are Humans Now Overwhelming...,” 614.

industrial societies became heavily reliant on fossil fuels and adopted resource-intensive lifestyles that human activities began “overwhelming the great forces of nature.”<sup>61</sup> However, evidence also suggests that when “the human enterprise suddenly accelerated after the end of the Second World War”—with an exploding global population and economy, massive increases in fossil fuel and fertilizer consumption, and so on—anthropogenic impacts on the Earth System intensified at an *exponential rate*.<sup>62</sup> The authors illustrate these trends in a now-famous series of twenty-four graphs.<sup>63</sup> What the graphs reveal is that, whether one looks at rising GHG emissions, increased ocean acidification, higher global temperatures, or the destruction of tropical forests, such Earth System trends and material flows after 1945 are tightly correlated with accelerating socioeconomic processes in highly developed countries during the same period. This startling recognition led the authors to modify Crutzen’s original proposal by suggesting a *two-stage theory* of the Anthropocene, with its beginning in the Industrial Era (1800-1945) and then a dramatic take-off with The Great Acceleration (1945-ca. 2015). Reflecting on this theory, political theorist Luc Semal writes, “This distinction emphasizes the fascinating *abruptness* of the geological shift entailed by the

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<sup>61</sup> Steffen, Crutzen, and McNeill, 616.

<sup>62</sup> Steffen, Crutzen, and McNeill, 617. As economist Kate Raworth summarizes the data: “Between 1950 and 2010, the global population almost tripled in size, and World GDP increased sevenfold. Worldwide, freshwater use more than tripled, energy use increased fourfold, and fertiliser use rose over tenfold.” Raworth, *Doughnut Economics*, 40.

<sup>63</sup> The graphs were first published in 2004 and are reprinted in Steffen, Crutzen, and McNeill, “The Anthropocene: Are Humans Now Overwhelming...,” 617. For an updated version, see Steffen et al., “The Trajectory of the Anthropocene,” 11–12. In a section of the latter article titled “Deconstructing the socio-economic trends: The equity issue,” the authors revised the graphs to reflect the reality of global inequalities, thus correcting for the earlier graphs that treated humanity as an aggregated whole.

Anthropocene, but it also raises some awkward questions: How long will the Great Acceleration last? What is to happen after 2015?”<sup>64</sup>

In fact, Crutzen and his coauthors theorized a “third stage” of the Anthropocene: a time when humanity would live sustainably on the planet, which they inaccurately predicted might begin by 2015. Either our current, business-as-usual trajectory will lead to civilizational “collapse,” they submit, or we will come to embrace responsibly our role as “stewards of the Earth System.”<sup>65</sup> Because the growing threat of ecosocial collapse is directly related to modernity’s unsustainable societal structures, Crutzen and his coauthors argue that there is now an urgent need to make changes to “the institutions and economic systems that have driven the Great Acceleration”—particularly by reducing dependence on fossil fuels. New technologies are crucial for making such changes, but these are insufficient without “changes in societal values and individual behavior,” they insist.<sup>66</sup> While such assertions are notably lacking in political and ethical specificity, this call for deeper civilizational transformations indicates that Crutzen’s earlier focus on technological solutions was shifting in a more holistic direction.<sup>67</sup> Indeed, as evidence of this shift, Crutzen later joined other scientists for a series of dialogues with the Vatican

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<sup>64</sup> Hamilton, Gemenne, and Bonneuil, *The Anthropocene and the Global Environmental Crisis*, 90.

<sup>65</sup> The idea of “stewardship” is admittedly ambiguous. On the one hand, it could suggest an ecomodernist vision of humans as technocratic Earth managers. On the other hand, it might simply indicate humanity’s moral responsibility to care for the Earth. Crutzen’s use of the term seems to indicate the latter view. For a critique of Promethean notions of “planetary stewardship in the Anthropocene,” see Deane-Drummond, Bergmann, and Vogt, *Religion in the Anthropocene*, 53–66.

<sup>66</sup> Steffen, Crutzen, and McNeill, “The Anthropocene: Are Humans Now Overwhelming...,” 619.

<sup>67</sup> Crutzen later clarified his views about the types of social changes required in the Anthropocene. He rejected growth-oriented economics and called for a “modest, renewable, mindful, and less material lifestyle.” See Crutzen and Schwägerl, “Living in the Anthropocene.”

on issues of sustainability, justice, and the moral dimensions of climate change.<sup>68</sup> As such, Crutzen's Anthropocene can arguably no longer be viewed as a straightforward expression of technocratic ideology.

Moreover, Crutzen now qualifies his support for geoengineering, acknowledging with his coauthors that it raises "serious ethical questions." Because such technofixes might have "unintended and unanticipated consequences," the authors warn that "[t]he cure could be worse than the disease."<sup>69</sup> Crutzen elsewhere admits that geoengineering is risky, even though it may be justified as a last-resort solution to planetary catastrophes *if* "there are proven net advantages." He also insists that geoengineering "should not be used to justify inadequate climate policies, but merely to create a possibility to combat potentially drastic climate heating."<sup>70</sup> While I am convinced that geoengineering does *not* offer proven net advantages, and that it *is*, in fact, all too often proposed as a way to justify inadequate climate policies, neither Crutzen's position on the subject nor his Anthropocene theory can be identified with an ecomodernist vision of technocratic planetary control. Thus, while *certain discourses* of the Anthropocene deserve much of the critical scrutiny that scholars have now given them, these foundational articles by Crutzen suggest that the Anthropocene is not reducible to a single narrative or political agenda. Rather, from the beginning, the scientists who developed it were considering its

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<sup>68</sup> As Christiana Zenner notes, "since 1996, Paul Crutzen has been among the elite scientists who constitute the Pontifical Academy of Sciences." Zenner, *Just Water (revised edition)*, 130. On more recent dialogues that he participated in, see Rockström, "Why the Pope's Embrace of Science Matters."

<sup>69</sup> Steffen, Crutzen, and McNeill, "The Anthropocene: Are Humans Now Overwhelming...," 620.

<sup>70</sup> Crutzen, "Albedo Enhancement by Stratospheric Sulfur Injections," 217.

meaning and social implications in a number of ways, thus rendering the concept amenable to a variety of interpretations—for better or for worse.

### **III. Distinctiveness of the Anthropocene**

Although there were a number of conceptual precursors of the Anthropocene, as we have seen, the distinctiveness of Crutzen’s theory becomes clear when it is framed in terms of Earth System science. Clive Hamilton has analyzed numerous Anthropocene precursors (e.g., the Anthropozoic, the noösphere) and argues persuasively that none of these ideas anticipated the concept of the Anthropocene, largely because they were developed in a *pre-Earth System world*. Earth System science uniquely views our planet as an integrated metasystem with co-evolving subsystems, which is a perspective that only gained traction after NASA’s Apollo missions and the Gaia hypothesis.<sup>71</sup> Moreover, before the mid-20th century, “no scientific group was studying the anthropogenic disturbance of biogeochemical cycles”—which is now crucial for understanding the dynamics of the Earth System.<sup>72</sup> Even the idea of a “global climate”—which is central for Crutzen’s theory—was only widely accepted by scientists after World War II.<sup>73</sup>

Hamilton also notes that all of the conceptual precursors of the Anthropocene assumed a teleological view of geohistory that is absent from Crutzen’s work. Teilhard is particularly well-known for such a view. In his understanding of planetary evolution, the

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<sup>71</sup> Hamilton and Grinevald, “Was the Anthropocene Anticipated?,” 67.

<sup>72</sup> Hamilton and Grinevald, 63.

<sup>73</sup> Hamilton, *Defiant Earth*, 10–11.

Earth is irreversibly moving toward a final state of spiritual-material unity—“the Omega Point,” as Teilhard called it.<sup>74</sup> As Robert Corrington explains this idea,

Teilhard de Chardin insists that the innumerable orders of the world are all driving forward toward a heightened state of consciousness in which the conditions of materiality will be dramatically transformed. The next stage in cosmic evolution will generate what he calls “the Noosphere,” which will be a kind of enveloping consciousness that lives on the other side of physical forms of embodiment.<sup>75</sup>

Moreover, Teilhard believed that this largely anthropogenic process of cosmological convergence was implicit in the evolution of the biosphere as a pre-established goal.

Teilhard’s thinking later influenced historian Thomas Berry’s idea of an Ecozoic Era—which can be seen as an “incipient Anthropocene concept,” as Lisa Sideris argues, noting its similarities to the ecomodernist vision of a “good Anthropocene.”<sup>76</sup> For Berry, the Ecozoic signifies a utopian time of enhanced relations between nature and societies, and he hoped that this concept would soon succeed the Cenozoic as the fourth era on the Geologic Time Scale. In his view, when this era is realized, “the entire complex of life systems of the planet would be *influenced by the human in a comprehensive manner*,” Berry wrote in 1992.<sup>77</sup> Thus, as Sideris points out, Berry’s Ecozoic narrative of humanly-directed planetary evolution is ultimately rooted in a neo-Teilhardian “belief that the

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<sup>74</sup> Hamilton and Grinevald, “Was the Anthropocene Anticipated?,” 66.

<sup>75</sup> Corrington, *Ecstatic Naturalism*, 22.

<sup>76</sup> Sideris points out that the concepts of the Ecozoic era and the good Anthropocene are not identical in *every* respect, and while she is critical of both, she seems to be more sympathetic to the former than to the latter. Sideris, *Consecrating Science*, 135.

<sup>77</sup> Swimme and Berry, *The Universe Story*, 247.

universe purposefully gropes its way toward consciousness”—a goal that, for Berry, has in some sense been inscribed in the essence of the cosmos since the Big Bang.<sup>78</sup>

In contrast to Berry’s Ecozoic, Crutzen’s Anthropocene does not support such teleological narratives, nor “any idea of advance to a higher stage (such as Teilhard’s noösphere).”<sup>79</sup> Most modern scientists before the 1980s saw the Earth as evolving in a basically smooth and predictable manner. Humans were correspondingly viewed as shaping environments *incrementally*, rather than *abruptly*. While this “gradualist” paradigm was hospitable to teleological modes of thought like Teilhard’s, the “neo-catastrophist” geology that has replaced it and which underlies Crutzen’s Anthropocene challenges such thinking.<sup>80</sup> For neo-catastrophism, while the Earth generally changes slowly and incrementally in a relatively stable state, deep time is also punctuated by disproportionately important environmental changes that sometimes lead to system-level shifts and abrupt biospheric catastrophes. This paradigm thus calls into question earlier notions of inexorable evolutionary progress, for it magnifies the fragility of all planetary formations, as well as the frequent fluctuations between planetary order and chaos over the last few billion years. As such, geohistory is often unpredictable and nonlinear in its becoming. Stated in philosophical terms: Earth history unfolds less like Teilhard’s

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<sup>78</sup> Sideris, “Anthropocene Convergences: A Report from the Field,” 91.

<sup>79</sup> Hamilton and Grinevald, “Was the Anthropocene Anticipated?,” 59.

<sup>80</sup> “Neo-catastrophism” is a term that is specific to the discipline of geology. It should not be confused with my earlier discussion of “eco-catastrophist” narratives of the Anthropocene.

arboreal progression into cosmological-spiritual unification and more like a rhizomatic process of deterritorialization-reterritorialization, as Deleuze and Guattari describe it.<sup>81</sup>

Empirically speaking, geohistory thus appears as a largely contingent series of events without a transcendently unifying purpose—“long periods of boredom interrupted occasionally by panic,” as Elizabeth Kolbert puts it.<sup>82</sup> Indeed, to the extent that scientists now recognize any purposeful patterns in nature, they tend to identify them as merely “local and fragmentary,” as Corrington points out.<sup>83</sup> Geohistory does not therefore obviously reveal an irreversible evolutionary drive toward consciousness, nor does it readily support ideologies of human exceptionalism—despite our currently powerful influence over the planet.<sup>84</sup> Considering this neo-catastrophist paradigm of earth scientists like Crutzen, the Anthropocene “might register as a shock to an anthropocentric mindset,” as ethicist Maria Antonaccio suggests.<sup>85</sup> Unlike earlier theorists of a human-dominated nature, Crutzen does not then imply that “the birth of the Anthropocene fulfills, transcends, and accelerates the dull, slow time of nature’s rule,” as Davies notes, nor does he view it as the “moment when the earth finally completes the process of evolving a species that can breach its long-established limits and constraints.”<sup>86</sup> Rather,

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<sup>81</sup> On the arboreal/rhizome distinction, see Deleuze and Guattari, *A Thousand Plateaus*, 21–23. For D&G’s description of the Earth as both “stratified” into territories and yet constantly “deterritorializing,” see *Ibid.*, 40.

<sup>82</sup> Kolbert, *The Sixth Extinction*, 96.

<sup>83</sup> Corrington, *Ecstatic Naturalism*, 22.

<sup>84</sup> This point is echoed by Lewis and Maslin, *The Human Planet*, 73.

<sup>85</sup> Deane-Drummond, Bergmann, and Vogt, *Religion in the Anthropocene*, 128.

<sup>86</sup> Davies, *The Birth of the Anthropocene*, 134.



the Anthropocene signifies the most recent Earth System shift, and is not therefore an exceptional event within geohistory—notwithstanding its anthropogenic particularity.

According to Hamilton, there is a final reason that Crutzen’s Anthropocene was unanticipated by earlier scientists: despite a great deal of anthropogenic environmental degradation before the mid-20th century, such changes were insufficient as indicators of an Earth System shift into a new epoch. Pre-1950s evidence could only be derived from “the way humans had transformed the landscapes and, in some cases, the local climates, leaving an impact that the geologists of the future could uncover but which was not itself evidence of a new geological epoch.”<sup>87</sup> And even if the concept of the Earth System *had* been available to earlier scientists, none of this evidence would have indicated a system-level change or rupture. But as we saw with Crutzen’s article on the Great Acceleration, there is now abundant evidence for a very recent anthropogenic system shift—the potential for which began to emerge early in our species’ evolutionary history, but only clearly actualized in the mid-20<sup>th</sup> century.

This view has recently been defended and updated by Lewis and Maslin. In their analysis, humanity’s record of creating permanent geological changes unfolds in five stages: 1) *ancient anthropogenic extinctions*, including the elimination of all older hominins by 30,000 years ago and the slaughter of Pleistocene megafauna by 16,000 years ago; 2) *the first energy revolution* through the rise of agriculture 12,000 years ago; 3) *globalization 1.0* through modern colonialism, transatlantic slavery, and early capitalism 500 years ago; 4) *the second energy revolution*, with the rise of fossil-fueled industrialism 300 years ago; and 5) *globalization 2.0*, with the post-1950s Great

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<sup>87</sup> Hamilton and Grinevald, “Was the Anthropocene Anticipated?,” 64.

Acceleration under late capitalism and neoliberalism.<sup>88</sup> With each stage, humans increasingly impacted the Earth's geology. However, potential evidence of a new epoch only started to appear in the last three stages, and indicators of a full Earth System shift exploded in stage five.<sup>89</sup> The Anthropocene thus implies “a deeply uncomfortable story,” with colonialism, slavery, imperialism, capitalism, and science “intrinsically linked to a long-term planetary environmental change.”<sup>90</sup> Indeed, according to Lewis and Maslin's data on global change, atmospheric GHG concentrations are now at their highest levels in over three million years, extinction rates are at least as fast as Earth's five mass extinction events, and alterations to the nitrogen cycle are unlike anything that has occurred in 2.5 billion years.<sup>91</sup> In light of such evidence, they argue that it is now “safe to conclude that we live in the Anthropocene.”<sup>92</sup> Moreover, due to the scale of recent planetary changes, they predict that this new epoch will likely last for *millions* of years into the future.<sup>93</sup>

Scientists continue to debate the precise physical indicators of the Anthropocene shift, with Earth System scientists like Crutzen, Maslin, and Lewis underscoring the multiplicity of planetary instabilities and changes that have occurred since the Great

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<sup>88</sup> This is my own multi-chapter summary of their analysis of geohistory in Lewis and Maslin, *The Human Planet*, 79–265.

<sup>89</sup> Lewis and Maslin argue that the new epoch could be officially dated either in stage three or in stage five, and they make a strong case for the former. However, the empirical evidence that they use to justify this earlier date would not have been available to scientists before the mid-20<sup>th</sup> century because it depends on the recent paradigm of Earth System science and new developments in stratigraphy. As such, their proposal does not contradict Hamilton's argument that the Anthropocene could not have been anticipated prior to the Great Acceleration. Lewis and Maslin, 312.

<sup>90</sup> Lewis and Maslin, 326–27.

<sup>91</sup> Lewis and Maslin, 75, 243, 248.

<sup>92</sup> Lewis and Maslin, 277.

<sup>93</sup> Lewis and Maslin, 321.

Acceleration. By contrast, many stratigraphers are attempting to identify the strongest single geological indicator of the new epoch. While their discipline predates Earth System science by centuries, it underwent revolutionary changes in recent decades that have enabled newly precise methods of studying the Earth's geology.<sup>94</sup> Utilizing such methods, a growing number of stratigraphers now hope to add the Anthropocene to the Geologic Time Scale (GTS). The standard procedure for making such an addition is to focus empirical analyses on the *effects* of global change, rather than on its underlying *causes*. As such, when global changes are deemed sufficient to justify recognition of a new section of geological time, scientists do not normally select a name for it based on a *main cause* of the geological shift. Rather, it is typically named after one of its distinctive biological or geological *features*.

This is why, for example, the Carboniferous period was named after large geological deposits of coal (*carbō*) rather than after the slow formation of the supercontinent Pangea that brought about its end, or after the extinction event that marked the end of the previous period (i.e., the Devonian). It is likewise why stratigraphers are now considering naming a new epoch after humans rather than after specific social causes of recent global change (e.g., capitalism).<sup>95</sup> That is to say, the decision by stratigraphers to consider naming the new epoch after the anthropos is based on their empirical observations of human influences on the Earth's geology—*rather than* on a judgment about the more specific cause(s) of the geological shift. The generic nature

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<sup>94</sup> For a discussion of this “revolution” in the field of stratigraphy, see Steffen et al., “Stratigraphic and Earth System Approaches to Defining the Anthropocene,” 11.

<sup>95</sup> For a detailed explanation of this stratigraphic procedure, see Davies, *The Birth of the Anthropocene*, 70–76.

of the stratigraphic Anthropocene term then leaves room for debate about precisely *which* human-related causes brought about the epochal swerve. As such, if the new epoch is officially added to the GTS, it will almost certainly be called the Anthropocene rather than the Capitalocene—despite the fact that, as Moore and Haraway have each compellingly argued, the latter term far more accurately specifies *capital* as causing the geological shift, rather than simply the anthropos.<sup>96</sup>

The stratigrapher's GTS consists of a hierarchy of five units that are arranged somewhat like a Russian nesting doll: eons, eras, periods, epochs, and ages. Thus, an epoch is larger than an age, but it is a smaller subsection of a period, era, and eon. Each division is based on significant geological changes detected in layers of rock, sediment, and ice. Such changes are often (but not always) visible in the fossil record—with geological evidence of mass extinction events defining some of the largest divisions. According to Davies, a stratigraphically formalized Anthropocene thus depends on “an assessment of the geological traces that the last few centuries will leave behind in the distant future.”<sup>97</sup> If scientists ultimately agree that such traces are likely to remain discoverable in the deep future, a marker for the epoch would then be positioned in a location “where the strata above and below are recognizably different,” as geologist Jan

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<sup>96</sup> See both of their chapters in Moore, *Anthropocene or Capitalocene?*. From a stratigraphic point of view, the key problem with the Capitalocene is that it implies a *causal* judgment about the epochal shift, whereas the Anthropocene is a much more generic and descriptive term. In my view, both terms are useful for particular discursive contexts. I do not therefore share the views of some critics that the Anthropocene as a term is *essentially* problematic—only certain ways of narrating or framing it are. In this sense, my position on this issue of naming the epoch is close to Chakrabarty's.

<sup>97</sup> Davies, *The Birth of the Anthropocene*, 4.

Zalasiewicz explains.<sup>98</sup> Most likely, this would mean physically placing a “golden spike” in a stratum of sediment to define the lower boundary of the Anthropocene.<sup>99</sup>

The first peer-reviewed paper to argue specifically for a stratigraphic Anthropocene was published in 2008 by Zalasiewicz and twenty of his colleagues. Noting growing levels of human influences on Holocene strata since the 18<sup>th</sup> century, these stratigraphers list four types of planetary changes that will remain geologically detectable in the distant future: 1) *changes to physical sedimentation*, including a dramatic increase in erosion through agriculture, construction, and river dams; 2) *atmospheric changes*, including rising levels of GHGs that have resulted in higher global temperatures; 3) *biospheric changes*, including species extinctions and migrations; and 4) *hydrospheric changes*, including ocean acidification and rising sea levels.<sup>100</sup> In combination, these factors provide “sufficient evidence” of a “stratigraphically significant change (both elapsed and imminent) for recognition of the Anthropocene...as a new geological epoch to be considered for formalization by international discussion.”<sup>101</sup> However, the authors did not specify which anthropogenic change might indicate an ideal location for the new epoch’s golden spike.

Two years later, Zalasiewicz pinpointed such a marker in radioactive geological deposits from the 1945 detonation of the atomic bomb in New Mexico. As he wrote in 2010, this “is more than just symbolic: the world’s strata from 1945 on contain tiny but

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<sup>98</sup> Zalasiewicz et al., “The New World of the Anthropocene,” 2229.

<sup>99</sup> Ellis, *Anthropocene*, 42–45.

<sup>100</sup> Zalasiewicz et al., “Are We Now Living in the Anthropocene?,” 5–6.

<sup>101</sup> Zalasiewicz et al., 7.

measurable amounts of artificial radionuclides”—which, for stratigraphers, potentially provides a stronger indicator for the Anthropocene than Crutzen’s cited evidence of rising GHG emissions.<sup>102</sup> The most recent version of this proposal suggests that the first thermonuclear weapon tests in 1952 left “the most widespread and globally synchronous anthropogenic signal,” as Zalasiewicz and his coauthors write.<sup>103</sup> These nuclear tests—which were conducted by the U.S., the U.K., and the Soviet Union—resulted in a mid-century global spike in plutonium levels that will remain detectable in soils and sediments around the world for at least a hundred thousand years. The Anthropocene’s golden spike could therefore be placed in a drilled sediment core with traces of plutonium. This would make plutonium fallout “the emblem of a suite of co-occurring upheavals” in the Earth System, as Davies writes, “changes that, *taken as a whole*, constitute the end of the Holocene and the start of the Anthropocene.”<sup>104</sup> This proposal thus modifies Crutzen’s two-stage theory by eliminating its earliest Industrial stage. A nuclear golden spike would decisively locate the epochal swerve within the post-1950s period of the Great Acceleration—making for a very recent start of the new epoch.

As Zalasiewicz has noted, because the Anthropocene refers primarily to a shift in the Earth System as a whole, its legitimacy as a scientific concept is not dependent on an official placement of a nuclear golden spike.<sup>105</sup> But were that eventually to occur, it would be a “very big deal,” according to paleontologist Anthony Barnosky. It would

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<sup>102</sup> Zalasiewicz et al., “The New World of the Anthropocene,” 2230.

<sup>103</sup> Waters et al., “The Anthropocene Is Functionally and Stratigraphically Distinct from the Holocene,” 5.

<sup>104</sup> Davies, *The Birth of the Anthropocene*, 107. Emphasis added.

<sup>105</sup> Bonneuil and Fressoz, *The Shock of the Anthropocene*, 14.

“underscore that people have become a geological force every bit as powerful as the kinds of forces that turned an ice-covered Earth into a warm planet, or that wiped out the dinosaurs.”<sup>106</sup> Moreover, it would strengthen Hamilton’s argument that humans only recently became capable of permanently altering the Earth’s geology in a way that enables scientific recognition of the Anthropocene.<sup>107</sup> In fact, there is now a growing consensus in support of a very recent start of the new epoch.<sup>108</sup> Thus, in 2019, an influential panel of scientists voted in favor of beginning the Anthropocene with the mid-20<sup>th</sup> century Great Acceleration.<sup>109</sup>

All of this goes to show that if one disregards the scientific matrix out of which Crutzen’s proposal emerged and has continued to develop through the work of other scientists, the Anthropocene can be misconstrued as a newly popularized name for an old idea. It might then seem to indicate only the following environment-centered narrative: over the course of our species’ evolution, we have developed capacities to alter the environment to such an extent that we are now influencing the climate, reducing biodiversity, reshaping landscapes, and so on. As ecomodernists claim, it would then seem to follow that we must now make a choice: to use these god-like geopowers for good or for ill. On such a reading, the Anthropocene term would essentially be a new way of describing increased human disturbances to “ecosystems,” or perhaps as a trendy

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<sup>106</sup> Cited in Angus, *Facing the Anthropocene*, 52.

<sup>107</sup> Zalasiewicz, *The Earth After Us*, 6.

<sup>108</sup> Both stratigraphers and ES scientists have largely converged on the “mid-20<sup>th</sup> century [as] the most convincing start date.” See Steffen et al., “Stratigraphic and Earth System Approaches to Defining the Anthropocene,” 14.

<sup>109</sup> Subramanian, “Anthropocene Now.”

synonym for “global environmental problems.” And at least implicitly, the Anthropocene would then seem to be a merely transitory environmental state that can be fixed or undone—when in fact, scientists are increasingly confident that it is irreversible in a number of critical ways.<sup>110</sup>

If such environment-centered interpretations accurately identified what Crutzen meant by the Anthropocene, his proposal would indeed have many precursors. It would thus fail to indicate anything scientifically new. More damningly, it might even be taken as indicating “a sudden concern with the exposures of environmental harm to white liberal communities,” as geographer Kathryn Yusoff argues, even though for centuries “these harms have been knowingly exported to black and brown communities under the rubric of civilization, progress, modernization, and capitalism.”<sup>111</sup> But while it is urgently important not to forget that Euro-American elites often knowingly expanded industrial societies in spite of their violent impacts on devalued bodies and landscapes,<sup>112</sup> the concept of the Anthropocene does not, in fact, obscure these interconnected histories of environmental racism and capitalist extractivism—even as it does importantly reframe them within *geohistory*, as Chakrabarty has argued.<sup>113</sup> This is so precisely because the concept refers to a recent and unanticipated destabilization of the Earth System as a whole, as we have seen. The Anthropocene is not therefore synonymous with

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<sup>110</sup> For a discussion of the kinds of human impacts on the Earth System that are now considered “permanent” and “irreversible,” see Lewis and Maslin, *The Human Planet*, 258–65.

<sup>111</sup> Yusoff, *A Billion Black Anthropocenes Or None*, xiii.

<sup>112</sup> This was a key dimension of my argument in the second section of chapter one, which was building on Bonneuil and Fressoz, *The Shock of the Anthropocene*, 170–97.

<sup>113</sup> Chakrabarty, “The Climate of History: Four Theses.”



“environmental harm,” or incremental degradation. Humans have long harmed environments—and one another, for that matter—but only recently has a certain subset of our species caused an irreversible planetary shift that could soon lead to the collapse of current societal structures, and a sixth mass extinction event in the coming centuries. As environmental historian Julia Adeney Thomas argues, “The term ‘environment’ helps us understand ourselves as part of ecosystems, but fails to capture the newness of our current situation. We have always lived in the environment; only very recently...did we begin living in the altered Earth System of the Anthropocene.”<sup>114</sup>

Thus, for Earth System science, the Anthropocene indicates that human activities have *abruptly shifted the trajectory of the Earth System as a whole*—which differs from an environment-centered view of humans as *gradually impacting individual components of the planet* (e.g., landscapes).<sup>115</sup> As we have also seen, the Anthropocene is now importantly connected to the field of stratigraphy, which distinctively analyzes planetary upheavals from a deep time perspective, and thereby enables an understanding of our present Earth System shift in the context of many other biospheric catastrophes that occurred throughout geohistory.<sup>116</sup> Consequently, fully grasping the significance of the Anthropocene—as well as the scale of the planetary crises we now face—requires engaging the work of contemporary earth scientists, with their novel conceptual integration of a systems-based view of the Earth with a neo-catastrophist paradigm of

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<sup>114</sup> Thomas, “Why the ‘Anthropocene’ Is Not ‘Climate Change’ and Why It Matters.”

<sup>115</sup> As Hamilton points out, the Earth System “encompasses and transcends previous objects of study such as ‘the landscape,’ ‘ecosystems,’ and ‘the environment.’” Hamilton, *Defiant Earth*, 11–13.

<sup>116</sup> For a discussion of the symbiotic relationship between stratigraphy and Earth System science, see Steffen et al., “Stratigraphic and Earth System Approaches to Defining the Anthropocene.”

geohistory. And as I will now argue in the final section of this chapter, these earth sciences also suggest an outline for a new planetary imaginary that overturns modern habits of thought about nature and humanity.

#### **IV. Earth of the Anthropocene**

According to the physicist Hans Schellnhuber, the emergence of Earth System science (ESS) constitutes “a second ‘Copernican’ revolution” in the history of science. Writing one year before Crutzen proposed the Anthropocene, Schellnhuber suggests,

This new revolution will be in a way a reversal of the first: it will enable us to look back on our planet to perceive one single, complex, dissipative, dynamic entity, far from thermodynamic equilibrium—the ‘Earth system.’ It may well be nature’s sole successful attempt at building a robust geosphere-biosphere complex...in our Galaxy...<sup>117</sup>

The Copernican sense that we live in a potentially infinite cosmos is thus being transformed through a deeper awareness of the uniqueness, complexity, and fragility of our planetary home. Perhaps as this understanding gradually informs the wider public’s view of the Earth, more of us will soon learn to acknowledge our situatedness on a finite planet and refuse the urge to escape or deny its material limits. We might then become genuinely *earthbound* creatures, as Latour suggests: “Dream no longer mortals! You won’t escape into space. You have no dwelling place but this one, this narrow planet.”<sup>118</sup>

Over the last decade, geoscientific studies have continued to underscore the reality of our own earthboundedness in a very literal way. Thus, in 2009, scientists proposed the new framework of *planetary boundaries* in an attempt to define a “safe

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<sup>117</sup> Schellnhuber, “‘Earth System’ Analysis and the Second Copernican Revolution,” C20.

<sup>118</sup> Latour, *Facing Gaia*, 81.

operating space” for societies within a stable Earth System.<sup>119</sup> Scientists now identify at least nine such boundaries (four of which we have already transgressed), including those relating to deforestation, ocean acidification, climate change, ozone depletion, air pollution, biodiversity loss, freshwater withdrawals, nitrogen and phosphorous loading, and chemical pollution.<sup>120</sup> Each empirically defined parameter indicates “levels of human perturbation of the ES [Earth System] beyond which ES functioning may be substantially altered.”<sup>121</sup> In some cases, scientists have agreed upon numerical values for certain boundaries, such as the now-exceeded climate change limit of 350ppm CO<sub>2</sub>.<sup>122</sup> As something like Earth System ‘guardrails,’ planetary boundaries function like dynamic constraints on the operations of key components within the system. Moreover, they foreground a host of partly unpredictable ecological processes that we can no longer afford to ignore. The concept of planetary boundaries is therefore vital for ecopolitical thinking in the Anthropocene, due to its interrelational view of human and planetary forces that blurs modern dualisms of nature/society and science/politics.<sup>123</sup>

Schellnhuber, Crutzen, and Steffen are major figures in the field of ESS, which brings together elements of geology, climatology, ecology, mathematics, atmospheric chemistry, systems theory, and more. By thus incorporating multiple disciplinary

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<sup>119</sup> Rockström et al., “Planetary Boundaries.”

<sup>120</sup> As of 2020, crossed planetary boundaries include climate change, nitrogen and phosphorous cycles, deforestation, and biosphere integrity.

<sup>121</sup> Steffen et al., “Planetary Boundaries,” 736.

<sup>122</sup> Lenton, *Earth System Science*, 115.

<sup>123</sup> For a brilliant synthesis of the planetary boundaries framework with ecological, feminist, and other cutting-edge economic theories, see Raworth, *Doughnut Economics*.

frameworks, ESS departs from modern attempts to sharply separate academic disciplines, and instead pursues an *integrative* mode of analysis. With its systems-based paradigm, ESS also challenges scientific reductionism, which is the view that physical phenomena can be exhaustively understood by dissecting them into their constituent parts (such as atoms or DNA). By contrast, ESS studies planetary phenomena more holistically in terms of dynamically interrelated systems within systems, each of which include emergent properties or behaviors that cannot be adequately understood in a reductionist manner.<sup>124</sup>

In this way, ESS is influenced by Gaia theory, which Lovelock describes as a “holistic system science” that resists reductionist thinking—whether modern scientific or Cartesian philosophical forms.<sup>125</sup> In their early formulation of the Gaia hypothesis, Lovelock and Margulis proposed that “the total ensemble of living organisms which constitute the biosphere can act as a single entity to regulate chemical composition, surface pH and possibly also climate.”<sup>126</sup> This hypothesis later evolved into Gaia theory, which recognizes the Earth as a whole—and not just the biosphere—as actively maintaining optimal conditions for life to continue.<sup>127</sup> Gaia theory thereby challenges the conventional understanding that life and planetary conditions evolved in separate ways, with the biosphere merely adapting to a relatively static nonliving world. In place of this view, Gaian scientists like Lovelock and Margulis insist that “the world in which life

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<sup>124</sup> As Philip Clayton explains the idea of emergence as it relates to systems theory, “Most generally, emergent properties are those that arise out of some subsystem but are not reducible to that system. Emergence is about *more than but not altogether other than*.” Clayton, *Mind and Emergence*, 39.

<sup>125</sup> Lovelock, *The Vanishing Face of Gaia*, 197–200.

<sup>126</sup> Lovelock and Margulis, “Atmospheric Homeostasis by and for the Biosphere,” 2.

<sup>127</sup> Lovelock, *The Vanishing Face of Gaia*, 255.

evolved was no fixed and unchanging world of geology but was as dynamic as the organisms themselves.”<sup>128</sup> Rather than sharply bifurcating living and nonliving things, Gaia theory enfolds them as different aspects of a “self-regulating system that maintains the Earth’s climate and the composition of the atmosphere in a habitable state.”<sup>129</sup> The evolution of life, tectonic plate movements, climate fluctuations, melting glaciers, soil erosion, and ocean currents—all of these and more are dynamic components of the planetary “organism” that Lovelock named Gaia. For ESS, these components are now studied in terms of interacting “spheres,” including the biosphere, lithosphere, atmosphere, cryosphere, pedosphere, and hydrosphere.<sup>130</sup>

While there are disagreements among ES scientists about their field’s precise relationship to Gaia theory—with some still distancing themselves from this once intensely controversial proposal—the latter’s influence on ESS is now widely recognized. For example, Schellnhuber acknowledges the foundational importance of Gaia theory in the development of ESS. And yet, he also claims that ESS is the *superior* framework, suggesting that its avoidance of mythological metaphors lends “respectability to its romantic companion, Gaia theory, as pioneered by Lovelock and Margulis.”<sup>131</sup> Crutzen likewise maintains some critical distance from Gaia scientists, for while he agrees with

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<sup>128</sup> Lovelock, 182.

<sup>129</sup> Lenton, *Earth System Science*, 4.

<sup>130</sup> Ellis, *Anthropocene*, 84.

<sup>131</sup> Schellnhuber, “‘Earth System’ Analysis and the Second Copernican Revolution,” C21.

them that the Earth should be understood as an “organism,” this perspective has nothing to do with the ideas of any “esoteric Gaia guru,” he asserts.<sup>132</sup>

Avoiding any such condescending descriptions of Gaia as a “romantic” or “esoteric” idea,<sup>133</sup> earth scientist Tim Lenton argues that the Gaia hypothesis “represents the first scientific statement of the Earth as a system that is more than the sum of its parts,” which makes it “*the start of Earth system science.*”<sup>134</sup> Similarly, Steffen suggests that Gaia theory ought to be seen as “a *complementary* conceptual framework for the Earth as a system.”<sup>135</sup> Ultimately, the differences between ESS and Gaia theory are relatively minor, as Lovelock notes.<sup>136</sup> Even so, while he once considered calling his theory “the Earth system hypothesis,”<sup>137</sup> Lovelock explains that he persisted with “Gaia” mainly for aesthetic reasons, in the hopes that the term might enable all of us to “feel intuitively that the Earth is a *living* system,” as opposed to a purely mechanical one.<sup>138</sup>

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<sup>132</sup> Avoiding any mention of Lovelock, Crutzen links the idea back to Alexander von Humboldt, who viewed the Earth as a “world organism.” Crutzen and Schwägerl, “Living in the Anthropocene.”

<sup>133</sup> Rubenstein shows how common these kinds of mischaracterizations of Gaia theory have been over recent decades, and importantly challenges this ‘Gaiaphobia.’ See Rubenstein, *Pantheologies*, 124–25.

<sup>134</sup> Lenton, *Earth System Science*, 4. Emphasis added.

<sup>135</sup> Steffen et al., “Stratigraphic and Earth System Approaches to Defining the Anthropocene,” 2. Emphasis added.

<sup>136</sup> According to Lovelock, the main theoretical difference has to do with Gaia theory’s claim that while the Earth System is not a conscious entity, it nevertheless has the “goal” of self-regulating its surface conditions to produce favorable conditions for life to exist. ESS rejects this language out of concern to avoid any appearance of teleological reasoning, which is typically seen as beyond the bounds of modern science. On my reading, however, Gaia theory does not view the Earth as guided by any conscious or transcendent purpose—but it *does* suggest that there are purposeful planetary processes that are *immanent* to the Earth. Lovelock, *The Vanishing Face of Gaia*, 254.

<sup>137</sup> Lovelock, 163.

<sup>138</sup> Lovelock, 195. Emphasis added.

However, some scientists worry that the term “Gaia” too easily suggests that the Earth is a conscious or divine being—despite the fact that Lovelock and Margulis *clearly* rejected such views.<sup>139</sup> Relatedly, other scientists argue that Gaia theory mistakenly imports a strong conception of teleology into the sciences, as if the Earth itself was an “intelligent designer” of its living components. However, this too seems to be a misconstrual of Gaia theory.<sup>140</sup> According to Lenton, what Lovelock and Margulis meant to convey with their theory was that the Earth self-regulates, but “without any *conscious* foresight or purpose.”<sup>141</sup> To be sure, their theory *does* suggest that Gaia is a superorganism which is in a certain sense “goal-directed,” as Philip Clayton and Elizabeth Singleton point out, because the Earth actively responds to changes within itself in order to maintain conditions that are favorable to life.<sup>142</sup> As Clayton and Singleton suggest, Gaia can thus be understood as “*the largest living agent*, in whom we live and move and have our being”—but at least for Lovelock and Margulis, most definitely not one which is a *conscious* planetary designer.<sup>143</sup>

In order to avoid such terminological controversies, would it not be simpler to adopt the more widely accepted image of the Earth as a “system”? While scientists like Crutzen evidently think so, the “system” metaphor has its own set of problems. As Latour asks rhetorically, “‘System’? What weird animal is that? A Titan? A Cyclops? Some

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<sup>139</sup> Rubenstein, *Pantheologies*, 122–23.

<sup>140</sup> See the discussion of Toby Tyrell’s critique of Gaia theory in Rubenstein, 125–28.

<sup>141</sup> Lenton, *Earth System Science*, 5. Emphasis added.

<sup>142</sup> Keller and Rubenstein, *Entangled Worlds*, 145.

<sup>143</sup> Keller and Rubenstein, 147. Emphasis added.

twisted divinity?”<sup>144</sup> Describing the Earth as a system might therefore inadvertently suggest machine-like or god-like images of totality. But as we will see below, neither of these images accurately represent the views of earth scientists. Such scientists work with a *post*-mechanistic framework and define the planetary system as a non-totalized plurality of “spheres,” which dynamically interact through massive causal loops, nonlinear processes, and energy flows. For the purposes of the present project, “Gaia” and “system” can therefore be understood as limited, but nevertheless useful metaphors for scientific views of the Earth as a dynamically interrelated complex. While I will return to the figure of Gaia in later chapters, for now I want to focus on the concept of the Earth System, precisely because it has been adopted by the majority of Anthropocene scientists.

Crutzen and Steffen define the Earth System as “the suite of interacting physical, chemical, and biological global-scale cycles and energy fluxes that provide the life-support system for life at the surface of the planet.” Within this conceptual framework, human societies constitute “integral and interacting” elements of the Earth System as a whole.<sup>145</sup> As such, for ESS, human societies are not viewed as exceptional planetary forces, but are rather understood to be fully embedded within the biosphere and anthroposphere. Consequently, anthropogenic planetary changes—such as climate change—are not viewed as “unnatural” perturbations within the Earth System. Human influences are rather seen as one of many sources of variability within the system.<sup>146</sup>

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<sup>144</sup> Latour, *Facing Gaia*, 85.

<sup>145</sup> Steffen, Crutzen, and McNeill, “The Anthropocene: Are Humans Now Overwhelming...,” 615.

<sup>146</sup> Angus, *Facing the Anthropocene*, 31–32.



The need to theorize the Earth as an integrated system became clear in the 1980s when scientists studying global warming increasingly realized that human activities were rapidly altering the functioning of the planet. They subsequently recognized that these anthropogenic changes could only be adequately understood by studying the relationships between the planet's subsystems and the Earth as a systemic whole.<sup>147</sup> While the earlier framework of environmental science studied the interactions of organisms and local environments, its focus was too limited to understand the global dynamics that were driving the Earth into the Anthropocene because it was not yet thinking of the planet as a complex adaptive 'metasystem.'<sup>148</sup> As such, a new paradigm was required in order to theorize the Earth as an internally related and dynamic 'system collective.' Thus, whereas an environmental science framework analyzes Earth's systems (e.g., biosphere, atmosphere) as an aggregate of externally related components, a systems-based paradigm holistically recognizes these components as mutually influential subsystems that interact within—and with—the metasystem of the Earth as a whole. As Hogue explains,

In a system collective the component systems interact not only with one another but also with the metasystem with which they are intertwined. The subsystems and the metasystem mutually influence one another. In dialectical interplay the metasystem exerts downward causal influence on the subsystems while the subsystems exert upward causal influence on the metasystem.<sup>149</sup>

This systems-based view of the Earth has now sparked a scientific paradigm shift. For contemporary geoscientists, the planet is thus theorized as “a complex system, from its core up to the high atmosphere, with subsystems (atmosphere, biosphere, hydrosphere,

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<sup>147</sup> Lenton, *Earth System Science*, 12.

<sup>148</sup> As Hamilton argues, “The global environment is not the Earth System.” Hamilton, “Getting the Anthropocene so Wrong,” 1.

<sup>149</sup> Hogue, *American Immanence*, 60.

pedosphere, etc.) that are pervaded and connected by constant flows of matter and energy, in immense feedback loops.”<sup>150</sup>

In systems theory, “feedback loops” essentially refer to chains of cause and effect. In highly complex systems like the Earth, there are a vast multiplicity of feedbacks—some of which are nonlinear processes, whereby small initial changes in the Earth System trigger disproportionately large reactions from other planetary components. *Negative* (or “stabilizing”) feedback loops work to maintain the status quo of the system, whereas *positive* (or “amplifying”) ones tend to bring about linear or nonlinear systemic changes and instabilities.<sup>151</sup> Lovelock and Margulis pioneered these ideas with their notion of Gaia as a “self-regulating system,” by which they meant that the Earth tends to maintain relatively stable states for long periods of time through the workings of negative feedbacks. Thus, to cite one key example, when the Earth System either heats up or cools down as a result of changes in atmospheric CO<sub>2</sub> levels, the biosphere tends to respond with opposite effects that help to maintain a stable climatic state—whether by releasing more carbon into the atmosphere to produce warming effects, or by absorbing more of it within carbon sinks to bring about cooling effects. In this way, the stabilizing feedbacks between the biosphere and atmosphere function like a planetary thermostat.<sup>152</sup> The Holocene exemplified such a relatively stable Earth System state—and due to the workings of negative feedback loops, there have been many other Holocene-like states over the course of geohistory.

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<sup>150</sup> Bonneuil and Fressoz, *The Shock of the Anthropocene*, 13–14.

<sup>151</sup> Lenton, *Earth System Science*, 6.

<sup>152</sup> Ellis, *Anthropocene*, 88.

On the other hand, certain sources of variability and powerful forces—like orbital changes, solar energy fluctuations, GHG emissions, meteorite strikes, and volcanic eruptions—can impact the system hard enough that they override negative feedbacks and provoke the planet to reorganize itself into an entirely new “state.”<sup>153</sup> In the case of the Earth, system states can be defined as “modes of operation persisting for tens of thousands to millions of years within some envelope of intrinsic variability,” as Steffen explains.<sup>154</sup> Thus, over the last 2.6 million years, the Earth has “travelled between one of two longer-term states: a cooler glacial and a warmer interglacial state.”<sup>155</sup> And as we have seen, a *new planetary state* is precisely what Crutzen had in mind when he proposed the Anthropocene as naming an abrupt Earth System shift beyond the Holocene.

Whether human or nonhuman in nature, powerful forces that impact the Earth System can then trigger positive feedback loops that *amplify* rather than *dampen* changes to the system and its subsystems. Wildfires exemplify such processes: the greenhouse effect results in higher global temperatures, leading to drier conditions that are conducive to the ignition and spread of forest fires—which then release more GHGs that lead to further warming, and so on. As climate expert Joseph Romm explains, the amplifying feedbacks involved in wildfires thereby transform “one part of the land carbon ‘sink’ into a ‘source’ of atmospheric carbon dioxide.”<sup>156</sup> The melting of sea ice in the cryosphere is another key example of positive feedback loops: as the greenhouse effect increases

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<sup>153</sup> Lenton, *Earth System Science*, 7.

<sup>154</sup> Steffen et al., “Stratigraphic and Earth System Approaches to Defining the Anthropocene,” 2.

<sup>155</sup> Lewis and Maslin, *The Human Planet*, 333.

<sup>156</sup> Romm, *Climate Change*, loc. 1685.

temperatures in the Arctic, reflective sea ice melts, which then exposes sun-absorbing seawater—thereby enabling further global warming, melting ice, and so on.

While positive feedback loops are not necessarily a “bad” thing since they are crucial dynamics for the Earth’s metabolism when balanced by negative feedbacks, they can sometimes accelerate toward the crossing of “tipping points,” which produce irreversible changes in the system or subsystems. Such changes tend to result in radically different environments that are difficult for living things to adapt to in a timely manner, and which can then lead to biospheric catastrophes.<sup>157</sup> For ESS, tipping points thus name ecological thresholds that lead to sudden and partially unpredictable system changes, or “regime shifts.” One particularly worrying example of a process that may lead to such a regime shift is the melting of Arctic sea ice. As Ellis points out, the ice-albedo positive feedback loop could eventually lead to the crossing of a dangerous threshold, “beyond which the melting of Arctic ice will continue until *all the ice has melted*.”<sup>158</sup> This process would produce rapid sea level rise that would be catastrophic for all human societies.<sup>159</sup> While tipping points are difficult to pass at a planetary scale (due to the stabilizing effects of negative feedback loops), such an occurrence would not be unprecedented in geohistory. Indeed, tipping points have almost certainly played major roles in the Earth

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<sup>157</sup> As Angus explains the origins of the term, “[tipping point] was originally used by physicists for the point at which adding weight or pressure to a balanced object suddenly causes it to topple into a new position.” Angus, *Facing the Anthropocene*, 64.

<sup>158</sup> Ellis, *Anthropocene*, 88. Emphasis added.

<sup>159</sup> Lenton explains a number of additional tipping elements that have been discovered in the cryosphere, hydrosphere, biosphere, and elsewhere. See Lenton, *Earth System Science*, 100–106.

System changes that led to biospheric catastrophes in the past, such as the End-Permian Extinction event that wiped out 96% of life on Earth.<sup>160</sup>

Crossing planetary tipping points is becoming ever-more likely in the Anthropocene—even as such occurrences remain difficult to predict. According to Steffen and a number of his ESS colleagues, feedbacks and tipping elements may end up pushing the Earth System into a “Hothouse” pathway for thousands, or even hundreds of thousands of years. In fact, this could happen in the not-too-distant future if societies continue in the business-as-usual manner of carbon capitalism. While many of the world’s governments signed the 2016 Paris Accord—which is a non-binding commitment to maintain the Earth’s average temperature below 2° Celsius—Steffen and his co-authors suggest that even this temperature target is riskier than previously believed. Indeed, according to these scientists, just one more degree of global warming could trigger an irreversible regime shift in the climate system:

Our analysis suggests that the Earth System may be approaching a planetary threshold that could lock in a continuing rapid pathway toward much hotter conditions—Hothouse Earth. This pathway would be propelled by strong, intrinsic, biogeophysical feedbacks difficult to influence by human actions, a pathway that could not be reversed, steered, or substantially slowed.<sup>161</sup>

As one would expect, a Hothouse pathway would be dangerous for life on Earth. Indeed, it would “cause serious disruptions to ecosystems, society, and economies.” But at least for these scientists, we can still avoid this trajectory by working toward a

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<sup>160</sup> Brannen, *The Ends of the World*, 86.

<sup>161</sup> Steffen et al., “Trajectories of the Earth System in the Anthropocene,” 8257. Unlike other permanent anthropogenic changes to the Earth, climate change is potentially still reversible. According to recent studies, the climate system *might* be returned to a Holocene-like state within three to five years. Regarding this climate timeline, see the comments from Michael Mann in Hertzgaard, “A Second Trump Term Would Be ‘game over’ for the Climate, Says One of the World’s Top Climate Scientists.”

“Stabilized Earth” pathway—one in which the climate system returns to something like the Holocene interglacial. They do not suggest that this is a *probable* outcome, but a merely *possible* one. Nor do they claim to know the best way to bring about this shift, acknowledging that “different societies around the world have contributed differently and unequally to” planetary crises, and “will have varied capacities to alter future trajectories.”<sup>162</sup> Even so, these scientists suggest that such a shift would at least require decarbonizing economies, restoring the functioning of biosphere carbon sinks, and making deep changes to individual behaviors and political structures. Unfortunately, the planet is likely to cross the 2-degree global warming threshold in a matter of decades—and possibly sooner. The time is short. Immediate collective actions are therefore needed, along with wider recognition of the fact that human societies are integral components of the Earth System.<sup>163</sup> Adopting a systems-based perspective like these scientists propose has thus become vital for any attempt to secure a habitable earthly future.

It should now be clear that with the emergence of ESS, the scientific understanding of our planet underwent a profound transformation—one that not only provides the essential explanatory framework for the Anthropocene and its multiplying crises, but which also poses a challenge to the modern secularist imaginary. As we saw in chapter one, moderns have typically imagined the Earth as both a machine and an unlimited resource. Consequently, it is believed to be (in principle) fully predictable, completely controllable, and almost endlessly exploitable by humans. From this perspective, environmental challenges can be boiled down to engineering problems—

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<sup>162</sup> Steffen et al., 8252.

<sup>163</sup> Steffen et al., 8256–57.

something that our technology and capitalist markets will always be able to fix.

Anthropocentric and exploitative thought-structures thus ground this perspective, for it suggests that humanity should continue to intensify techno-capitalist powers of growth and progress over the Earth rather than scaling them down in any significant way. This unapologetically anthropocentric imaginary has now wedged itself into certain

Anthropocene discourses, as in the work of neoliberal ecomodernists. Even so, as I have been suggesting, ESS implies a very different kind of imaginary.

Much like their Gaian cousins, Earth System scientists view the planet as more analogous to a living organism than to a mechanistic machine, at least in the following senses: 1) the Earth is a relational complex that is more than the sum of its parts; 2) it includes unpredictable emergent properties and indeterminate processes; and 3) it actively responds to and affects innumerable changes taking place within itself. Thus, rather than reducing the Earth to an externally related collection of largely inanimate objects, or a mere resource for human societies, today it needs to be reimagined as a lively—indeed, animated—assemblage of interacting spheres, energy flows, feedback loops, and nonlinear processes within which we are embedded. This perspective challenges imaginaries of human exceptionalism, for it suggests the need for caution and humility in the face of a dynamic planet that is not susceptible to our absolute technological control or epistemological mastery. Indeed, the persistent anthropogenic shocks to the Earth System over recent decades have unleashed a swarm of nonhuman agencies and unpredictable forces that were once pushed into the background of modern imaginaries, but which now increasingly intervene into the foreground of human experience. While this situation may evoke feelings of wonder and awe in the face of an

ecologically vibrant planet, it is also unsettling, for never before has our species experienced anything like the Anthropocene's planetary-scale rupture. As Amitav Ghosh reminds us, "There never was a time, of course, when the forces of weather and geology did not have a bearing on our lives—but neither has there ever been a time when they have pressed themselves on us with such relentlessness."<sup>164</sup>

From my perspective, it is precisely this increased recognition of our vulnerable entanglements with more-than-human actors that now calls for the development of postmodern imaginaries that are more adequate to the dynamisms, uncertainties, and urgencies of the new epoch. And, as it turns out, I am not alone in sensing this need for a shift in imaginaries. Indeed, the Anthropocene has already "sparked a veritable *metaphysical anguish*," as Déborah Danowski and Eduardo Viveiros de Castro have noted, which is expressing itself in intense forms of resistance to human exceptionalism and mechanistic materialism among a growing number of contemporary writers.<sup>165</sup> Geophilosophies, new materialisms, process cosmologies, non-reductive naturalisms, and posthumanisms are thus beginning to surface. In the next chapter, we will explore some of these counter-exceptionalist imaginaries in the work of current ecoterrorists, and then examine the writings of three important philosophers—all of whom will provide us with further conceptual resources for moving beyond the dominant modern imaginary and toward a planetary imaginary for the Anthropocene.

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<sup>164</sup> Ghosh, *The Great Derangement*, 62.

<sup>165</sup> Danowski and Castro, *The Ends of the World*, 30. Emphasis added.



CHAPTER THREE  
THE EARTH OF THINGS:  
GEOPHILOSOPHY FOR THE ANTHROPOCENE

*There is also the wisdom of the earth.  
This is the stance of one who is deeply attached  
to this life, this earth, this world.*

-Bernard Loomer<sup>1</sup>

*By no means are the events of the era of global warming akin to the stuff  
of wonder tales; yet it is also true that in relation to what we think of as  
normal now, they are in many ways uncanny; and they have indeed  
opened a doorway into what we might call a 'spirit world'—  
a universe animated by nonhuman voices.*

-Amitav Ghosh<sup>2</sup>

**I. Posthuman Dis/closures**

In the 2018 science fiction film *Annihilation*, a group of female scientists and doctors are recruited by the U.S. government to study a mysterious phenomenon called “the shimmer”—an iridescent, petroleum-like bubble that engulfs a coastal region of Florida. Upon entering the shimmer, the women find themselves in a strange wilderness filled with genetically mutating flora and fauna: giant alligators that have grown shark teeth, deer with floral antlers, and plants that have taken on human-like forms. The women’s initial curiosity about these interspecies hybrids eventually turns to terror when they realize that they have become entangled in the shimmer’s imperceptible forces of mutation: human intestines are transformed into slithering tentacles, a monstrous bear

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<sup>1</sup> Sibley and Gunter, *Process Philosophy*, 537.

<sup>2</sup> Ghosh, *The Great Derangement*, 73.

screams with the voice of one of the scientists, and flowers begin to sprout from human skin. When one of the women encounters an alien-like creature in a final scene of the film, the creature syncs up with her bodily movements before morphing into her identical twin. What we therefore witness in this unsettling film, I suggest, is the gradual ‘annihilation’ of sharp distinctions between humans and nonhumans. With its incorporation of ecological themes and apocalyptic aesthetics, *Annihilation* thus reflects the growing sense of anxiety that many of us now feel about our planetary crises—which not only strain current societal structures, but also magnify our vulnerable entanglements with nonhuman agents and forces. In this way, the film can be viewed as a kind of posthumanist parable of the Anthropocene: “the daunting, indeed horrifying, coincidence of human history and terrestrial geology,” as Timothy Morton describes the new epoch.<sup>3</sup>

As the so-called “philosopher prophet of the Anthropocene,” Morton provocatively interprets the arrival of the new epoch in apocalyptic terms.<sup>4</sup> Thus, in *Hyperobjects* (2013), he argues that “the end of the world is correlated with the Anthropocene,” which for him first occurred at the start of the industrial revolution with the invention of the steam engine in 1784. Echoing Crutzen’s two-stage theory of the Anthropocene (as discussed in chapter two), Morton then claims that the world ended *yet again* when the first atom bombs were detonated in 1945. Thus, for Morton, the end of the world is dated precisely to “the inception of humanity as a geophysical force on a planetary scale.”<sup>5</sup>

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<sup>3</sup> Morton, *Hyperobjects*, 9.

<sup>4</sup> A Guardian article describes Morton in these terms: Blasdel, “A Reckoning for Our Species.”

<sup>5</sup> Morton, *Hyperobjects*, 7.

To be sure, “world” is not here synonymous with the Earth or cosmos. Rather, the world that ended with the advent of the Anthropocene, Morton explains, is the one in which humans and nonhumans were seen as divided between an ontological foreground and background—where the former encompassed human subjects and societies, and the latter contained a fully deanimated “Nature.”<sup>6</sup> In other words, “world” here signifies the anthropocentric imaginary of the modern immanent frame that denied nonhumans any meaningful sense of agency and value, and which thereby served to legitimize the modern drive to environmental exploitation. But in the turbulent times of the Anthropocene, this bifurcated world-schema has started to collapse, resulting in a “traumatic loss of coordinates” for the moderns.<sup>7</sup> For Morton, this onto-epistemic apocalypse is a direct consequence of the ever-more powerful interventions of nonhuman agents and massive “hyperobjects” like the climate system into human affairs.<sup>8</sup> Yet this situation is paradoxical, for the geohistorical *ending* is also a kind of *opening*: precisely because the Anthropocene discloses to us the many ways in which we are precariously intertwined with nonhumans, the end of the modern world picture might now begin to give way to a “truly ‘post-modern’ age” of “ecological awareness.”<sup>9</sup> Morton writes:

What is left if we aren’t the world? Intimacy. We have lost the world but gained a soul—the entities that coexist with us obtrude on our awareness with greater and greater urgency. Three cheers for the so-called end of the world, then, since this moment is the beginning of history, the end of the human dream that reality is

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<sup>6</sup> Morton, 99–101.

<sup>7</sup> Morton, 22.

<sup>8</sup> Hyperobjects is an ontological category in Morton’s work that includes anything “massively distributed in time and space relative to humans.” For Morton, hyperobjects must also be understood as “agents” rather than inanimate material entities. For this reason, Morton argues that objects have actively “intervened” into human affairs in the Anthropocene. Morton, 1, 29.

<sup>9</sup> Morton, 22.

significant for them alone. We now have the prospect of forging new alliances between humans and nonhumans alike, now that we have stepped out of the cocoon of the world.<sup>10</sup>

Along with Morton, a growing number of ecot theorists are now aiming to intensify ecological awareness in the Anthropocene by developing non-anthropocentric modes of thought. Thus, William Connolly suggests a philosophy of “entangled humanism” that conceptually resituates the human in “a world composed of innumerable entanglements”—from the “bacterial micro-agencies in our guts” to our “[n]umerous imbrications with the planetary, partially self-organizing capacities of climate, glaciers, ocean currents,” and more.<sup>11</sup> Donna Haraway comparably proposes the ecological imaginary of “companion species,” which for her implies a relational ontology in which all earthlings are “sympoietic” beings who co-creatively become-together as “terrans.”<sup>12</sup> And as I noted in chapter one, Bruno Latour draws on Gaia theory to construct an ecophilosophy for “the earthbound”—those who affirm an animated conception of materiality in place of the modern belief in a “deanimated ‘material world.’”<sup>13</sup> Anthropologists Eduardo Kohn and Eduardo Viveiros de Castro have each gone even further than Latour in the direction of a fully animistic ontology, which they develop through their ethnographic research on Amerindian cosmologies.<sup>14</sup>

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<sup>10</sup> Morton, 108.

<sup>11</sup> Connolly, *Facing the Planetary*, 168–69.

<sup>12</sup> Haraway, *Staying with the Trouble*, 13. On the notion of sympoiesis, see Haraway, 33.

<sup>13</sup> Latour, *Facing Gaia*, 70. On the notion of earthbound, see Latour, 248.

<sup>14</sup> Castro, *Cannibal Metaphysics*; Kohn, *How Forests Think*.

Partly inspired by these scholars of the nonhuman turn in the humanities and social sciences, what I will be exploring in this chapter are a number of philosophies that foreground our constitutive relations and material continuities with other earthlings, and that thereby challenge the “world” of human exceptionalism that has helped to create and sustain Anthropocene crises. As an urgently needed alternative to the modern imaginary of reductive materialism, I also aim to develop a non-reductionist and non-mechanistic conception of nature. While “nature” will not here signify a stable metaphysical foundation for thought, it nevertheless functions as an “all-inclusive term,” as Whitney Bauman puts it, in the sense that it “includes humans, cultures, religions, ideas, imagination, atoms, ecosystems, the earth, the universe, and all other levels of reality.”<sup>15</sup> The philosophers I engage throughout this chapter enable this pluralistic way of thinking about nature. As such, they support my attempt to unfold a planetary imaginary—or to use another terrestrial term, a “*geophilosophy*,” as Morton suggests, which “doesn’t think simply in terms of human events and human significance.”<sup>16</sup>

It was Gilles Deleuze and Felix Guattari (D&G) who originally coined the term *geophilosophy* to signify radically non-anthropocentric ways of thinking in relation to the Earth—although they were not yet aware of the epochal crisis of the Anthropocene.<sup>17</sup> The anthropos is not “the king of creation,” they insist, but rather a planetary “being who is in intimate contact with the profound life of all forms or all types of beings...”<sup>18</sup> Against

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<sup>15</sup> Bauman, *Religion and Ecology*, 25.

<sup>16</sup> Morton, *Hyperobjects*, 7.

<sup>17</sup> Deleuze and Guattari, *What Is Philosophy?*, 85.

<sup>18</sup> Deleuze and Guattari, *Anti-Oedipus*, 4.

mechanistic materialism, they affirm a “material vitalism”<sup>19</sup> that views all of nature as animate: “not only do plants and animals, orchids and wasps, sing or express themselves, but so do rocks and even rivers, every stratified thing on earth.”<sup>20</sup> Indeed, for D&G, the Earth itself is a self-organizing assemblage that is “permeated by unformed, unstable matters, by flows in all directions, by free intensities or nomadic singularities, by mad or transitory particles.”<sup>21</sup> In these and other ways throughout their writings, D&G blur the modern dualisms of subject/object, animate/inanimate, nature/society, and life/nonlife. Their geophilosophy can thus be seen as an imaginative endeavor to “reorient thinking to the creative processes of Earth,”<sup>22</sup> as Sam Mickey suggests, and ultimately as a way of supporting the construction of “vibrant networks of planetary coexistence.”<sup>23</sup>

As will become apparent in later sections of this chapter, the geophilosophy that I unfold resonates strongly with this Deleuzoguattarian perspective. But by using the term geophilosophy, I also mean to recall and enfold the perspectives of Gaia theory and Earth System science. As we saw in chapter two, these geosciences go beyond environmental science in order to study the functioning of the planet as a dynamically relational and partly unpredictable complex within which we are embedded. This scientific picture of the Earth as a living ‘organism’ with its own system-level agency thus challenges the modern secularist imaginary of nature as a mechanistic machine. The emerging

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<sup>19</sup> Deleuze and Guattari, *A Thousand Plateaus*, 411.

<sup>20</sup> Deleuze and Guattari, 44.

<sup>21</sup> Deleuze and Guattari, 40.

<sup>22</sup> Mickey, *Whole Earth Thinking and Planetary Coexistence*, 43.

<sup>23</sup> Mickey, 44.

geoscientific imaginary consequently magnifies our entanglements with a multitude of nonhuman actors, while simultaneously rattling the modern binaries of nature/society, human/nonhuman, science/politics, and fact/value. Negatively, this imaginary implies the impossibility of achieving epistemic and technological mastery over natural processes, thus calling for greater humility in the face of an agentic planet. But as I will show through the present chapter's deployment of geophilosophy, this planetary imaginary also releases possibilities for *revaluing* more-than-human worlds.

The geophilosophy that I develop thus situates humanity within our planetary context while conceptually redistributing agency, creativity, and value to a multitude of nonhumans.<sup>24</sup> While the geosciences often only imply such a perspective, the philosophers I engage in this chapter render it more explicit. Reaching back to process thinkers from the last century, I thus begin by looking at the radical empiricism of William James, followed by an analysis of the philosophy of Alfred North Whitehead in an attempt to unpack the ecological implications of their works. For multiple reasons, there has been a surge of scholarly interest in the writings of Whitehead and James in recent years, not least because in a time of widespread environmental destruction, their ideas have the potential to deepen ecological awareness. Indeed, as I aim to demonstrate through close readings of their philosophies, their intensely relational ways of thinking offer vital conceptual resources for ecological theorizing today—for better coming to terms with the fact that our own senses of agency, creativity, and value are enmeshed

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<sup>24</sup> By *agency*, I mean the (proto-conscious *or* conscious) capacity of things to alter the course of events according to their own ends. See Keller and Rubenstein, *Entangled Worlds*, 137–38. By *creativity*, I mean the capacity to bring something new into being in a way that could not have been entirely predicted in advance (and not merely because of a lack of knowledge about efficient causes). See Connolly, *The Fragility of Things*, 156–57. By *value*, in this context, I do not mean something that is good in a merely instrumental sense, but rather something with intrinsic worth. See Crosby, *A Religion of Nature*, 57–88.

with manifold nonhuman beings. Folding the perspectives of Whitehead and James into a more recent strain of thought, I then conclude with an analysis of a new materialist theory of nonhuman agency by engaging Jane Bennett’s “political ecology.” Crucially for the present project, Bennett’s work shows how a Deleuze-inspired ecophilosophy can support a radical politics for the Anthropocene, which in turn provides a basis for my engagements with climate politics and political theology in the next chapter.

For Morton, however, the philosophies that I engage in this chapter are fatally flawed from an ecological perspective. In his view, the process and new materialist thinkers who inspire my work nihilistically dissolve the ecology of the world into a “vague sludge” of intertwined becomings, and are thus problematic for any attempt to develop a geophilosophy.<sup>25</sup> Morton claims that the ontologies of such thinkers unjustifiably privilege interdependent “flows” over independent “solids,” which consequently makes it difficult to account for the full and distinctive realities of nonhumans.<sup>26</sup> If reality is thus reduced to a virtual chaos of ‘flows,’ Morton contends that one cannot form the urgently needed “alliances” or “solidarities” with nonhumans. Process philosophers and new materialists are therefore incapable of truly challenging anthropocentrism, he submits, so it is not at all clear that they can provide any conceptual support for a robustly ecological ethics or politics.<sup>27</sup>

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<sup>25</sup> Morton, *Hyperobjects*, 119.

<sup>26</sup> Morton, 110.

<sup>27</sup> In Morton’s view, an ‘actually’ non-anthropocentric geophilosophy requires a sturdier “object-oriented ontology” (OOO) in which every individual existent can be understood as an equally real entity apart from its constitutive relations with other beings (*Hyperobjects*, 120). Thus, Morton’s geophilosophy is grounded in a kind of postmodern substance ontology. I will not here directly criticize OOO, which is beyond the scope of this chapter and the present project. Nor will I respond to Morton’s critique by developing a synthesis of OOO and process or new materialist ways of thinking. Steven Shaviro has in fact already provided such a reading of these different schools of thought, and in my view, he has persuasively



However, Morton's critique of "process relationism" is not finally persuasive, for it betrays significant misunderstandings of Deleuze and Whitehead in particular. Deleuze certainly did think more in terms of relational processes rather than independent objects, but he did not thereby *liquefy* the world into a sludgy, nihilistic chaos, as Morton suggests. On the contrary, there are always emergent zones of order and relative stability throughout the Deleuzian "chaosmos."<sup>28</sup> In his writings with Guattari, for example, Deleuze argues that the "unstable matters" of earth congeal into layered "strata" and stabilized "structures."<sup>29</sup> As noted earlier, he also decenters the anthropos by dispersing animacy and creativity to more-than-human assemblages along what he calls an "immanent plane of nature."<sup>30</sup> Whitehead made similar conceptual moves, who after all—drawing on James—famously wrote the following: "We find ourselves in a buzzing world, amidst a *democracy of fellow creatures*."<sup>31</sup> Whitehead thus rejects an anthropocentric hierarchy of being. And far from dissolving reality into a sheer chaos of processes, Whitehead's "organic realism" conceptually analyzes the world of ordinary experience—whether rocks or humans, bees or trees—in terms of relatively stable networks, or "societies" of creative and responsive events.<sup>32</sup> In turn, while each event is constituted by a multiplicity of relations with the world, Whitehead insists that events

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shown that they need not be set in mere opposition to one another. Shaviro sees OOO and process thought as *contrasting* (rather than *contradictory*) philosophies. While OOO emphasizes the relatively stable reality of entities, process thought emphasizes change and relations. Shaviro, *The Universe of Things*, 40–41.

<sup>28</sup> Deleuze uses this Joycean term in Deleuze, *The Fold*, 81.

<sup>29</sup> Deleuze and Guattari, *A Thousand Plateaus*, 40–41.

<sup>30</sup> Deleuze, *Spinoza*, 124.

<sup>31</sup> Whitehead, *Process and Reality*, 50. Emphasis added

<sup>32</sup> Whitehead, 309.

also creatively become something for themselves in a “unity of aesthetic appreciation immediately felt as private.”<sup>33</sup> Contrary to Morton’s oppositional claims, Whitehead thus affirms the reality of things *and* relations, stabilities *and* flows. As we will now see, James made comparable affirmations through his radical empiricism, which I will interpret as an early expression of geophilosophy. But first, I want to introduce James’s thought in the historical context of the beginnings of scientific ecology.

## **II. Empirical Ecologies**

In 1866, the German biologist and contemporary of James, Ernst Haeckel coined the word “ecology” to designate a branch of science that would attend to the interconnections between organisms and their living or nonliving environments.<sup>34</sup> From the perspective of scientific ecology, every living thing is thus embedded within wider ecosystems, and cannot be adequately understood by scientists otherwise. Haeckel also thought that the empirical findings of this new ecological science could be generalized in support of an ecological *philosophy* of the interrelations among all things, and thereby destabilize the prevailing Western view of humans as bounded individuals and an exceptional species unlike any others.<sup>35</sup> Writing in the late 19<sup>th</sup> and early 20<sup>th</sup> century, James never directly engaged the science of ecology, which was then still developing as a discipline. But for reasons that will soon become clear, he was in certain ways a profoundly ecological thinker—and perhaps more consistently so than even Haeckel. In

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<sup>33</sup> Whitehead, 212.

<sup>34</sup> On Haeckel’s definition of ecology, see Birch and Cobb, *The Liberation of Life*, 29.

<sup>35</sup> Bauman, Bohannon, and O’Brien, *Grounding Religion*, 34–37.

fact, James explicitly objected to Haeckel's philosophy, which he (rightly or not) characterized as a form of reductive materialism.<sup>36</sup> As Donald Crosby explains, James was critical of the metaphysical theories of scientific materialists because he saw them as excessively reductionistic and deterministic, and thereby as giving "short shrift to crucial issues relating to mind, spirit, freedom, and plurality."<sup>37</sup>

However, in order to counter what he called the "inhumanism" of scientific materialism, James did not then argue for the existence of an absolutely transcendent realm beyond nature by affirming either monistic idealism or classical theistic dualism.<sup>38</sup> These theo-philosophical perspectives were two of the leading alternatives to materialism in James's day. And yet, in James's judgment, neither of these "spiritualistic philosophies" fared much better than materialism. All three positions—materialism, idealism, and theism—require one to "apprehend the [metaphysical] absolute as if it were a foreign being," he writes.<sup>39</sup> By "foreign," James means that these theories are in irresolvable conflict with certain basic features of human experience, including common intuitions of freedom, novelty, chance, plurality, and the directional flow of time. That is to say, as Connolly explains, these theories have the effect of existentially tearing us away from the full immediacy and intimacy of our embodied experiences:

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<sup>36</sup> James, *Pragmatism*, 12. Against this reading of Haeckel as a reductive materialist, Whitney Bauman importantly proposes an alternative reading of Haeckel as an ontological pluralist and non-reductive naturalist who thought that experience went "all the way down" in nature. If Bauman is right, then the philosophies of Haeckel and James are closer than the latter seemed to realize. Crosby and Stone, *The Routledge Handbook of Religious Naturalism*, 33.

<sup>37</sup> Crosby, *The Philosophy of William James*, 131.

<sup>38</sup> James, *Pragmatism*, 13, 134.

<sup>39</sup> James, *A Pluralistic Universe*, 40.

[Materialism] does so by treating nature as if it were radically different from the human experience of freedom and time. [Idealism] does so by treating the everyday experience of disjointedness in the world as if it were illusory and in need of translation into the doctrine of a fully explicable world. [Theism] does so by treating God as an external being radically unlike human beings.<sup>40</sup>

Materialists, traditional theists, and monistic idealists thereby deal in timeless and bloodless abstractions, James contends—whether that of a nature fully determined by unchanging laws, the concept of an eternally omnipotent deity, or a totalizing mind-like reality that imposes unity on an otherwise fragmented world. Such metaphysical abstractions effectively alienate us from the real depth and breadth of our embodied experiences within history, and from the dynamically creative “world of finite multifariousness.”<sup>41</sup> By thus revolting against the abstractions of reductionist scientists, rationalist philosophers, and dualistic theologians, James commits himself to unfolding a philosophy of immanence—or a “radical materialism,” as Crosby describes James’s perspective.<sup>42</sup> “The centre of gravity of philosophy must...alter its place,” James declares, “*The earth of things*, long thrown into the shadow by the glories of the upper ether, *must resume its rights*.”<sup>43</sup> But how might we become better attuned to the earth of things, and how might our thinking be transformed in meaningful ways by an immanent (re)turn to earth? To fully grasp James’s answers to these questions, it is firstly necessary to analyze some of the fundamental features of his larger philosophical project.

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<sup>40</sup> Connolly, *Pluralism*, 69.

<sup>41</sup> James, *A Pluralistic Universe*, 50.

<sup>42</sup> This term is part of the subtitle of Crosby, *The Philosophy of William James*.

<sup>43</sup> James, *Pragmatism*, 57. Emphasis added.

In contrast to reductive materialism, idealism, and theism, James describes his philosophy as a *radical empiricism*. Somewhat like continental phenomenology, James's radical empiricism begins by closely analyzing the pulsating flow of human experience.<sup>44</sup> But it certainly does not end there, as we will see, for James boldly extends the reality of experience to more-than-human worlds. As a pluralistic and post-foundationalist philosophy, radical empiricism thus aims to grapple concretely and non-reductively with reality in its immense complexity on the initial grounds of the immediately lived "pure experience" of human existence. As such, at the center of radical empiricism is a methodological postulate called "the principle of pure experience." As James explains, according to this principle, "everything real must be experienceable somewhere, and every kind of thing experienced must somewhere be real."<sup>45</sup> Underlying this Jamesian principle is the ontologically democratizing assumption that whatever exists in the world of experience is also "*equally real*"—which serves as a check against hierarchical forms of thinking and challenges ethical judgments about the value or disvalue of things based on their locations within a metaphysical chain of being.<sup>46</sup> Thus, as Jean Wahl—Deleuze's teacher and a rare continental thinker who interprets James and Whitehead—comments,

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<sup>44</sup> On James's phenomenological method, see Corrington, *Nature and Nothingness*, 110.

<sup>45</sup> While this may seem to be an excessively subjectivist claim, James conjoins this principle to his pragmatist epistemology: potential truths about reality must arise from experience, but in general, they only then qualify as actually 'true' hypotheses when they are *reliably predictive* of future experiences, have *some accordance* with past experiences, and provide *useful solutions* to real life problems for individuals and societies. Moreover, for pragmatism, the discernment of any 'truth' is ultimately a *communal activity* rather than an exclusively subjective process (thanks to James scholar, A.J. Turner for reminding me of this latter dimension of James's thought). James, *Essays in Radical Empiricism*, 160.

<sup>46</sup> James, 51. Emphasis added.

“For James...there is no longer an inflexible hierarchy; each being holds equal importance; each thing carries the same rank.”<sup>47</sup>

Because reality is therefore only known in and through experience, James is led to the radical conclusion that “*experience and reality come to the same thing.*”<sup>48</sup> We cannot peer beyond or behind the world of experience, nor can we finally explain how particular “experiences ever *get themselves made,*” James contends.<sup>49</sup> This self-organizing character of experience simply lies in the nature of things. As such, metaphysics for James *just is* the study of experience, while experience—and thus reality—must be understood as an immanently creative process. For James, the concept of pure experience then signifies the most fundamental reality: “the *materia prima* of everything”<sup>50</sup> and the immanent creativity of nature always “in the making.”<sup>51</sup> Experience in this metaphysically expansive, “pure” sense does not therefore indicate the experience *of* some thinking subject—whether human or otherwise. Rather, much like Whitehead’s later concept of creativity and the Deleuzian plane of immanence,<sup>52</sup> pure experience names an impersonal and “nondualistic”<sup>53</sup> metaphysical process through which individualized entities unfold—“an upsurging, ever-active field of becoming in which the past flows through the present

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<sup>47</sup> Cited in Zamberlin, *Rhizosphere*, 17.

<sup>48</sup> James, *Essays in Radical Empiricism*, 59. Emphasis added.

<sup>49</sup> James, 133.

<sup>50</sup> James, 138.

<sup>51</sup> James, *A Pluralistic Universe*, 263.

<sup>52</sup> As the editors of a recent volume on Deleuze and pragmatism write, Deleuze and James “would appear to share a commitment to the existence of an impersonal and pre-individual field that is ontologically prior to determined objects.” Bignall, Bowden, and Patton, *Deleuze and Pragmatism*, 5.

<sup>53</sup> James, *Essays in Radical Empiricism*, 257.

into the future,” as Crosby explains.<sup>54</sup> James is therefore pointing us to a deeper world of experience that is ontologically prior to every particular experience of a world.<sup>55</sup> He admits that an unexperienceable, metaphysically exceptional, and even more fundamental reality might well exist beyond pure experience—in the realm of the “upper ether,” as it were. Yet James insists that such things are ultimately irrelevant to radically empirical modes of thought, which are committed to exploring the possibilities of an immanent—indeed, *earthbound*—philosophy.<sup>56</sup>

James is therefore an *empiricist* because he accepts the position of classical empiricists like Hume that knowledge is based primarily on experience. As such, whereas rationalists like Hegel (on James’s reading) philosophically privilege universal principles and abstract conceptual systems,<sup>57</sup> James sides with the empiricist emphasis on “the part, the element, the individual, and treats the universal as an abstraction,” he explains. He thus describes empiricism as a “mosaic philosophy,” which maintains a pragmatic interest in metaphysical theories, even as it rejects the rationalist faith that the world forms a completely coherent and comprehensible whole.<sup>58</sup> Consequently, empiricists

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<sup>54</sup> Crosby and Hardwick, *Religious Experience and Ecological Responsibility*, 69.

<sup>55</sup> This contrast of a “world of experience” and the “experience of the world” is drawn from Hogue, *American Immanence*, 102.

<sup>56</sup> Kant’s noumenal world is somewhat analogous to whatever (for James) may or may not exist beyond the world of pure experience. James, *The Meaning of Truth*, loc 55.

<sup>57</sup> James’s early critique of Hegel is developed in his essay, “On some Hegelisms.” While his wider critique of Hegel is debatable, it serves to illustrate the way that James envisions his own position, which is based on metaphysical pluralism and radical empiricism. For James, Hegel’s “sovereign method” (280) is based on “the principle of totality,” which “says that you cannot adequately know even a part until you know of what whole it forms a part.” (277) By contrast, James—as a pluralist and radical empiricist—tries to distinguish “the respects in which the world is one from those in which it is many...” (280). James, *The Will to Believe, Human Immortality, and Other Essays in Popular Philosophy*, 277–80, 292.

<sup>58</sup> James, *Essays in Radical Empiricism*, 41.

“regard [their] most assured conclusions concerning matters of fact as hypotheses liable to modification.”<sup>59</sup> The pluralistic character of empiricism thus calls for a deep commitment to intellectual humility in the face of the limits of human reason and experience: “Our science is a drop; our ignorance, a sea,” James asserts.<sup>60</sup>

While James thus concurs with classical empiricism’s double emphasis on experience and pluralism, he diverges from the Humean view that humans perceive the world exclusively through the influx of disconnected sense impressions. Against this “intellectualist fiction” of epistemological atomism, James argues throughout his writings that what is immediately perceived is never simply things-in-isolation, but rather always *things-in-relation*.<sup>61</sup> Already in his earliest work on psychology, James asserts that knowledge does not begin with “sensations, as the simplest mental facts...No one ever had a simple sensation by itself.” Rather, what is given in experience is a “*teeming multiplicity of objects and relations*.”<sup>62</sup> Thus, whereas Hume argued that we only ever make connections between things or events by mere force of psychological habit, for *radical* empiricism, dynamic relations are themselves concrete elements within experience, and are consequently just as real as the entities that they interrelate. James thereby affirms an “additive” rather than “eliminative” empiricism, and thus “broadens the inventory of things that can be experienced,” as Michael Hogue points out.<sup>63</sup>

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<sup>59</sup> James, *The Will to Believe, Human Immortality, and Other Essays in Popular Philosophy*, vii.

<sup>60</sup> James, 54.

<sup>61</sup> James, *A Pluralistic Universe*, 287.

<sup>62</sup> James, *The Principles of Psychology*, 224. Emphasis added.

<sup>63</sup> Hogue, *American Immanence*, 93. Emphasis added.



Furthermore, because relations are immanent to experience itself, then contrary to the arguments of rationalist philosophers like Kant, it is not finally necessary to postulate any kind of transcendental principle or “trans-empirical connective support” to bring order to an allegedly irrational chaos of sense impressions.<sup>64</sup> For James, the ambiguously interconnective tissue of experience itself is sufficient for philosophers to work with in our ongoing attempts to make sense of the world.

In light of James’s identification of experience and reality, his description of the former as immanently creative, pluralistic, and relational leads him to propose an analogous conception of the latter. Thus, whereas Haeckel tried to advance an ecological worldview by universalizing the findings of scientific ecology, James unfolds an implicitly ecological—and democratizing—ontology by generalizing his analysis of human experience. On the basis of this ontological generalization, he is in the first place led to affirm a form of *panexperientialism*, and thus to extend creativity and agency beyond the human.<sup>65</sup> Here is how James makes his case for this position:

The only fully complete concrete data are...the successive moments of our own several histories, taken with their subjective personal aspect as well as with their “objective” deliverance or “content.” After the analogy of these moments of experiences must all complete reality be conceived. Radical empiricism thus leads to the assumption of a *collectivism of personal lives* (which may be of any grade of complication, and superhuman or infrahuman [i.e., nonhuman] as well as human), variously cognitive of each other, variously conative and impulsive, genuinely evolving and changing by effort and trial, and by their interaction and cumulative achievements making up the world.<sup>66</sup>

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<sup>64</sup> James, *The Meaning of Truth*, loc. 55.

<sup>65</sup> The term “panexperientialism” was coined by David Ray Griffin. For a defense of the panexperientialist interpretation of James’s philosophy, see Marcus Ford’s argument in Griffin et al., *Founders of Constructive Postmodern Philosophy*, 96–104.

<sup>66</sup> James, *Collected Essays and Reviews*, 444. James rarely used the term “infrahuman” in his published writings, but when he did, he clearly meant nonhumans that lack complex forms of consciousness. This is evident in one of his early writings, “Talks to Teachers On Psychology and to

Thus, to borrow Haraway's term that I cited earlier in this chapter, James suggests that we find ourselves in an animated world of "sympoietic" actors of innumerable kinds. No sharp dualism can be said to exist between personal subjects and impersonal objects, or between living beings and lifeless matter, for in a panexperientialist ontology, these are all "made of the same stuff," James insists.<sup>67</sup>

However, by imputing what are typically understood to be human categories to nonhumans, is James now guilty of anthropomorphism? Perhaps—although he might otherwise be interpreted as contesting the notion that the capacities of experience, agency, and creativity are uniquely human in the first place.<sup>68</sup> Moreover, if these capacities are diffused to all living things rather than being the sole properties of humans, then as Latour points out, "the interests and profits of each actor will be *countered* by numerous other programs."<sup>69</sup> Humans are thus removed from our often-presumed planetary driver's seat, and instead forced to consider the myriad nonhuman citizens of Earth whose interests and intentions frequently conflict with our own. For these reasons, risking the charge of anthropomorphism might prove surprisingly beneficial for ecological thought. As Bennett writes, "anthropomorphism...oddly enough, *works*

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Students" (1892). There, he used the term to signify nonhuman animals in the context of describing Darwinian evolution: "Man, we now have reason to believe, has been evolved from infra-human ancestors, in whom pure reason hardly existed, if at all, and whose mind, so far as it can have had any function, would appear to have been an organ for adapting their movements to the impressions received from the environment, so as to escape the better from destruction." James, *Delphi Complete Works of William James*, location 39060.

<sup>67</sup> James, *Essays in Radical Empiricism*, 19.

<sup>68</sup> Shaviro makes a similar argument in his discussion of Whitehead in Shaviro, *The Universe of Things*, 90.

<sup>69</sup> While Latour is not here engaging James, his point is entirely applicable to the latter's thought. Latour, *Facing Gaia*, 100.

*against anthropocentrism*: a chord is struck between person and thing, and I am no longer above or outside a nonhuman environment.”<sup>70</sup> From this perspective, Jamesian panexperientialism can therefore be understood as a ‘strategic anthropomorphism’ that is deployed against human exceptionalism.

Precisely because pure experience is inherently interconnective, on James’s analysis, his panexperientialism also turns out to be a *panrelationalism*. Since “all units of experience *overlap*,” he observes, it follows that the texture of reality can be imagined as a “continuous sheet” of interinvolved occurrences—as opposed to a clearly divisible collection of inert objects and bounded subjects.<sup>71</sup> Elsewhere, James similarly suggests the affectively-charged ontological image of a “stream of feeling,” with rising and falling “wavelets” or “droplets” of experience.<sup>72</sup> To be sure, the relational character of reality does not then imply for James that everything forms a harmonious “union of total conflux,” he clarifies. Rather, not unlike the way ecologists describe ecosystems as composed of a diversity of relationships between organisms and environments, James suggests that the world of experience includes *multiple types* of relations between things of all kinds: some relations are “disjunctive” and others “conjunctive”; some are “more intimate” and others “more external.”<sup>73</sup> In making these distinctions, James avoids a simplistic holism, or what Brian Massumi calls a “romanticism of connection.”<sup>74</sup> As

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<sup>70</sup> Bennett, *Vibrant Matter*, 120. Emphasis added.

<sup>71</sup> James, *A Pluralistic Universe*, 287. Emphasis added.

<sup>72</sup> James, *Essays in Radical Empiricism*, 100.

<sup>73</sup> James, 107–9.

<sup>74</sup> Massumi makes this point while developing a Deleuzian reading of James in Massumi, *Semblance and Event*, 86.

such, alongside harmony and order, dissonance and disorder also have a crucial place in the Jamesian pluriverse. This differentiated conception of relations also supports James's commitment to challenging mechanistic materialism, and to affirming an ontology of co-creative agency that makes room for "real possibilities and real contingencies," as Richard Bernstein notes.<sup>75</sup> Since the innumerable parts of reality are everywhere *plurally* related, James argues, it follows that they must "have a certain amount of *loose play*" between them, "so that the laying down of one of them does not necessarily determine what the others will be."<sup>76</sup> For James, all beings are thus interrelated in such a way that "if you tear out one, its roots bring out more with them," he submits.<sup>77</sup>

In addition to this emphasis on the immanence of relational agency, Jamesian empiricism is also 'radical' in the sense that it foregrounds the ways in which thought and perception always take place in wider material contexts beyond individual subjects—precisely because it incorporates a more *embodied* account of experience than classical empiricists affirmed. Once again, James points us to a more profound world of experience that precedes any conscious experience of a world. As we have seen, whereas empiricists like Hume restricted philosophical knowledge to discrete sense perceptions in the form of mental impressions and ideas, James foregrounds the experienced reality of relations. But James also calls attention to the affective, bodily, and indeed, *earthy* dimensions of experience that tend to reside below the surface of ordinary awareness. As Nancy Frankenberry explains, "radical empiricism is defined by the understanding that

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<sup>75</sup> Bernstein, *The Pragmatic Turn*, 61.

<sup>76</sup> James, *The Will to Believe, Human Immortality, and Other Essays in Popular Philosophy*, 150.

<sup>77</sup> James, *A Pluralistic Universe*, 271.

sense-perception is neither the only nor the primary mode of experience, but is rather derived from a still more elemental and organic togetherness of the experiencing subject and the experienced environment.”<sup>78</sup> There is thus a material depth to experience that escapes conceptualization, and which cannot be confined to mental cognition.

For James, it is therefore critical to realize that the world of experience far exceeds the influx of sense impressions. We always have at least a dim “perception of what we may call ‘something there,’ more deep and more general than any of the special and particular senses,” James insists.<sup>79</sup> Intriguingly, this attentiveness to the vaguer dimensions of perception enabled James to take reports of religious and mystical experiences very seriously in his Gifford Lectures. Crucially for the present project, his empiricism is not therefore reducible to an irreligious secularism, for at the very least, it holds open the possibility of constructing an immanent conception of the divine. In the final section of the next chapter, geophilosophy will thus give way to *geotheology*. But for the moment, what I want to highlight is how James later applied a phenomenological analysis of the deeper world of experience to more ordinary and terrestrial realities. On close examination, James points out, our visceral modes of experience seem to include some vague, but also concrete feelings of our own and other bodies, of the reality of the past and future possibilities, of memory and causality, of freedom and purposes, “of the earth’s geography...and of who knows how much more?”<sup>80</sup>

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<sup>78</sup> Frankenberry, *Religion and Radical Empiricism*, 84.

<sup>79</sup> James, *The Varieties of Religious Experience*, 58.

<sup>80</sup> James, *A Pluralistic Universe*, 286.

Here we see James attending to what he earlier called ‘the earth of things,’ precisely through a radical empiricist framing of experience as an immanently creative becoming of affective perceptions and relations with and through more-than-human worlds. On this view, all of our thinking, feeling, and perceiving are inextricably intertwined, not only with our own bodies, but with myriad nonhuman realities as well. James thus provides fertile grounds for geophilosophical imaginings: “We rise upon the earth as wavelets rise upon the ocean,” he writes, “We grow out of her soil as leaves grow from a tree.”<sup>81</sup> By thus plunging subjectivity into the vibrant ecologies of the Earth, James overturns the Cartesian imaginary that placed humans outside of and over against nature. To recall Charles Taylor’s terminology: the Jamesian sense of self is ecologically “porous,” rather than psychologically “buffered.” We may now therefore begin to “[discover] ourselves as earth creatures, *terra bestiae*,” as Hogue suggests in his own James-inspired work.<sup>82</sup> Moreover, whereas moderns typically confine agency and creativity to humanity, James redistributes these capacities to other earthlings through his ontology of pure experience. The interlocking modern binaries of human over nonhuman, subject over object, self over world, and mind over body are consequently dissolved and transposed to a single plane of nature in the democratizing vision of radical empiricism. As we will now see, Whitehead picks up on many of the themes of James’s philosophy, while also developing them in new ways through his critique of scientific materialism.

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<sup>81</sup> James, 171.

<sup>82</sup> Hogue’s work is deeply influenced by James and Whitehead. Hogue, *American Immanence*, 3.

### III. Process Ecologies

In the preface to *Process and Reality*, Whitehead acknowledges that his work is “greatly indebted” to James.<sup>83</sup> Elsewhere, he describes James as an “adorable genius,”<sup>84</sup> and ranks him as one of the greatest Western thinkers of all time, alongside Plato, Aristotle, and Leibniz.<sup>85</sup> It may not then be surprising to discover that Whitehead was a radical empiricist. According to Whitehead, philosophy must always begin on the grounds of experience in the embodied sense that James alerts us to: “All sense perception is merely one outcome of the dependence of our experience upon bodily functionings,” Whitehead insists, which are in turn embedded “within the larger field of nature.”<sup>86</sup> Following James, Whitehead also claims that a deep analysis of “the immediate facts of our psychological experience” ought to lead one to a panexperientialist view of nature as immanently creative, relational, and pluralistic.<sup>87</sup> And again in resonance with James, Whitehead rejects foundationalist theories of knowledge—which is why he views metaphysics as a fallible and open-ended process of “imaginative construction.”<sup>88</sup> The primary importance of metaphysics for Whitehead thus resides *not* in its sometimes-supposed capacity to provide full access into the “true” nature of reality, but rather, as Isabelle Stengers notes, in the concrete “transformations it carries out in our ways of

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<sup>83</sup> Whitehead, *Process and Reality*, xii.

<sup>84</sup> Whitehead, *Science and the Modern World*, 2.

<sup>85</sup> Whitehead, *Modes of Thought*, 2.

<sup>86</sup> Whitehead, 159, 161.

<sup>87</sup> Whitehead, *Science and the Modern World*, 73. For recent work on Whitehead’s panexperientialism (a term that he did not use, but which is now often applied to his thought), see Debaise, *Nature as Event*, 41–47; Connolly, *Facing the Planetary*, 89–120.

<sup>88</sup> Whitehead, *Process and Reality*, 5.

explaining or characterizing our experiences.”<sup>89</sup> For Whitehead, metaphysics is thus a practical endeavor—a view with which James the pragmatist would have concurred.

On my reading, however, a key part of what makes Whitehead’s thought distinctive in relation to that of James is that he was able to synthesize a philosophical cosmology with new insights drawn from the cutting-edge sciences of his day. Along with the scientific theories of electromagnetism and relativity, the development of quantum physics in the early 20<sup>th</sup> century had a major impact on Whitehead’s thought.<sup>90</sup> He interpreted these sciences as implying a process-relational worldview, and thereby as providing further empirical grounds beyond Jamesian psychology for affirming an “organic conception of nature.”<sup>91</sup> Whitehead’s integration of the sciences and radical empiricism would ultimately lead him to develop what Catherine Keller describes as a metaphysics of “radical relationalism, or intersubjectivity, in which difference is not swallowed up by the self, but enhanced”—even as Whitehead reconfigures notions of the “self” and “subject” to be inclusive of more-than-human realities.<sup>92</sup>

In a time in which nonhuman actors and planetary forces increasingly ‘intrude’ upon human affairs, Whitehead’s metaphysics is, in my view, especially pertinent for developing a geophilosophy for the Anthropocene.<sup>93</sup> Already in 1972, ecotheologian John Cobb importantly argued that Whitehead’s philosophy enables one to conceive of the

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<sup>89</sup> Stengers, *Thinking with Whitehead*, 17.

<sup>90</sup> On the relationship between Whitehead’s philosophy and quantum physics, see especially chapter four of Epperson, *Quantum Mechanics and the Philosophy of Alfred North Whitehead*.

<sup>91</sup> Whitehead, *Science and the Modern World*, 152.

<sup>92</sup> Keller, *Face of the Deep*, 87.

<sup>93</sup> For my initial argument along these lines, see Roberts, “Toward an Earthbound Theology.”



Earth—and indeed, of the entire cosmos—as a “*vast ecological system*.”<sup>94</sup> Whitehead also redistributes powers of agency and creativity well beyond the human, resulting in what Hogue describes as a metaphysics of “creatural democracy.”<sup>95</sup> In fact, in a radical move that foreshadowed the recent philosophy/physics of Karen Barad, Whitehead extends agency all the way to the subatomic level—a view that James’s philosophy arguably implies, but one which he never explicitly defended.<sup>96</sup> Moreover, against the secularist view of nature as a machine that lacks inherent worth, Whitehead conceives of nature as an indefinitely extended web of interrelated centers of value: “*Everything* has some value for itself, for others, and for the whole,” he insists.<sup>97</sup> In what follows, I begin by exploring Whitehead’s deconstruction of the dominant modern cosmology. This will in turn allow us to see how Whitehead later constructed his metaphysics in response to specific philosophical and practical problems that are raised by the modern cosmology.

Like James, Whitehead was a sharp critic of scientific materialism, which has essentially remained the “orthodox creed” of modern thought since the time of Newton and Descartes.<sup>98</sup> Whitehead describes this perspective as follows:

There persists...throughout the whole [modern] period the fixed scientific cosmology which presupposes the ultimate fact of an irreducible brute matter, or material, spread throughout space in a flux of configurations. In itself such a material is senseless, valueless, purposeless. It just does what it does do,

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<sup>94</sup> Cobb, *Is It Too Late?*, 65. Emphasis added.

<sup>95</sup> Hogue, *American Immanence*, 97.

<sup>96</sup> On Barad and Whitehead, see Keller’s comparison of the two thinkers in Keller and Rubenstein, *Entangled Worlds*, 116–21. For my comparison of Barad and Whitehead, see Roberts, “Pneumatterings.”

<sup>97</sup> Whitehead, *Modes of Thought*, 111. Emphasis added.

<sup>98</sup> Whitehead, *Science and the Modern World*, 50.

following a fixed routine imposed by external relations which do not spring from the nature of its being. It is this assumption that I call “scientific materialism.”<sup>99</sup>

In this cosmology, whatever exists is thus reducible to bits of matter in motion. Common intuitions of intrinsic values and purposes in nature are consequently difficult to account for in this scheme—despite the efforts of philosophical dualists and idealists to rescue them from the eliminative force of reductive materialism.<sup>100</sup> Such commonsense notions are often then relegated by materialists to the status of useful fictions, or else dismissed as pre-scientific delusions.<sup>101</sup> This reductionist imaginary has also had catastrophic real-world consequences. Indeed, as I argued in previous chapters, the reductionist conception of material bodies as stripped of inherent values has ultimately served to justify the exploitative practices of industrial capitalist societies. Thus, as Whitehead argues, the scientific materialist emphasis on “*things* as opposed to *values*...coalesced with the abstractions of political economy.” Consequently, “all thought concerned with social organization expressed itself in terms of material things and of capital. Ultimate values were excluded...A creed of competitive business morality was evolved...entirely devoid of consideration for the value of human life.”<sup>102</sup> And if Whitehead was writing today, in

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<sup>99</sup> Whitehead, 18.

<sup>100</sup> As Whitehead notes, Cartesian dualists merely make mind and matter equal realities while modern idealists place matter inside of mind. But dualists and idealists are then merely “juggling with abstractions,” Whitehead submits, and he criticizes them for simply accepting the terms of debate that have been established by scientific materialism. Whitehead, 55.

<sup>101</sup> For a currently popular example of this kind of materialism, see Harari, *Homo Deus*.

<sup>102</sup> Whitehead, *Science and the Modern World*, 202–3. For a relevant example, consider the economic abstraction of GDP, which prioritizes economic growth as the key measure of economic and human well-being. There are well-known problems with GDP, however, including its inability to take into account environmental degradation, planetary limits to growth, the value of unpaid labor, and a host of human inequalities (income, race, gender, etc.). All such issues relate to overall human well-being, which is why GDP fails as an adequate measure of the health of human societies. For a critical analysis of other abstractions of modern political economy, see Daly and Cobb, *For the Common Good*, 37–41.

the midst of an anthropogenic extinction event, *surely* he would add that the industrial capitalist creed has disregarded the value of *nonhuman* life as well.<sup>103</sup>

Whitehead foregrounds yet another problematic feature of the modern cosmology—namely, its conception of nature as a causally determined aggregate of “vacuous bits of matter...merely hurrying through space.”<sup>104</sup> A troubling consequence of this mechanistic picture is that scientific materialism “*can find no creativity in Nature*; it finds mere rules of succession,” Whitehead points out.<sup>105</sup> Our common intuitions of freedom and agency, however minimally conceived, are then rendered unintelligible in this view—even as the activities and behaviors of nonhumans are reduced to the forces of efficient causality alone. Insofar as scientific materialists affirm the presence of creativity, freedom, or agency in the world, these capacities are thrown onto the stage of nature as *deuses ex machina*—as in certain modern conceptions of a vital spark, life force, or other such spectral principle.<sup>106</sup> Whitehead thus provocatively suggests that the modern secular image of the deterministic “mechanism of matter” has been fashioned in the image of the omnipotent “mechanism of God”—both of which he bluntly criticizes as “the monstrous issues of limited metaphysics and clear logical intellect.”<sup>107</sup>

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<sup>103</sup> As I was writing this chapter, the U.N. released a major report on global biodiversity loss. See Plumer, “Humans Are Speeding Extinction and Altering the Natural World at an ‘Unprecedented’ Pace.”

<sup>104</sup> Whitehead, *Modes of Thought*, 158.

<sup>105</sup> Whitehead, *Nature and Life*, 66. Emphasis added.

<sup>106</sup> For a careful critique of vitalism, see Birch and Cobb, *The Liberation of Life*, 75–77.

<sup>107</sup> Whitehead, *Science and the Modern World*, 75.

In Whitehead's view, the chief error of scientific materialism is that, like Hume's empiricism, it "only deals with half of the evidence provided by human experience."<sup>108</sup> By contrast, radical empiricism requires attending to the fullness of experience, including intuitions of intrinsic values, agency, and creativity. Whitehead recognizes that this empiricist method opens one to "the charge of anti-intellectualism," since he follows James, John Dewey, and Henri Bergson in emphasizing the philosophical significance of intuition, and not just the intellect.<sup>109</sup> Nevertheless, he contends that the worlds of science and intuition, facts and values, nature and creativity can and must be integrated.<sup>110</sup> As such, Whitehead's constructive aim in his project is to develop what he calls "the philosophy of organism," which he frames as a non-mechanistic and non-reductionist alternative to the dominant modern cosmology. However, Whitehead unfolds this philosophy only after deconstructing modern conceptions of nature and matter.<sup>111</sup>

The modern cosmology of scientific materialism is firstly constructed on the basis of what Whitehead calls "the bifurcation of nature," which conceptually divides nature

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<sup>108</sup> Whitehead, *Nature and Life*, 66.

<sup>109</sup> Whitehead, *Process and Reality*, xii.

<sup>110</sup> As such, a key task of philosophy for Whitehead is to bring rationalist arguments and empirical evidence from the sciences into harmony with other evidence derived from our "intuitive modes of understanding." Whitehead, *Nature and Life*, 26.

<sup>111</sup> In developing his critique of the modern cosmology, Whitehead did not himself use the term "deconstruction" (which is rooted in the work of Jacques Derrida). Even so, I am persuaded by a number of the essays in Keller and Daniell, *Process and Difference*—especially the introduction by Keller (1-30) and chapter four by Luis G. Pedraja (73-90)—that Whitehead's notion of the "criticism of abstractions" (6) closely correlates to the postmodernist understanding of deconstruction. Keller thus writes on the "Whiteheadian deconstruction of abstraction" in her essay (13). Furthermore, despite the fact that deconstruction is generally framed as *anti*-metaphysical, Whitehead's non-foundationalist and non-substantialist approach to metaphysics arguably avoids the Derridean/post-structuralist critique of "metaphysics." In any case, I am not *directly* influenced by Derrida in my use of the term "deconstruction" here, but rather by the work of Keller, who is herself significantly influenced by both Whitehead and Derrida. Thus, for Keller, deconstruction "is not the demolition but the destabilization of founding certainties..." Keller, *Face of the Deep*, 6.

into two separate realms, each with their own attributes. On one side of the bifurcation is nature in its purely physical reality (e.g., atoms, neurons, genes), and on the other is nature as it is perceived by human subjects (e.g., sounds, smells, textures). The former is what science reveals to be objectively ‘there’ in nature, such as the molecules composing a rose; the latter includes various additions from the perceiving mind, such as the redness of the rose’s petals. As such, on this view, the color red in any given experience can be fully reduced by scientists to measurable electromagnetic wavelengths. At least in theory, comparably reductionist operations can then be applied to the contents of any of our sensory experiences and intuitions in order to establish the bedrock reality of physical things. The bifurcation of nature thus produces an ontological split between physical substances and mental apprehensions—the latter of which “are unfortunately of no use to science, since they have no reality,” as Latour writes, “even though they are the stuff out of which dreams and values are made.”<sup>112</sup> There are consequently *two* natures in the cosmology of the moderns: one is physical, factual, and objective, while the other is phenomenal, valuational, and subjective.

As a radical empiricist, however, Whitehead refuses to bifurcate nature between a ‘real’ world of physical facts and a merely apparent one of human values, purposes, and interpretations. This division violates the core principle of radical empiricism that philosophers never exclude from their constructions of reality “any element that is directly experienced.”<sup>113</sup> Bifurcation therefore “does violence to that immediate

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<sup>112</sup> This quote is taken from Latour’s foreword to Stengers, *Thinking with Whitehead*, xii.

<sup>113</sup> This particular line is taken from James, *Essays in Radical Empiricism*, 22. For Whitehead’s version of this Jamesian principle, see Whitehead, *Adventures of Ideas*, 226.

experience which we express in our actions, our hopes, our sympathies, [and] our purposes,” Whitehead argues.<sup>114</sup> Thus, while the bifurcation of nature can only be secured by “explaining away” crucial elements of experience,<sup>115</sup> Whitehead insists on the need to reimagine nature organically as “*one system of relations*” in order to enfold the worlds of science and intuition, facts and values, objects and subjects, materiality and meaning.<sup>116</sup> Here is how Whitehead summarizes his critique of bifurcation:

What I am essentially protesting against is the bifurcation of nature into two systems of reality...namely into the nature apprehended in awareness and the nature which is the cause of awareness. The nature which is the fact apprehended in awareness holds within it the greenness of the trees, the song of the birds, the warmth of the sun, the hardness of the chairs, and the feel of the velvet. The nature which is the cause of awareness is the conjectured system of molecules and electrons which so affects the mind as to produce awareness of apparent nature.<sup>117</sup>

One of the earliest modern philosophers to bifurcate nature along these lines was John Locke, specifically with his theory of primary and secondary qualities. This theory “was made in accordance with the state of physical science at the close of the seventeenth century,” Whitehead notes, which was already mechanistic and reductionistic.<sup>118</sup> Locke thereby provided a philosophical framework for the “physicomathematical order” of scientific materialism: primary qualities define material bodies in their purified state—“senseless, valueless, purposeless,” as Whitehead put it—while secondary qualities apply

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<sup>114</sup> Whitehead, *Process and Reality*, 49.

<sup>115</sup> Whitehead, 17.

<sup>116</sup> Whitehead, *The Concept of Nature*, 28. Emphasis added.

<sup>117</sup> Whitehead, 26–27.

<sup>118</sup> Whitehead, *Science and the Modern World*, 54.

to a derivative realm of subjective additions.<sup>119</sup> As such, Whitehead notes that on the basis of this theory, “bodies are perceived as with qualities which in reality do not belong to them, qualities which in fact are purely the offspring of the mind.”<sup>120</sup> According to Locke, primary qualities are those which are “utterly inseparable” from bodies, which only include “solidity, extension, [number], motion or rest.” These qualities apply to nature’s basic physical elements that are conjectured to exist by modern scientists, such as atoms and molecules. By contrast, secondary qualities are those which “are in truth nothing in the objects [of nature] themselves,” Locke writes.<sup>121</sup> These include colors, sounds, smells, and other sensory qualities that are basic to human experience.

To be sure, in practice, reductionist scientists also rely on these ostensibly inessential qualities. However, they attempt to strain secondary qualities out of their theories, and thus to explain them on the basis of primary qualities alone. *Quantitative patterns* are thereby prioritized over *qualitative perceptions*. Reductionistic science thus proceeds by abstracting from what is most immediately experienced. In one sense, there is nothing problematic about this method, for we “cannot think without abstractions,” Whitehead notes.<sup>122</sup> Yet while the physicomathematical abstractions of science are often useful—indeed, they have been amazingly successful in expanding our understanding of nature—modern philosophers like Locke have mistakenly “[accepted] them as the most

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<sup>119</sup> The term “physicomathematical order” is borrowed from Debaise, *Nature as Event*, 9.

<sup>120</sup> Whitehead, *Science and the Modern World*, 54.

<sup>121</sup> Cited in Debaise, *Nature as Event*, 8.

<sup>122</sup> Whitehead, *Science and the Modern World*, 59.

concrete rendering of fact.”<sup>123</sup> This process of conceptual reification is a key example of what Whitehead calls “the fallacy of misplaced concreteness,” for these abstractions have wrongly been taken to identify the concrete foundations of modern metaphysics, when in fact, they are more accurately understood as conceptual guides for experimenting on certain regions of nature.<sup>124</sup> The disastrous consequence of this uncritical philosophical appropriation of otherwise useful scientific abstractions is that nature—having now been bifurcated into two regimes of existence—came to be seen within the secularist cosmology as “a dull affair, soundless, scentless, colourless; merely the hurrying of material endlessly, meaninglessly.”<sup>125</sup>

Along with the bifurcation of nature, Whitehead argues that scientific materialism is equally founded upon the localization of matter.<sup>126</sup> While bifurcation strips the materiality of nature of its so-called secondary qualities, localization transforms the relational complex of nature into an aggregate of externally related entities. As Didier Debaise suggests, these two operations are closely connected, for localization effectively “completes” bifurcation and “provides it with its formal tools.”<sup>127</sup> Debaise notes that once nature is bifurcated, the following questions are necessarily raised: “What *is* a body when

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<sup>123</sup> Whitehead, 55.

<sup>124</sup> I am here relying on the interpretation of Whitehead presented in Debaise, *Nature as Event*, 24. Like Stengers, Debaise reads Whitehead as a constructivist regarding modern science. As Whitehead himself argued, “The constructions of science are merely expositions of the characters of things perceived.” Whitehead, *The Concept of Nature*, 121.

<sup>125</sup> Whitehead, *Science and the Modern World*, 54.

<sup>126</sup> This paraphrase of Whitehead’s notion of the “fallacy of simple location” is from Debaise, *Nature as Event*, 14.

<sup>127</sup> Debaise, 18. Roland Faber argues similarly when he claims that, for Whitehead, “bifurcation is at once the loss of relationality as it is the construction of substances.” Faber, *The Becoming of God*, 73.



it is separated from its secondary qualities? How can we make sense of such a body, since we only have access to secondary qualities?”<sup>128</sup> Based on the commonsense view that the world of everyday experience is composed of clearly separable objects, many modern thinkers have tried to answer these questions by insisting that a body is nothing but a complex configuration of individual bits of matter within space and time.<sup>129</sup> As such, *matter* is defined as that which can be “simply located,” as Whitehead put it, which consequently reduces nature to a set of isolatable material entities:

To say that a bit of matter has simple location means that, in expressing its spatiotemporal relations, it is adequate to state that it is where it is, in a definite finite region of space, and throughout a definite finite duration of time, *apart from any essential reference of the relations* of that bit of matter to other regions of space and to other durations of time.<sup>130</sup>

On the one hand, this substantialized notion of matter—which is foundational for Newtonian physics—is one of the “most natural ideas for the human mind,” Whitehead notes, and we cannot do without it in everyday life.<sup>131</sup> However, moderns only arrive at this idea by “suppressing what appear to be irrelevant details” of experience—which is, for a radical empiricist, an inherently *relational* reality.<sup>132</sup> Thus, Whitehead insists that in

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<sup>128</sup> Debaise, *Nature as Event*, 15.

<sup>129</sup> In some of his early writings, Whitehead traces the origins of the modern idea of matter to a philosophical error about the nature of experience. As he writes, “the scientific doctrine of matter” first came about when philosophers “illegitimately transformed the bare entity, which is simply an abstraction necessary for the method of thought” into the foundations of modern metaphysics. In later writings, this is what he would call the fallacy of misplaced concreteness. Whitehead, *The Concept of Nature*, 19.

<sup>130</sup> Whitehead, *Science and the Modern World*, 58. Emphasis added.

<sup>131</sup> As noted earlier in this chapter, with the metaphysical notion of “societies,” Whitehead provides a way to account for this commonsense experience of the world as being composed of enduring things—yet *without* resorting to the philosophical notion of substances. Unlike substances, societies change, even as they can also maintain varying degrees of stability over time.

<sup>132</sup> Whitehead, *Science and the Modern World*, 52.

our experience of nature, “there is no element whatever which possesses this character of simple location.”<sup>133</sup> Rather, what is immediately given in experience is nature as a dynamically interrelated complex—or what Whitehead at one point calls “*the whole occurrence of nature*,” which has the energetic structure of an “*event*” that is “essentially *passing*.” It is only by a process of abstraction that moderns then carve up the complex event of nature into a set of externally related, ‘simply located’ objects.<sup>134</sup> The presumed substance ontology of Newtonian physics thus “leaves entirely out of account the interconnections between real things,” Whitehead argues. “Each thing is conceived as complete in itself, without any reference to any other substantial thing.”<sup>135</sup>

As such, the localization of matter is yet another instance of the fallacy of misplaced concreteness. Misplaced concreteness thus not only points to the philosophical error of reifying our abstractions. As Connolly notes, misplaced concreteness also refers to “the tendency to overlook entanglements between energized, real entities that exceed any atomistic reductionism of them”<sup>136</sup>—as when a self-amplifying feedback loop emerges between the climate system and wildfires in California, or when global warming becomes a causal factor in the outbreak of civil war in Syria, or when humanity’s destruction of biodiversity creates conditions for viruses like COVID-19 to emerge.<sup>137</sup> Anthropocene societies will either learn to become more attentive to these kinds of

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<sup>133</sup> Whitehead, 58.

<sup>134</sup> Whitehead, *The Concept of Nature*, 15–16. Emphasis added.

<sup>135</sup> Whitehead, *Adventures of Ideas*, 132–33.

<sup>136</sup> Connolly, *The Fragility of Things*, 154.

<sup>137</sup> Vidal, “Destroyed Habitat Creates the Perfect Conditions for Coronavirus to Emerge.”

precarious entanglements with nonhuman forces, or else collapse as a result of the socially destabilizing effects of such forces. Avoiding what Whitehead identified as the fallacy of misplaced concreteness by minding our relations with other planetary powers has thus never been more important than it is today.

Whitehead also challenges the localization of matter on the grounds of modern science itself. Beginning in the early 20<sup>th</sup> century while Whitehead was developing his philosophy, new theoretical developments within physics called into question the Newtonian assumptions of scientific materialism. In certain ways prefiguring the more recent theories of physicists like Carlo Rovelli and Lee Smolin, Whitehead interpreted modern physics as broadly suggesting a cosmology of interrelated and open-ended becomings.<sup>138</sup> He thus insists on converting the idea of substantial matter into processual “activities” or relational “vibrations”:

The modern [physics] point of view is expressed in terms of energy, activity, and the vibratory differentiations of space-time. Any local agitation shakes the whole universe. The distant effects are minute, but they are there. The concept of matter presupposed simple location...But in the modern concept the group of agitations which we term matter is fused into the environment. There is no possibility of a detached, self-contained local existence. The environment enters into the nature of each thing. Some elements in the nature of a complete set of agitations may remain stable as those agitations are propelled through a changing environment. But such stability is only the case in a general, average way. This...is the reason why we find the same chair, the same rock, and the same planet, enduring for days, or for centuries, or for millions of years.<sup>139</sup>

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<sup>138</sup> While Rovelli has yet to engage Whitehead in his published work, the similarities between the two are quite striking. Consider the following claim from Rovelli: “In the world described by quantum mechanics, there is no reality except in the *relations* between physical systems. It isn’t *things* that enter into *relations*, but rather *relations* that ground the notion of *thing*. The world of quantum mechanics is not a world of objects: it is a world of events.” Rovelli, *Reality Is Not What It Seems*, 135. In Smolin’s work, he argues that the physical universe needs to be understood through the lens of a philosophy of becoming and relationality, and cites Whitehead’s philosophy as an example of this way of thinking. Unger and Smolin, *The Singular Universe and the Reality of Time*, xv.

<sup>139</sup> Whitehead, *Modes of Thought*, 138.

It was especially quantum physics that lured Whitehead deeper into this process cosmology. As Keller notes, “The math of the quantum delivered him such a dramatic challenge to commonsense substantialism that he began to write a speculative cosmology.”<sup>140</sup> Indeed, Whitehead concludes that quantum physics undermines the notion of the “undifferentiated endurance” of matter, since it dissolves the fundamental constituents of nature into “*organized system[s] of vibratory streaming of energy.*”<sup>141</sup> Thus, whereas Newtonian atoms were seen as simply located stuff, quantum theory suggests for Whitehead that “the ultimate elements of matter are in their essence vibratory.” All of the enduring things of ordinary experience are thus composed, not of determined material atoms, but of processual quantum events—or “vibratory entities.” Every such entity is also relationally “*constituted by the vibrations,*” Whitehead submits, so they do not persist as self-identical particles within space.<sup>142</sup>

Transposing this quantum cosmology to his philosophy of organism, Whitehead argues that nature is finally composed of innumerable “vibratory organism[s].”<sup>143</sup> Elsewhere, he uses the terms “events” and “actual occasions” in order to signify these basic ontological realities.<sup>144</sup> Recalling James’s panexperientialism, Whitehead describes

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<sup>140</sup> Keller and Rubenstein, *Entangled Worlds*, 116. See also Keller’s in-depth discussion of quantum physics and Whitehead in Keller, *Cloud of the Impossible*, 127–67.

<sup>141</sup> Whitehead, *Science and the Modern World*, 35. Emphasis added

<sup>142</sup> Whitehead, 36.

<sup>143</sup> By using the biological term ‘organism’ in this expansive sense, Whitehead suggests that everything real depends upon environments and other beings to exist, and that nothing is reducible to inanimate matter in motion. Whitehead, *Science and the Modern World*, 36.

<sup>144</sup> Whitehead, 103.

actual occasions as “drops of experience, complex and interdependent.”<sup>145</sup> As experiential droplets, occasions are envisioned by Whitehead as *singular* actualities, as well as creative and responsive *subjects* of experience—though usually without any trace of consciousness. Thus, as Keller writes, “For Whitehead, every subject—quantum or queen—experiences, feels, and responds spontaneously to its world. Each process of becoming counts as a responsive materialization of its world.”<sup>146</sup> Nature is not then bifurcated between experiential (human) subjects on one side, and vacuous objects with primary qualities on the other. It is reimagined as an organismic “theatre” of intersubjective becomings.<sup>147</sup> With this non-bifurcating and non-anthropocentric metaphysics, Whitehead thus enables a redistribution of “all the elements of experience that had been divided and confined to overly specific domains,” as Debaise points out.<sup>148</sup>

Unlike Newtonian atoms or substances, actual occasions are constitutively related to one another—or as Hogue puts it, “*intrarelated*.”<sup>149</sup> Each intrarelatational occasion “feels” or “prehends” previously actualized entities as real potentials for their own becoming. They also prehend pure potentials, or “eternal objects,” which provide specific qualities, relations, and recurring patterns that help to define concrete actualities.<sup>150</sup> Each

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<sup>145</sup> Whitehead, *Process and Reality*, 18.

<sup>146</sup> Keller and Rubenstein, *Entangled Worlds*, 118.

<sup>147</sup> Whitehead, *Modes of Thought*, 140.

<sup>148</sup> Debaise, *Nature as Event*, 41.

<sup>149</sup> Hogue, *American Immanence*, 103. Emphasis added. Evidently, Hogue utilizes this term without any connection to the “intra-active” ontology in Barad, *Meeting the Universe Halfway*, 33.

<sup>150</sup> The concept of eternal objects is one of the most complex and controversial aspects of Whitehead’s philosophy. For some process thinkers like Crosby, Hogue, Frankenberry, and Connolly, Whitehead goes too far in theorizing a nontemporal realm of potentiality. They prefer to think of *all* potentials as real (i.e., contingent, emergent, evolving, temporal). Yet other process thinkers continue to work with Whitehead’s original position. Such scholars include Stengers, Cobb, Faber, Shaviro, Debaise,

occasion then creatively synthesizes real and pure potentials so as to become something new in the world. Crucially, unlike Platonic Ideas, pure potentials are not therefore “opposed to creativity,” as Deleuze notes, for “they gain permanence only in the limits of the flux that *creates* them, or of the prehensions that *actualize* them.”<sup>151</sup> Every occasion thus has a momentary flash of “self-creative” agency, or final causality, after which it perishes into the past and acquires efficient causality as real potential for newly emergent subjects of experience.<sup>152</sup> Whitehead thus resists the secularist imaginary of nature as a mechanistic machine, and in its place proposes an ecological vision of an immense multiplicity of occasions—all of which collectively constitute “the evolving universe, ever plunging it into the creative advance.”<sup>153</sup> Without exception, everything actual is either an occasion of experience or (as noted earlier) a relatively stable society of occasions—including electrons, tectonic plates, slime molds, humans, whales, honeybees, mushrooms, redwood trees, and the Earth System as a whole.

As I interpret him, Whitehead thus affirms a radically democratic and nondualistic cosmology, for although nature is wildly differentiated, everything exists “on the same level,” he insists.<sup>154</sup> It is partly for this reason that Whitehead declares himself to be

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Lee, and Keller. For helpful discussions on this issue, see Cobb, *Whitehead Word Book*, 23–26; Stengers, *Thinking with Whitehead*, 302–3; Lee, *Spirit, Qi, & the Multitude*, 87–88; Shaviro, *Without Criteria*, 36–43.

<sup>151</sup> Deleuze, *The Fold*, 80. Emphases added. As Hyo-Dong Lee similarly points out, eternal objects “are ‘cosmic genetic codes’ harboring many possibilities of concrete actualization more than they are some kind of predetermined cosmic archetypes.” Lee, *Spirit, Qi, & the Multitude*, 92.

<sup>152</sup> On the “self-creative” agency of the actual world, see Whitehead, *Process and Reality*, 85. On final and efficient causality, see Whitehead, 29.

<sup>153</sup> Whitehead, *Modes of Thought*, 150.

<sup>154</sup> Whitehead, *Process and Reality*, 18. It is important to clarify that, for Whitehead, while everything exists on the same level (i.e., as actual occasions or societies), societies are distinguished between what Griffin has called “compound” and “aggregative” types. Compound societies (e.g., humans, birds) have “dominant occasions” that can influence the functioning of the whole society. Aggregative

“closely allied” to the monistic philosophy of Spinoza.<sup>155</sup> However, Whitehead transforms Spinoza’s monism of substance into a pluralism of processes. For Spinoza, what ultimately exists is one impersonal substance (*Deus sive Natura*) that is expressed in many modes. By contrast, Whitehead’s category of the ultimate is the endless flux of non-substantial creativity,<sup>156</sup> by virtue of which each intrarelated occasion is capable of both autopoiesis and sympoiesis.<sup>157</sup> But creativity is ‘ultimate’ only in the sense that it is ultimately *descriptive* of the agentive reality of every occasion. Whitehead thus “inverts [Spinoza’s] point of view,” since for him, the many occasions are ultimately real rather than being “inferior modes” of one substance.<sup>158</sup>

With his metaphysics of intersubjectivity, Whitehead also claims to have inverted Kant’s transcendental idealism by making subjectivity emergent from the world, rather than the other way around.<sup>159</sup> As Shaviro explains, this is why Whitehead describes each

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societies (e.g., rocks) lack dominant occasions. Thus, while aggregative societies are composed of actual occasions of experience at the micro-level, at the macro-level, the already negligible creative spontaneity of their constitutive occasions is canceled out by the law of large numbers. On this “organizational duality,” see Griffin, *Reenchantment Without Supernaturalism*, 120-126 and Connolly, *Facing the Planetary*, 97.

<sup>155</sup> Whitehead, 7.

<sup>156</sup> The description of creativity as “non-substantial” is my own. While I believe that this is an accurate description of creativity, it is also the case that Whitehead’s earliest description of creativity was as “the underlying substantial activity.” See Whitehead, *Science and the Modern World*, 123. However, when Whitehead was later developing this category in comparison to Spinoza’s monism, he avoids describing creativity as “substantial” in favor of “dynamic process”—which he states is meant to avoid the “substance-quality” concept that Spinoza relies upon. See Whitehead, *Process and Reality*, 7. Thus, Frankenberry aptly summarizes Whitehead’s category of creativity as “the very actuality of things, their act of being there at all. Everything exists in virtue of creativity, but creativity is not a *thing*.” Henning, Myers, and John, *Thinking with Whitehead and the American Pragmatists*, 105.

<sup>157</sup> As Frankenberry writes, “the idea of creativity in process thought is always reflexive and is exercised over and with respect to ‘self.’ And since self in a processive world is always social, creativity is transactional and multi-dimensional. Creativity is therefore *both* self-creativity and co-creativity.” Henning, Myers, and John, *Thinking with Whitehead and the American Pragmatists*, 108.

<sup>158</sup> Whitehead, *Process and Reality*, 81.

<sup>159</sup> Whitehead, 88.

momentary subject of experience as also a “*superject*: not something that underlies experience, but something that emerges from experience, something that is superadded to it.”<sup>160</sup> Whitehead’s post-Kantian inversion of the subject is also, it could then be said, a *posthumanist redistribution* of subjectivity. After all, subjectivity extends well beyond the human for Whitehead, as we have seen, which is why he could claim “that apart from the experiences of subjects there is nothing, nothing, nothing, bare nothingness.”<sup>161</sup>

It is in this context that we can now consider Whitehead’s concept of nature as a value-laden field of becoming. For Whitehead, every superjective subject is not only a stubborn *fact*, but also an immanent realization of aesthetic *worth*: “Value is inherent in actuality itself,” he insists. “To be an actual entity is to have a self-interest. This self-interest is a feeling of self-valuation; it is an emotional tone.”<sup>162</sup> How is this democratization of value to be understood metaphysically? As we have seen, all emergent occasionsprehend real and pure potentials for their own becoming-concrete—but always with a particular *manner* of feeling, since each occasion positively incorporates some potentials while devaluing others in its process of self-constitution.<sup>163</sup> Put differently: subjects-superjects emerge through relational acts of feeling-with and

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<sup>160</sup> Shaviro, *Without Criteria*, 12.

<sup>161</sup> Whitehead, *Process and Reality*, 167.

<sup>162</sup> Whitehead, *Religion in the Making*, 87.

<sup>163</sup> To explain the manner, ‘how,’ or “subjective form” of each prehension, Whitehead requires his concept of eternal objects. For Whitehead, if the manner of each prehension was derived entirely from the past (i.e., real potentials), the cosmos would simply repeat itself forever and novelty would be illusory. But if the ‘manner’ is derived from eternal objects—which are non-actual, infinite, and uncreated—then *genuine* novelty is real. For Whitehead’s account of this, see Whitehead, *Process and Reality*, 148–49. See also the insightful commentary on this issue in Debaise, *Nature as Event*, 63. For process theologians like Griffin, insofar as one accepts that eternal objects are necessary for process metaphysics, so one must accept the metaphysical necessity of Whitehead’s God concept as the actual locus of pure potentiality.



through the world, and this process always involves a “decision” on the part of the emergent occasion *to value* certain elements over others for itself.<sup>164</sup>

It is through these prehensive acts of valuation and self-creative synthesis that we can now understand Whitehead’s earlier claim that every superjective subject becomes a concrete “unity of aesthetic appreciation immediately felt as private.” Each “pulsation of actuality” is thus a realization of intrinsic value “for itself,” and subsequently, a transmission of relational values (*and* disvalues) “for others” and “the whole” of nature.<sup>165</sup> As Philip Rose writes, “Within this value-relational world all ‘things’ are thus defined not simply in terms of their relations, but in terms of relational *responses* to *values felt*, that is, as positive or negative reactions or responses *to* some ‘given’ state of affairs.”<sup>166</sup> Thus, whereas Kant’s idealist account of aesthetics anthropocentrically grounds the experience of objective, worldly values within the transcendental conditions of subjectivity—thus privileging the human subject as the primary source of aesthetic values—Whitehead locates real values in the concrete interactions between emergent creaturely subjects and the rest of nature.<sup>167</sup> We can therefore rephrase Whitehead’s earlier metaphysical claim as follows: *apart from creaturely realizations of value, there is nothing, nothing, nothing, bare nothingness.*

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<sup>164</sup> For Whitehead’s account of “valuation,” see Whitehead, *Process and Reality*, 240–41.

<sup>165</sup> Whitehead, *Modes of Thought*, 111.

<sup>166</sup> Rose, *On Whitehead*, 2.

<sup>167</sup> As Rose further explains, Kant upholds a “relational” view of aesthetic experience by insisting that objects in nature ‘trigger’ aesthetic experiences for human subjects. But unlike Whitehead’s *non-idealist* account of values, Kant *also* renders “the subject’s own cognitive machinery [as] the primary source or ground of the value (or disvalue) felt.” Rose, 5.

Particularly for those of us who have inherited modern ways of imagining the world in terms of sharp ontological binaries and anthropocentric hierarchies, Whitehead offers an important philosophical alternative—one that is *immanent*, but which also short-circuits the bifurcated view of nature that has shaped the immanent frame of our modern secular age. Alongside James’s radical empiricism, Whitehead’s metaphysics of creatural democracy thus provides a compelling way of reimagining agency, creativity, and value beyond the ideological confines of human exceptionalism and reductive materialism.<sup>168</sup> Their philosophies may thereby inform a new planetary imaginary for the Anthropocene. As I have been contending, this *geophilosophical* task is especially urgent today, for now more than ever, we have to come to terms with the many ways in which we are entangled with other earthlings—who are neither valueless configurations of inanimate matter, nor fully predictable parts of a mechanistic nature. Such ideas arguably impede our chances of ever moving toward an ecological civilization.

However, despite their vital insights for geophilosophical thought, a limitation of the writings of both James and Whitehead—particularly for the wider purposes of my project—is their relative lack of attention to politics. At the same time, insofar as their democratizing ontologies serve to *de*-exceptionalize the human while reanimating and revaluing nonhuman worlds, their philosophies have crucial ecopolitical implications. As I indicated in chapter one through my engagements with the works of Taylor and Latour, the political sphere is typically imagined in an anthropocentric fashion within the modern

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<sup>168</sup> To be clear, I take Whitehead’s metaphysics (combined with Jamesian empiricism) to provide one persuasive way of developing a geophilosophy. Even so, I can envision other conceptual paths to geophilosophy, including Indigenous cosmologies (e.g., as explored by Kohn), Robert Corrington’s ecstatic naturalism, and any number of non-Western philosophies (e.g., Madhyamaka, Ubuntu).

immanent frame. But in the Anthropocene, this habit of modern thought needs to be challenged and finally broken, for it too inhibits the possibility of a flourishing planetary future. The political and the planetary must now therefore be thought *together*—which is precisely what Jane Bennett attempts in her work. As we will see below, while the philosophical perspectives of Bennett, Whitehead, and James are in many ways similar, Bennett’s deployment of her ontology as a “*political ecology*” enables an explicitly political translation of geophilosophy.

#### **IV. Political Ecologies**

After publishing *Vibrant Matter: A Political Ecology of Things* (2010), Bennett emerged as a leading theorist of “the new materialism.” As Diana Coole and Samantha Frost describe this important trend of 21<sup>st</sup> century thought, the new materialism “sees its task as creating new concepts and images of nature that affirm matter’s immanent vitality.”<sup>169</sup> As an intellectual movement that challenges anthropocentrism, it can be understood as part of the wider nonhuman turn within the humanities and social sciences, and as closely connected to current discussions about posthumanism. Indeed, Bennett describes her own project in such terms.<sup>170</sup> Thus, as Keller and Rubenstein point out, one of the central motivations of new materialists like Bennett is to “displace human privilege by attending to the agency of matter itself.”<sup>171</sup>

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<sup>169</sup> Coole and Frost, *New Materialisms*, 8.

<sup>170</sup> Bennett, *Vibrant Matter*, 120.

<sup>171</sup> Keller and Rubenstein, *Entangled Worlds*, 1.

Like many other new materialists, Bennett is influenced by Deleuze and Guattari, even as she also draws on the work of philosophers like Spinoza and Latour. Although neither James nor Whitehead make appearances in *Vibrant Matter* (except for a passing mention of the latter), Bennett shares their philosophical convictions that we live in a relational world of becoming, and she converges with their ecological conceptions of nonhuman agency. However, whereas James and Whitehead proposed philosophical alternatives to modern materialism—with its bifurcated nature and simply located matter, to recall Whitehead’s terminology—Bennett reclaims both “matter” and “materialism” from the reductive, disenchanted types of materialism that Whitehead and James resisted. She thus develops a “new” materialist ontology by affirming what she calls a “*vital materiality*,” which avoids “the idea of matter as passive stuff, as raw, brute, or inert.”<sup>172</sup> But crucially, while she embraces speculative philosophy, Bennett’s reasons for advocating for what she calls a “(meta)physics of vital materialism” are pragmatic.<sup>173</sup> As such, her primary goal is to theorize a political ecology that might “encourage more intelligent and sustainable engagements with vibrant matter and lively things,” and that might also provide a way of countering “our earth-destroying fantasies of conquest and consumption.”<sup>174</sup> In what follows, I read Bennett’s ontology as unfolding through an eco-

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<sup>172</sup> Bennett, *Vibrant Matter*, vii.

<sup>173</sup> Bennett, xviii.

<sup>174</sup> Bennett, viii–ix.

phenomenology of matter, and then turn to show how this philosophical imaginary informs her conception of political ecology.<sup>175</sup>

Bennett begins her project with a story about her own encounter with some seemingly forgettable items: a glove, a mat of oak pollen, a dead rat, a bottle cap, and a stick of wood. All five objects were littered over a storm drain on a street in Baltimore, and one can only assume that if anyone else had noticed them, they saw them as nothing more than a pile of garbage. But for Bennett, this encounter brought about an unexpected transformation in her perception of the world. In one moment, she tells us, the items appeared to her as passive “debris” and inert “objects.” Yet in the next moment, their banality and passivity dissolved in her experience, and they began to appear as active “stuff that commanded attention in its own right,” subtly animated things that somehow “issued a call” to her, and affective beings with “vibratory” powers that exceeded “human meanings, habits, or projects.” Thus, as each bit of litter exerted its own “thing-power,” the items that initially appeared to Bennett as inanimate matter now revealed their inherent capacities to “provoke affects” and “produce effects” in the world—as if (to recall James’s striking phrase) ‘the earth of things’ had begun to ‘resume its rights.’

There is an almost mystical quality to Bennett’s narration of this event, as when she writes about her “nameless awareness of the *impossible singularity*” of each expressive entity, or when she approvingly cites Foucault’s call for “a metaphysics of that *never objectifiable depth* from which objects rise up toward our superficial knowledge.” On my reading, while Bennett is clearly a philosopher of immanence, she also proposes a

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<sup>175</sup> Bennett does not use the term “eco-phenomenology.” However, she is influenced by Merleau-Ponty, whose writings are a major influence on this field. For an introduction to this style of ecophilosophy, see Brown and Toadvine, *Eco-Phenomenology*.

pluralistic sense of transcendence as radically redistributed throughout nature—as when she describes nonhuman materiality as always and inevitably partly “Other” to human selves, or when she suggests that each instance of thing-power is irreducibly “out-side” human language.<sup>176</sup> This diffusion of vibratory expressions of micro-transcendence may even have the effect of *resacralizing* matter, since it elevates “the status of the shared materiality of all things,” Bennett contends, and distributes “value more generously, to bodies as such.”<sup>177</sup> While Bennett’s concepts of thing-power and the out-side thus signify horizontalized modes of transcendence, she is clear that they are not meant to point beyond nature to any otherworldly deity, or to an “absent absolute.”<sup>178</sup> Rather, what she has in mind with the distributive transcendence and relational alterity of thing-power is something akin to Spinoza’s concept of *conatus*, which names the *vital force* of finite bodies to persist; or to Thoreau’s notion of *the Wild*—that “irreducibly strange dimension of matter,” Bennett explains.<sup>179</sup> In turn, each of these ideas help to challenge the modern idea that matter is in principle fully calculable and exploitable, suggesting instead that “something always escape[s] quantification, prediction, and control.”<sup>180</sup>

What were the conditions that led to Bennett’s revelatory encounter with ‘lively litter’? Why did she just *then* become attuned to nonhuman entities that “shimmer and spark,” as she puts it, and to perceive their oscillations between ‘dull objects’ and ‘vivid

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<sup>176</sup> Bennett, *Vibrant Matter*, 2–5. Emphases added.

<sup>177</sup> Bennett, 13.

<sup>178</sup> Bennett, 16–17.

<sup>179</sup> Bennett, 2–3.

<sup>180</sup> Bennett, 63.

things’? Bennett suggests a number of contingencies as potentially relevant factors: the peculiar arrangement of the glove-pollen-rat-cap-stick; the cheerful sunny weather of that morning upon which she discovered them; the way that the sunlight caused the glove to glow as she was walking by. But most significantly, Bennett notes that she was *imaginatively prepared* for the encounter on her perceptual “in-side” by having recently contemplated the ideas of certain philosophers, including Thoreau’s Zen-like advice to practice “looking always at what is to be seen”; Spinoza’s claim that nature is “animate, albeit in different degrees”; and Merleau-Ponty’s call to “discover in all other ‘objects’ the miracle of expression.”<sup>181</sup>

However, considering these conditioning factors, a skeptic might then wonder if Bennett’s experience of vibrant matter was merely due to her own projections upon what was, in reality, totally inanimate stuff. One *could* try to reduce the whole occurrence to a fanciful imposition of anthropomorphic categories upon a purely passive nature, Bennett admits. But *what if* the “swarming activity” of her own cognitive powers was “*itself* an instance” of vital matter—of the same vibratory stuff that “constituted the trash?” And what if this ontological vitality then applies to nature more generally? To use Bennett’s preferred ontological terms, what if all things—from quantum to consciousness—are understood monistically as interinvolved “actants” and heterogenous “assemblages” of one creative-destructive “matter-energy,” in contrast to the commonly presupposed dualism of active and immaterial minds over mechanistic material bodies?<sup>182</sup>

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<sup>181</sup> Bennett, 5.

<sup>182</sup> The Latourian concept of “actant” is defined as a “source of action that can be either human or nonhuman; it is that which has efficacy, can *do* things, has sufficient coherence to make a difference, produce effects, alter the course of events.” Bennett, viii. The concept of “assemblage” was developed by

In that case, humanity's powers to shape and reshape the world would count as "evidence of our own constitution as vital materiality," Bennett argues,<sup>183</sup> and as "clues to the material vitality that we share" with everything that exists.<sup>184</sup> Far from being metaphysically *exceptional* beings, humanity would then need to be understood as a complex *exemplification* of vibrant matter. On this view, humans are one type of actant among others—which for Bennett means that agentic capacities are "differentially distributed across a wider range of ontological types."<sup>185</sup> Especially for modern secular persons, coming to see materiality in this distinctively "enchanted" way may require developing a "capacity for naiveté," Bennett submits, or even becoming "temporarily infected by discredited philosophies of nature," such as premodern forms of animism. Yet these are arguably risks worth taking, for in coming to sense our own "strange and incomplete commonality with the out-side," Bennett writes, we may become more inclined to "treat nonhumans—animals, plants, earth, even artifacts and commodities—more carefully, more strategically, more ecologically."<sup>186</sup>

Although Bennett does not attempt to *prove* that her ontology is the one true representation of reality, she occasionally draws on the sciences as supportive supplements to her phenomenology of vibrant matter. In her view, a mechanistic understanding of matter is "no longer even scientific," because it has been decisively

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Deleuze and Guattari, and is defined by Bennett as "ad hoc groupings of diverse elements, of vibrant materials of all sorts." Bennett, 23.

<sup>183</sup> Bennett, *Vibrant Matter*, 10.

<sup>184</sup> Bennett, 17.

<sup>185</sup> Bennett, 9.

<sup>186</sup> Bennett, 17–18.



“challenged by systems theory, complexity theory, chaos theory,” and other recent scientific paradigms of self-organizing processes throughout nature.<sup>187</sup> But Bennett does not then claim that such perspectives provide indubitable evidence for her “speculative onto-story.”<sup>188</sup> Rather, she constructs her ontology mainly through a close analysis of her own experience, and then invites us to see how it may inspire more sustainable and ethical ways of living in relation to nonhumans.

When Bennett turns to unfold the ecopolitical implications of her materialism, she avoids making overly simplistic connections between metaphysics and politics. There is no “*direct* relationship between, on the one hand, a set of ontological assumptions about life and matter and, on the other hand, a politics,” Bennett points out.<sup>189</sup> This is a crucial qualification of her project, for it is simply not the case that vital materialism *directly* implies the radically democratic political ecology that Bennett ultimately affirms—just as, for example, classical theism does not *necessarily* lend support to either theocratic or anti-ecological forms of politics. Arguably, any given metaphysics or theology can be used to justify a plurality of political positions.<sup>190</sup> Nevertheless, Bennett insists—and rightly so, in my view—that any human imaginary that is founded upon strong metaphysical hierarchies (e.g., God/world, human/animal) “*easily transitions* into a political image of a hierarchy of social classes or even civilizations.”<sup>191</sup> Such a transition

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<sup>187</sup> I would add to this list Gaia theory and ESS (which draw on complexity theory). Bennett, 91.

<sup>188</sup> Bennett, 3–4.

<sup>189</sup> Bennett, 84.

<sup>190</sup> On the ambiguous relationship between metaphysics/theology and politics, see the important essays by Connolly and Tanner in Johnson-DeBaufre, Keller, and Ortega-Aponte, *Common Goods*.

<sup>191</sup> Bennett, *Vibrant Matter*, 84. Emphasis added.

to dominating forms of power becomes even more likely whenever metaphysical or theological perspectives are taken to have total monopolies on truth. Thus, while Bennett insists upon the ecopolitical importance of theorizing “*on a less vertical plane*,” she cautiously frames her project as an experimental hypothesis.<sup>192</sup>

In geophilosophical resonance with Whitehead’s vision of creatural democracy, Bennett’s political ecology offers a way to reimagine the relations of human societies with nonhuman nature through the lens of vital materialism—and ultimately, of challenging anthropocentric politics “at a time when the interactions between human, viral, animal, and technological bodies are becoming more and more intense.”<sup>193</sup> The key questions that drive this dimension of her project are, first, whether nonhumans might be considered members of a public or a demos; and if so, how we might theorize their political capacities so as to become more capable of responding to their actions in the present. Bennett poses these questions mainly with smaller nonhuman actants in mind—worms, viruses, and litter, for example. However, I will ultimately suggest that her political ecology can be extended to a *geological* scale, precisely so as to conceive of the Earth itself as a political actor within a precarious planetary public.

Bennett unfolds her political ecology by engaging two major theorists of democracy: John Dewey and Jacques Rancière.<sup>194</sup> For Dewey, a “public” is defined as an assemblage of ordinary citizens who have been drawn together by a shared recognition that certain social, political, and/or economic activities have produced undesirable

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<sup>192</sup> Bennett, ix. Emphasis added.

<sup>193</sup> Bennett, 108.

<sup>194</sup> Bennett’s analysis of Dewey’s philosophy is largely based on Dewey, *The Public and Its Problems*. On Rancière, Bennett engages Rancière, *Disagreement*; Rancière, *The Politics of Aesthetics*.

consequences for the populace that are beyond each citizen's ability to control. Dewey thus maintains that the being of a public is constituted by "a shared experience of harm" that eventually "coalesces into a 'problem,'" Bennett explains. A public's existence is then sustained by the collective concern of its members *to address* its problem(s). As such, for Dewey, publics are contingent formations of affected and affective bodies that continue to exist so long as their constitutive problems remain unresolved.

For Bennett, what is important about Dewey's political theory is his claim that publics and their problems are generated by "conjoint" actions, and not simply by the intentional actions or planning of individuals alone. Dewey further insists that the agency of a public is *always* conjoint: a public comes into existence through conjoint action, and it can only ever resolve its problems through conjoint action. As Bennett glosses Dewey, this means that all political actions "immediately become enmeshed in a web of connections," and are distributed among a "swarm of activities." The "field of *political* action" can thus be understood as "a kind of ecology," Bennett submits. As such, a "political system itself" might now be seen to form "a kind of ecosystem."<sup>195</sup>

Furthering this Deweyan insight, Bennett points out that if problems give rise to publics, and if both problems and publics are generated by conjoint actions rather than by individual acts of will or rational deliberation, then "*political* action need not originate in human bodies at all." After all, she asks, "is it not the case that some of the initiatives that conjoin and cause harm started from (or later became conjoined with) the vibrant bodies of animals, plants, metals, or machines?"<sup>196</sup> Dewey's political theory thereby enables

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<sup>195</sup> Bennett, *Vibrant Matter*, 100–101.

<sup>196</sup> Bennett, 102.

vital materialists to see nonhuman entities and assemblages—such as landfills or the climate system—not only as *ontological actants*, but also as *political actors*, and thus as consequential members of publics. With this ecological twist on Dewey, Bennett certainly does not eliminate all distinctions between humans and nonhumans, but rather seeks to attend to “affinities across these differences” so as to open up “more channels of communication” between diverse members of posthumanist publics. But this raises a difficult question: how might such communication actually transpire when many members of ecopolitical collectives are nonlinguistic?

To answer this question, Bennett turns to Rancière’s work on radical democracy. Whereas Dewey theorized the *emergence* of a public, Rancière focuses on how an *already existing* public might be internally disrupted by a democratizing force—which he calls “*the demos*”—so as to render politically marginalized persons more perceptible. By naming this force the *demos*, Rancière suggests that the “democratic act par excellence occurs when the *demos* does something that exposes the arbitrariness of the dominant ‘partition of the sensible.’” Such a “partition,” Bennett explains, is precisely what renders “some people visible as political actors while pushing others below the threshold of note.” Bennett employs Rancière’s notion of the partition of the sensible early in *Vibrant Matter* to describe how moderns partitioned nature into “dull matter” and “vibrant life,” and in the process devalued the former.<sup>197</sup> But this use of Rancière’s term reflects Bennett’s own ecological revision of what is, in truth, an anthropocentric conception of politics. As Bennett points out, Rancière’s primary concern is to “open democracy to the

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<sup>197</sup> Bennett, vii.

voices of excluded *humans*.”<sup>198</sup> Rancière also insists that humans are the *only* legitimate political actors, since we are uniquely capable of linguistic communication and rational discourse. Thus, for Rancière, these anthropic capacities are the prerequisites for participation in the demos.

And yet, despite Rancière’s anthropocentrism, Bennett discerns openings in his work for developing “a more (vital) materialist theory of democracy,”<sup>199</sup> precisely by “loosening the tie” between language use and political agency.<sup>200</sup> In the first place, Rancière describes the being of the demos, not merely as the sum of disruptive (human) bodies, but rather as an ontological “excess.” Not unlike Bennett’s vibratory thing-power, Rancière thus theorizes the demos as an unruly “force that traverses bodies without itself being one.” But if the demos is an activity that exceeds human bodies while yet coursing *through* them, then Bennett contends that there is no reason why it may not be seen as “flowing through nonhuman bodies” as well. And insofar as the demos does not merely disrupt a dominant political order, but also has the effect of repartitioning the sensible, then “the political gate is opened enough for nonhumans...to slip through, for they also have the power to startle and provoke a gestalt shift in perception,” Bennett suggests.<sup>201</sup> The challenge for ecopolitics today is thus “to devise new procedures, technologies, and

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<sup>198</sup> Bennett, 104. Emphasis added.

<sup>199</sup> Bennett, 106.

<sup>200</sup> Bennett, 107.

<sup>201</sup> Bennett, 107. Emphasis added.

regimes of perception that enable us to consult nonhumans more closely, or to listen and respond more carefully to their outbreaks, objections, testimonies, and propositions.”<sup>202</sup>

Bennett’s political ecology thus enables an even more radical conception of democracy than Rancière is willing to affirm. On her account, nonhumans are not only active members of publics, but also potential participants in the revolutionary agency of the demos. Indeed, their vital capacities to repartition the sensible are everywhere evidenced in the Anthropocene, which is a time marked by the wordless, though often powerful intrusions of nonhuman forces into human societies—as when destructive hurricanes in Florida dramatically alter human political priorities and public perceptions of climate change;<sup>203</sup> or when climate-fueled migration from Central America into the United States amplifies controversies over immigration policy and national borders.<sup>204</sup> In the Anthropocene, even the Earth System as a whole has arguably now begun to appear as a political ‘hyperactant’ (to rework Morton’s term), which renders newly sensible a host of nonhuman realities—many of which now dangerously impinge upon societies, from the melting cryosphere and warming hydrosphere, to the destabilized atmosphere and biosphere. In turn, an increasingly *planetary* public is now beginning to emerge in response to these anthropogenic ‘problems’—for better or for worse.

How will “we”—particularly the most globally privileged anthropoi—ultimately respond to this geological intensification of political ecology? From my perspective, there are essentially two broad trajectories that our nascent planetary public may pursue in the

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<sup>202</sup> Bennett, 108.

<sup>203</sup> Schwartz, “Global Warming Concerns Rise Among Americans in New Poll.”

<sup>204</sup> Blitzer, “How Climate Change Is Fueling the U.S. Border Crisis.”

near geologic future. Having realized that politics has literally become *geopolitical*, we might learn to “*compose with Gaia*,” as Stengers puts it.<sup>205</sup> In that case, societies could finally begin to move in the direction of an ecological civilization that works to promote the common good(s) of people and planet in place of the endless pursuit of concentrated power and corporate profits. On the other hand, there is also the disconcerting, but very real possibility that we—or rather *some* of us—will choose to continue the modern struggle to exercise techno-political *sovereignty* over Gaia—as if ‘she’ were a completely controllable machine rather than a vibrantly unpredictable organism. At least for now, it is this second trajectory that seems most likely to materialize—partly fueled by fearful reaction to Gaia’s warnings. The extractivist neoliberal order continues to be globally dominant, and it currently seems unlikely to disappear anytime soon. And yet, while the modern, god-like aspiration to control and exploit nature remains influential today, it may yet be *resisted* in the name of a radically democratic ecopolitics—one that would be based on ecological *composition* rather than geological *mastery*. In the next chapter, I explore a number of critical strategies for resisting the modern drive to planetary sovereignty by engaging the discourse of political theology in conjunction with recent political theories of climate change.

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<sup>205</sup> Stengers, *In Catastrophic Times*, 53.

## CHAPTER FOUR

### RESISTING GEOSOVEREIGNTY:

#### POLITICAL THEOLOGIES OF THE ANTHROPOCENE

*The immanent logic of planetary sovereignty, whether it ever realizes itself,  
is already at work, already shaping our world.*  
-Geoff Mann and Joel Wainwright<sup>1</sup>

*What if the doleful doings of the Anthropocene and the unworldings of  
the Capitalocene are the last gasps of the sky gods, not guarantors of  
the finished future, game over?*  
-Donna Haraway<sup>2</sup>

#### **I. Anthropocene Apocalypses**

In *The Uninhabitable Earth* (2019), climate journalist David Wallace-Wells presents an unsettling vision of our potential planetary future under the impact of climate change. Informed by recent climate science research, Wallace-Wells persuasively argues that, despite the intentions of the 2016 Paris Agreement, there is now virtually no chance of halting global warming from rising to at least 2°C.<sup>3</sup> This would be nothing short of catastrophic for many human communities. Even to stop at 1.5° would create serious challenges for societies around the world, with more frequent droughts, floods, wildfires, and extreme weather events than we are already facing.<sup>4</sup> But as indicated by recent

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<sup>1</sup> Wainwright and Mann, *Climate Leviathan*, 14.

<sup>2</sup> Haraway, *Staying with the Trouble*, 57.

<sup>3</sup> Wallace-Wells, *The Uninhabitable Earth*, 19.

<sup>4</sup> The following headline appeared as I was writing: Jordans and Achoui-Lesage, “UN: World Could Hit 1.5-Degree Warming Threshold by 2024.”



studies on climate change and air pollution, in terms of human suffering over the course of this century, reaching 2° of warming would be much, much worse: “150 million more people would die from air pollution alone in a 2-degree warmer world than in a 1.5-degree warmer one,” Wallace-Wells points out.<sup>5</sup> A 2° warmer planet—now our “best-case scenario,” he contends—would also likely bring about the collapse of the ice sheets, water scarcity for 400 million more people, and an exponential increase in the frequency and intensity of heat waves. In a 3° warmer planet, certain parts of the world would be in permanent drought. In the U.S., areas burned by wildfires would more than sextuple. At 4 degrees, Wallace-Wells reports that global “conflict and warfare could double” due to climate chaos.<sup>6</sup> The Anthropocene would then become undeniably *apocalyptic*.

Sustainability expert Jem Bendell presents an even more frightening vision of our planetary future. In his controversial article, “Deep Adaptation: A Map For Navigating Climate Tragedy” (2018), Bendell suggests that the Earth may in fact already be locked in to 5° of warming, which would render significant portions of the planet completely uninhabitable.<sup>7</sup> However, even if we do not ultimately reach that level of warming, Bendell contends that humanity now faces an “*inevitable* near-term social collapse due to climate change”<sup>8</sup>—which he predicts will occur “within less than ten years [i.e., by 2028],” and that it will lead to “increased levels of malnutrition, starvation, disease, civil

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<sup>5</sup> Wallace-Wells, *The Uninhabitable Earth*, 28.

<sup>6</sup> Wallace-Wells, 12–13.

<sup>7</sup> In making this particular suggestion, Bendell does not evidently rely on peer-reviewed scientific research, so it must be taken with a high degree of skepticism. Bendell, “Deep Adaptation,” 9.

<sup>8</sup> Bendell, 2. Emphasis added.

conflict and war...”<sup>9</sup> While Wallace-Wells maintains some hope that humanity can still avoid collapse by decarbonizing economies and implementing large-scale reforestation projects, Bendell insists that it is now time to give up such hope, prepare for imminent collapse, and take whatever actions are possible to minimize human suffering.<sup>10</sup>

The notion that collapse is now “inevitable” remains, in my view, *highly* debatable.<sup>11</sup> At least according to Will Steffen and more than a dozen of his earth science colleagues, the planet is not *yet* irreversibly committed to a catastrophic ‘Hothouse Earth’ pathway (4-5°C). Like Wallace-Wells, they admit that, even in a best-case scenario, “humanity will face a turbulent road of rapid and profound changes and uncertainties...that challenge the resilience of human societies.” But in their view, there is still time to avoid societal collapse. A ‘Stabilized Earth’ pathway may yet be achieved by rapidly scaling down humanity’s environmental impacts. Steffen and his colleagues thus call for “a coordinated, deliberate effort by human societies to manage our relationship with the rest of the Earth System, recognizing that humanity is an integral, interacting component of the system.”<sup>12</sup>

Despite their differences, all of the preceding climate predictions exemplify what Michael Northcott calls “climate apocalyptic,” which he reads as a form of political theology. In the first place, such predictions are essentially *political*, not in spite of the fact that they rely on climate science, but rather because they do so. As Northcott argues,

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<sup>9</sup> Bendell, 26.

<sup>10</sup> For a brief explanation of the three-fold Deep Adaptation Agenda, see Bendell, 23.

<sup>11</sup> On this debate, see the episode that I helped to produce for the EcoCiv Podcast, “Deep Adaptation or Deep Transformation?”

<sup>12</sup> Steffen et al., “Trajectories of the Earth System in the Anthropocene,” 8257.

“climate science indicates that, absent a *leveling* of unequal uses of fossil fuels between rich and poor and between developed and developing countries, the earth itself will enforce a levelling on the presently disequalising tendencies of fossil-fueled industrial capitalism.”<sup>13</sup> The discourse of climate science is thus a fact-value hybrid that does not permit political neutrality. Climate apocalypticism is, moreover, inherently *theological*, for it effectively secularizes the apocalyptic worldview that permeates much of the New Testament. Like biblical apocalypticism, climate apocalypticism is a *dramatic unveiling*, Northcott suggests, in the sense that it reveals “that humanity’s influence over the planet has become so large in scale that it is reaching a limit point which puts humanity’s enduring tenure on earth at risk.” Secondly, climate apocalypticism is an announcement of *imminent judgment* over the ‘sins’ of human civilization—which in this case will be enacted by Gaia, rather than by God. Finally, it is an urgent call for *deep transformation* at personal and political levels so as to avoid “the evil of extreme climate change,” Northcott writes. Yet whereas the apocalypticism of the New Testament envisions earthly catastrophe as ultimately leading to a new *beginning*—to what John of Patmos described as a “new heaven and a new earth,” when God will have conquered evil, suffering, and death (Revelation 21:4)—climate apocalypticism sees collapse as indicating the probable end of modern civilization, and possibly the extinction of much of life on Earth as well.<sup>14</sup>

On my reading of his work, Northcott’s own “political theology of climate change” actually exemplifies this climate apocalyptic schema of unveiling, judgment, and transformation. Indeed, he argues that the earth sciences have revealed climate change to

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<sup>13</sup> Northcott, *A Political Theology of Climate Change*, 16.

<sup>14</sup> Northcott, 26–27.

be an imminent societal threat, and in turn, he calls for humans to respond immediately to this knowledge by making specific moral, theological, and political changes to avoid catastrophe. As a Christian, Northcott works under the conviction that the kind of political theology that is needed today is one that is animated by a relational vision of creation, and by the biblical hope for an eschatological new creation of all things. He thus integrates biblical and climate apocalypticism to unfold a theology that he hopes will help to inspire Christians and others to form resilient eco-communities in the Anthropocene.

In a number of ways, the arguments that I have so far advanced in this dissertation regarding earth science and geophilosophy resonate with Northcott's political theology. He similarly correlates Gaia theory with a process-relational ontology and upholds the latter as an urgently needed alternative to modern imaginaries of mechanistic materialism and human exceptionalism. Like Northcott's work, my larger project is also motivated by a desire to help support efforts to bring about systemic change in the direction of an ecosocially just future. Additionally, by now it should be clear that my own framing of the Anthropocene is—in Northcott's specific sense—apocalyptic. However, there are also some fundamental differences between our political theologies, particularly when it comes to our conceptions of the divine. This will become clear in a later section of this chapter, where I return to analyze Northcott's theology from a more critical standpoint.

I concluded the previous chapter's development of geophilosophy by arguing that a planetary public is now emerging in response to anthropogenic 'problems'—especially that of global climate change. I also suggested that this nascent planetary public may very well attempt to resolve these problems, not by learning to *compose* with Gaia, but rather by exerting techno-political *sovereignty* over 'her.' In the next section of this chapter, I

expand on these claims by utilizing the discourse of political theology to engage the work of Geoff Mann and Joel Wainwright (M&W). Building on eco-Marxist critiques of capitalism, M&W propose “a political theory of our planetary future” in light of their own concerns about an imminent climate cataclysm. As we will see, their theory underscores a number of urgent challenges—and a few hopeful possibilities—regarding ecopolitics, which then serve to guide and frame my larger theopolitical itinerary for this chapter.

The question that drives M&W’s project is straightforward: how will the political begin to adapt in response to an increasingly destabilized Earth System? Their main prediction is that a neoliberal form of “planetary sovereignty” will likely soon materialize in response to extreme climate change. Echoing Bonneuil and Fressoz’s theory of geopower that I outlined in chapter one, M&W also suggest that one of the ways that this geosovereign is already beginning to emerge is through geoengineering experiments. Picking up on this idea, I expand on their theory by developing a more detailed analysis of the politics of geoengineering, and by drawing on the work of Carl Schmitt to critically examine the secularized theology of omnipotence that arguably drives the formation of planetary sovereignty. In this way, I aim to deepen my earlier theopolitical critique of geopower. Indeed, as I will suggest, a crucial part of any effort to *resist* planetary sovereignty requires precisely this kind of sustained critical attention to underlying theological imaginaries in politics.

Following this theopolitical engagement with M&W’s project, I develop a postsecularist critique of certain aspects of their theory. According to M&W, the embryonic geosovereign can most effectively be resisted by an ecojustice “movement of

many movements” that is both radically democratic *and* exclusively secularist.<sup>15</sup> But if such a movement is ever to succeed, I argue that it must be grounded in a genuinely pluralistic ethos that avoids M&W’s secularist exceptionalism, particularly in light of the growing number of religious eco-activists around the world—many of whom may require theological imaginaries to sustain them.<sup>16</sup> Moreover, I argue that insofar as geosovereignty remains subliminally fueled by a secularized theology of omnipotence, then resisting this emerging planetary power will not only require the mobilization of pluralistic movements for ecosocial justice, but also the construction and deployment of *countertheologies* that conceive of divinity *beyond* sovereignty. By thus insisting upon the need to infuse democratic ecopolitics with such theologies, I issue an even deeper postsecularist challenge to M&W’s project.

In the final section of this chapter, I return to the subject of political theology to consider what such a theological supplement for ecopolitics might look like. I look to the works of Mary-Jane Rubenstein and Catherine Keller, whose projects are—like geophilosophy—similarly entangled with posthumanist theories and process thought, even as they suggest subtly different strategies for deconstructing sovereignty and reimagining divinity. Based on my own geotheological reading of their projects, I will argue that each provides a crucial supplement for democratic ecopolitics, as well as for the planetary imaginary that I have been unfolding in previous chapters. However, Rubenstein’s and Keller’s theologies raise a difficult final question—and indeed, one

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<sup>15</sup> M&W borrow this quoted phrase from the Zapatistas. Wainwright and Mann, *Climate Leviathan*, 167.

<sup>16</sup> According to Jonathan D. Smith (a religion scholar whose research focuses on religious environmental movements), “In the past 15 years, there has been a rapid rise in environmental activism from religious groups, globally.” Smith, “Turning to Faiths to Save the Planet.”

which haunts my thinking throughout this chapter: if there is no sovereign God or technopower who might someday intervene to save us from the Anthropocene's multiplying apocalypses, how might we still hold on to hope for an ecosocially just future? With Keller's notion of "*counter-apocalyptic hope*" in mind, I offer a concluding response to this question by suggesting that *genuine* hope is only possible in the midst of radical uncertainty—precisely of the kind we now face.<sup>17</sup>

## **II. Theopolitical Adaptations**

Around the time that Paul Crutzen announced the Anthropocene, scholarship on ecological Marxism began to proliferate, as in the writings of John Bellamy Foster. Over the last two decades, eco-Marxists like Foster have developed important critiques of global capitalism on ecological grounds. Such theorists compellingly argue that capitalism not only produces massive social inequalities that erode democratic politics, but also that it has remained the main driver of environmental destruction and climate change for more than two centuries. In his recovery of the ecological critique of capitalism that Marx developed in *Capital* (1867), Foster coined the term "metabolic rift" to identify an ecological contradiction that is essential to capitalist modes of production. As Marx presciently argued, the logic of capital accumulation requires the endless extraction of natural resources from a finite planet, which has in turn produced a dangerous rift (or, more accurately, "shift"<sup>18</sup>) in the relations between human societies

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<sup>17</sup> Keller, *Apocalypse Now and Then*, 175. Emphasis added.

<sup>18</sup> Moore's critique of Foster on this point is crucial: the image of "rift" implies a dualistic view of humanity + nature, when in reality, we need to think in relational terms of a "double internality": humanity-*in-nature* and nature-*in-humanity*. With this in mind, Moore replaces the image of metabolic rift with ecological *shift*, which points to a relational "reconfiguration" of world-ecologies in the Capitalocene (as opposed to a dualistic "break" between humanity and nature). Moore, *Capitalism in the Web of Life*, 77.

and the earth's metabolism—"a *material estrangement* of human beings within capitalist society from the natural conditions which formed the basis for their existence," as Foster writes.<sup>19</sup> Grounded in this critique, Foster in turn issues a revolutionary call for the end of capitalism and implementation of ecosocialism.

In their own analysis of our capitalism-fueled Anthropocene crises, Mann and Wainwright affirm the importance of such eco-Marxist scholarship. However, they argue that many eco-Marxists like Foster, in their sharp focus on economic drivers of climate change, have largely sidestepped "the thorny question of the political"—except, of course, for their urgent calls to transcend capitalism. Questions about political sovereignty in particular are thereby evaded by eco-Marxists like Foster. With *Climate Leviathan* (2018), M&W importantly fill this gap in eco-Marxist theory. From their perspective, climate change poses an enormous political problem that "can be neither explained nor overcome with an analysis limited to Marx's critique of capitalism."<sup>20</sup> They therefore insist on the need to examine critically both capitalism *and* sovereignty.<sup>21</sup>

While M&W are thus informed by eco-Marxism, they do not present just another eco-socialist critique of global capitalism. Rather, their primary goal is to consider how climate disruption will likely bring about a fundamental *geopolitical* shift in the near future—one which is unlikely, they predict, to be socially just or democratic. As M&W explain their central thesis,

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<sup>19</sup> Foster, *Marx's Ecology*, 163. Emphasis added.

<sup>20</sup> Wainwright and Mann, *Climate Leviathan*, 12.

<sup>21</sup> Wainwright and Mann, 15. I note that Philip Clayton and Justin Heinzekehr are two eco-Marxist scholars who *do* seriously engage wider questions of political philosophy. Even so, their work does not explicitly focus on the problem of sovereignty—which is at the center of M&W's project. See Clayton and Heinzekehr, *Organic Marxism*, 121–36.



Rapid climate change will transform global political economy and alter our world's basic political arrangements, processes we call the "adaptation of the political." Our point is not that global warming will simply cause everything to change or collapse. Instead, we argue that under pressure from climate change, the intensification of existing challenges to the extant global order will push existing forms of sovereignty toward one we call "planetary."<sup>22</sup>

To be sure, M&W do not claim to know how the future of the Anthropocene will unfold.

Even so, it seems to me that they are entirely right to maintain the need to theorize

"possible political-ecological futures,"<sup>23</sup> not only so that we can perhaps better anticipate

the types of anti-democratic forces we may be confronted with in the near future, but also

so that we might be able to "produce an effective counterresponse" in the name of a

radically democratic planetary public.<sup>24</sup>

Similar to Wallace-Wells, M&W argue that all of the evidence emerging from the

earth sciences now indicates that "global carbon mitigation as a climate change

abatement strategy has passed."<sup>25</sup> It is this unsettling realization that then leads M&W to

develop their political theory of climate change, for if humanity is now unavoidably

facing a turbulent climatic future, they reason, then the nature of the political will

inevitably begin to adapt in response. As they write, "a world environment as radically

changed as climate science suggests will have massive impacts on the way human life on

Earth is organized."<sup>26</sup> Furthermore, due to its planetary scale, the climate crisis "poses

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<sup>22</sup> Wainwright and Mann, *Climate Leviathan*, x.

<sup>23</sup> Wainwright and Mann, xii. Emphasis added.

<sup>24</sup> Wainwright and Mann, 14.

<sup>25</sup> Wallace-Wells and M&W agree that adaptation (rather than strictly mitigation) strategies are called for today in light of their view that we will likely hit 2° of warming. Wainwright and Mann, 28.

<sup>26</sup> Wainwright and Mann, xi.

political problems for which the current order has no answer,” M&W argue.<sup>27</sup> Put differently, while modern politics is largely a product of the late Holocene, with its relatively stable Earth System, human societies must now learn to navigate uncharted political-ecological territory to address a crisis that—at least eventually—impacts everyone. As such, the question that drives M&W’s project is not *whether* the political will be transformed in the Anthropocene, but rather *how* that will in fact occur.<sup>28</sup>

According to M&W’s analysis, the adaptation of the political will be shaped by two basic conditions: first, whether capitalism continues to be the globally hegemonic economic order; and second, whether the location of political sovereignty expands beyond national borders and global capital to take on a planetary form—“that is, whether sovereignty will be reconstituted for the purpose of planetary management.” Based on these dual conditions, M&W suggest four basic possibilities for socio-political formations in the Anthropocene. I will discuss each in turn, but here it will be helpful to outline M&W’s fourfold framework: 1) *Climate Leviathan*—‘green’ capitalism with planetary sovereignty; 2) *Climate Mao*—anti-capitalism with planetary sovereignty; 3) *Climate Behemoth*—‘chauvinistic’ capitalism against planetary sovereignty; and 4) *Climate X*—post-capitalism against planetary sovereignty. As opposed to precise forecasts, M&W frame each of these possible political-economic paths as “roughly

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<sup>27</sup> Wainwright and Mann, 24.

<sup>28</sup> On this point, Clayton and Heinzekehr partly anticipated M&W’s concern to track the adaptation of the political: “...the planetary changes that humans have wrought on this planet are coming; the only question is whether they will produce increased brutality and viciousness, or a more enlightened civilization after the fall of the present one.” Clayton and Heinzekehr, *Organic Marxism*, 135.

sketched yet identifiable types produced by the interplay of historical and political economic forces.”<sup>29</sup>

From M&W’s perspective, *Climate Leviathan* is currently the most probable trajectory for Anthropocene politics—largely because global politics remains dominated by the neoliberal capitalist global North. In broad terms, M&W define Leviathan as “adaptation projects to allow capitalist elites to stabilize their position amidst planetary crises.”<sup>30</sup> More specifically, they envision it as a nominally democratic, planetary “regulatory authority” that would be equipped with “binding technical authority on scientific issues, and a panopticon-like capacity to monitor the vital granular elements of our emerging world: fresh water, carbon emissions, climate refugees, etc.” By “planetary,” M&W mean that this new form of sovereignty would exert its power at a transnational scale, and that it would attempt to manage the operation of the entire Earth System through technological means.<sup>31</sup> Inspired by the Hobbesian conception of the state as a mortal god that enables an “*escape* from the state of nature,”<sup>32</sup> M&W thus theorize Leviathan as a geological expansion of neoliberal governance that “reflects the dream of a sustainable capitalist status quo,”<sup>33</sup> and predict that it would most likely be coordinated by a small group of planetary managers (e.g., scientists, engineers, representatives of leading capitalist nations) who would collectively have the power to “determine what

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<sup>29</sup> Wainwright and Mann, *Climate Leviathan*, 28–30.

<sup>30</sup> Wainwright and Mann, 15.

<sup>31</sup> Wainwright and Mann, 29–30.

<sup>32</sup> Wainwright and Mann, 4.

<sup>33</sup> Wainwright and Mann, 30.

measures are necessary and what and who must be sacrificed in the interests of life on Earth.”<sup>34</sup> If Leviathan does materialize, M&W argue that it would be constituted through a decision to “seize command, declare an emergency, and bring order to the Earth, all in the name of saving life.”<sup>35</sup>

In light of the fact that the term “neoliberalism” is often utilized in divergent ways, M&W’s view that Leviathan would essentially be an expanded form of “the neoliberal order” requires some clarification. Indeed, the meaning of this term is not entirely clear even in their own work.<sup>36</sup> How then should we understand neoliberalism, particularly in the Anthropocene? Here I want to suggest that Adam Kotsko’s political theology of neoliberalism provides a valuable supplement to M&W’s theory. As Kotsko explains, neoliberalism signifies a form of *political-economic power* that is not reducible to “classical,” or laissez-faire capitalism. That is to say, whereas laissez-faire capitalism makes a clear distinction between economic and political realms in the hopes of providing capitalist markets with their own politically-neutral sphere, for neoliberalism, the political (i.e., the state) must be transformed and deployed in order to “reshape society in accordance with market models.” Kotsko even argues that neoliberalism is a form of theology, in the sense that it is—like all theology, in his view—“a discourse that aims to reshape the world.”<sup>37</sup> While I find this definition of theology to be far too generic to be useful for most other contexts, in this case, it does provide an insightful way to

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<sup>34</sup> Wainwright and Mann, 15.

<sup>35</sup> Wainwright and Mann, 31.

<sup>36</sup> It is not until late in their book that M&W offer a definition of neoliberalism—but even then, it appears more as a historical description than as a theoretical clarification. See Wainwright and Mann, 169.

<sup>37</sup> Kotsko, *Neoliberalism's Demons*, 3–7.

theorize neoliberalism as a totalizing form of political-economic power that—in an almost *god-like* manner—entirely refashions societies according to its own ‘higher’ (i.e., marketizing) plan.

From an explicitly ecological angle, Michael Hogue likewise interprets neoliberalism through the lens of political theology as “the dominant cultural ideology of the Anthropocene,” specifically in the sense that it “incarnates the dangerously unsustainable human and environmental impacts of an exceptionalist, extractive, and externalizing *theopolitics*.”<sup>38</sup> In his larger project, Hogue closely links this neoliberal theopolitics to what he calls a “redeemer symbolic,” which serves to legitimize a view of certain individuals, groups, nations, or systems as uniquely powerful, ontologically exceptional, and soteriologically essential, not only in relation to the rest of humanity, but to nature itself.<sup>39</sup> As such, whereas Kotsko analyzes neoliberalism’s drive to reshape the world of human societies, Hogue’s analysis serves to underscore neoliberalism’s ambitions to reshape—and also to “redeem”—the wider web of life as such. Fusing the insights of Kotsko and Hogue, we might therefore say that neoliberalism’s theopolitical imaginary symbolically invests the global capitalist political economy with soteriological significance, and thereby functions as ideological justification for its ongoing reshaping of world-ecologies in accordance with market models.<sup>40</sup>

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<sup>38</sup> Hogue, *American Immanence*, 50. Emphasis added.

<sup>39</sup> For a more detailed outline of Hogue’s notion of the redeemer symbolic, see Hogue, 29.

<sup>40</sup> The useful term “world-ecology” comes from Moore, who uses it as a way to think beyond the nature/society binary, and toward a relational view of nature-*in*-humanity and humanity-*in*-nature. Moore, *Anthropocene or Capitalocene?*, 10.

However, this theopolitical reading of neoliberalism now raises an important question: in the face of pervasive global poverty, extreme economic inequality, widespread government austerity, and intensifying environmental destruction, how does neoliberalism continue to justify its seemingly empty soteriological promises?<sup>41</sup> For this it requires a political *theodicy*, as Keller has suggested, through which the neoliberal faith in impersonal markets can ultimately be defended on the grounds that “[w]hatever sacrifices are imposed upon the poor and upon the earth are for the ‘best of all possible worlds’ (Leibniz).”<sup>42</sup> If it ever fully materializes, Climate Leviathan would thus arguably become yet another expression of neoliberal political theology and its exceptionalist redeemer symbolic—albeit, with a literally *planetary-scale boost*. As such, insofar as climate breakdown is fueled by capitalism’s metabolic shift, Leviathan may turn out to be the ultimate culmination of neoliberal theopolitics—precisely because it seems to offer a way to ‘save’ *both* humanity *and* capitalism.

Indeed, as the world’s capitalist elites increasingly come to recognize that climate change poses a serious threat to their relentless drive to accumulate massive wealth, a neoliberal Leviathan will very likely begin to appear as an incredibly attractive way for them to try to defend “the material conditions that produce their privileges,” M&W predict.<sup>43</sup> In fact, they also point out that the neoliberal drive to save capitalism from the threat of climate chaos was foreshadowed in the Paris Agreement, which essentially treats capitalism, not as a problem, but as “the *solution* to climate change.” For many of

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<sup>41</sup> For analyses of such trends, see McKibben, *Falter*; Hickel, *The Divide*.

<sup>42</sup> Keller, *Political Theology of the Earth*, 34.

<sup>43</sup> Wainwright and Mann, *Climate Leviathan*, 14–15.

the elites who signed the agreement, climate change evidently appears as an opportunity to boost capitalist profits through “trade in emissions permits (‘cap-and-trade’), ‘green’ business, nuclear power, corporate leadership, carbon capture and storage, green finance, and ultimately, geoengineering: *these are Leviathan’s lifeblood.*”<sup>44</sup> These global elites are thus closely aligned with the neoliberal agenda of “ecomodernism” that I outlined in chapter two.

There are, however, at least two serious flaws with the Paris Agreement that even many of its defenders recognize: first, it includes no legally binding limits on GHG emissions; and second, it does nothing to keep fossil fuels in the ground.<sup>45</sup> Moreover, within the text of the agreement itself, the signers explicitly acknowledged that the intended nationally determined reductions in emissions are unlikely to be sufficient measures to keep Earth’s temperature below 2°C.<sup>46</sup> As M&W contend, this admission indicates that “the so-called ‘failures’ of Paris are enabling, and part of, a crucial adaptation, the adaptation of the political.”<sup>47</sup> By ‘failing’ to address climate change in an adequate manner, Paris has thus arguably set the stage for a future politics of emergency that may help to legitimize new forms of political power—and, potentially, a planetary

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<sup>44</sup> Wainwright and Mann, 31. Emphases added.

<sup>45</sup> Wainwright and Mann, 35–38. In her own critique of Paris, Adrian Parr points to a more immediate concern: “the agreement...cannot stop U.S. president Trump from implementing his irresponsible and dangerous antienvironmental agendas. Trump entered office on January 20, 2017, with the stated commitment to withdraw from the Paris Agreement, roll back on environmental regulations, and recommence construction of the Dakota Access and Keystone XL pipelines.” Parr, *Birth of a New Earth*, 195. And, lo and behold, nothing stopped Trump from implementing much of his anti-environment agenda, which resulted in the reversal of nearly 100 environmental rules by mid-2020.

<sup>46</sup> See United Nations, “Paris Agreement,” 4.

<sup>47</sup> Wainwright and Mann, *Climate Leviathan*, 38.

concentration of that power into Leviathan, precisely because climate change poses “a massive collective action problem.”<sup>48</sup>

As we have seen, M&W argue that a key aspect of Leviathan’s power would be its reliance on geoengineering technologies to counteract climate change.<sup>49</sup> Although they do not explore this line of thought in rigorous detail in their work, gaining a deeper understanding of this dimension of geosovereignty is arguably crucial—particularly in light of the fact that such technologies are *even now* being tested.<sup>50</sup> As the science writer Oliver Morton explains, geoengineering can be defined as “the deliberate modification of the earthsystem on a global scale.”<sup>51</sup> Currently, the most frequently discussed, economically feasible, and technologically plausible geoengineering proposal is a type of solar radiation management known as “stratospheric particle injection,” which calls for continuously spraying sulfate aerosols into the upper part of the atmosphere in order to reflect more sunlight back into space. This strategy would create a hazy veil of sulfur pollution in the sky that would “mimic the way volcanic eruptions cool the planet,” explains climatologist Michael Mann.<sup>52</sup> At least in theory, solar engineering would then allow humans to control the Earth’s thermostat while deferring greenhouse gas mitigation efforts and the transformation of carbon capitalism.

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<sup>48</sup> Wainwright and Mann, 29.

<sup>49</sup> Wainwright and Mann, 150.

<sup>50</sup> Reynolds, “A Solar Geoengineering Milestone Goes Largely Unnoticed.”

<sup>51</sup> Morton, *The Planet Remade*, 23.

<sup>52</sup> Mann and Toles, *The Madhouse Effect*, loc. 1863. Kindle.



However, the cure might be worse than the disease. Numerous studies suggest that this technofix would alter rainfall patterns and temperatures in geographically uneven ways, likely causing droughts in regions of Africa and Asia.<sup>53</sup> Solar engineering also presents a number of temporal challenges, including the so-called termination shock. As Naomi Klein explains the issue, “once you start spraying...it would basically be impossible to stop because if you did, all the warming that you had artificially suppressed...would hit the planet’s surface in one single tidal wave of heat, with no time for gradual adaptation.”<sup>54</sup> And even if scientists did find a way to halt stratospheric spraying without causing a termination shock, geoengineering researchers suggest that the spraying would have to continue for decades, or even a century to lower and stabilize global temperatures to more habitable levels. Compounding the potential problem of a termination shock, Klein also points out that, “[b]ecause of the huge variations in global weather patterns from one year to the next...as well as the havoc already being wreaked by global warming,” accurately evaluating the efficacy of this technofix would likely require at least a decade-long experiment.<sup>55</sup>

Despite these kinds of concerns, however, geoengineering predictably appeals to certain neoliberals and conservatives whose positions of power evidently lead them to ignore—or actively oppose—grassroots environmentalist arguments to fully decarbonize economies and ecologically constrain our political systems. Thus, corporations like

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<sup>53</sup> For a list of 27 risks of solar engineering, see Table 1 of Robock, “Albedo Enhancement by Stratospheric Sulfur Injections.” For a recent scientific study that warns of various ways in which solar engineering could backfire, see Fasullo et al., “Persistent Polar Ocean Warming in a Strategically Geoengineered Climate.”

<sup>54</sup> Klein, *This Changes Everything*, 260.

<sup>55</sup> Klein, 269.

ExxonMobil,<sup>56</sup> billionaires like Bill Gates,<sup>57</sup> ecomodernists like Steven Pinker,<sup>58</sup> conservative think-tanks like the American Enterprise Institute,<sup>59</sup> mainstream economists like Lawrence Summers,<sup>60</sup> and the Trump administration have all expressed support for geoengineering.<sup>61</sup> Some of these advocates are Promethean enthusiasts about such geotechnologies, whereas others are in varying degrees more cautious. However, each and every one of them are willing to take the risk of manipulating the entire planet for human ends.

If such large-scale technofixes were ever deployed, this might mark the apotheosis of the modern dream to dominate a mechanized nature—as when Descartes expressed his hope for human knowledge to expand to such a point that we could become “*masters and possessors of nature.*”<sup>62</sup> And apart from some sort of robustly democratic process of implementation (which is difficult, if not impossible to imagine), geoengineering would also very likely mean that *some* humans would have

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<sup>56</sup> As Hamilton notes, “The oil company...funded a report...concluding that sulphate aerosol spraying would be a much cheaper response to global warming than phasing out fossil fuels. Its CEO, Rex Tillerson, has also described climate change as an ‘engineering problem’ with ‘engineering solutions.’” Hamilton, *Earthmasters*, 78.

<sup>57</sup> According to Hamilton, Gates is “the world’s leading financial supporter of geoengineering research.” Hamilton, 74.

<sup>58</sup> Pinker is a relatively cautious geoengineering supporter. Pinker, *Enlightenment Now*, 152–54.

<sup>59</sup> Klein reports that AEI has supported geoengineering since 2008, running conferences, publishing reports, and testifying to congress about the issue, “all with the consistent message that geoengineering isn’t a Plan B should emission cuts fail, but rather a Plan A.” Klein, *This Changes Everything*, 282–83.

<sup>60</sup> Summers is another cautious geoengineering supporter. Summers and Zeckhauser, “Policymaking for Posterity,” 33.

<sup>61</sup> Temple, “The US Government Has Approved Funds for Geoengineering Research.”

<sup>62</sup> Descartes, *Discourse on Method and Meditations on First Philosophy*, 35. Emphasis added.

unprecedented control over the planet. Climate Leviathan would thereby become a concrete reality.

Considering the fact that climate disruption is largely the result of elite self-interest, corporate greed, and liberal institutional failures, is it even remotely credible to suppose that Leviathan's planetary managers would engineer the Earth in a just and compassionate way? The latter scenario seems highly implausible, for as Clive Hamilton asks rhetorically, "If a just global warming solution cannot be found, who can believe in a just geoengineering regime?"<sup>63</sup> Moreover, as I argued in previous chapters, when one considers the complex structure and partially unpredictable dynamics of the Earth System—with its multiple subsystems that interact through massive feedback loops, nonlinear processes, and constant energy flows—it seems highly unlikely that humans are even actually *capable* of safely engineering the entire planet. And yet, geoengineering remains a live and attractive option in the minds of many today.

Furthermore, as climate change continues to intensify, a geoengineering scenario becomes increasingly likely to play out. In fact, even the most recent IPCC report from the U.N. suggested solar engineering as a possible "remediative measure" for extreme climate breakdown.<sup>64</sup> An earlier NASA report likewise frames the technique as a potentially necessary response to a "climate emergency." Disturbingly, the authors of the latter report go on to suggest that, "*In a crisis*, ideological objections to solar radiation management may be swept aside."<sup>65</sup> Public spaces for serious debates about

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<sup>63</sup> Hamilton, *Earthmasters*, 182.

<sup>64</sup> Coninck and Revi, "Chapter 4: Strengthening and Implementing the Global Response," 10.

<sup>65</sup> Lane et al., "Workshop Report on Managing Solar Radiation," 20. Emphasis added.

geoengineering could, in other words, be foreclosed in a state of emergency. We must now therefore consider the possibility that a climate emergency may be used to justify bypassing democratic processes so that technocrats can dim the sun to ‘save the planet.’

As M&W point out, the growing possibility of such a scenario raises an urgent political question: “The greatest problem with [geoengineering]...is really the problem of sovereignty, because the fundamental question is not ‘How shall we design appropriate institutions to govern geoengineering?’ but rather ‘*Who can declare the emergency?*’”<sup>66</sup> It is precisely this connection between the problem of sovereignty and states of emergency that the critical discourse of political theology helps to elucidate. In the opening line of *Political Theology* (1921), Carl Schmitt asserts that it is “the sovereign...who decides on the exception”—that is, the one who can unilaterally declare the existence of a crisis that requires an exceptional form of response.<sup>67</sup> For Schmitt, sovereignty is therefore founded on the ability to decide on a “state of exception,” which occur in times of “extreme emergency” when the sovereign suspends all legal and constitutional norms, and subsequently applies “extraordinary measures” to restore public order. The exceptionalist sovereign power accordingly reveals itself to be an essentially “unlimited authority,” Schmitt contends, “which means the suspension of the entire existing order.”<sup>68</sup>

Political sovereignty is thus defined by Schmitt as the capacity to transcend democratic decision-making and the law in a state of exception—just as classical

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<sup>66</sup> Wainwright and Mann, *Climate Leviathan*, 149. Emphasis added.

<sup>67</sup> Schmitt, *Political Theology*, 5.

<sup>68</sup> Schmitt, 12.

theism's doctrine of omnipotence includes the power to override creaturely decisions and the laws of nature in order to impose the divine will. This theopolitical parallel is not lost on Schmitt, for whom the theistic image of a metaphysically exceptional God is not only analogous to political sovereignty, but also helps to legitimize his anti-democratic politics through a "theologization of the political," as Kotsko explains.<sup>69</sup> Schmitt thus argues for the need to symbolically transfer a traditional understanding of theistic transcendence to the sovereign power of the state.<sup>70</sup> In this way, Schmitt's fusion of totalizing conceptions of the political and the theological supports what Clayton Crockett critically describes as "an anti-democratic *machine of domination*."<sup>71</sup>

However, in a more general and fundamental sense, Schmitt also claims that throughout modernity, the political and the theological have remained tightly interwoven phenomena—so much so that it is finally impossible to isolate the conceptual terrain of either realm from the other. This brings us to the central postulate of his text:

All significant concepts of the modern theory of the state are secularized theological concepts not only because of their historical development—in which they were transferred from theology to the theory of the state, whereby, for example, the omnipotent God became the omnipotent lawgiver—but also because of their systematic structure, the recognition of which is necessary for a sociological consideration of these concepts. The exception in jurisprudence is analogous to the miracle in theology.<sup>72</sup>

In other words, Schmitt is here claiming that secular political concepts (e.g., the sovereign, the exception) have not only been *historically substituted* for theological ones

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<sup>69</sup> Kotsko, *Neoliberalism's Demons*, 28.

<sup>70</sup> Schmitt, *Political Theology*, 37. See also Johnson-DeBaufre, Keller, and Ortega-Aponte, *Common Goods*, 8.

<sup>71</sup> Crockett, *Derrida after the End of Writing*, 45. Emphasis added.

<sup>72</sup> Schmitt, *Political Theology*, 36.

(e.g., divine omnipotence, the miracle)—which is the secularization thesis—but also remain *inherently interrelated* with theology.<sup>73</sup> To a certain extent, Schmitt thereby anticipated Charles Taylor’s argument that I analyzed in chapter one: our modern immanent frame is not the result of merely subtracting religion from the world to get to a “natural” secular core; rather, secular modernity is largely constituted by a series of *theological* mutations. While secular imaginaries are not therefore simplistically *reducible* to theological concepts, neither are they *separable* from them.<sup>74</sup> As such, a purely secular form of politics does not exist—or as Keller glosses Schmitt’s thesis, “*politics is always already theological.*”<sup>75</sup>

Considering Schmitt’s theory of political sovereignty as secularized theology, current calls to technologically control the Earth System may indeed begin to appear as secular incarnations of the totalizing ideal of theistic power. Within the political theology of Climate Leviathan, the omnipotent God re-emerges as the technocratic *God-species*—creator, sustainer, and savior of the new geological epoch—while theistic faith in top-down interventions morphs into what Haraway calls “a comic faith in technofixes.”<sup>76</sup> In the Anthropocene, the theopolitical problem of sovereignty has thus returned with renewed intensity. As exemplified by techno-capitalist aspirations to control the feedback loops between the atmosphere and the biosphere, the political sphere is now beginning to

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<sup>73</sup> Here I am indebted to Crockett’s postsecularist reading of this passage in Crockett, *Radical Political Theology*, 79, 91.

<sup>74</sup> On the relationship between Taylor’s work and Schmitt’s political theology, see footnote 10 in Warner, VanAntwerpen, and Calhoun, *Varieties of Secularism in a Secular Age*, 6.

<sup>75</sup> Keller, *Political Theology of the Earth*, 8.

<sup>76</sup> Haraway, *Staying with the Trouble*, 3.

stretch beyond nation-states and global capital to encompass the entire Earth System. On this reading, Leviathan—our ‘neoliberal redeemer’—must once again be *reinterpreted* as a theological figure of sovereign power—a “sky god,” to recall Haraway’s term—and not just as a way to theorize the geological adaptation of the political from a secular angle. Consequently, resisting geosovereignty will arguably require strategic efforts that go beyond a purely secular mode of ecopolitics. As I will ultimately suggest, such resistance calls for an intentionally *theopolitical* intervention into the cultural imaginary of sovereign power that fuels Leviathan’s embryonic machine.

Yet the materialization of Leviathan is by no means inevitable. A non-capitalist, overtly authoritarian *Climate Mao* may ultimately come into being instead. If Leviathan’s planetary machine would primarily be associated with Euro-American capitalist states, M&W suggest that Mao could initially emerge in East Asia as a kind of “re-energization” of Maoist state communism. Much like Leviathan, Mao’s planetary power would also be constituted through an exceptional decision to save life on Earth in a state of climate emergency, and it too might deploy geoengineering technologies in its attempt to do so. But neo-Mao would have no allegiances to neoliberal elites, and it would not make any pretense to justify its planetary authority on a liberal democratic basis (i.e., via consensus politics). Mao would thereby be able to act and respond to climate crises in a more rapid and efficient manner than Leviathan could ever achieve:

...most campaigns in the global North are premised on an unspoken faith in a lopsided, elite-biased, liberal proceduralism doomed to failure given the scale and scope of the changes required. If climate science is even half-right in its forecasts, the liberal model of democracy is at best too slow, at worst a devastating

distraction. Climate Mao reflects the demand for rapid, revolutionary, state-led transformation today.<sup>77</sup>

Even so, while a handful of prominent voices on the left seem to be advocating for a politics that borders on something like Mao,<sup>78</sup> M&W are justly skeptical, arguing that a top-down planetary sovereign would be “as likely to found climate justice as the original Maoism did social justice.”<sup>79</sup> While Climate Mao may nevertheless begin to materialize—whether in China or elsewhere—M&W point out that, for now, the current trajectory of the Chinese government appears to be closer to a neoliberal Leviathan than to a revolutionary Mao.<sup>80</sup> This is yet another reason to suspect that Climate Leviathan is the most probable trajectory for Anthropocene politics.

At present, however, the state of global politics might seem to cast doubt on the eventual formation of *any* geosovereign. As exemplified by the 2016 election of Trump in the U.S., the 2018 election of Bolsonaro in Brazil, and Brexit in the U.K., right-wing populist nationalism has been on the rise in recent years. As M&W therefore suggest, “the specter haunting the world’s core capitalist states today is that of reactionary conservatism.” This reactionary politics often goes hand-in-hand with climate denialism, religious conservatism, and a fierce ‘anti-globalist’ resistance to all international efforts to address climate change. Indeed, M&W note that it typically opposes *any* sort of transnational order, “especially if [the latter] has the capacity to discipline (national)

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<sup>77</sup> Wainwright and Mann, *Climate Leviathan*, 39.

<sup>78</sup> For example, see Badiou, *The Communist Hypothesis*, 261–79.

<sup>79</sup> Wainwright and Mann, “Political Scenarios for Climate Disaster.”

<sup>80</sup> Wainwright and Mann, *Climate Leviathan*, 40–41. For a more hopeful perspective on the potential ecopolitical future of China, see Vltchek and Cobb, *China and Ecological Civilization*.



capital.”<sup>81</sup> In this sense, it seems to me that the political theology of these reactionaries is close to Schmitt’s own antagonistic vision of nationalist politics, which is based on the need to make sharp distinctions “between friend and enemy.”<sup>82</sup> As such, many—or possibly even all—of the anthropocenic reactionaries may concur with Schmitt’s claim that sovereignty, by its very nature, *cannot* become literally planetary: “The political entity presupposes the real existence of an enemy and therefore coexistence with another political entity. As long as a state exists, there will thus always be in the world more than just one state. A world state which embraces the entire globe...cannot exist.”<sup>83</sup> What Schmitt did not foresee, however, is that the ‘state’ of nature—or Gaia herself—could come to be seen as the ‘enemy’ *against which* a geosovereign like Leviathan might constitute itself in a state of emergency.

Nevertheless, because of their neo-Schmittian preference for anti-globalist politics, anthropocenic reactionaries constitute a real obstacle to the realization of Leviathan. Indeed, they might already be understood as loosely composing a political “movement”—which M&W name *Climate Behemoth* (in reference to Hobbes’s symbol of the masses who oppose Leviathan). Yet Behemoth is clearly not (yet) one. Not only is it a disparate conservative movement that, so far, seems unable or unwilling to coordinate its populist energies; it is also internally divided between what M&W call “millenarian” and “rational” Behemoths. For the former, ethno-religious nationalisms fuel their extreme

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<sup>81</sup> Wainwright and Mann, *Climate Leviathan*, 44.

<sup>82</sup> Schmitt, *The Concept of the Political*, 26–27. Relatedly, see philosopher Tasmin Shaw’s article on the Schmittian political views of the Trump administration’s Attorney General in Shaw, “William Barr: The Carl Schmitt of Our Time.”

<sup>83</sup> Schmitt, *The Concept of the Political*, 53.

skepticism of transnational politics, whereas the latter are principally motivated by a firm resistance to international regulation of markets. Consequently, Behemoth is “an opportunistic, but contradictory and unstable, blend of fundamentalisms: the security of the homeland, the freedom of the market, and the justice of God.”<sup>84</sup> Arguably, Behemoth’s (theo)political incoherence therefore makes it less likely to triumph over a more unified Leviathan.

### **III. Counter-Apocalyptic Trajectories**

Perhaps especially for anyone actively involved in working for ecosocial justice, M&W’s political theory may produce feelings of despair about the planetary future. Indeed, in my involvement with the EcoCiv Institute in recent years, M&W’s theory has, I must admit, occasionally caused me to doubt the efficacy of such work. Anthropocene apocalypses—in one form or another—seem increasingly difficult to avoid. Are there any viable, non-reactionary, and genuinely democratic paths beyond a neoliberal Leviathan, an authoritarian Mao, and a reactionary Behemoth—or, for that matter, the imminent societal collapse that Bendell predicts will occur? Is it possible to imagine alternative, counter-apocalyptic trajectories that at least have the potential for an ecosocially just Anthropocene politics, and which would attend to the ways in which climate change disproportionately impacts those who are least responsible for rising GHG emissions—including the global poor, the racially exploited, and the innumerable other-than-human citizens of the planet? Indeed, while M&W admit their utopianism and reiterate their view that Leviathan’s status as “liberal common sense” presently makes it more likely to

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<sup>84</sup> Wainwright and Mann, *Climate Leviathan*, 46.

succeed than alternative trajectories, they affirm the genuine possibility that a radically democratic climate justice revolution may yet unfold.<sup>85</sup>

This would be *Climate X*, which for M&W points to “a world that has defeated the emergent Climate Leviathan and its compulsion toward planetary sovereignty, while also transcending capitalism.”<sup>86</sup> While this describes an *anticipated* reality, Climate X also signifies current democratic struggles for ecosocial justice that are gaining momentum around the world by utilizing a range of activist strategies—from mass boycotts and divestments, to strikes and blockades.<sup>87</sup> As an example of what X already looks like, M&W cite Klein’s journalistic account of “Blockadia”—a loosely connected, global collective of ordinary citizens who seek to “[overturn] fossil fuels and capitalist political economy in the name of a new relationship to community and environment.”<sup>88</sup> I want to suggest that Climate X might also now be glimpsed in Extinction Rebellion and Youth For Climate, both of which are ecoactivist movements that use nonviolent direct action to pressure governments to address climate change in equitable ways. And, if we widen M&W’s somewhat narrow focus on ecoactivist groups, we may also now glimpse the beginnings of X in the work of established environmental organizations like the Indigenous Environmental Network, 350.org, and EcoCiv—all of which diversely challenge extractive capitalist forces, and work to secure more sustainable futures.

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<sup>85</sup> Wainwright and Mann, 47–48.

<sup>86</sup> Particularly in the midst of a current surge of neofascism in certain parts of the world, it is important to now add to M&W’s anticipated future for X as *also* involving ‘a world that has defeated Climate Behemoth.’ Wainwright and Mann, 173.

<sup>87</sup> Wainwright and Mann, 197.

<sup>88</sup> Wainwright and Mann, 10. See also “This is Blockadia,” <https://www.resilience.org/stories/2017-11-17/this-is-blockadia/> (accessed 10/29/20).

Like Behemoth, however, one of Climate X’s challenges will be to coordinate its diverse constituencies into a more coherent planetary public so as to become better capable of effectively resisting geosovereignty. M&W contend that this will not only require effective leadership, but also a set of basic principles to guide the movement, beginning with a commitment to *absolute equality*. This principle must transcend liberal notions of equality, M&W argue, since the latter are inextricably tied to the hierarchical capital-labor relation, which “constantly produces social inequality and the unfreedom of poverty.” Moreover, absolute equality crucially implies that the Earth is to be shared by all in common, as opposed to being owned and controlled by the few for profit. This conception of equality thereby supports X’s post-capitalist ideals by promoting an expansive view of the commons—which might in turn help to nurture more sustainable relationships with the more-than-human world.<sup>89</sup> M&W also suggest a democratizing principle of *universal inclusion and dignity*, which may help to inspire the formation of radically democratic societies in which “anyone and everyone *could* rule, *could* shape collective answers to collective questions.” Finally, they propose a principle of *solidarity*, with the goal of enabling the movements composing Climate X to affirm “both [their] common cause *and* [their] multiplicity.”<sup>90</sup> Thus, whereas geosovereignty is premised on the need for a *unitary* power to decide for the multitude in a non-reciprocal manner, X’s planetary solidarity would constitute a “disruptive *countersovereignty*,” based on a

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<sup>89</sup> Wainwright and Mann, 175. On the relationship between theories of the commons, ecosocial justice, and post-capitalism, see the episode that I helped to produce for the EcoCiv Podcast, “Relational Commoning.”

<sup>90</sup> Wainwright and Mann, *Climate Leviathan*, 176. Emphases added.

*relational* mode of power.<sup>91</sup> In contrast to Leviathan, Mao, and Behemoth, X’s resistance to both capitalism and geosovereignty thus flows from its core commitments to radical equality, inclusion, and planetary solidarity.

With M&W’s fourfold framework for climate politics now rendered clear, I want to suggest that they have constructed one of the most important political theories of climate change that has yet been written.<sup>92</sup> Their project powerfully illuminates the state of climate politics, and their predictions of future political trajectories in the Anthropocene are, it seems to me, entirely plausible. Moreover, while their utopian theory of X arguably requires further elaboration and development (a point that they have conceded in recent interviews), I believe that working to realize something along the lines of what they suggest for ecosocial justice movements is necessary if we are to avoid the societal collapse that Behemoth would likely lead to, and to resist the anti-democratic politics of Leviathan and Mao.<sup>93</sup>

But one key aspect of M&W’s work is troubling to me. Despite their “pluralist” vision for Climate X, they insist on drawing a sharp line when it comes to X’s posture toward religiously inspired activists. In their view, religion in *all* of its forms—whether it looks like the ecotheology of Pope Francis or the fundamentalism of Osama Bin Laden—is an exclusivist phenomenon that divides the world into believers and unbelievers,

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<sup>91</sup> The phrase “disruptive *countersovereignty*” is borrowed by M&W from the Indigenous scholar Glen Coulthard. See Wainwright and Mann, 195–96.

<sup>92</sup> For another key political theorist of climate change, see Connolly, *Facing the Planetary*; Connolly, *The Fragility of Things*.

<sup>93</sup> Cultures of Energy Podcast, “Climate Leviathan (Feat. Mann and Wainwright).”

righteous and unrighteous.<sup>94</sup> “Religion,” so understood, would then seem to conflict with X’s commitments to equality, inclusion, and solidarity. These principles can thus only be sustained by a secularist worldview, M&W suggest. While they admit that “‘interfaith’ movements” may avoid or moderate some of the political dangers of religious exclusivism, M&W contend that even these inclusive forms of religion conflict with Climate X’s radically democratic ideals. Why is this the case? Because, in their view, even religious inclusivists ultimately affirm “the theological frame...[that] is built upon the essential structure and political imaginary of sovereign authority.” In a way that might have appealed to Schmitt, M&W thereby suggest that all forms of religion are tied to a theology of divine sovereignty, and are in turn “unavoidably” constituted by the political ideal of “theocracy”—or so they claim:

If one accepts the absolute authority of the word of God as Truth and Wisdom, then the rule of God (or His or Her earthly representatives) is a logical and unconditional, if idealized, objective. If God could rule, why would humanity stand in the way? As radically progressive as [Pope] Francis’s position on climate might seem, this proposition is inseparable from it.<sup>95</sup>

Consequently, even though M&W claim that X’s “ethos is pluralist,”<sup>96</sup> they ultimately submit that an “irreligious movement” will be the most effective way to resist anti-democratic forces.<sup>97</sup>

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<sup>94</sup> Pope Francis and Bin Laden are the key examples of religious figures that M&W most closely consider in their book.

<sup>95</sup> In fact, M&W simplistically define “*theology*” as “the word of God” (as if the literal definition of the word exhausts its wider meanings). Wainwright and Mann, *Climate Leviathan*, 186.

<sup>96</sup> Wainwright and Mann, 166.

<sup>97</sup> Wainwright and Mann, 180.

I must say, it is disappointing that these political theorists chose to conclude their otherwise insightful project by making these kinds of sweeping generalizations about “religion,” and that they then feel the need to limit X to irreligious persons. I have two main objections to this aspect of M&W’s work, one of which is essentially practical and the other is more theoretical. Firstly, although their concerns about the political dangers of religious exclusivism are entirely understandable, on a practical level, it is difficult to imagine a truly “planetary” movement for climate justice succeeding if it cannot even attempt to work with *inclusively* minded religious persons as fellow eco-activists. After all, around 70% of the global population remains either Christian, Muslim, or Hindu (just to name the three largest religious traditions).<sup>98</sup> Moreover, virtually all major religions are expected to *increase* in numbers of adherents by 2050—particularly those traditions that affirm some form of theistic belief.<sup>99</sup> And *even if* it was truly necessary for every potential constituent of Climate X to adopt M&W’s secularist exceptionalism, it seems highly unlikely that there would even be enough time for this to occur in light of the narrow ecological deadline imposed by the climate crisis.

Pragmatically speaking, global climate justice movements simply cannot therefore afford to be exclusively secularist. This point is well-made by Amitav Ghosh (who is himself a secular thinker) in the concluding paragraphs of *The Great Derangement* (2016): “I would like to believe that a great upsurge of secular protest

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<sup>98</sup> Hackett and McClendon, “World’s Largest Religion by Population Is Still Christianity.”

<sup>99</sup> Buddhism—a typically non-theistic tradition—is a notable exception to this global religious trend. While Islam is the fastest growing major religion, Christianity is predicted to continue its long-term pattern of growth around the world. Additionally, devotional (i.e., theistic) forms of Hinduism remain dominant in India, and are expected to remain so over the coming decades. Pew Research Center, “The Future of World Religions.”

movements around the world could break through the deadlock and bring about fundamental changes. The problem, however, is time...every year that passes without a drastic reduction in global emissions makes catastrophe more certain.” Whereas “such [secular] movements usually take years, even decades, to build,” Ghosh points out that religiously affiliated mass organizations and communities not only already exist all over the planet, but that they also “possess the ability to mobilize people in far greater numbers than any others.”<sup>100</sup> For these reasons, Ghosh justifiably finds great hope in the growing involvement of diverse religious groups in climate politics.

It therefore seems clear to me that if Climate X is to ever succeed, it needs to make ample room for activists who are inspired by a diversity of religious imaginaries. Might M&W’s secularist account of ecojustice activism thus be expanded so as to become a *postsecularist* vision—that is, one that would affirm X’s basic principles of equality, inclusion, and dignity, but also be generative and supportive of *wider* planetary solidarities between religious and secular activists? Indeed, William Connolly—another non-religious theorist of Anthropocene politics—has in fact argued in favor of just such a vision for global climate politics. In *Facing the Planetary* (2017), Connolly envisions a democratizing movement for ecojustice that enfolds inclusively-minded religious and secular groups—a postsecularist “politics of swarming,” as he describes it, which would be “composed of multiple constituencies, regions, levels, processes of communication, and modes of action, each carrying some potential to augment and intensify the others with which it becomes associated.”<sup>101</sup> It is important to note that Connolly’s image of

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<sup>100</sup> Ghosh, *The Great Derangement*, 160.

<sup>101</sup> Connolly, *Facing the Planetary*, 125.



“swarming” is directly inspired by biologist Thomas Seeley’s groundbreaking research on the cooperative activities of honeybees. According to Seeley, honeybee colonies resemble democracies rather than monarchies—despite the presence of a queen, who is indeed the “genetic heart” of a colony, but not its “Royal Decider.”<sup>102</sup> Because decision-making is thus diffused among the many members of a swarm, Seeley explains, no single bee “possesses...exceptional intelligence and directs everyone else to the best course of action.”<sup>103</sup> Moreover, due to this dynamic, a swarm *collectively* displays an intelligent capacity for problem-solving that is more complex and efficient than even the cumulative intelligence of its members.

Drawing on these insights, Connolly suggests that honeybee democracies model a kind of decentralized, self-organizing swarm intelligence that provides a promising basis for ecopolitical engagement in the Anthropocene. Indeed, it seems to me that Connolly’s democratizing image of the swarm might then enable another crucial counter-vision to the theopolitics of earth mastery, as well as an important way of reconceiving Climate X beyond secularist exceptionalism. Thus, for Connolly, a politics of swarming would develop around shared concerns for ecosocial justice while aiming to hold together diversities of knowledge, strategy, identity, and creed—even as it might ultimately cohere into a planetary activist assemblage by strategically coordinating its “disparate energies and creative insights until a citizen movement becomes possible across world regions.”<sup>104</sup> While Connolly’s swarm thus resonates with M&W’s notion of solidarity, he affirms a

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<sup>102</sup> Seeley, *Honeybee Democracy*, 5.

<sup>103</sup> Seeley, 199.

<sup>104</sup> Connolly, *Facing the Planetary*, 125.

*thoroughgoing* pluralism that, in my view, wisely resists the kinds of secularist constraints on ecoactivism that M&W believe are necessary for Climate X to succeed. As Connolly argues,

Today we need to construct a militant pluralist assemblage composed of constituencies in multiple subject positions. They will not all come from the same class or share the same onto-creeds. They will come together out of growing concern for the fragility of things, care for future generations, and attachment to a world that is larger than humanity. They will, that is, identify affinities of spirituality with each other across differences of creed, regional location, and social position—even as many continue to work on their received creeds and priorities in the light of new circumstances. Secularists...too often ignore promising intersections between them and activist proponents of this or that religious creed.<sup>105</sup>

My second objection to M&W's secularist approach to ecoactivism has to do with their extremely provincial framing of "religion" in terms of sovereignty. If "religion" is essentially rooted in a theopolitical imaginary of "sovereign authority," as M&W evidently believe, then all religious traditions are apparently to be conflated with theistic beliefs and theocratic political ideals. Yet by describing religion in this *highly* reductive way, M&W have committed what Whitehead called the 'fallacy of misplaced concreteness' (as defined in chapter three). Religious traditions are simply much too complex and multifarious to be uniformly tied to a theo-logic of sovereignty.

How then should we understand "religion" today? In religious studies, there is indeed ongoing debate about the definition of religion.<sup>106</sup> And, to be sure, some earlier modern scholars did define religion in the language of divine sovereignty.<sup>107</sup> But few—if

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<sup>105</sup> Connolly, 187.

<sup>106</sup> For a survey of this debate, see Capps, *Religious Studies*.

<sup>107</sup> For example, James Frazer argued in 1890 that religion involves "belief in superhumans who rule the world." Frazer, *The Golden Bough*, 47.

any—religious studies scholars would still tie “religion” to this particular metaphysical proposition. Some scholars do continue to maintain that religion essentially has to do with belief in superhuman agents—but not necessarily with *sovereign* superhuman agents, as M&W maintain. Even though the latter view does accurately describe a number of monotheistic religions in their majoritarian forms, it excludes many others (e.g., non-theistic traditions of East Asia), even as it ignores minoritarian viewpoints *within* Western theisms that reject notions of sovereignty. Moreover, it simplistically privileges merely one aspect of religions—namely, metaphysical beliefs—when in reality, religious traditions are far more complex phenomena that also include ritual, mythological, experiential, ethical, and social dimensions.<sup>108</sup>

Precisely so as to *increase* the swarming capacities of Climate X, M&W’s political theory would thus greatly benefit from a more capacious theory of religious traditions—for instance, “as complex sign systems and networks of practices that enable persons to rightly engage the relevant features of ultimate reality,” as comparative theologian John Thatamanil proposes.<sup>109</sup> Understood in this way, “religion” is not tied to any specific theological or metaphysical view of ultimate reality, such as those based on divine sovereignty. Indeed, one only needs to look beyond traditional monotheisms to see that the concept of ultimate reality is diversely interpreted across global religions—from the impersonal Tao and dynamic *sunyata* of various East Asian traditions, to the infinite Brahman and innumerable *jivas* of certain South Asian traditions.

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<sup>108</sup> Here I am referring to Ninian Smart’s “family resemblance” theory of religion, which is constructed on the basis of “seven dimensions of religion.” See Smart, *Dimensions of the Sacred*.

<sup>109</sup> Johnson-DeBaufre, Keller, and Ortega-Aponte, *Common Goods*, 64.

Another strategic advantage of Thatamanil's theory is that it can help to nurture constructive theological reflection both *within* and *across* traditions—which is to say, it supports the pluralizing work of comparative theology. This too may amplify X's swarming capacities. As Hyo-Dong Lee argues, comparative theology can be deployed as a “*practice of political theology*,” which challenges religious exclusivisms and Western Christian exceptionalism.<sup>110</sup> Explicitly resisting concepts of divinity as an “omnipotent sovereign Monarch,”<sup>111</sup> Lee's own comparative theology thus moves between East Asian and Western traditions “to decolonize Christian theology from its colonization by the logic of empire,” and to provide support to movements for radical democracy.<sup>112</sup>

It should therefore be clear that M&W's project not only requires a more adequate theory of religion, but also needs to better account for the fact that many progressive religious thinkers—such as Lee and myself—actually share their view that theologies of sovereignty readily lend support to anti-democratic politics. Indeed, it is precisely this concern about the theopolitics of sovereignty that I alerted us to in my discussion of Schmitt. Moreover, in the preceding chapters, I have been unfolding a series of interrelated critiques of sovereign exceptionalism. Thus, in chapter one, I looked to the works of Haraway, Ruether, and Keller in an initial attempt to challenge the exceptionalist theopolitics of geopower, while in chapter two, I looked to the earth sciences to cultivate a counter-exceptionalist planetary imaginary. In my exploration of Bennett's new materialism in chapter three, I then suggested that, even though any given

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<sup>110</sup> Lee, *Spirit, Qi, and the Multitude*, 32. Emphasis added.

<sup>111</sup> Lee, 13.

<sup>112</sup> Lee, 245.

metaphysics can be used to justify a plurality of political positions, imaginaries that are founded on strong metaphysical hierarchies—especially the image of a metaphysically exceptional God of sovereign power—far too easily serve to legitimize strongly hierarchical and unjust socio-political formations. Indeed, this suspicion about the ways that theo-metaphysical ‘chains of being’ tend to operate within historically, culturally, and socially contingent formations of power was a driving motivation for my wider exploration of geophilosophy, which works to destabilize human exceptionalism by ecologically redistributing relational powers of agency and creativity, and by dislodging notions of intrinsic value as the concentrated property of certain privileged humans.

At least within more conservative forms of Christianity like American evangelicalism and Pentecostalism—my own religious families of origin—I believe that it must also be fully acknowledged that theistic faith in divine sovereignty all too often leads to what David Ray Griffin has called “*omnipotence-based complacency*,” which supports various attitudes and behaviors that undermine the kinds of climate actions that X pursues.<sup>113</sup> As Griffin points out, such theistic complacency has been intentionally deployed and amplified by certain corporate elites and political conservatives in order to justify climate denialism and inaction: “Vested interests seize upon the belief that the world is in God’s hands to promote the complacent assumption that continuing to burn fossil fuels will not destroy civilization, because ‘God will not allow it.’”<sup>114</sup>

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<sup>113</sup> Indeed, omnipotence-based complacency is arguably a key component of the ideological underpinnings of “millenarian” Climate Behemoths. Griffin, *Unprecedented*, 244–63. Emphasis added.

<sup>114</sup> Griffin, 249.

Furthermore, even when one considers those eco-conscious classical theists like Francis who accept the reality of anthropogenic climate change, their theology arguably creates severe cognitive dissonance about the urgency of climate action.<sup>115</sup> After all, insofar as the God of classical theism is truly omnibenevolent and omnipotent, such a God would presumably not only *desire* to save humanity and creation from extreme eco-catastrophes, but would also be *capable* of doing so at any moment. Moreover, if this God is also omniscient—in the classical sense of exhaustively knowing all past, present, *and* future events—then the Anthropocene’s many crises would have been known by God from eternity. Assuming the truth of these premises, it is not therefore illogical for a theist to conclude that, *regardless* of humanity’s planetary impacts in the present, God will at least *eventually* intervene to secure a good future for creation. But then, precisely by enabling one to anticipate a final supernatural geo-fix, such theologies risk deenergizing X’s swarming capacities as well.

Despite his open and relational version of theism, even the pioneering ecotheologian Jürgen Moltmann affirms a theology of sovereignty that raises similar issues for ecopolitics. While he rejects what Griffin calls “extreme supernaturalism”—which is the view that God literally and completely controls everything—Moltmann has long defended a “modified supernaturalism” that entails a more limited conception of divine power.<sup>116</sup> Thus, while he believes that God voluntarily relinquished total omniscience and sovereignty over creation for the sake of creaturely freedom in the

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<sup>115</sup> On Francis’s classical theism, see Cavadini and Wallenfang, *Pope Francis and the Event of Encounter*, 134–35.

<sup>116</sup> Griffin uses the term “modified supernaturalism” to describe open (or kenotic) theism. Griffin, *Unprecedented*, 249–50.

present, Moltmann nevertheless argues that God will eventually reclaim “unlimited omnipotence, omnipresence, and omniscience,”<sup>117</sup> and miraculously transform “*this earth*” into “*the new earth*”—all in God’s mysterious time, of course.<sup>118</sup> But as Griffin reasonably wonders about such supernatural beliefs, “Will not confidence that the world will not be destroyed by global warming...make the task of preventing the destruction of civilization seem less important?”<sup>119</sup> It is indeed hard to see how Moltmann’s neo-apocalyptic theology does not risk promoting a reduced sense of ecosocial urgency about our current crises.<sup>120</sup> On my reading, his ecotheology thus appears as a strained attempt to hold together two claims that are in irresolvable tension: while God *will not* finally allow humans to destroy the planetary web of life, Christians must still act urgently *as if* that was actually possible. Ethically speaking, Christian eco-responsibility is thus arguably reduced to a matter of abstract deontological—or, more precisely, *eschatological*—obligations, since the *consequences* of even the most destructive human actions *cannot possibly*, in the end, serve to foil God’s sovereign will for creation.<sup>121</sup> Again, for the sake of X’s swarming capacities, we ought to remain suspicious of such theologies.

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<sup>117</sup> Moltmann, *Sun of Righteousness, Arise!*, 95.

<sup>118</sup> Moltmann, *The Coming of God*, 279.

<sup>119</sup> Griffin, *Unprecedented*, 253–54.

<sup>120</sup> Keller has challenged Moltmann’s neo-apocalypticism for a related reason. Like me, she is concerned about the ecological implications of Moltmann’s eschatology. As Keller points out, because Moltmann’s eschatological hope for the “resurrection of nature” entails “the end...of finitude itself,” it seems hard to avoid the troubling conclusion that this also entails the apocalyptic “end of nature.” As Keller suggests, Moltmann’s apocalypticism may thereby “fatally, indeed fatalistically, undermine the ‘struggle for creation.’” Keller, *Apocalypse Now and Then*, 18.

<sup>121</sup> In other words, Christian motivation to address climate change thus arguably becomes dependent on obeying divine commands, rather than (also) on the concrete, practical, material concerns of addressing climate disruption. This seems to me to be a totally unsustainable basis for climate ethics. A

Moreover, while Moltmann's neo-apocalyptic claims are clearly made on the basis of a sincere faith, they raise perennially difficult—and, in my view, unanswerable—questions about the problem of evil: if God is in fact capable of *reclaiming* total sovereignty, why has God not already done so in order to halt the climate and extinction crises? How could a *genuinely* loving and *voluntarily* limited God continue to allow for these eco-catastrophes to occur, especially when they are inflicting extreme levels of violence and suffering on an ever-rising number of innocent victims—human and nonhuman alike? What final good could this mysterious eschatological deferral possibly be accomplishing? These are of course the kinds of questions that theodicies try to address. However, setting aside openly irrational appeals to sheer mystery and infallible 'leaps of faith,' all of the standard attempts in philosophy of religion to *rationaly* justify divine sovereignty in response to such questions seem to me to be about as plausible as the self-justifications of neoliberalism—which is to say, they beggar belief.<sup>122</sup> In fact, theodicy's old dualism of natural and moral evil is becoming ever-more difficult to maintain today, for in the Anthropocene—when human and nonhuman forces are profoundly intertwined—such conceptual distinctions are blurred.<sup>123</sup> Theistic conceptions of sovereignty—classical or otherwise—are thus increasingly implausible in a post-

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more adequate conception of climate ethics arguably requires a radically open-ended view of the future, which is a prerequisite for seeing that there are *actual* risks for planetary life in the present.

<sup>122</sup> Griffin's critiques of standard theodicies are, in my view, extremely persuasive. See Griffin, *God, Power, and Evil*.

<sup>123</sup> On this point, I am thinking of geophysicist Bill McGuire's argument that human activities are not only changing the climate, but are also increasingly likely to generate earthquakes, tsunamis, and volcanic eruptions. McGuire, *Waking the Giant: How a Changing Climate Triggers Earthquakes, Tsunamis, and Volcanoes*.



Holocene world. Perhaps the Anthropocene really does signal “the last gasps of the sky gods,” as Haraway suggests.

Unfortunately, in his otherwise inspiring and challenging book, *A Political Theology of Climate Change* (2013), Northcott maintains similarly problematic theological positions about divine power and eschatology. Much like Moltmann, Northcott aims to give voice to an ecologically responsible expression of Christianity, even as he also wants to affirm the eschatological sovereignty of God. On the one hand, Northcott argues as follows:

The climate crisis indicates that, to honour the God who rules over earth and heaven, local and national communities should find ways to conserve their own fossil fuels in the depths of the earth, while at the same time creating and commissioning a new energy economy dependent on sunlight, wind, and biomass, and so re-create the historic and customary connections between nature and culture, land and life, love for neighbor and nature which are central to the Jewish and Christian messianism of empire-challenging love.<sup>124</sup>

These are wise practical suggestions, and although I resist Northcott’s language of divine “rule,” I support his call for a religiously inspired anti-imperialist love.

On the other hand, the traditionally Christian eschatological vision that Northcott affirms suggests that, no matter how catastrophic the Anthropocene becomes, Christians can live in confidence that a utopian future for creation has already been secured by God:

Christian care for the future and the outcome of history—even the outcome of the present climate crisis—rests not upon present choices or decisions but upon the new direction toward which history is pointed in the forgiveness of sins, the defeat of sin and death, and the revelation of the depths of divine love displayed in the Cross and Resurrection of Jesus Christ...for Christians tragedy is not ultimate, for the ultimate end of all things is already revealed in Christ...<sup>125</sup>

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<sup>124</sup> Northcott, *A Political Theology of Climate Change*, 316.

<sup>125</sup> Northcott, 258–59.

But against such forms of faith in an assured end to all earthly suffering and injustice, I want to insist that we can only ever feel the full urgency of the need to respond to Anthropocene crises in ethically responsible and politically just ways after we have let go of any and all sense of confidence that some transcendent sky god—whether supernatural *or* technological—will someday intervene to clean up our planetary messes. Those gods not only need to die; they must *remain* dead—if, that is, we are to find our way through the Anthropocene, not just alive, but living in more ecosocially just societies.

This is not, therefore, to say that we must now give up all hope for the future flourishing of people and planet. Nor am I here channeling Nietzsche in order to demand the end of all God-talk. Far from it. But it *is* to say that, for those of us who now choose to swarm toward Climate X, our chances of realizing ecosocially just futures are likely to be significantly enhanced when political *and* theistic imaginaries of sovereign exceptionalism are radically deconstructed.<sup>126</sup> On this particular issue, I am certainly more sympathetic with M&W’s leftist version of secular atheism than I am with the traditionally Christian ecotheologies of Moltmann and Northcott.

However, at this juncture, it is important for me to reiterate that one of my primary intentions throughout this dissertation has been to counter *multiple* imaginaries that are based on the logic of exceptionalism—and not therefore only those which can be expressed in explicitly theistic terms of sovereignty, as in the ecotheologies of Moltmann and Northcott. Based on my earlier critique of M&W’s secularist exceptionalism, it

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<sup>126</sup> In other words, to ‘deconstruct’ such theologies would—at the very least—profoundly *destabilize* any sense of certainty or confidence that one might have previously maintained about divine sovereignty. Deconstruction might *also* then lead to alternative, *counter*-sovereign conceptions of divinity (such as the kinds that I explore later in this chapter).

should likewise be clear that I believe it to be crucial to work toward a maximally diverse ecosocial justice movement that does not require adherence to an irreligious onto-creed. Against M&W's version of secularism, I do not therefore believe that theistic exceptionalists who are both inclusively minded and motivated to work for climate justice on a democratic basis should be excluded a priori from Climate X. To me, that would be foolish.

And yet, while I appreciate the motivations of theologians like Moltmann and Northcott to try to frame their theisms in a way that might inspire eco-responsibility, I doubt that such theologies can be consistently translated to wider religious publics in a way that does not risk undermining X's work for ecosocial justice.<sup>127</sup> As I have argued, *even if* such theologians manage to fully sever the patterned connections between theologies of sovereignty, omnipotence-based complacency, and unjust eco-socio-political relations—which is no easy task—their theistic imaginaries *do not* avoid creating extreme cognitive dissonance about the urgency of climate action. On the other hand, I do not then believe that X should become *anti*-theological. Indeed, as I have also argued, insofar as theology and politics remain intertwined today, then part of the work of resisting geosovereignty will necessarily take place on a theological plane. Moreover, if X is to be *genuinely* pluralist, then at least some of us who join its geoswarm will remain crucially inspired and sustained by theological imaginaries. As such, in an attempt to

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<sup>127</sup> This claim is partly based on personal experience. Until about a decade ago, my thinking was closely aligned with Moltmann's ecotheology. While his work was a useful stepping-stone in my thinking about ecology and theology, it also created for me precisely the kind of cognitive dissonance that I am speaking of here. My felt need to hold on to divine sovereignty as an eschatological ideal was ultimately a de-energizing source of intellectual confusion, existential frustration, and ecopolitical distraction. Part of what I am arguing in this chapter is that these experiences are not unique to my own situation, but are in fact very difficult to avoid for theologies of sovereignty.

infuse X's ecopolitics with a more livable, existentially motivating, and democratizing form of theology, I now want to look beyond traditional theisms to explore alternative, *counter-sovereign* ways of imagining the divine in relation to the earth.

#### **IV. Geotheological Swarms**

As we have seen, the discourse of political theology involves critically investigating the conceptual transfers between modern politics and theology. It is precisely this function of political theology that enabled my earlier analyses of geoengineering and the wider problem of sovereignty in the Anthropocene. Based on this understanding of political theology, one might choose to utilize this discourse for exclusively analytic purposes. However, in the way that I am now approaching the subject, political theology also includes an explicitly *constructive* task. On this point, I am informed by Jeffrey Robbins's method of "radical" political theology. As Robbins argues, an important part of the work of a specifically radical political theology is the construction of alternative theologies that do not rely on the logic of sovereignty, which are in turn deployed as "critical and necessary supplement[s]" for radically democratic politics—precisely of the kind that I have been considering under the banner of Climate X.<sup>128</sup> But as secularists like M&W would no doubt now ask: why must *any* sort of theology be seen as a "necessary" supplement for an otherwise secular ecopolitics?

Insofar as modern politics always already includes a more or less hidden theological dimension that shapes a public's understanding of power, informs its

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<sup>128</sup> For Robbins, the constructive aspect of this supplement is rooted in "theologies of the weakness of God [e.g., the work of John Caputo] as opposed to those traditionally oriented around divine power." Although I am not here drawing on Caputo's work, the scholars I engage equally reject theologies of sovereignty. Robbins, *Radical Democracy and Political Theology*, 6.

practices, and provides it with a vision of the way the world ought to be, then, as I earlier suggested, resisting any political status quo requires *counter*theological interventions into a collective’s social imaginary.<sup>129</sup> The de/constructive work of radical political theology must therefore be understood as the public dissemination of alternative symbols of meaning and ultimacy as critical replacements for those that help to legitimize dominant power structures—such as the imaginaries of sovereign exceptionalism and human supremacy that now fuel Leviathan’s neoliberal machine. As Keller importantly clarifies in her work on the subject, this is not to say that political theology attempts to “exercise control over another’s unconscious mind,” but rather that it seeks to initiate a “radical change of practice” through the “subliminal insertion” of alternative theologies into politics.<sup>130</sup> From this point of view, radical political theology is a pragmatic discourse. That is to say, its primary aim is not to uncover “absolute truths,” but rather to develop *existentially potent* and *philosophically viable* theological concepts, and to then deploy these concepts in order to motivate counter-sovereign political practices.

With this understanding of political theology in mind, I now want to turn our attention to the works of Rubenstein and Keller in order to explore two overlapping imaginaries of divine immanence that may importantly supplement the vision of ecopolitics I have been unfolding. As we will see, both of these scholars reimagine divinity in ways that do not rely on the logic of sovereignty—and crucially, they do so in resonance with the geophilosophies of the previous chapter. Indeed, Rubenstein is

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<sup>129</sup> Crucially, “*counter*-theological” is not to be taken as “*anti*-theological”—as the rest of this chapter should render clear.

<sup>130</sup> Keller, *Political Theology of the Earth*, 64.

influenced by James, Keller is significantly inspired by Whitehead, and both engage Bennett and Deleuze in their constructive projects.<sup>131</sup> Because of this geophilosophical resonance, my engagement with each of their works thus presupposes the more explicitly metaphysical mode of analysis that I have already developed. I will not therefore be presenting a comprehensive study or defense of their theo-metaphysical views; rather, I seek to show how each of their theological imaginaries have important implications for ecopolitics in the Anthropocene. By proposing that we then work primarily at a subliminal level to infuse ecopolitics with these counter-sovereign (*geo*)theologies, my intentions here are essentially twofold: first, to advocate the strategic deployment of their theologies as *acts of resistance* to the theistic logic of transcendent power that now fuels Leviathan's geosovereignty; and second, to affirm their potential to *existentially energize* and *ecopolitically amplify* the swarming capacities of X.

In fact, what makes these theologies particularly relevant for my project is not only due to their conceptual entanglements with the planetary imaginary of geophilosophy, but also to their metaphorical resonance with the image of the swarm that we considered through the works of Seeley and Connolly. Recall that the constitutive multiplicity and decentralized structure of honeybee colonies provide the basis for its self-organizing swarm intelligence to emerge, precisely through the cooperative dynamics and creativity of the whole collective. Also recall that the queen bee is not the Royal Decider, but rather the genetic heart of the hive—its initial material condition of possibility. In our attempt to reconceive divinity beyond sovereignty, might we therefore

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<sup>131</sup> I do not here discuss the ways that Keller and Rubenstein engage Bennett and Deleuze, but it is significant for the present project that both figures are (positively) cited at various points in Keller's and Rubenstein's most recent publications.

find some inspiration in this extraordinary picture from the world of our fellow earth citizens? And might it even be possible that the Earth, through these honeybees, is now subliminally inserting itself into our thought processes to provoke a shift in human perception and practice—to *repartition the sensible*, in Bennett’s terms? On the one hand, the wisdom of the beehive (“*apisapientia*”) might then suggest to us that the infinite mystery that many name “God” is not at all like a sovereign king, but metaphorically, something more like a queen bee—a vital but uncontrolling participant in the swarm of creation. Or maybe, on the other hand, the buzzing energies and creative processes of the cosmic-Gaian swarm are *themselves* in some sense divine. In that case, the unified power of divine sovereignty would be fully *dispersed* into the co-creative powers of the geoswarm itself. To consider the theopolitical potential of the latter metaphor, Rubenstein’s pantheologies will be our guide, while Keller’s panentheism will ultimately lead us toward a geotheological entanglement of *both* metaphors.

In *Pantheologies* (2018), Rubenstein explores the theological possibilities and ethico-political implications of pantheism—a radical model of theology that imagines divinity in wholly immanent terms. Although this way of conceiving divine immanence has been variously interpreted in Western thought, the versions of pantheism that Rubenstein is herself most interested in (which she names “pantheologies”) are those which view divinity and the world as in some way “identical.”<sup>132</sup> As such, whereas theists like Moltmann and Northcott affirm the existence of a radically transcendent Creator to account for the world’s existence, the versions of pantheism that Rubenstein prefers ascribe *entirely immanent* powers of divine creativity to the cosmos as such—albeit,

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<sup>132</sup> Rubenstein, *Pantheologies*, 25.

axiologically *ambiguous* powers that are also creatively *destructive* and cosmically *non-teleological*.<sup>133</sup> From this point of view, “God” does not name a transcendent, purely spiritual being, but rather symbolizes the endlessly self-organizing capacities of material worlds in themselves. Both *pan* and *theos* thus signify a “creative-destructive spiritual materiality that can be neither reduced to a single force, nor gathered into a single world,” Rubenstein submits.<sup>134</sup> To view the world as “divine” in this sense does not therefore imply that every occurrence is “good,” she importantly clarifies, but rather that “all things participate—to greater or lesser intensity and to all manner of competing, collaborative, and disjunctive ends—in multiple, ongoing processes of cosmic makings and unravelings.”<sup>135</sup> While such a view may initially seem indistinguishable from atheism, I want to show how Rubenstein’s interpretation of pantheism is, in fact, meaningfully *theological*. After all, only if it is so might it actually serve to critically supplement and energize the ecopolitics of Climate X.

Directly inspired by Jamesian radical empiricism, Rubenstein suggests that the most promising philosophical approach to pantheism is *pluralistic* rather than *monistic* in character—which is firstly to say, a pantheism that does not define divinity in terms of one totalizing substance, since such a perspective “effaces the real distinctions among the multifarious constituents of the God-world,” she argues.<sup>136</sup> In Western thought, the most

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<sup>133</sup> By “cosmically non-teleological,” I mean that pantheologies—like the natural sciences in general—do not view the cosmos as having a larger purpose or goal. On this view, there may be purposes *in* nature, but not a purpose *of* nature.

<sup>134</sup> Rubenstein, *Pantheologies*, 173.

<sup>135</sup> Rubenstein, 176.

<sup>136</sup> In fact, it is James’s affirmation of “pluralistic pantheism” that significantly inspires Rubenstein’s larger project in this book. Rubenstein, *Pantheologies*, 22.



significant monistic pantheist was Spinoza, whose metaphysics I discussed briefly in chapter three. There I explained how Whitehead effectively dissolved Spinoza's monism of substance (*Deus sive Natura*) into a pluralism of processes. For Whitehead, the world is then understood to be immanently creative, irreducibly multiple, and radically relational—and thus, without any need for a transcendent First Cause or Absolute Substance to ground and unify its manifold reality. In a parallel philosophical maneuver, Rubenstein deconstructively rereads Spinoza's monism *as* a “pluralistic pantheism,” on the basis of which “all things” (*pan*) may be seen as “expressions and modifications of an essentially dynamic...divinity,” she writes, and as ultimately “[composing] the God-or-nature that expresses, enfolds, and inhabits all things.”<sup>137</sup> By thus creatively fusing Jamesian pluralism with Spinozan pantheism to reconceive divinity as “material, multiple, malleable, and limited,” Rubenstein's pantheology not only *divinizes* the swarming, co-creative multiplicities of material worlds, but also completely *short-circuits* the theistic notion of one, timelessly sovereign deity.<sup>138</sup>

This pantheological imaginary has much in common with another contemporary version of pantheism: Robert Corrington's *deep pantheism*. Like Rubenstein, Corrington is inspired by James and Spinoza (among a wide range of other philosophers), and he likewise conceives of divinity as pluralistic, non-anthropomorphic, and axiologically ambiguous. However, rather than pantheologically *identifying* divinity and world, Corrington reconceives divinity as an *emergent product* of the infinite depths of nature,

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<sup>137</sup> In broad terms, I see no obvious metaphysical difference between Rubenstein's pluralized version of Spinoza's monism and Whitehead's process ontology—*except for* the fact that the latter does not divinize the world, but rather views divinity as interrelated with the world. Rubenstein, 57.

<sup>138</sup> Rubenstein, 13.

and as *diffused throughout nature* as innumerable sacred energies. While divinity and nature are not then identical on this view, the former exists only in and through the latter. Thus, for Corrington, divinity “is manifest in a blinding and dazzling way within the one nature that there is or in a less dramatic way in the smaller sacred pulsations of human existence.”<sup>139</sup> And yet, despite their subtle metaphysical differences, deep pantheism and pantheologies likewise function to short-circuit monotheistic notions of sovereignty.

Apart from the works of philosophers like Spinoza, James, and Corrington, pantheism has, however, usually been dismissed, or even demonized by Western thinkers. Indeed, as Rubenstein points out, anti-pantheist writers often frame this theology not only as heresy, but as a conceptual “*monstrosity*,” on the grounds that it dangerously confuses the God-world distinction that has traditionally formed the basis of Western metaphysics. Citing Foucault, Rubenstein suggests that pantheism’s nearly universal condemnation by Western intellectuals is thus largely due to its conceptual “transgression of classifications”—which is to say, by eliminating any clear line between God and world, pantheism upends and reconceives the “whole chart” of interlocking, hierarchical categories that have been foundational to so much of Western thought, including spirit/matter, unchanging/changing, animate/inanimate, creative/created, human/nonhuman, male/female, light/dark, etc. What is important to see here is that the first terms in each binary align with “characteristics that Western metaphysics has

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<sup>139</sup> Corrington, *Deep Pantheism*, 17. I have elsewhere engaged Corrington’s pantheism through a comparison of his work with process thought. See Lawrence and Oh, *Nature’s Transcendence and Immanence*, 15–29. While my metaphysics in certain ways diverges from Corrington’s, I am also influenced by his naturalism and read his pantheism as resonant with the geotheology of this chapter. Unlike process thought, in Corrington’s “ordinal” ontology, no single characteristic (e.g., creativity or animacy) can be applied to the whole of nature. Thus, in Corrington’s “ordinal scheme, even God, and/or the gods and goddesses, are in and of nature ‘itself.’” This helps to explain why Corrington does not identify divinity and the world in the way that Rubenstein envisions. Corrington, xxii.

traditionally associated with God,” Rubenstein notes, whereas the second terms have been consistently characterized (and denigrated) as “worldly.”<sup>140</sup> This schema thereby secures the absolute priority and exceptionalism of the first terms over the second: spirit over matter, human over nonhuman, light over dark, male over female, and so on. But as Rubenstein argues, due to pantheism’s ‘monstrous’ mixture of divinity and materiality, this post-theistic imaginary effectively redistributes creativity, agency, and animacy to material worlds, and simultaneously “*demolishes*” the socio-politically disequalising distinctions that are encoded in orthodox Western metaphysics.<sup>141</sup>

Might pantheism’s annihilation of theistic exceptionalism and its subsequent muddling of orthodox metaphysical dualisms therefore be sufficient reasons to take it seriously—not merely as metaphysical speculation, but as a form of *radical political theology*? Indeed, as Rubenstein herself suggests: might we consider strategically deploying pantheology as a politically potent counter-imaginary, due to its liberating potential to disrupt the theo-logic of sovereign power, and to transform human and earth relations? Following the feminist philosopher of religion Grace Jantzen, Rubenstein argues from a pragmatic point of view that a significant part of pantheology’s promise is indeed due to the subversive challenge that it poses to the entire Western “logic of mastery”—precisely because the latter is so powerfully reinforced by the idea of a timelessly sovereign deity.<sup>142</sup>

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<sup>140</sup> Rubenstein, 2–3.

<sup>141</sup> Rubenstein, xx.

<sup>142</sup> Rubenstein, 10.

Rubenstein suggests yet another politically relevant advantage of pantheology: due to its non-anthropomorphic view of divinity and corresponding diffusion of creative agency to the world, pantheologists do not need to spend time or energy speculating about theodicies: “*to the contrary*,” she writes, “the abandonment of an extra-cosmic problem solver is motivated in part by the need to *take responsibility for the messes we make*.”<sup>143</sup> Thus, unlike the ecotheologies of Northcott and Moltmann, Rubenstein’s pantheology promotes a view of creaturely suffering and ecosocial injustices as *entirely practical* problems to be addressed—rather than as mysteries that require both a theological justification in the present and a supernatural geo-fix in the eschatological future. Moreover, due to its particularly radical emphasis on divine immanence, Rubenstein argues that pantheology may serve to nurture and amplify a crucial sense of ecological wonder and ethical responsibility toward the other earth creatures with whom we are divinely intertwined.<sup>144</sup> Indeed, in contrast to theistic supernaturalism, pantheology implies that one’s ultimate concern(s) ought to remain *earthbound*. Given these political, existential, and eco-ethical advantages over theism, pantheology, it seems to me, holds great promise to become a vital geotheological supplement for X’s democratic swarms.

But one might then ask: if God and world are actually identical, as many pantheists claim, why not instead join our atheist comrades like M&W and simply reject God-talk altogether?<sup>145</sup> Why not just talk about “worlds”—especially if “God” retains the

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<sup>143</sup> Rubenstein, 176. Emphasis added.

<sup>144</sup> Rubenstein, 184–86.

<sup>145</sup> Here I am also thinking of the atheist philosopher of religion, F. LeRon Shults, who suggests that surviving the Anthropocene may require rejecting all God-talk: “We are not likely to find solutions to the global ecological and economic crises of the Anthropocene unless and until we learn how to accept our

discursive-material power that Rubenstein argues that it has? Or, in terms of the Gaian discourses of the present project: *why now even bother reframing geophilosophy as geotheology?* After all, such a pantheological reframing would admittedly be *symbolic*, rather than strictly *metaphysical*. Particularly for the work of political theology—which, as I have shown, underscores the inseparability of modern politics and theology—Rubenstein’s answer to such questions is arguably both important and compelling: insofar as “the concept of divinity is *the most powerful concept we have*,” and is, in turn, all too often understood in such a way that it serves to reinforce the logic of sovereign mastery, then *resisting this logic may actually require reencoding the concept of God*—not abandoning it. In this sense, pantheological identifications of divinity and the world are (at least potentially) more politically radical and subversive than atheistic negations of theology—as in M&W’s political theory—since the latter end up dangerously leaving the concept of God in the hands of traditional theists, while ironically “reinscribing the concept of the God [atheism] doesn’t believe in.”<sup>146</sup> Furthermore, for *geotheology*, Rubenstein’s pantheological diffusion of divinity to materiality crucially serves to challenge the secularist exceptionalism of the dominant modern imaginary, which desacralizes the nonhuman. From these symbolic-discursive perspectives, it is therefore urgently important *not* to reduce pantheologies to any atheism. As such, on my reading of

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finitude and axiologically engage one another – intentionally and intensely – without bearing gods.” Shults, *Practicing Safe Sects*, 127. Shults is especially concerned (like M&W) about the way that God-talk can reinforce antagonisms toward out-groups, which then creates barriers to the cooperative social responses that are needed to address climate change. However, I support a different, postsecularist strategy: considering 1) the narrow ecological deadline to address climate change; 2) the projected growth (rather than decline) of theistic religions over the coming decades; and 3) the post-secular understanding of the inseparability of modern politics and theology, surviving the Anthropocene calls for alternative, counter-sovereign reconstructions of divinity that can help to support planetary responsibility and solidarity.

<sup>146</sup> Rubenstein, *Pantheologies*, 11–12, 187. Emphasis added.

Rubenstein's work, pantheology may indeed now be deployed as a critical counter-imaginary to the theopolitics of geosovereignty.

In light of current ecosocial crises, Rubenstein herself does explicitly suggest that, for all of the above reasons, pantheologies may be “politically expedient” for our current geohistorical juncture.<sup>147</sup> But she does not then argue that everyone should now embrace pantheism—whether for theoretical or practical reasons. As a pragmatist, her more modest aims are to reconstruct pantheism as a philosophically attractive imaginary, and to magnify its ethically and politically transformative potential. But as a pluralist, Rubenstein also rightly recognizes similarly transformative potential in other imaginaries, and that—for any number of reasons—pantheologies will remain unconvincing to plenty of people. Indeed, when we recall that the majority of the world's eight billion people belong to theistic religious traditions, and that adherents of such traditions are expected to increase over the coming decades, it seems highly likely that post-theistic perspectives like pantheism will remain marginal for the foreseeable future. Pantheology may nevertheless resonate with segments of the religious “nones” and the spiritual but not religious. It might even persuade some atheists. And to the extent that it does resonate with any of them, my hope is to have here shown how pantheologies can also crucially inform a radical political theology for the Anthropocene.

However, for many other members of Climate X, a drawback of pantheological immanence may well be its radical conception of an axiologically ambiguous divinity. For pantheologists, this conception may be existentially exhilarating, but it is in deep tension with widespread religious convictions that the world is somehow conditioned by

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<sup>147</sup> Rubenstein, 27.

an ultimate depth of value and purpose. In his philosophy of religion, Whitehead described this phenomenon as the sense that “life is conditioned by [a] formative principle,” which is not “a dogmatic formulation” of truth, but rather an “intuition of immediate occasions failing or succeeding in reference to the ideal relevant to them.”<sup>148</sup> In other words, especially (but not only) in the experience of many religious persons, there is an intensely felt sense of a divinely enduring “*rightness in things*, partially conformed to and partially disregarded.”<sup>149</sup> Of course, such a phenomenological account of religious experience cannot establish the metaphysical reality of this divine ‘rightness’ with absolute certainty. And indeed, the existence of any such axiologically relevant divinity remains a controversial—and perhaps undecidable—question for philosophy of religion. But for radical political theology, as I have argued, the more urgent question that we must consider here is not strictly metaphysical in nature, but rather *functional*. That is to say, *given* the widespread intuition of a divine reality “in the universe whereby there is importance, value, and ideal beyond what is actual,” as Whitehead elsewhere writes, is it possible for such a conviction to inform a theopolitical imaginary that, alongside pantheologies, may likewise serve to initiate and energize X’s counter-sovereign ecopolitics?<sup>150</sup> Without seeking to cleanly erase the pantheological sense of divine ambiguity, I want to suggest that Keller’s panentheism offers a way to answer this question affirmatively, and thereby provides an alternative geotheological supplement for Climate X.

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<sup>148</sup> Whitehead, *Religion in the Making*, 49–50.

<sup>149</sup> Whitehead, 55. Emphasis added.

<sup>150</sup> Whitehead, *Modes of Thought*, 102.

Closely resonant with Rubenstein’s pantheologies, Keller upholds a panentheistic vision of the divine “as unfolding ‘in and as’ the multiplicity” of the material world, and she likewise conceives of materiality as immanently creative and vibrantly animate.<sup>151</sup> Unlike classical theism, Keller’s panentheism does not therefore imagine God and the world as two sharply distinct entities, with the former retaining a monopoly on creative power and the latter rendered subordinately passive. Rather, she envisions divinity and world as dynamically intra-related, in the sense that they ultimately “form the conditions of each others’ becomings.” Consequently, in Keller’s process-relational panentheism, God and world are *mutually constitutive* and *co-creative* of one another. The radical nature of this theological imaginary is perhaps most clearly revealed when Keller suggests that divinity only *becomes* “personal” in relation to other finite persons: because “the metamorphoses of the creatures cast their effects back upon the divine,” she writes, it is “only” in relation to human persons as they emerge in the world that “this deity get[s] personal.”<sup>152</sup> Moreover, insofar as divinity and world are relationally constitutive of one another in the way that Keller envisions, such orthodox metaphysical dualisms as spirit/matter, one/many, changing/unchanging, and creative/created are, we might say, pantheologically muddled. With her panentheism, Keller thus “welcomes the *radical immanence* that corrects all supernatural exceptionalism”—which, in turn, effects a pantheological demolition of the socio-politically disequalising distinctions that are encoded in Western metaphysics.<sup>153</sup> At the same time, panentheistic immanence also

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<sup>151</sup> Keller, *Political Theology of the Earth*, 144.

<sup>152</sup> Keller, *Face of the Deep*, 227. Emphasis added.

<sup>153</sup> Keller, *Political Theology of the Earth*, 114. Emphasis added.



challenges the secularist exceptionalism of the dominant modern imaginary by *resacralizing* more-than-human worlds. For this reason, panentheism provides yet another crucial supplement to the planetary imaginary that I have been unfolding in this project.

In light of the foregoing description of Keller's theology, one might begin to wonder if pantheologies and panentheism are in fact just two names for the same position. They are indeed strikingly similar. While I do want to suggest that the "en" of Keller's panentheism *does* mark a meaningful difference from any pantheism—and so also from pantheologies—it is important to recognize that Keller has consistently refused to play into the anti-pantheist "pan-phobia" of Western thought that Rubenstein criticizes. As Keller insists, her panentheism is not to be understood in mere opposition to pantheism, since to do so would "risk at once replaying the sovereign game of us vs. the heretics, [and] hardening the conceptual line between God and world."<sup>154</sup> For Keller, the "en" of panentheism does not therefore indicate a static difference between two substances, but rather the *mutually immanent relationality* of God and world in their interdependent becoming: "a commingling of unpredictable, and yet recapitulatory, self-organizing relations," she writes.<sup>155</sup> Once again, it is clear that Keller does not neatly separate *pan* and *theos*. Their difference is "smudged," she suggests—which effectively blurs the distinction between panentheism and pantheism.<sup>156</sup>

Even so, on my reading of her work, Keller's distinctively Whiteheadian conception of a divine "eros" does subtly—yet meaningfully—diverge from the sheer

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<sup>154</sup> Keller, 143.

<sup>155</sup> Keller, *Face of the Deep*, 219.

<sup>156</sup> Keller, *Cloud of the Impossible*, 191.

axiological ambiguity of pantheological creativity. Recall that, for process thought, creativity is the ultimate cosmological principle, by virtue of which each intrarelated occasion is capable of autopoiesis and sympoiesis. For both Keller and Whitehead, “God” is *neither* identified with, *nor* an exception to the indeterminate process of relational creativity. Rather, God, as “Eros of the Universe,” is the primordial *exemplification* of creativity, and the non-coercive source of radical *novelty* for creaturely becoming. As such, by virtue of God’s provision of novelty to every actual occasion, genuinely new realizations of value may continuously unfold in and through the world. As Keller herself describes this divine-world dynamic: “the creator emits an eros, a ‘lure to novelty,’ an ‘initial aim’—the beginning condition, the ‘prevenient grace,’” in response to which creatures may constitute themselves anew.<sup>157</sup> As an ecopolitically provocative metaphor, it seems to me that this deity might then be imagined as a kind of cosmic queen bee: a vital but uncontrolling participant in the swarm of creation. At the same time, due to the mutual immanence of *pan* and *theos*, divinity dynamically unfolds *in and as the cosmic swarm itself*. For Keller, God is not therefore excepted from the world as a “Sovereign Decider providentially choosing on His own, then imitated by other sovereign and separate subjects.” Rather, this immanent deity only ever acts in the world relationally—and so, “*nonexceptionally*,” as a co-creative lure to novel realizations of value and wider creaturely solidarities.<sup>158</sup>

As such, even as she ‘smudges’ the God-world relation, Keller, like Whitehead, also suggests the reality of a divine “element” that conditions creaturely becoming as an

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<sup>157</sup> Keller, *Face of the Deep*, 180.

<sup>158</sup> Keller, *Political Theology of the Earth*, 140. Emphasis added.

immanental source of co-creative values. Arguably, such a God is not therefore pantheologically reducible to the ‘creative-destructive spiritual materiality’ of the world. To be sure, Keller does not then simply *negate* divine ambiguity. Insofar as the relationally limited divine eros “does not control and guarantee,” creatures are freely able to “wander”—and often “at our peril,” she points out.<sup>159</sup> And yet, far from being axiologically indifferent to the value of creaturely flourishing, this unpredictable deity endlessly—and *amorously*—lures the world toward “new particularizations, new differences, new shapes of bodied togetherness,” Keller suggests.<sup>160</sup> Precisely because this deity is not then identical to the ambiguous flux of creativity, panentheism “retains what all theism desires,” Keller writes, “a ‘Thou’ different enough and intimate enough to love and to be loved.”<sup>161</sup> For these reasons, it seems to me that Keller’s panentheism may importantly resonate with those members of X’s planetary swarms who resist supernaturalistic theologies of sovereignty, but who nevertheless find crucial spiritual sustenance and ecopolitical motivation in more theistically-inspired religious imaginaries.

Alongside pantheologies, Keller’s notion of an uncontrolling divine eros also then provides a critical counter-vision to the political theology of geosovereignty. In fact, Keller has now folded this panentheistic imaginary into her own “political theology of the earth,” which she has developed in an intentional effort to disrupt the theopolitics of sovereignty, and to energize democratic movements for planetary justice. Indeed, it is precisely what Keller calls the “counter-exceptionalist theology” of a non-coercive

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<sup>159</sup> Keller, *Face of the Deep*, 199.

<sup>160</sup> Keller, *Political Theology of the Earth*, 125–28.

<sup>161</sup> Keller, *Face of the Deep*, 219.

divinity that she hopes may begin to subliminally infuse modern politics as a democratizing lure toward ecosocial justice.<sup>162</sup> As she explains the driving motivation for her project, “It is the chance of an *ecosocial inception*, the emergence of a new public and a new earth, that a political theology of the earth nurtures.”<sup>163</sup> Crucially, however, having *deconstructed* the theistic conception of an all-powerful deity who could bring about such a future *for us*, Keller’s theopolitical imaginary ultimately places the responsibility for doing so upon...well, *us*: “What matters, what might matter endlessly, is what we earth-dwellers now together embody,” she insists.<sup>164</sup>

Which brings me back to the question that has haunted my thinking throughout this chapter: if we must now face the Anthropocene *without* any sovereign guarantees for a better future, how, then, might we earth-dwellers hold on to hope for an ‘ecosocial inception’? In the midst of multiplying planetary crises—all of which may only seem to confirm apocalyptic predictions of “the finished future, game over”—it might indeed be tempting for some of us to give up on hope altogether.<sup>165</sup> As I reflect on our present historical moment in summer 2020, I must confess that, although I refuse to be a pessimist—and will therefore continue to swarm for ‘a new earth’—I am not at all optimistic about the future. The Anthropocene apocalypses discussed earlier in this chapter are now compounded by a host of other societal challenges, including an ongoing pandemic, surging neofascism, and continuing systemic racism. A profound sense of

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<sup>162</sup> Keller, *Political Theology of the Earth*, 137.

<sup>163</sup> Keller, 179. Emphasis added.

<sup>164</sup> Keller, *Cloud of the Impossible*, 306.

<sup>165</sup> This quotation is part of Haraway’s quote from the epigraph to this chapter.

anxiety thus permeates societies today. Moreover, in my own life, a number of interpersonal worlds have recently collapsed. The personal thus intertwines with the political in dangerously self-amplifying feedback loops of discouragement and frustration. In light of these intersecting challenges, I continually have to work to remind myself that there is, in fact, a critical difference between hope and optimism.

Hope is precisely *not* the naïve belief that our world(s) will eventually turn out to be just fine, whether that is believed to occur on the basis of inexorable historical progress, technological innovations, or supernatural interventions. Such are the views of optimists—secular and religious alike—whereas hope, as I understand it, requires a radically different existential posture. From a geotheological perspective, hope is fundamentally grounded in an ultimate conviction that we live in a relational world of becoming, in which possibilities always exceed actualities, and in which even small-scale actions in the present may have much wider rippling effects that can alter the trajectory of the future—for good or for ill, and without any guarantees. This hope is also nurtured by a profound sense of wonder that we really do live in a world in which creative values and purposes are everywhere in abundance, and nowhere entirely deficient. In this sense, genuine hope becomes possible, I suggest, precisely insofar as we are willing to embrace a dual sense of wonder and uncertainty about the endless unfoldings of this divinely-entangled world, and in turn, to cultivate our own capacities to be enlivened by the unknown—and *unknowable*—spaces of the future. And in the end, it seems to me that it

will only be on the basis of a radical, ‘counter-apocalyptic’ hope such as this that an ecosocially just future for the Earth may finally begin to emerge.<sup>166</sup>

As we now face this uncertain future, I want to suggest that an important part of our task in swarming toward Climate X is to infuse our imaginaries with this geotheological sense of hope—if, that is, we are to be sustained in our efforts to resist geosovereignty. There is simply too much at stake to now give into nihilistic despair. Moreover, to give up on hope would effectively surrender our alternative visions for the other-worlding of this world. But this, in my view, would be both misguided and unnecessary. The time *is* indeed short. The challenges we face *are* undoubtedly massive. And yet, an ecological civilization may still unfold—the potential for which remains present in the efforts of ecojustice movements around the world, which *already* disrupt the politics of geosovereignty. What will finally become of the political in the Anthropocene? We cannot be certain, but it is unlikely to remain the same. A top-down geosovereign may soon materialize. Or perhaps, if the now merely possible becomes actual, a swarm of democratizing energies will erupt from below to co-create a more common good of people and planet. Let us earth-dwellers now pursue *this* planetary future together—with courage, and with hope.

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<sup>166</sup> While composing these final paragraphs, the following writings that address the question of hope were buzzing around in my mind: Keller, *Apocalypse Now and Then*; West, "The Moral Obligations of Living in a Democratic Society"; Solnit, *Hope in the Dark*; Eagleton, *Hope without Optimism*.

## AFTERWORD

Twenty years ago, Paul Crutzen announced the Anthropocene with the intention of naming a dangerous rupture in the Earth System. While he predicted that this geological shift posed long-term challenges to human societies, he did not anticipate that the *concept* of the Anthropocene would have the kinds of far-reaching cultural impacts beyond the sciences that it has now had. Today, this geoscientific concept continues to spark the imaginations of many, including my own—despite the fact that my main areas of academic training are not in the sciences. Partly for this reason, I have engaged the Anthropocene in this project in a transdisciplinary manner by interweaving insights from the earth sciences with the works of philosophers, theologians, and political theorists. One of my arguments in this dissertation has been that the Anthropocene both enables and requires these sorts of transdisciplinary experiments. It *enables* such work by ‘muddling’ the neat and tidy divisions of modern thought—including those that have been erected between academic disciplines. And it *requires* such work because it alerts us to a planetary crisis that, as I hope is by now clear, poses a challenge to virtually every dimension of human existence—from the ways that we organize our political-economic systems, to our efforts to find spiritual meaning in the world.

In recognition of this existential challenge, I have suggested in this dissertation that the Anthropocene needs to be understood as a geohistorical event of near apocalyptic proportions, as well as a conceptual ‘golden spike’ that has recently been injected into modern imaginaries. As a *geohistorical event*, the Anthropocene signals the end of the Holocene’s 10,000-year period of climatic stability, and the beginning of a more turbulent future for life on Earth. Humanity must now therefore contend with the

detritorializing powers of Gaia in ways that we were not accustomed to during the Holocene. However, as many scholars have now argued, this geological shift was not caused by the ‘the anthropos’ as such, but rather by the activities of a certain subset of our species—particularly the wealthiest classes of citizens from capitalist countries like the U.S. For this reason, the Capitalocene term serves as a critical reminder that the challenges we now face are not rooted in ‘human nature,’ but rather in the socially unjust and environmentally destructive world-system of extractive capitalism. If humanity is to survive *and* thrive in the Anthropocene, we will therefore need to bring the socio-historical Capitalocene to a close by shifting rapidly to an ecological civilization. My hope is that the ecopolitical vision of ‘geotheological swarming’ that I have proposed can in some way help to support ongoing efforts to realize this post-Capitalocene future.

While the Capitalocene term is thus indispensable for coming to grips with our new planetary context, I remain convinced that Chakrabarty was nevertheless right to argue in 2009 that the Anthropocene term remains important insofar as it forces us to recognize that humans are not merely agents of history, but of *geohistory*. That is to say, whereas the Capitalocene focuses our attention upon ‘recorded’ histories—principally those of capital over recent centuries—the Anthropocene conceptually entangles our species with all other forms of life in the context of ‘deep’ history, with its fluctuations between planetary stability and biological catastrophes over billions of years. From this point of view, the latter term may then serve both to heighten our sense of ecological responsibility and to *de*-exceptionalize our species as one planetary force among others—alongside volcanoes, tectonic plates, and microbes. Moreover, when the Anthropocene is interpreted through the disciplinary lenses of the earth sciences, it is clear, as I argued in



chapter two, that the concept cannot be used to justify teleological narratives of inexorable historical progress and human sovereignty over nature. Indeed, precisely as a geological term, the Anthropocene locates us squarely within the unpredictable bumpiness of geohistory and the physical boundaries of the Earth System. It thereby magnifies our contingency as a species, the fragility of all planetary formations, and the ecological limits of human societal activities.

For these reasons, I have insisted throughout the preceding chapters that the Anthropocene also needs to be understood as a *conceptual 'golden spike'* that challenges certain aspects of our modern immanent frame—even as it may also help to inspire more ecologically attuned imaginaries. As such, in chapter one, I suggested that the Anthropocene's 'unsettling' of the nature/society bifurcation sets off a conceptual chain reaction that deconstructs other interlocking binaries that have shaped modern imaginaries, including human/nonhuman, secular/sacred, and divinity/world—each of which are rooted in the logic of exceptionalism. As an alternative to these destructive habits of thought, I unfolded a counter-exceptionalist 'planetary imaginary,' through which I conceptually (re)integrated nature with society, humans with nonhumans, the secular with the sacred, and divinity with the world. Thus, in chapter two, I argued that the earth sciences offer an initial outline for this imaginary, particularly through the concepts of Gaia and the Earth System. As we have seen, these concepts suggest the need to reimagine the Earth as a vibrantly unpredictable organism, and in turn, to redistribute agency and creativity to innumerable earth creatures. At least by implication then, this Gaian imaginary short-circuits the modern secularist view of nature as a deanimated

machine, while simultaneously de-exceptionalizing the human as merely one planetary agent among many others.

Building on these geoscientific insights, I then theorized this imaginary as a geophilosophy through my readings of James, Whitehead, and Bennett. While the earth sciences typically only imply the imaginary that I uphold, the writings of these philosophers serve to render it more explicit—particularly when interpreted alongside one another. In their distinctive ways, each of their philosophies foreground our constitutive relations and material continuities with other earthlings, while also conceptually extending agency, creativity, and intrinsic value to the rest of the natural world. As such, these philosophers enabled us to reimagine nature as a “democracy of fellow creatures,” to recall Whitehead’s phrase. Geophilosophy thereby becomes a political ecology. Particularly inspired by Bennett’s work, this political dimension of geophilosophy then provides a basis for thinking of nonhumans, not only as ontological actants, but also as political actors within a planetary public. By thus conceiving of our politics as always intertwined with—and *accountable to*—more-than-human citizens, geophilosophy poses a deep challenge to anthropocentric notions of the political. Indeed, from a geophilosophical point of view, nonhumans have real capacities to provoke radical shifts in our perception and practices. For this reason, I have theorized the Anthropocene in this project as a time in which Gaia “intrudes” (Stengers) to challenge modern ways of thinking and living.

Throughout the preceding chapters, we have seen that this Gaian intrusion is provoking divergent human responses. On the one hand, for some of us, this epochal event suggests the need to develop a politics of creatural democracy that is based on

ecological *composition* rather than on geological *mastery*. As indicated in chapter four, this is the counter-apocalyptic trajectory that I continue to hope for and work towards. On the other hand, for aspirational earthmasters, Gaia's intrusion evidently calls for an escalation of the modern drive to control nature through a planetary expansion of anti-democratic power. As I have argued, this emerging politics of geosovereignty is not only rooted in notions of human exceptionalism; it is also subliminally fueled by a secularized theology of divine omnipotence. As such, due to this *theopolitical* dimension of geosovereignty, democratic modes of resistance to a planetary Leviathan cannot be strategically limited to a purely secularist mode of ecopolitics. To the contrary, resisting geosovereignty not only requires the mobilization of postsecularist movements for ecojustice, but also the deployment of alternative theologies that conceive of divinity beyond sovereignty—precisely of the kinds that Rubenstein and Keller propose. Thus, in my study of the latter's projects, my hope is to have revealed how their immanent theologies can critically supplement and existentially energize an ecopolitics of swarming—as indeed, they have inspired my own planetary imaginary of geotheology.

As I now look back over the last few years of envisioning and writing this dissertation, a number of life experiences that impacted my thinking in this project stand out. My academic interests in ecological issues and process thought emerged in a summer class on these subjects with John Cobb at Claremont School of Theology in 2011, which ultimately led me to write my master's thesis on ecotheology. While my studies then tilted in a more abstract philosophical direction for a few years, I resumed my ecological research in 2014 after participating in the People's Climate March in New York City, which brought together hundreds of thousands of ordinary citizens and activists to

advocate for climate action. This was undoubtedly the pivotal moment that shifted my philosophical and theological studies back to ecology (thus confirming for me the truth that *praxis matters*). The following year, I learned about the idea of the Anthropocene in one of Catherine Keller's classes at Drew University, which in turn inspired me to participate in the 2015 International Whitehead Conference, "Seizing an Alternative: Toward an Ecological Civilization." The EcoCiv Institute emerged in the aftermath of this conference, and I joined their team in 2018.

While each of these experiences have deepened my understanding of the crises we now face, they have also, in their own particular ways, helped to sustain my hope for an ecosocially just future. In this dissertation, what I have then tried to accomplish is to integrate the most important lessons and ideas that I have absorbed over the last decade of studying ecotheological issues, and of learning from others who are far wiser than me, including my academic mentors and the leadership at EcoCiv (which is not to say that they would all necessarily agree with everything I have written). And of course, I also hope to have made a distinctive and meaningful contribution to scholarship on the Anthropocene. But if this project now provides a sense of inspiration for even one other person to face the Anthropocene with hope, and with the motivation to work toward an ecological civilization, then I will have achieved my primary goal.

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