Global Warming as Literary Narrative

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Climate change is everything, a story and a calamity bigger than any other. It's the whole planet for the whole foreseeable future, the entire atmosphere, all the oceans, the poles; it's weather and crop failure and famine and tropical diseases heading north and desertification and the uncertain fate of species on earth.

—Rebecca Solnit[1]

Rebecca Solnit's fine short essay on global warming, "Bird By Bird," moves from today's small-scale concerns with bird deaths on up to the powerful statement in the epigraph above: one that evokes the vast global and temporal reaches of the in-process crisis. Starting by exposing the stories about birds dying in solar arrays spread as disinformation by fossil-fuel corporate flacks—the estimated number of bird deaths from fossil fuels is vastly larger—she then notes how difficult it is to imagine species and ecosystem losses, not just individual bird deaths. Then she ends the essay by doing just that powerfully—in rhetoric that echoes, and in many ways transforms, the great environmental apocalyptics of the 1960s and '70s by Rachel Carson, Paul Ehrlich, and Donella Meadows.[2]

Woven now intricately into all our social and ecological norms, Solnit's crisis, like Carson's, enfolds us intimately and comprehensively, on not just public and environmental, but also the most private, personal, bodily, cognitive, and affective levels. Unlike Carson's, however, Solnit's crisis is not an apocalypse just ahead of us; it is already here. We (and, for this essay, I focus on a dissensual, developed-world, U.S.-based "we") are inside something we cannot get out of—that perhaps has no outside. And it will not end us and our world abruptly, as old fashioned apocalypses do. It promises to intensify its intimate embrace as it takes us all the way down into the lower and lower circles of its hell of degradation.

In what follows, I want to explore the discursive sources for the new clustering of imaginative challenges and potentials for novelists and filmmakers—ones now urging them to try to turn a confluence of different discursive histories (specifically environmental-political, environmental-

theoretical, geological, sociological, cultural and literary histories) into narrative. My account of these changing discursive contexts to follow will attempt to trace, via a series of *petit récits*, a number of different sets of discursive tracks in recent, contextual snowfalls, ones that run from postwar apocalypse to present day global warming.[3] To show the shaping power and inherent variety of these political, intellectual, cultural, sociological, and scientific contexts, I shall return again and again to the same set of imaginatively complex narratives of climate change, one from the 1970s apocalyptics, and five from recent American fiction.

Environmental Politics from Apocalypse to Way of Life

The first of these tracks in the snow comes from environmental-political controversies embedded in postwar U.S. environmental crisis discourse.[4] These controversies surfaced and became a key part of the U.S. political landscape in the Reagan-era backlash against the landmark establishment of environmental law and sentiment of the 1970s; they were fueled not only by a neoconservative, far-right coalition, but also by the multiple debacles of the Carter era: economic stagflation, geopolitical humiliation, energy crisis, and expansion of discourse about imminent environmental meltdown. A chief villain in this drama, from the standpoint of the newly powerful neoconservative, far-right coalition, was the environmental movement, which had been powered by two mutually reinforcing kinds of advocacy. First and foremost, it was committed to protecting a variously idealized and aestheticized nature from human exploitation and degradation: i.e., a nature that was very diversely conceptualized as original, pure, redemptive, foundational, other, pristine, healthy, balanced, equilibrial, beautiful and/ or sublime. The flip side of these idealizations provided the environmental movement's second major set of issues: the need to avert imminent environmental apocalypse, which threatened to end the biosphere or at least human civilization in several decades if nothing was done.

I'll return to the nature ideals in the next section; for now, I want to focus on the tradition of environmental apocalyptics referenced above. The most prominent environmental apocalypticists, a list that includes Rachel Carson, Paul Ehrlich, and Donella Meadows and the Club of Rome, painted, with vivid, apocalyptic imagery and intensity, the terrible catastrophes and certain end of civilization looming just ahead. They presented a largely unconscious public with what seemed a full-blown, imminent, world-ending catastrophe; their environmental polemics hit the marketplace with the force of a revelation. Hence the term apocalyptic, which implies not only world-end, but also prophetic revelation to an unaware people.

Soylent Green is the 1970s' best example of environmental apocalypse become narrative.[5] The film's detective narrative dramatizes a (typically autonomous) male hero's attempt to unearth the truth about a murder in what has become a totally urbanized, overpopulated, and claustrophobically globally warmed world, and it ends up not with a solution but a twin revelation.[6] In the euthanasia center, we see, along with Detective Thorn (played by Charlton Heston), the intensely beautiful, aestheticized depictions of the nature utterly lost in this environmentally and socially degraded world. At the end of the film, the second revelation comes. Thorn discovers that nature has utterly died and people are surviving thanks to a cannibalistic capitalist system that feeds them to each other: the sterile and cool euthanasia center is a monstrous food production facility in this hot, crowded, polluted, globally warmed world. Ends and powerful prophetic revelations make up, almost, a full, traditional-style apocalypse.

The film sheaths these revelations, however, in profound melancholy and claustrophobia. For environmental apocalypse lacks a key traditional element: it vouchsafes no saving message. Thorn ends up wounded and vulnerable, a totally failed prophet and male hero: in a subnarrative, Thorn rescues a woman, formerly sold as a piece of an apartment's furniture to the elite, capitalist renters who can afford such apartments and amenities. However, this respite proves only temporary; she is forced to go back to being another odious plutocrat's furniture.

Within this claustrophobic melancholy, a moment of intense emotion occurs: Thorn's character is moved to suddenly and profoundly feel and mourn his personal and environmental loss. Watching his beloved friend and colleague, Sol (played by Edward G. Robinson, then terminally ill with cancer) dying in the euthanasia center, he sees the gorgeous films of the nature he was too young to know forever lost. In the same instant, Thorn names his love for Sol, and he realizes that this nature he never knew was not just a fiction of the elderly Sol's memory, but really did exist. But even this moment is anything but redemptive. As Sol dies, Thorn is left comfortless and alone in a stark world that claustrophobically has no future. If Aristotle's narrative ended with catharsis and even cleansing, *Soylent Green* pointedly evokes then denies audiences that satisfaction.[7]

A remarkably vigorous anti-environmental coalition of corporate-neoconservative-far-right U.S. partisans reacted to these dramatizations of apocalypse. In often-repeated rhetoric, environmental prophets were dubbed Chicken-Littles (featherheaded neurotically fearful alarmists who, alas, swept others up into their hysteria) and doomsters (willful and programmatic pessimists, spoilers of everybody's joys).[8] Chicken-Little doom-

sters had it wrong and cost the U.S. a decade. Even as cheap oil started flowing, and communism fell, the famous crisis stigmata of the 1970s, like the burning of the Cuyahoga River, the death of Lake Erie, and the killer smogs in London and New York, seemed to vanish. That a good deal of the visible betterment and apparent erasure of these stigmata came (ironically) from the success of the environmental laws that crisis proclamations had greatly helped to pass never seemed to enter public discourse. But what did, and what entered it loudly, was that the supposedly imminent ends of the world of the 1970s environmental prophets simply did not happen.

From these political disputes about environmental crisis, I argue in a 2003 book, key aspects of the environmental-political context of the present developed. Though crisis-debunking reigned supreme for several decades of neocon, right-wing think-tank activism of the sort Julian Simon preached, the panoply of 1970s environmental-crisis issues were in fact festering underground, increasing during that time in kind, number, and intractability. Only by the end of the millennium did the dominance of crisis debunking recede, and, when it did, its decline was fostered not only by a larger atmosphere of social crisis (financial collapses, war, terrorism, peak oil, etc.), but also spearheaded by the Intergovernmental Panel on Climate Change (IPCC) and rising public awareness of global warming.

The result is a new regime of crisis awareness, within which global society now performs itself. Social normalities today are increasingly constructed within simultaneous perceptions of growing environmental problems and rising risks of major, civilization-threatening environmental crisis. More and more energy is spent in dealing with environmental crisis both semiotically and materially, leading me to quip that today serious, global social-environmental crisis is no longer seen as an (apocalyptic) end ahead, but has become a way of life. This metaphor was not meant to be singular, but multiplicitous, referring to a variety of different ways of life such as denialism, intensified risk consciousness, activism, and new regimes of social conflict. This environmental-political history provides my first context for literary narratives of global warming today.

In pulling together a (necessarily limited) set of such narratives, I settled on five from recent American fiction: Octavia Butler's *Parable of the Sower*, Kim Stanley Robinson's Washington trilogy, Barbara Kingsolver's *Flight Behavior*, Paolo Bacigalupi's *Windup Girl*, and Nathaniel Rich's *Odds Against Tomorrow*.[9] Clearly, in all of these narratives, one could say that dealing with crises (crises featuring or prominently including global warming) becomes the characters' chief way of life. And to a greater or lesser extent in all of them one could say that environmental crisis has thereby moved from

a passive constituent of the background to becoming a strange kind of en-tangling, nonhuman actor or active presence, one with which the characters engage, in a decidedly unequal *agon.*

But along with this interesting change come other common features, ones firmly embedded in global warming discourse and narrative—all of which are consequences of apocalypse having become a way of life. The first, and not least, as all five texts demonstrate, is that all these fictions depict their characters dwelling inside a foundationless state of gradually world-de-forming risk. In thus emphasizing present dwelling inside, rather than fear-ful anticipation of, a potent new intimacy between people and their worlds is created, even as those worlds have lost all biophysical solidity and become scarily mutable. And this new "inside" is one that has no available or even imaginable "outside"—there are no alternative spaces, no ways back. There are, given global society's deepening dependency on fossil fuels, the fact that carbon limits have been breached and damage has already been done, and the fact that the U.S. Republican-led political stalemate shows no sign of changing, there is no credible path forward.

As is clear from both their surfaces and depths, all five texts represent global warming as an inside without an outside, in which a formerly solid-seeming biophysical environment has turned out to be melting away in carbon-rich air. Kingsolver's Dellarobia Turnbow encounters the onset of climate change fluidity explicitly in a dramatic, local change of butterfly behavior, and she articulates this perception as transformative when she realizes the deep truth that "There is no life raft; you're just freaking swim-ming all the time."[10] Robinson, as Patrick Murphy points out, embraces the same set of conditions—explicit events and realization of profound para-digm change—more optimistically.[11] And Bacigalupi, Butler, and Rich also portray, in distinctive fashions, explicit global warming phenomena and characters' deeper responses to dwelling in the fluid inside without outside that climate change creates: the result is hectic exuberance in Bacigalupi; an awakening of persistence and strength in Butler, and a multilayered sheath-ing of irony, at first ingeniously comedic then disillusioned, in Rich.

A second consequence of apocalypse having become way of life is that, in this new phase, depiction of risk and crisis suggests no revelation, produces no awakening. Indeed, it serves as a social norm. Even when a character doesn't know anything about global warming, like Dellarobia at the start of *Flight Behavior*, she quickly learns of it as an established fact from the scientists whom the swarms of monarch butterflies bring to her small, out-of-touch town. In *Odds Against Tomorrow*, crisis rhetoric has become so normalized that the protagonist can make a successful corporate business out of it.

Normalization, however, does not mean banalization for the literature depicting it. Rather, depicting it seems to inspire writers: the imaginative possibilities for constructing wrecked worlds and beset characters yield fascinated patience and a love of detailed variety. Clearly, one of the attractive challenges for all five writers has been to exercise as much inventiveness as possible in depicting materialized disasters and also in materializing the as-yet unrealized semiotic possibilities of climate change risks and social disruptions: the results are already extremely various. Still further, inventing human narratives to weave into these worlds, ones that break down traditional literary firewalls between background and foreground, and environmental and social conflicts, offers perhaps the largest challenge. A curious but significant feature of taking on all these challenges is the opportunity to sandwich reality and fantasy together more intimately than ever before. If modern dystopias like *1984* have lived on as metaphors for numerous subsequent social nightmares, climate change fiction holds out the promise of being both metaphorically usable and quite literally validated. Indeed, the possibility that posttextual reality will stamp a dread imprimatur on a text produced in this fashion has already been ironically realized: while Nathaniel Rich's fantastic construction of character and action was in press, Hurricane Sandy arrived to make it feel real. Nature hasn't entered literary production in quite this way before.

And all five literary texts depict crises of environmental risk and deformation as having become the key element of their characters' ways of life. Bacigalupi's characters struggle with the out-of-control side effects of genetic technology run amok in a post–fossil fuel hypercapitalist world society. Robinson's characters are completely absorbed in climate change politics. Kingsolver's heroine becomes a scientist studying climate change; Rich's becomes a disaster consultant. Butler's characters are environmental refugees.

Yet if all the fictions dramatize environmental crisis as a way of life, they differ in how their narratives represent and assimilate the break between the past and the entry into the present's stressed, foundationless, inside without an outside. Mourning what is lost plays a great role in *Flight Behavior* as it does, far more complexly and, in a very different, postmodern-ironic fashion, in Stephen Spielberg's *A.I. Artificial Intelligence.*[12] In the other narratives cited, however, environmental memory from before and the traditional aestheticization of nature that accompanies it, either simply does not persist (Rich, Bacigalupi) or is inventively reenacted and transformed into something hybrid and new (Robinson). Butler's self-aware heroine, Lauren, leaves behind the refuge of her walled community, renouncing nostalgia for order and security. Realizing that clinging to any fortified island of security

in a chaotic society is suicidal, Lauren exposes herself to a violent, chaotic world and commits herself to change.

The five texts also react differently to anti-envronmentalists' characterization of environmentalists as doomsters and Chicken Littles. Robinson's heroes overtly transform doomsterism into a new kind of exuberance, while Rich's protagonist's doomsterism (and Chicken Littleism) is an ironic and wittily conceived new type of this very caricature, turning its propensity for doom into a new kind of new capitalist hucksterism. Butler's Lauren is, to her fellows in her soon-to-be-destroyed, walled community, a Cassandra to whom no one listens; still, she is no prophet, and her sense of what is coming is neither neurotically fearful nor a programmatic pessimism. Outside in the chaos, there is no need for prophecy, just clear-sighted strategic competence.

Environmental Politics Reinvents Itself

A second set of tracks also leads from environmental-political history. However, these tracks come from stresses *within* the environmental movement, coupled with antagonisms within the larger, progressive movement of which it is, often uneasily, a part. Environmentalism emerged from its defeats during the 1980s in need of reinventing itself. On the one hand, great external pressure from social justice and cultural movements, augmented by slightly delayed, more specialized loops of the academic ecocritical and theoretical movements, proved essential to this project of self-reinvention. Debates within environmental activism, focusing on the task of making it into a twenty-first-century movement capable of taking on a twenty-first-century global capitalist society, played an equal part, emphasizing needed diversification both of the environmental base and of what qualified as key environmental issues. Nature-based environmentalism, with its reliance on popular idealizations of nature apart,[13] seemed too typically white, too male, too androcentric, too classist, too heterosexual, and too U.S.-centered for the new constituencies, and seemed too limited in environmental scope to represent their concerns. New voices began carving out new kinds of authority, often in antagonism to old partisans.

Many of these new players typically focus on new issues, ones that highlight the entanglements between nature and society in an increasingly stressed time. These issues include environmental justice, environmental racism and sexism, global climate justice, environmental health, toxics and pollution, urban rather than nature-based perspectives, global environmental security, green building/energy/capitalism, and new forms of

anticapitalism. All these involve some degree of pushing back against 1970s nature ideals, even as they speak to 1970s concern with crisis in new, overtly hybrid ways.[14] Today, however, in the attempted assembly of a populist global warming movement, all of these fissures are visible not as sources of conflict, but as bases for a heterogeneous coalition. Thus the climate change march in New York City in the fall of 2014 brought together unions, feminists, global climate justice advocates, academic disciplinary groups, old-style nature advocates and conservationists, varieties of localist and ethnically organized environmental justice groups, health care and mental health care workers, and many others for a protest of 400,000+ persons.

With this diversification and transformation of environmental activism into environmental-social activism, global warming is poised to become, and has indeed become, perhaps the most representative environmental-social crisis today. Elaborated in science, but also in a disciplinary diversity that cuts across the science/social science/humanities divides, global warming has emerged as an impossibly complex, interactive crisis, one that connects material with semiotic change in an almost uncountable number of societal and environmental places. These include, along with drastic climate change and its numerous ecological and biotic effects: economic crisis; infectious disease spread; varieties of local and international social conflict, terrorism, and war; immensely augmented regimes of inequity and environmental injustice; potential for vast, new environmental refugee flows; maladaptive technological and social attempts to deal with growing problems; insurance companies' fears and responses. Global warming's rapidly growing sets of issues and involved actors and the increasingly impossibly entangled connections between them make a comprehensive inside without an outside, within which society necessarily attempts to continue constructing itself.

Appropriately, recent narratives feature both new collections of issues and new casts of characters. The issues raised in Butler's, Robinson's, Kingsolver's, Bacigalupi's, and Rich's global warming fictions are quite various. They include pollution; environmental and climate injustice; environmental politics; science politics; various critiques of capitalism; diverse kinds of ecological damage diversely affecting different groups (populations in low-lying coastal areas, drought-prone areas, or typhoon and hurricane pathways); mega weather events (slow and fast) and dysfunctional attempts to cope with them; and the risks and effects of concomitant economic, social, and political meltdowns. These complexes replace the clearly structured issues and drama of *Soylent Green*, a film based on the simplifying and, as crisis-debunkers in particular have argued, simplistic power of the inevi-

table and final collision of disequilibrial society and foundational nature: the adversarial drama embodied in the well-known I=PAT formula.[15]

The identities of human actors in these recent fictions have also expanded. Heston's lone, white, masculinist hero yields to a heterogenous set of men and women in Robinson's novels, a group that includes both people of different backgrounds (Asians and African Americans) and global as well as local climate injustice victims (exoticized Buddhists from a flooded land; homeless people in a D.C. park). Bacigalupi's novel, set in Thailand, includes a posthuman among its culturally diverse protagonists. Rich's white male protagonist is not heroic but neurotic and fearful, and the novel's climate catastrophe brings him together in an intolerable FEMA-run camp with marginalized environmental justice victims. Butler's Lauren, a tough, self-reliant African-American woman familiar with social and environmental injustice, is a more authentically drawn new kind of environmental-social hero. She is clear sighted about what it means to be powerless in the decayed urban environment her Los Angeles has become. She realizes she must learn to defend herself and, even more, not stay put in her family's compound that, however well guarded it is, only attracts the thousands of violent, desperate homeless people turned predators on the loose in that wrecked world.

In some ways, Kingsolver's Dellarobia presents the most interesting case, as a character constructed out of unresolved controversies about what today's nonstandard environmentalist should look like, especially in a time of rising concern about environmental justice. She is, like Love Canal's anti-toxics activist, Lois Gibbs, someone to whom environmentalists look like an insensitive elite. Unlike Lois Gibbs, who came from a misused, northern, lower-middle/working class community, she comes from a poor, rural, Southern, religion-soaked community, one full of climate change deniers and what seems, to outsiders, like redneck ways. Further complicating this mixed identity—bringing denialism together with marginalization—the novel makes it clear she is too poor to have a large consumerist carbon footprint, something that mitigates reactions to her community's denialism and potentially reinforces her environmental justice credentials. Yet, as a member of a poor white conservative community, she has little in common with race-based environmental justice activisim, the environmental justice movement's dominant form. Even more, what spurs her transformation is neither her marginalization nor any environmental justice issue, but nothing other than the aestheticized nature spurned by many in environmentalism's new diversity.

If cultural and social pressure have helped restructure environmental politics, issues, and action, another sort of pressure, from early on, has added itself to this mix and yielded perhaps more powerful changes of

thought, mind, and foundational assumptions. This pressure has come from an academy committed increasingly to uniting environmental theory with the social theory that became dominant in the humanities and social sciences during the 1980s and 1990s. Major pushes in this direction came both from a second generation of ecocritics dissatisfied with what seemed like the previous generation's naïvely pretheoretical philosophical realism and nature fundamentalism, on the one hand, and, on the other, from science studies theorists like Bruno Latour dissatisfied with social theory's seemingly sweeping mantra of social constructionism and its avoidance of environmental issues.[16] The decisive component of this process is, of course, more initially semiotic than material, as it centers on a retheorization of relationships between human society and nature.

Bruno Latour makes, I believe, the most influential intervention in this direction in his 1984 book *We Have Never Been Modern.* No longer should human relationships with nature be seen as a set of connections between two separate, self-sustaining realms, the first or natural one providing a stable, ahistorical, equilibrial foundation for the second, dynamically progressing, fully historical human one. Instead, humanity in fact dwells in a sticky myriad of intertwined nature-cultures (a great many of which have been and continue to be profoundly dysfunctional) that it has helped create. Indeed, one of these nature-cultures (an ultimately dysfunctional one) advanced, centuries ago, was the view expressed above, that nature and culture are fundamentally separate. This view, Latour argues, was the foundation myth of modernity: the idea that nature and culture, humanity, and society were separate realms. But it was just that: a myth. Hence, *We Have Never Been Modern*, and we are now just beginning to see it—and also to see that the attempt to separate the two realms was in fact an essential ideological basis for today's crises. Belief in that separation was created by a society that felt it could keep a forever-unaffected nature off its balance sheets and did not need to think seriously and systemically of depletion or pollution.[17]

Global warming, even more than many critical environmental issues, can then clearly be seen as a premier example of crisis of a society and nature fused with each other along a dizzyingly large number of pathways. It is the consummate natural-cultural crisis, today an inside without an outside, without alternative or way back or clear path forward. It can be (and is being) theorized in a variety of ways: as an example of chaos dynamics, a disequilibrial, highly complex system (a myriad of natural-cultural feedback loops, capable of intervals of stability but always heading toward tipping points); as an unimaginably complex, always changing set of continuous intra- and interactions, as Karen Barad has described them; as a massively

heterogenous and fluidly mobile assemblage; as a mega-example of Bruno Latour's ANT (Actor Network Theory), one in which human actors and nonhuman actants, looped together in complex networks, dynamically produce natures and cultures); as a new, postrealist kind of object, a hyper-object; and as an exemplary and complex material-semiotic performance.[18] In short, global warming is a premier example of a natural-cultural, environmental-social crisis.

With such fusions, the idealized natures of the 1970s lost their claims to ontological status, becoming, at best, specific, progressive nature-cultures to be cherished and reinvented and, at worst, reactionary ideologies to be dispensed with. Nature becomes, as Donna Haraway most provocatively points out, discoverable in hitherto untraditional places. Urban writers now discover and explore nature in untraditional forms and settings in cities, many (though not all) reaching back to older nature idealisms and aesthetics to depict landfills, urban wilds, and wild city dwellers from coyotes to roaches.[19] Environmental justice advocates attend to an even more altered form of nature in toxified neighborhoods, often with explicit or implicit reference to unpolluted nature as an embodiment and source of health and well-being. Meanwhile, Haraway herself deconstructs nature by finding it in a radioactive dump turned into a nature preserve. Attempts like this to naturalize and aestheticize pollution, she implies, unwittingly point out that "nature" today is unnatural, even toxic.[20]

All of the five narratives I am focusing on are self-consciously natural-cultural, Butler's perhaps achieving the most complex, multipoint fusion of natural and social problems of them all. Key differences among them, however, come from how much past representational traditions of nature are invoked or how abruptly and pointedly they are discarded. In Robinson, strikingly, even masculinist wilderness adventure writing resurfaces and fully aestheticizes the catastrophic floods and freezes he narrates. However, his wilderness writing has become an excellent example of urban wildness writing mentioned above, and the masculinism of his most prominent character, Frank Vanderwal, a neoprimitivist sociobiologist, is sheathed everywhere in (albeit affectionate) satire. In Kingsolver's novel, a nature-based ecofeminism bridges the gap between former traditions of aestheticizing nature and present portrayal of the wonder and beauty of a migration of doomed monarchs—doomed perhaps thanks to climate change. Dellarobia is redeemed and changed by the "miracle" of the beauty of the monarchs; yet the old nature idealism is not imported wholesale, as this miracle and redemption open out into a larger vision of foundationless risk. For Bacigalupi and Rich, in contrast, nature in all old senses has long since ceased to

exist, and traditionalizing aetheticization of it doesn't enter in at all. Butler's novel also rejects aestheticization of nature. It couples a pragmatic lack of aesthetic nostalgia with an emphasis on the recovery of pre-industrial agricultural knowledge and skills for a catastrophically postindustrial era.

Enter the Anthropocene

So I come to a third set of tracks in the snow. As Paul Voosen reports, Paul Crutzen "blurted out the term for" his new geological epoch at a meeting of the International Geosphere-Biosphere Programme (IGBP) near Mexico City in 2000.[21] Subsequently, he and Eugene Stoermer elaborated on it in an IGBP newsletter; the term soon acquired a life of its own, spreading globally into the popular media, environmental theory, religious studies, and historiography. Furthermore, it achieved this prominence with astonishing speed. Though it is now tied up in discussion in its home discipline—a committee of the International Commission on Stratigraphy is deciding whether or not to approve it as a valid term for a new geological epoch—and Crutzen himself has suggested that the start-date for the epoch should be different than the one he originally proposed, it has been adopted as settled wisdom far and wide.

The idea behind it is not new, however. Together with Will Steffen and John R. McNeill, Crutzen points out several forerunners for it, such as when the geologist Antonio Stoppani spoke of an "anthropozoic era" in 1873. Closer to the time of the term's emergence, journalist Andrew Revkin writes of the "Anthrocene," and other scientists have laid out the rationale behind the term, without, however, coining a name for it.[22] Given this prehistory, the year 2000 is perhaps more significant not for the concept's discovery, but as a sign that a widespread change in assumptions about human-nature relationships has been taking place and has reached a tipping point. The year 2000 would then be a strong indicator of the time of widespread perception that nature has become historical and that global warming is leading world society into uncharted, near-future waters. Today, this knowledge has reached audiences beyond specialists and crystallized the anxieties of a wider public.

As Steffen, Crutzen, and McNeill first flesh it out, the Anthropocene—an era in which human beings become "the dominant force for change on Earth")—begins when Watt's steam engine breaks through the energy bottleneck of the pre–fossil fuel era, and human society and its environmental impacts start to grow.[23] The second phase, the post-World War II period that Crutzen called the "Great Acceleration," is the time that fossil-fueled

growth (demographic, technological, economic, social) dramatically accelerates: "Over the last 50 years," Steffen, Crutzen, and McNeill write, "humans have changed the world's ecosystems much more rapidly and extensively than in any period in human history."[24] In the process, different kinds of damage, from changing CO_2 concentrations to ecosystem destruction to the sixth great extinction, have become increasingly impossible to ignore. Climate change plays a particularly prominent role in Crutzen's formulations, as rising carbon dioxide and methane levels (the two most prominent greenhouse gases) have left the range of their prior variations during the Pleistocene and taken off into new, risky, and uncertain space—something that characterized previous epoch endings.

 With this change, nature and culture (as noted above) newly fuse—and now they do so for an increasingly large number of people in a fully self-conscious way. Crutzen and Schwägerl quote with approval Eric Ellis and Navin Ramankutty's assertion that "we are no longer disturbing natural ecosystems. Instead, we now live in 'Human systems with natural ecosystems embedded in them.'" Still more, they argue that "humanity is becoming a self-conscious, active agent in the operation of its own life support system." Going on further still in this vein, they assert "it's we who decide what nature is and what it will be."[25]

On the one hand, Crutzen seems to make assertions like these in desperate pursuit of some optimism in the face of anticipated future climate change catastrophe even now hardwired into future history by greenhouse gases already emitted. From this perspective, the Anthropocene seems to reveal the terrible damage that anthropocentrism has created and also a reactive force in nature that recalls decades-old invocations of a vengeful Gaian ecocentrism. On the other hand, these same exhortations sound equally like a license to advocate a newly resurgent anthropocentrism, one armed with dreams of triumphal, not risky, geoengineering. This version of the Anthropocene seems not just anthropocentric, but hyperanthropocentric. And indeed, Crutzen's policy recommendations combine both elements, from controlling risk-creating human inputs to advocating unproven, risky megatechnologies to take control of the earth's weather.

Even though only one of the novelists mentioned above (Robinson) overtly invokes the Anthropocene, contemporary global warming narratives all dramatize the lost foundations, terrible instabilities, and already-entailed futures of an Anthropocenic present. At the same time, there are considerable differences in depicting the consequences of this new regime. I will explore these differences further soon; suffice it to say here that Robinson depicts the full split involved in Crutzen's formulation: both the total

loss of holocenic foundations (ecocentric payback) and a commitment to geoengineering technologies (anthropocentrism). Bacigalupi differs dramatically. In *The Windup Girl*, in a world both pre- and postmodern, today's visionary new technologies run rampant *are* the new disasters, not the solutions. In contrast, Butler's characters return to a pretechnological world, before factory farming and automotive speed: Lauren preserves seeds to garden with, even as she and her comrades join thousands of refugees making painstakingly slow, dangerous foot-journeys north, pushing their belongings in shopping carts along former highways. Rich, like Robinson, depicts the continuation of today's industrial society, but, in contrast to both Robinson and Bacigalupi, depicts that society as without recourse to any visionary or megatechnological solutions. New York City is simply wrecked; only in the sad aftermath, when "mosquito ships" appear with their long proboscises to drain Manhattan (of its water, though not, alas, of its accumulations of toxic garbage), does technology enter at all, and, when it does, it expresses only more sad human inadequacy vis-à-vis a self-willed humanly damaged nature.

Environmental Risk

All of this brings me to the next set of tracks in the snow: the development of the concept of environmental risk. Risk is an inescapable facet of anthropogenic global warming, and also of the era of the Anthropocene it has helped produce. Indeed, it has become the dominant concern for many, who, like Crutzen and Bill McKibben, believe that we have already left the Holocene's climatic regularities behind and thus imperiled the essential underpinning of human civilization's expansion since the ancient agricultural revolution. Today, we face the foundationless uncertainties of a new climate regime—something that Bill McKibben argues necessitates changing the name for our new, altered, climatically unstable planet from Earth to Eaarth.[26]

The concept of environmental risk has, however, a slightly older history. It runs back to Ulrich Beck's risk society, formulated in 1986, which itself followed quickly upon Charles Perrow's analysis of "normal accidents."[27] Perrow focuses on industrial accidents; Beck generalizes the notion of predictable risk from industry and manufacturing to many different aspects of people's daily lives in an increasingly technologized, industrialized, and environmentally degraded world. Now anthropogenic risk has become embedded in nature itself as a key feature of its physical systems.

A key part of his analysis and rhetoric are what Beck has called "undelimitable risks," ones in which, though the likelihood of something awful

happening may be tiny, its probable effects would be unbearably and un-insurably immense.[28] As insurance companies increasingly deny coverage to homes sited near the tinderboxes of Alaskan forests dying off thanks to global warming and the insects it encourages, or to homes sited next to now-very-vulnerable seacoasts, Beck's undelimitable risks seem to prolifer-ate. Today's context of increasingly likely climate change–induced mega-anomalies (superstorms, and their production of potentially hundreds of millions of climate refugees) heralds a time when undelimitable risks will become regular occurrences.

In theorizing today's problems, Beck's version of risk has the significant virtue of inlaying a present that has a still-limited number of undelimitable stigmata—like supercat storms—with the unlimited spectral, semiotic pres-ence of far greater undelimitable ones to come. It thus speaks powerfully to a present in which the worst outcomes have not (yet) realized themselves but seem increasingly likely to do so, because they are hardwired into the foreseeable future by fossil fuels already burned and a deepening fossil-fuel dependency no actor or actant can credibly claim to end.[29] The result is a semiotic nightmare that is nonetheless embedded in present materiality. Sill worse, the materialization of these risks in future catastrophes will not serve to fulfill or end them; the catastrophes themselves do not stop the processes that produced them, but instead bring along with their damage generations of new risks. A superstorm smashes a city, say New Orleans; people die or are injured, buildings destroyed. But then a new wave of risks, of toxic pollution, sickness, degraded infrastructure and social services, and social unrest, spreads in the damaged city and society. Further, both damage and newly produced risk are immediately amplified by environmental inequal-ity: both are distributed highly unequally, as the above example indicates. Even thought about the prevention of risk heightens—and moreover needs to heighten—consciousness of risk: even attempts to construct precautions reinforce semiotic risk. Thus, Molly Wallace, committed to developing a new kind of "risk criticism," embraces a technique of precautionary read-ing that applies perfectly to global warming. Precautionary reading doesn't imagine control of the future, but rather "is about acknowledging and tak-ing seriously the fact that there is no such control."[30]

Risk awareness and scenarios are clearly embodied in all of the fictions I have been tracking. In all of these texts, the principal characters encounter risk and take risks. Moreover, these risks aren't just ones taken in delimit-able circumstances (like saving someone from a killer shark—save person, kill shark, end of story). These are inherently unavoidable risks encountered and taken in a contest that has no possible closure ahead of or foundations

underneath it. This vision of risk goes all the way down, undelimitable. The appearance of the monarchs uproots Kingsolver's protagonist, Dellarobia, from the compromised life she has chosen within a small, provincial, close-minded, traditional, and totally androcentric community. But as the butterflies' startling beauty pries her loose from those roots, she moves from flirting with small risks like infidelity to embracing the larger ones involved in leaving her marriage and domesticity. She embarks on a career, while trying to keep committed to her children. These are all actions she might find herself mourning, even as she may mourn for the butterflies by which she has been so moved if they cannot adapt (and she, as scientist, proves unable to help them). Butler's risk-taking character, Lauren, traumatically loses her family and home; then, out on the road, she is exposed to constant, mortal risk. But she copes with this risk by utilizing Molly Wallace's version of precaution: she couples her intensely precautionary consciousness with clarity that no control is possible. Hence she avoids unnecessary conflict and patiently solders together a small group committed to mutual protection and sustainable community-building, not survivalism.

Robinson's characters are scientists monitoring a world very much in the midst of climate change risk and approaching a tipping point that will end the stability of the Holocene and unleash Anthropocenic catastrophes. As society approaches and passes this tipping point, plunging the globe into new, undelimitable risks, the scientists dedicate themselves to taking ever-greater personal, professional, and public risks, ones that include experiments with geo-engineering. Moreover, Robinson's trilogy embeds several of the characters in an action-adventure plot that involves risk taking, crises, and all-or-nothing climaxes. Bacigalupi's characters, immersing themselves in postapocalyptic Thailand's accelerated, dog-eat-dog, social-Darwinist-style conflict powered by catastrophic new technologies, are so hardwired into risk they have no other raison d'être than the operational one of moving at breakneck speed from risk to risk, crisis to crisis. And Rich's protagonist, perhaps most interestingly, is a witty, overt embodiment of risk thought, a satirical creation of a neurotically inventive Chicken-Little doomster with a pathologically heightened environmental risk consciousness who finds an unusual, corporate niche in the accelerated deregulated capitalism of the post-Reagan era. He becomes a consultant whose prolific risk-inventiveness helps companies wanting to ensure themselves against liability from Beckian undelimitable disasters. Comically, that insurance is made possible by a loophole inserted by corporate lobbyists into state law: corporations that spend significant money on risk awareness are released from liability if disasters strike (as a superstorm Sandy–style disaster soon

does). Rich's protagonist imagines his extreme scenarios; corporations pay him substantially for doing so; and no further action is legally necessary to void future liability should disaster strike.

But Beckian risk thought does one more thing still for contemporary risk narratives, including those that center on global warming. Risk analysis replaces past causation with possible, already-entailed future trajectories, thus making the uncertain future semiotically and materially the determining factor in present life. What is important is not logic based on former periodicities, but multiple projections from present imbalances. Solutions yield accordingly to experimentalist interventions; linear causality gives way to probabilities, especially in material-semiotic global warming science based on extensive modeling. Models with varied inputs generate a panoply of different results, within which perhaps strange attractors might be discerned. Such attractors, as Timothy Morton describes them, are in fact the ontologies of present conditions. Realist ontology disintegrates into speculative, plural, future-oriented ontologies. And this disintegration can never be cleared up; as Morton writes, "the emerging ecological age gets the idea that 'there is no metalanguage' much more powerfully and nakedly than postmodernism could."[31] Uncertainty is ontologically and epistemologically fundamental.[32]

With this set of changes, of course, goes one development crucial for literary narrative today generally, as well as for climate change texts specifically. The fictional environments for all of the five global warming narratives I have been exploring are speculative fictions, a genre which has emerged as dominant across today's wide spectrum of risk issues and has become a candidate for replacing social realism as a literary foundation. Speculative fictions typically construct scenarios out of multiple overlays of social and environmental risks: they condense their narratives out of the complex penumbra of shifting possibilities. The genre acts as an imaginative heuristic for exploring today's omnipresent, fundamental, multiple risk space.

Accordingly, each of the five texts represents a different sort of inflection of the genre as well as narrative scenario. Yet even as these five texts are clearly speculative fiction, they also show an interesting divergence in the type of speculative fiction they represent. Bacigalupi's has the most common future orientation descended from science fiction. More specifically, it is fast paced, technology fetishizing, postapocalyptic gene punk. Butler's genius is to invoke the libertarian violence and environmental degradation that Bacigalupi's genre is obsessed with, while displacing its fast-paced, survivalist, episodic narrative of violent conflicts with a narrative that is very differently scaled (focused on small, daily precautions and group interac-

tions, not large dramatic moments) and differently timed (moving in a slow fashion, appropriate to the refugees' difficult foot journey).Butler's future is a postapocalyptic survivalist tale that explicitly resists the conventions of its subgenre.

Robinson's, Rich's, and even Kingsolver's apparently realist fictions are all, in contrast, variations on alternate presents: Robinson's has the flavor of an alternative history, while Rich's and Kingsolver's differ in how speculatively constructed or close to traditional realism they are. Contemporary risk-based speculative fictions like these all differ from modernist predecessors like Beckett's *Endgame*. Whereas Beckett's narrative was symbolic, hence fundamentally semiotic, these speculative fictions are decidedly material, even as they are scrupulously and ingeniously materialized (like runs of a model with different inputs) out of stipulated present and future settings. And their materialization of the speculative (semiotic) elements is embedded not in changeable technology or social forms alone, but in the (until-recently) solid bedrock of the biophysical. And its stipulations represent different takes on what happens when what had been seen as foundational, ahistorical, and "other" unexpectedly, and catastrophically, lumbers into historical motion.

New Capitalisms, New Technologies, New Relationships

My penultimate set of tracks in the snow comes from the much celebrated and critiqued emergences of what were widely seen as a qualitatively new economy and a new regime of technology in the 1980s and 1990s. I will try to be brief with this *petit récit*, having treated it at length elsewhere.[33] The rapid installation of growth-oriented, deregulated, entrepreneurial, free-market-fundamentalist, privatizing, neo-social-Darwinist capitalism (envisioned as such by *both* its partisans and detractors) together with the liberatory possibilities read into new GNRC (genetic, nanotechnological, robotic, and computer) technologies seemed, in their emergence onto the scene in the Reagan era, to change everything.[34]

Let me confine myself to pointing out two startling key features of this new, hyperdynamic regime of capitalist and technological transformation—a regime that I will call the Great Acceleration 2.0.[35] First, at this time, environmental risk is hybridized with economic and technological risk and given an aggressive positive spin. The three become a part of an integrated packet. In the ideology-driven economic thought of the day, Julian Simon, in *The Ultimate Resource 2,* famously argues that environmental crises are an inherent, positive part of such risk-based invention and entrepreneur-

ialism: two cheers for increasing world populations, as they are likelier to yield their higher percentages of geniuses to discover new frontiers for technology and industry; and two cheers for environmental problems, like pollution or resource depletion, as they set the challenges for the new innovators to solve.[36] And these solutions will bootstrap human society to unimaginable, new levels. Simlarly, Alvin Toffler, in his introduction to Ilya Prigogine's and Isabelle Stengers's book on chaos theory, further spells out that dynamism by seeing disequilibrium as the basis for both nature's history and human social progress. Disequilibrium (that old environmental bad) pushes the economy toward a tipping point, out of which chaos-driven emergence creates integration on a higher, new level. Key to doing this is to embrace risk: to go (as Kevin Kelly puts it) "out of control."[37] All these versions of risk are part of a new all-inclusively systemic dynamism, an inside without an outside, a system without foundations, one that embodies riskiness and risk taking,

Second (though perhaps this is just another way of saying the same thing), with changes like these, capitalism and technology (the A and T of the famous I=PAT formula, which opposes the environment [Impacts] to Population × Affluence (or capitalism) × level of Technology) now bring the factor "I" over from the left side of the equation to be part of the right, to become a driver speeding up still further the expansion of PAT. In this move, technology and capitalism no longer are the adversaries of the environment. They are, first, "unleashed" from supervision by the environmental "I" (i.e., deregulated) and, second, reabsorb those I-impacts as drivers for accelerated growth (i.e., as sources for entrepreneurial innovations). The result: no limits, ever, ahead.[38]

Looked at differently, however, these changes reveal a truly gothic new capitalist-technological dynamism, one that is equally unlimited. Thus, in *Risk Society*, Ulrich Beck envisions a capitalism that thrives on risk and environmental damage, because these do not represent desires or even needs that can be eventually satisfied (like hunger or consumerism). Instead, the new risks and the damage they produce open up "'a bottomless barrel of demands,' unsatisfiable, infinite."[39] (Think of what one might pay first for conventional, then experimental cancer treatments.) The result is a gothic predatory capitalism that keeps creating more and more damage and hence unsatisfiable risk-demands and then profiting off remedies (partial, always incomplete ones) all the way down. It is a system with a Janus-face but one in which both the faces are horrormasks. Naomi Klein, in her book *The Shock Doctrine*, documents a regime of what she calls disaster capitalism that is doing this already. Her recent book, *This Changes Everything,* is a

close analysis of how disaster capitalism has shaped global warming politics to keep itself in place all the way down into catastrophe.[40]

What is perhaps most fascinating about these transformations—on the one side, of the sunny rhetoric of progress, on the other side, of the grim rhetoric of violating all environmental limits—is how completely and subtly the two mirror each other. They are equally hyperdynamic, insides without outsides, drenched with intentionally created risk, a system bottomless and foundationless all the way down. The celebratory version promises bifurcation points that are sudden bootstrappings up. The latter promises tipping-point-initiated vicious-circle-driven plunges down. And most interestingly, neither of these versions dispense rhetorically or systematically, materially or semiotically, with exuberance, but embody, on the one side, transformative, on the other, gothic versions of it. Indeed, exuberance can and does surface even on the dark side: There is a fiercely ironic pleasure in contemplating the workings of the malevolent dynamism, one that recalls old, stunningly gothic moments of environmental crisis rhetoric, from Rachel Carson's cited quip in *Silent Spring* that we now swim in a "sea of carcinogens" to Sandra Steingraber's response, decades later in her book *Living Downstream,* that we have learned to swim better now by jettisoning our breasts and prostates.[41]

Even more, strange fusions of exuberance and catastrophe—a fusion that often results in what I have called "hyperexuberance"—now become widely dominant in popular and literary narrative.[42] Think of the noir exuberances of four decades of cyberpunk, genepunk, and postapocalyptic fictions and films, ones that fuse accomplished environmental mayhem with a proliferation of action-adventure exuberance (a fusion that, when it takes place in film, means competition to produce new, cutting-edge technological special effects). And think of the small-box video games (rich in the same effects as those playing in the big-box mall theaters). The noir and the exuberant fuse together in various self-augmenting ways: the worse the social conditions depicted, the more exciting the adventures are, whether they are transformative of both people and humanity as in William Gibson's *Neuromancer* and Bruce Sterling's *Schizmatrix*, or present endless rounds of post-apocalyptic-chic survivalist violence, as in the glitzy upscale of postapocalyptic simulations in *The Matrix* or the fleshly material postapocalyptic downscale world of the *The Walking Dead.*[43]

How different are the thematics and tonalities of *Soylent Green*. Both its ultimate affect and its version of capitalist system in it are based on a fated, intractable loss of exuberance. The hyperacceleration of the movie's opening slide show represents the acceleration of environment-destroying

human growth—I as the loser in its battle with PAT. But the sequence ends with a trailing off of the accompanying music, as if a finger had been put on the turntable playing it. This sad winding down accompanies all Thorn's ultimately deflating failures; even the capitalist in the film has become de-energized, depressed, at the truth behind his world and passively awaits his murder. The same is true of the priest and the hopeless, terminal emergency ward the church has become.

In contrast to *Soylent Green*'s final deflation of exuberance, the five global warming fictions I have been tracking are all marked by it, though in very different ways. Bacigalupi's novel, an example of genepunk, is a classic example of a hyperexuberant, noir, postapocalyptic survivalist narrative. Robinson, Kingsolver, Butler, and Rich all offer much more distinctive, interesting, and differing kinds of admixtures of catastrophe and exuberance. Robinson embeds a surprisingly unconstrained and wholehearted exuberance (not hyperexuberance) into the vast historical sweep of Pleistocene, Holocene, and Anthropocene represented and referred to in his novels. Moreover, to sequence these epochs, he draws on the very conceptual mechanism of Alvin Toffler, that of disequilibrium-driven chaos with its movement past stability and through bifurcation/tipping points into emergences. Robinson's characters refer to and discuss the transition between the stable Holocene they knew up until recently and the newly unstable Anthropocene they are now plunging into as a climate change tipping point. Robinson appropriates, in short, the conceptual machinery Toffler used to legitimize the new, deregulated, anti-environmentalist capitalism (ironically by naturalizing it). He does this by using that machinery to revive (not dismiss) several of nature's traditional qualities of beauty and sublimity. Embedding Toffler's chaos in a significantly revised nature, one clearly without foundations, out of control, and no longer able to be idealized as equilibrial, Robinson's prose nonetheless invokes it with all its former beauty and wildness.[44]

In appropriating chaos from neocapitalists like Toffler, Robinson shows that its tipping points can yield (and indeed have in this case) catastrophe, not emergence onto a new level. Yet at the same time, Robinson's use of action-adventure narrative (and its exuberant risk that runs back to both nineteenth-century colonial and twentieth-century wilderness adventure narratives) to present his comically treated male hero, the neoprimitivist, sociobiologist Frank, means that exuberance of a more generous sort than the social-Darwinist 1980s neo-capitalist variety is likewise appropriated and retained. No doomsterism here. Instead, a still larger kind of nature-based exuberance opens up before Frank in his resistance to pessimism or mourning, as he conceptualizes the expansive perspective of a return

to pre-agricultural, pre-Holocenic conditions, ones in which humans' brain size (and range of sensory experience) previously expanded. For Frank, the loss of foundations seems exuberant, an expansion, and these attitudes are echoed by the happy embrace of even impossible-seeming environmental-political challenges by the ever-sunny new President, excited even when these challenges materialize as disasters. In Robinson, then, catastrophe unleashes exuberance.

Much more modestly exuberant is Kingsolver, whose protagonist, one step ahead of mourning, achieves a new identity and mission in a damaged world, via a thoughtful, ever introspective version of the bildungsroman. Still subtler, perhaps, is Butler's admixture of an extreme survivalist plot with two narratives of a very different sort, both a story of Lauren's self-education and a narrative of a journey north reminiscent of the slave narrative. Butler intentionally does not let the frantic, violent (hyper-)exuberance of the survivalist plot survive this mixing process;[45] Lauren's experience with chaos produces an emergence that represents hard, considered work constructing a community outside industrial capitalism. Least exuberant is Rich, whose narrative raises the possibility of a comic version of capitalist exuberance; however, when it embarks upon a sensational rendering of natural disaster, it paints that disaster ironically vividly, yet also nonexuberantly in urban imagery (bodies floating in the streets, toxic debris everywhere, immense volumes of damaged buildings, heaped wreckage requiring disposal, and downscale environmental refugees taking shelter in bureaucratized, substandard FEMA camps.) At the end, moreover, the protagonist just seems to trail off into the humorless blankness of uninteresting years ahead, as he becomes a survivalist on a section of Long Island too wrecked to officially resettle. Indeed, Rich's book is a clear, sardonic response to the mechanical rescue plot and the happy end (in a Mexico set magically apart from the film's climate change disaster) of *The Day after Tomorrow*.

The Different Flavors of Postapocalypse

So I come to a last set of footprints in the snow: or perhaps this is less a set of footprints than it is ultimately a site of convergence for many of the small histories I have sketched in above. The snow here is certainly stomped down, and it testifies to the recent flowering of an exuberant postapocalypticism, a movement that has spread far and wide across the cultural map. Apocalypse indeed became, after I coined the metaphor, a way of life. A spate of narratives appeared featuring a remnant in a wrecked world on the other side of an apocalypse. They spread across the full spectrum of contemporary media: in

adult fiction; in big-budget films; on TV (in reality TV shows, docudramas, and serial fictions); in countless video games, and even as a large new sub-genre of young adult literature; in Disney animations; and even as infants' toys—a proliferation I have argued has become a new, first-world-based, popular cultural dominant, a sequel to Fredric Jameson's postmodernism.[46]

Most of this literature sandwiches catastrophe and exuberance as intensely as possible, but most of it, alas, does so as a late entry into the ideological construct marked by the new capitalism and technology discussed above, those of the Great Acceleration 2.0. Postapocalypticism's recent efflorescence is marked by the fact that its hyperexuberance has lost its novelty and freshness and become an obsessively repeated routine, and not, as lately in cyberpunk, a tool of discovery. As a genre, its proliferating mainstream performances seem obsessive and reactionary. Popular post apocalyptic literature and film tend toward the reactionary in two key ways. In an era of challenged U.S. and developed-world hegemony and a time when constructing grand narratives seems increasingly illegitimate, postapocalypticism serves as an extreme way of continuing to claim representational dominance.[47] Equally important, postapocalyptic narrative is regularly built from a potentially endless series of survivalist conflicts, creating a narrative version of William Gibson's description of Night City in *Neuromancer*: postapocalyptic inventiveness represents a semiotic kind of "social Darwinism . . . on . . . fast forward" for a postnatural wrecked world.[48] Though this is a world which capitalism has dismantled and vacated, it is one in which its old routines seem to structure the only acts in town.

Living after the end, in its recent, seemingly endless iterations, has become, in short, a lively, if increasingly claustrophobic and narrow imaginative activity. Yet it also has been bent into some surprisingly different forms. Slavoj Žižek influentially outlines an interesting version of environmental-social intervention after the end. "We have to accept," he writes in his essay "Living in the End of Times," "that, at the level of possibilities, our future is doomed, the catastrophe will take place, it is our destiny—and, then, on the background of this acceptance, we should mobilize ourselves to perform the act that will change destiny itself and thereby insert a new possibility into the past."[49] Minds equipped with the knowledge of something that has already happened, the argument implies, have resources that those who, immersed in present possibilities and uncertainties, just do not have. This is a *Twelve Monkeys* strategy—one that, perhaps, the spread of postapocalyptic narratives is helping implement.[50]

The most interesting version/revision of postapocalypse, however, comes from Timothy Morton. In his book *Hyperobjects: Philosophy and Ecology*

after the End of the World, he theorizes global warming as a key example of a new, large class of philosophical "objects," and his discussions tightly integrate (for better and worse, I believe) most of the features of today's global warming context discussed above as aspects of these new hyperobjects.[51]

The subject Morton pursues with the greatest élan (and which is highlighted in the subtitle of his book), however, is a new version of the post-apocalyptic. Morton has no tolerance for realist versions of the end of the world. These only postpone, he argues, "doom until some hypothetical future" and inoculate people against awareness of something that has already ruptured our world and that "spells doom now, not at some future date."[52] With this uncanny rupture, Morton argues, "it is as if humans are losing both their world and their idea of *world* (including the idea they ever had a world) at one and the same time, a disorienting fact. In this historical moment, working to transcend our notion of *world* is important."[53] The end of the world has, in short, already come, or perhaps has always been in place, but it is the end of a human concept, the concept of "world," not a sensational physical event. Today we need to cultivate awareness beyond both that "world" and its "end."

The concept of "world" represents a human "ontic prejudice," the wishes of a species that would put "itself in the center of the universe" or, at the least, in a "VIP box beyond the edge" of it.[54] It is an expression of a desire to possess a metalanguage, like the one modern science claimed (falsely, to postmodern theorists) to have. What the false human concept of "world" keeps us from seeing is a class of actually real objects, ones which are withdrawn and nonlocal, existing in dimensions beyond the senses and the reach of the 3-D theater of the knowing mind. Like the ongoing and entailed future changes to the earth's atmosphere (and its climate systems, its biosphere, its cryosphere, socioeconomic sphere, etc.), these are "not simply mental, but are real entities whose primordial reality is withdrawn from humans."[55]

Perhaps the chief illusion that sustains these falsely realist, human ontic prejudices, the one Morton seems to hold most responsible today for human belief in the fiction of a coherent "world," is nature. Like Haraway, as discussed above, Morton is a ruthless polemicist against this "nature" as it manifests itself in a myriad of cultural forms. He is ironic, snarky, witty, and sneering in vignette after vignette: about life worlds in which people claim themselves embedded; about bucolic settings that people aestheticize and prize; about cozy pastoral homes for Hobbit-like species; about 3-D illusions like landscape stills with separated foregrounds and backgrounds; about holistic wholes that warmly encompass an all. "In an age of global

warming," Morton continues, "there is no background, and thus there is no foreground. It is the end of the world, since worlds depend on backgrounds and foregrounds. *World* is a fragile aesthetic effect around which we are beginning to see."[56] What intrudes into and destroys these fragile aesthetic effects are the uncannily intimate yet sinisterly withdrawn presence of hyperobjects, which Morton evokes (persistently, throughout the whole book) in rhetoric that mingles edgy wit with richly gothic atmospherics. When they intrude, there is a "creeping realization not that 'We Are the World,' but that we aren't."[57]

"What is left if we aren't the world?" Morton asks in one of his most memorable passages: "Intimacy"—intimacy with real nonhuman entitites. After the end of the world, there is no longer an "away."[58] So don't design buildings with air conditioners; rather, "it would make more sense to design in a dark ecological way, admitting our coexistence with toxic substances we have created and exploited Thus, in 2002, the architectural firm R&Sie designed *Dusty Relief*, an electrostatic building in Bangkok that would collect the dirt around it, rather than try to shuffle it somewhere else." From wit, Morton then moves on to the overtly gothic: "What exists outside the charmed circles of Nature and life is a *charnel ground*, a place of life and death, of death-in-life and life-in-death, an undead place of zombies, viroids, junk DNA, ghosts, silicates, cyanide, radiation, demonic forces, and pollution."[59] Morton continues:

My resistance to ecological awareness is a resistance to the charnel ground. It is the calling of the shaman to enter the charnel ground and to try to stay there, to pitch a tent there and live there for as long as possible. Since there are no charnel grounds to speak of in the West, the best analogy, used by some Tibetan Buddhists (from whom the image derives), is the emergency room of a busy hospital. People are dying everywhere. There is blood and noise, equipment rushing around, screams. When the charm of *world* is dispelled, we find ourselves in the emergency room of ecological coexistence.[60]

To persist here, to cultivate intimacy with nonhumans, means shattering world pictures, and Morton now wittily channels the language of old modern avant-garde manifestos: "whether it's Hobbiton, or the jungles of Avatar, or the National Parks and conservation areas over yonder on the hither side of the screen (or perhaps behind the windshield of an SUV), or the fields and irrigation channels on the hither side of the wilderness . . . . [w]e need to smash the aestheticization in case of ecological emergency."[61] Smash the aestheticization: it's the little red box with the glass on the wall and it's the cry of the modernist avant-garde: it is crisis consciousness become not just a way of life, but an urgent artistic and intellectual project.

Perhaps the sharpest critique of Morton comes from simply noting just how much he needs the natures he dispenses with so exuberantly and gothi-

cally. It is nature's loss that rips the illusions of *world* from our vulnerably and claustrophobically enclosed vision, so that, with appropriate shock, we wake up *inside* the charnel ground of the nonhuman, in a new, terrible, sticky intimacy with it. Like that nature-lover, Bill McKibben, or Detective Thorn in the vividly staged charnel house of *Soylent Green*, Morton proclaims the terrible end of a concept (of the idea of nature, of world).[62] However, unlike McKibben and Thorn, Morton does not mourn, but exults. Even more, in describing the new intimacies in the emergency ward with the toxics (including greenhouse gases) of our making, Morton echoes Rachel Carson's image of swimming in a sea of carcinogens or, worse, Paul Ehrlich's un-PC, neo-Malthusian depiction in *The Population Bomb* of the dense crowds of a hot, claustrophobic, third-world city as images of the nightmarish overpopulation soon coming as well to the West. And when Morton develops this powerful rhetoric in a quest to smash the last residues of anthropocentrism, it recollects deep ecology's harsh critique of exactly the same attitude.

Or perhaps pointing out nature's usefulness to Morton is no critique. For what Morton accomplishes, in sweeping the old nature traditions away, is a powerful reimagining and resituating of environmental apocalypse for a vastly more beset and disillusioned, postapocalyptic present—a time of an all-encompassing new crisis, one that people recognize they are wholly immersed in, but which increasingly seems totally unstoppable. Morton reanimates in his postnaturalist rhetoric a sense of radical urgency even for those who are disillusioned and numbed by life in an increasingly risky and damaged world. Morton does this even while recognizing that this aware disillusionment does nothing to privilege its possessor. Instead, it plunges her/him into an expressive realm bounded by "hypocrisy, weakness, and lameness"—a move for which Morton has been criticized.[63]

Morton's ideas echo in the texts I have picked to investigate. Their starkest version comes in *Soylent Green*, considered retroactively through the lens of Morton's image of the charnel ground. The film's cathedral-turned-hospital, crowded with the damaged surplus population of its society and situated in a world with no living ecosystems left is an early version of Morton's image of intimate enclosure in an ecological-hospital emergency ward. Morton's urban hospital image resonates also with the claustrophobically postapocalyptic environment of *The Windup Girl*. But by far the most interesting connection is with Nathaniel Rich. Rich embodies Morton's insights—and more—in *Odds Against Tomorrow*. His depiction of flooded New York resists (if not smashes) all the aestheticization Robinson summons up in order to depict his catastrophic events: it indeed resembles the charnel

ground of an urban emergency room. And, at the end, as his protagonist walls himself up in a devastated stretch of Long Island, one abandoned as unreclaimable by government bureaucrats, he is vouchsafed, on a trip into the toxic rubble and trashed woods beyond his walls, a vision of the nature of nature that is as grotesquely gothic as Morton could wish.

In Butler's novel, however, Morton's gothic irony is wholly absent, even though the complexly and inventively staged setting represents the most intimately enfolding charnel ground of any of the fictions I've discussed. Lauren meets the deformations of her world with wide-awake matter-of-factness. Gothicism would be an indulgence, not an intensification, for one simple reason: Lauren, a character constructed for marginalized as well as mainstream audiences, a heroine herself from the margins, is no stranger to what Morton, an outsider, exuberantly demonizes as a charnel ground, an urban hospital emergency room. For Lauren, such a world holds few surprises. She sees it clearly and is on a quest to make both a community and a human-scaled life within it. She doesn't even think of aestheticizing it. Morton's avant-garde evangelism simply comes from a different milieu space than do Butler's closest referents, the environmental justice and post-colonial environmental movements.

I must leave this long essay without an ending. Other discursive trails leading perhaps into interesting contexts for global warming narratives lie about, ones which would also be interesting to trace. Perhaps Morton's insistence on terrible intimacy with the nonhuman intertwines with a trail of ecological and environmental-social advocacy that leads back to issues of toxic pollution and its inscription in human bodies via Stacey Alaimo's landmark theorization (and study) of transcorporeality. Transcorporeality has become, I believe, a necessary concept today in areas outside toxic discourse, appearing most notably in another grim growth area of public health discourse, that of infectious disease. Or perhaps the discourses of environmental mourning and environmental memory, ones that have their own discursive trails, should occupy a larger place than I have given them—and will do so as writers mourn and remember more losses (especially those of species and ecosystems) and also explore the juxtapositions of pre–climate change memories with post–climate change meltdowns. Already memories of natures lost have been overlaid pointedly, even movingly, with memories of lost comforts from the era of callously unsustainable (post-) modernity and, even more, losses of art, articulateness, learning, and social value placed on intelligence.[64] Also, I predict, as climate change and the politics surrounding it proceed and create new contexts, new narratives will appear, suggesting intellectual and cultural pathways that are not now vis-

ible as such. But enough has been said by now to lay bare some of the most important contextual sources for the condensed outlines and richly varied accents of today's climate change narrative, as it has moved in the U.S. from early visions of apocalypse into today's profounder and more snarled material and semiotic entanglements.

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NOTES

1   Rebecca Solnit, "Bird By Bird: The Problem with Climate-Change Stories, *New York Times Magazine* (December 7, 2014): 13-14.

2   Rachel Carson, *Silent Spring* (Greenwich, Conn.: Fawcett Publications, 1962); Paul Ehrlich, *The Population Bomb* (Binghamton, NY: Vail-Ballou Press, 1970); Donella Meadows, Dennis Meadows, Jorgen Randers, and William Behrens III, *Limits to Growth* (New York: New American Library, 1972).

3   My metaphor of tracks in the snow is an advised one. It seems apt for times when weather is the issue, when the problems are of recent origin (between previous and coming snow-falls), and a change in climate (perhaps a thaw in climate politics or, conversely, a terrible blizzard) could erase them altogether, by revealing a very different landscape. (Indeed, the possibility of one just emerged as I was writing this section: the U.S.-China emissions agreement reached by Barack Obama and Xi Jinping, an event that could signal the first hints of a thaw.) Tracks in the snow also both point back along different paths and are liable to cross each other or even become indistinguishably entangled in places of minor and major convergences. Further, the present they exist in is as unstable, unpredictable, and uncontrollable as weather systems, particularly so in today's disturbed climate. Tracing their paths, particularly as they branch and converge, moreover, is impossible for an observer on the same ground as they are to totalize—especially if they are so numerous—a feature that echoes knowledge about climate change itself and its many various anticipated effects.

4   In fact, environmental-political controversy has been especially robust recently in two areas. The first is within environmentalism and within the progressive social movements of which it is now clearly a part. The second is between environmentalism and its post-1970s neoconservative, right-wing antagonists. Roughly speaking, two such controversies played themselves out side by side—and they did this at times in a fraught relationship with each other. The latter is the subject of this first section and is a condensation of a key part of the argument of Chapters 1 and 6 in my book, *From Apocalypse to Way of Life: Environmental Crisis in the American Century* (New York: Routledge, 2003).

5   *Soylent Green*. dir. Richard Fleischer, Metro-Goldwyn-Mayer, 1973.

6   *Soylent Green*'s early dramatization of global warming as constant, claustrophobic heat was a thoroughly conscious choice: indeed, the film hired a scientific/technical consultant to advise them about the problem.

7   To be sure both of the film's revelations are wrapped in potentially almost comic ironies—the horrible consequence of the end of nature, that people now eat people, ironically reflects the time's enthusiasm for recycling. In addition, the staging of Sol, lying in the euthanasia center moved by the gorgeous films from nature past, echoes the nature shows then becoming popular among indoor, couch-potato TV audiences. These discordant ironies, however, do not overwhelm or diminish the film's apocalypses, but they in fact intensify them as revelations that do not save.

8   Another term was also coined—apocalypse-abusers—but it didn't catch on. Perhaps two were enough or perhaps *apocalypse-abusers* seemed too risky a trespass on sacred texts. A still further term, Cassandras, had more success and was used where an environmental prophet's message was not listened to.

9   Octavia Butler, *Parable of the Sower* (New York: Warner Books, 1995); Kim Stanley Robinson, *Forty Signs of Rain* (New York: Spectra, 2004), *Fifty Degrees Below* (New York: Spectra, 2005), and *Sixty Days and Counting* (New York: Spectra, 2007); Paolo Bacigalupi, *The Windup Girl* (San Francisco: Night Shade Books, 2010); Barbara Kingsolver, *Flight Behavior* (New York: Harper, 2012); and Nathaniel Rich, *Odds Against Tomorrow* (New York: Picador, 2014). Though global warming as a specific issue is not as foregrounded in *Parable* as it is the other texts I have chosen, Butler has named it in several interviews (one with Amy Goodman and Juan Gonzáles and another with Randall Kenan) as a central factor in the novel's depiction of comprehensive environmental and social degradation. It lies behind the agricultural crisis, the California droughts, and the extreme weather events referred to in the novel, and from it grow the political failures (from privatization of all social services to incipient capitalist totalitarianism) also prominent in the novel. Goodman, Amy, Juan Gonzáles. "An Interview with Octavia E. Butler." Web. 6 December, 2014 <http://www.democracynow.org/2005/11/11/science_fiction_writer_Octavia_Butler_on> and Randall Kenan, "An Interview with Octavia E. Butler," Callaloo 14.2 (Spring, 1991): 495-504.

10   Kingsolver, *Flight Behavior*, 394.

11   Patrick Murphy, "Pessimism, Optimism, Human Inertia, and Anthropogenic Climate Change," *ISLE: Interdisciplinary Studies in Literature and Environment* 21.1 (2014): 149–63.

12   *A.I. Artificial Intelligence*, dir. Steven Spielberg, Warner Brothers, 2001.

13   See above, the beginning of the first subsection.

14   Pushback has been especially strong in new activisms rooted in diversity and social justice. Ecofeminism couples its diverse goals (including environmental injustice, health and welfare, toxics, infrastructure, clean water, and food) with powerful critiques of patriarchal society's simultaneous inscription of both nature and women as a passive "other" to be used and controlled. People of color and working-class communities, also sensitive to biases encoded in different uses of the term "nature," highlight issues of environmental racism and classism such as the unequal siting of polluting industries and waste-disposal areas. The environmental justice movements they created fuse social justice with environmental-ism. LGTB advocates seek actively to queer nature, while pointing out how conventional meanings and affects encoded in the term play a key role in stigmatizing them. From a global perspective, Ramachandra Guha and Joan Martinez-Alier argue for attention to developing-world "empty belly" environmentalism, in place of the developed-world sort, which not only ignores, but worsens the environmental conditions faced by developing-world populations. Ramachandra Guha and Joan Martinez-Alier, "Radical American Environmentalism and Wilderness Protection: A Third World Critique," *Environmental*

Ethics 11 (1989): 71–83. See also Rob Nixon, *Slow Violence and the Environmentalism of the Poor* (Harvard U. Press), 2011.

15   This formula, used by Paul Ehrlich and Donella Meadows in their apocalyptic analyses, holds that environmental impacts (I) can be calculated by multiplying a society's population, affluence, and level of technology (PAT) together.

16   See Bruno Latour, "Why Has Critique Run Out of Steam? From Matters of Fact to Matters of Concern," *Critical Inquiry* 30.2 (2004): 225–48.

17   Bruno Latour, *We Have Never Been Modern*, trans. Catherine Porter (Harvard U. Press, 1993). Even the notion of "natural disasters," Kate Rigby points out, is a fiction created by a modernity that walls itself off from the natural: on today's ozone-depleted, globally warmed earth, disasters (like the fires that raged in Australia's angry summer, fires more and more likely thanks to climate change) have become clearly natural-cultural. Even in the past, as with the Lisbon earthquake, it took "more than a violent geophysical phenomenon to give rise to a disaster: it [took] a vulnerable population," one in which that vulnerability was moreover typically unequally distributed. And the resulting effect of the earth moving under peoples' feet represented an ontological crisis, one prophetic of the newly unstable normalities that a climate-changed society is in the process of entering now. See Kate Rigby, *Dancing with Disaster: The Uses of Literature in Confronting Catastrophe* (U. of Virginia Press, forthcoming).

18   My sources for this series of thumbnail references are as follows. For the application of chaos theory to cultural history that was widespread (and partisan) under the influence of Reagan-era "unleashing" of capitalism and the new technological revolution, see Alvin Toffler's "Foreward" to Ilya Prigogine and Isabelle Stengers, *Order Out of Chaos: Man's New Dialogue with Nature* (New York: Bantam Books, 1984). For intra- and interactions, see Karen Barad's *Meeting the World Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Duke U. Press, 2007); on assemblages, see Gilles Deleuze and Félix Guattari's *A Thousand Plateaus: Capitalism and Schizophrenia* (U. of Minnesota Press, 1987); for ANTs, see Bruno Latour, *Reassembling the Social: An Introduction to Actor–Network Theory* (Oxford U. Press, 2005); on hyperobjects, see Timothy Morton's *Hyperobjects: Philosophy and Ecology after the End of the World* (U. of Minnesota Press, 2013); and on material-semiosis, see, most recently, Serenella Iovino and Serpil Oppermann, "Theorizing Material Ecocriticism: A Diptych," *ISLE: Interdisciplinary Studies in Literature and Environment* 19.3 (2012): 448–76.

19   See, for example, several recent anthologies, *City Wilds: Essays and Stories about Urban Nature,* ed. Terrell Dixon (U. of Georgia Press, 2002), and *Still the Same Hawk: Reflections on Nature in New York,* ed. John Waldman (Fordham U. Press, 2012).

20   Donna Haraway, "Album: Unnatural Nature," *Uncommon Ground: Rethinking the Human Place in Nature*, ed. William Cronon (New York: Norton, 1996), 59.

21   Paul Voosen, "Geologists Drive Golden Spike toward Anthropocene's Base," Eenews.net, 6 December 2014, http://www.eenews.net/stories/1059970036.

22   Will Steffen, Paul Crutzen, and John McNeill, "The Anthropocene: Are Humans Now Overwhelming the Great Forces of Nature?" AMBIO: A Journal of the Human Environment 36.8 (2007), 615, http://www.ambio.kva.se. Still another early example comes from Fairfield Osborn. In his 1948 book *Our Plundered Planet*, Osborn asserts that "humankind

is now becoming for the first time a large-scale geological force." Buell, *From Apocalypse to Way of Life*, 179.

23 Steffen, Crutzen, and McNeill, "The Anthropocene", 616.

24 Ibid., 617.

25 Paul Crutzen and Christian Schwägerl, "Living in the Anthropocene: Toward a New Ethos," Environment 360, http://e360.yale.edu/feature/living_in_the_anthropocene_toward_a_new_global_ethos/2363/.

26 Bill McKibben, *Eaarth: Making a Life on a Tough New Planet* (New York: St. Martin's Griffin, 2011).

27 Ulrich Beck, *Risk Society: Towards a New Modernity* (London: Sage Publications, 1992); Charles Perrow, *Normal Accidents: Living with High-Risk Technologies* (Princeton U. Press, 1984).

28 Ulrich Beck, "Risk Society and the Provident State" *Risk, Environment & Modernity: Todards a New Ecology*, ed. Scott Lash, Bronislaw Szerszynski, and Bryan Wynne (London: Sage Publications, 1996), 28.

29 No credible actor—be it coalition of governments or individual leader—has emerged capable of ending the political logjams preventing action sufficient to stop climate change. The actant that seemed to have that potential—oil in a peak oil period—turned out to be highly deceptive: the industry has not just survived, but in fact surged thanks to varieties of unconventional oil brought to market.

30 Molly Wallace, *Risk Criticism: Reading in an Age of Manufactured Uncertainties* (U. of Michigan Press, forthcoming).

31 Morton, *Hyperobjects,* 4.

32 It is interesting to note, however, that the sort of uncertainty that fictions about toxic chemicals has explored in its best, most memorable novels and films (DeLillo's *White Noise* and Todd Haynes's *Safe*) has not, to my knowledge, appeared in global warming fiction. Uncertainty about whether climate change is all in a character's mind as opposed to actually resident in reality does not enter climate change fiction, which either assumes the IPCC is accurate or (in fictions I don't examine in this essay because of their tawdry intentionality) tries its hardest to debunk the science and vilify its adherents. On the one hand, one could say this means that there is less ontological uncertainty about climate change; on the other hand, one could say that climate change's multiple ontologies represent a far greater kind and degree of undecidability. Don DeLillo, *White Noise* (New York: Penguin, 1985); *Safe,* dir. Todd Haynes, Columbia Pictures, 1995.

33 See my *From Apocalypse to Way of Life,* chap. 7, "The Culture of Hyperexuberance."

34 Seen soberly, the period's immense semiotic changes (as in ideology) doubtless far outran what happened materially: neo–social Darwinism and deregulation still haven't (thank goodness) rolled back FDR's legacy completely, nor have genetic technologies been more than interventional, instead of resulting in the creation of full-blown posthumans and postnatures.

35   The term is apt and useful for two reasons, I believe. First, Reagan-era rhetoric and imagery promised the restoration of the U.S. to the global power and leadership of the Great Acceleration 1.0: the Reagan revolution was as traditionalizing as it was transformative. Second, the "unleashing of" technological and economic growth was its central emphasis. Third, it represents, for global warming, another dramatic new expansion of the problem, both materially, as oil again became abundant and abundantly used, and semiotically, as restraints on fossil fuel use—like environmental restraints of all sorts—were aggressively and widely abandoned in a great semiotic unleashing of environmental unconcern.

36   Julian Simon, *The Ultimate Resource 2* (Princeton U. Press, 1996).

37   See Kevin Kelly's book on the new technologies and the new capitalism that accompanies them, *Out of Control*, for a still more flamboyant example. Kevin Kelly argues that experimentalist technologies that fuse humans and machines together (machines becoming lively, human beings, mentally and bodily, incorporating machinery) creates systems that operate beyond their creator's control. These hybrids, further, act as agents of radical social and biophysical novelty: for example, as scientists learn how to engineer genes, they unleash processes that speed up evolution. Capitalism too speeds up and innovates when it is deregulated—i.e. is allowed to go out of control. Kevin Kelly, *Out of Control: The New Biology of Machines, Social Systems, and the Economic World* (Reading, MA: Addison-Wesley), 1994.

38   At the same time, however, conceptually, this internalizing of environmental impacts into the economy *can* and indeed *has* become the basis for socially and environmentally progressive, rather than neocon/far–right goals. Think of ecological modernization advocating internalizing awareness and prevention of environmental damage; capitalism bringing the environment onto its balance sheets; programs for greening architecture, energy, business, and even capitalism; and even the development of today's new criterion for environmental policy in a wider range of areas, namely sustainable development, which makes sustainability a fluid measure that embodies disequilibrial dynamism and fuses together environmental and economic considerations. The devils, today, are more and more not in the theories, but in their very different applications.

39   Beck, *Risk Society*, 56.

40   Naomi Klein, *The Shock Doctrine: The Rise of Disaster Capitalism* (New York: Picador, 2008), and *This Changes Everything: Capitalism vs. the Climate* (New York: Simon and Schuster, 2014).

41   Rachel Carson, *Silent Spring*, 196 and 2213, and Sandra Steingraber, *Living Downstream: A Scientist's Personal Investigation of Cancer and the Environment* (New York: Vintage, 1998), 263.

42   See my *From Apocalypse to Way of Life*, chap. 7.

43   William Gibson, *Neuromancer* (New York: Ace Books, 1984); Bruce Sterling, *Schismatrix Plus* (New York: Ace Books, 1996); *The Matrix,* dir. Andy and Lana Wachowski, Warner Brothers, 1999; *The Walking Dead*, AMC. 2010–.

44   Robinson's appropriation is, to be fully exact, a restoration of chaos theory to its rightful place as a theory describing nature, not capitalism. So the process is one layer more complex: Toffler (and Kelly) appropriate chaos from nature to legitimize capitalism, and this becomes part of the high-tech brio especially vigorously propagated in Robinson's

California. This same brio enters literature in postmodern cyberpunk writing, writing that is dismissive of environmental concerns, even as it depicts nature as "over" (Fredric Jameson's term). Robinson then reappropriates chaos for nature and also environmental activism. Fredric Jameson, *Postmodernism, or, the Cultural Logic of Late Capitalism* (Duke U. Press, 1991), 3.

45 Indeed, Butler inoculates her heroine against survivalist daring and her narrative against violent action-adventure exuberance by making Lauren a victim of a genetic disorder which requires her to feel (and be paralyzed by) all the pain that anyone she wounds or kills suffers.

46 See Frederick Buell, "Post-Apocalypse: A New U.S. Cultural Dominant."

47 The formulation is Brent Bellamy's. Personal correspondence. 2014.

48 Gibson, *Neuromancer*, 7.

49 Slavoj Žižek, "Living in the End of Times," *Polygraph: An International Journal of Culture and Politics*, ed. Gerry Canavan, Lisa Klarr, and Ryan Vu, 22 (2010): 262.

50 Perhaps Naomi Oreskes and Erik M. Conway's *The Collapse of Western Civilization: A View from the Future* (Columbia U. Press, 2014) is a similar attempt to draw progressive power from a fictionalized history of the end of our civilization from a time after it has happened. Notable in their presentation is the fact that this catastrophe was one that does not sneak up on people, but happens to people who have remarkably full knowledge of it. The knowledge is not put into action, thanks to disingenuous, antiscience-inspired (in particular, anti–global warming inspired) political wrangling—something that in effect means that the U.S. Republican party will succeed in ending Western Civilization. Timothy Morton writes in a similar vein, when he criticizes apocalyptic narratives about the "end of the world" as ones that postpone "doom until some hypothetical future," thus inoculating us against something vastly important that has already ruptured our world and that "spells doom now, not at some future date." Morton, *Hyperobjects*, 103–4.

51 Morton's book thus represents, I believe, as much a convergence of many of the tracks I have been following as it is a continuation of thought about postapocalypse. A thumbnail sketch, or cartoon, of this convergence might run as follows: When a hyperobject like global warming breaks into human awareness, it makes us creepily aware of something truly real and utterly nonhuman that in fact constitutes the 'world' in which they thought they were dwelling. These hyperobjects exist in more dimensions than the humanly-perceived three, and they represent insides within which humans are everywhere completely and stickily immersed. This is, moreover, an immersion in entities that are fundamentally nonlocal and future determined, entities made out of matter and information, ones within which people cannot orient themselves, construct perceptions, or discover a metalanguage.

52 Morton, *Hyperobjects,* 103–4.

53 Ibid., 108.

54 Ibid., 103 and 18.

55 Ibid., 13.

56   Ibid., 99.

57   Ibid., 99.

58   Ibid., 108.

59   Ibid., 109.

60   Ibid., 127.

61   Ibid., 127.

62   See Bill McKibben, *The End of Nature* (New York: Random House, 1989).

63   Emanuelle Leonardi has taken Morton to task for this gloomy shrinkage of environmental activism's participants and issues in her "Global Warming: Between History and Ontology," a review of *Hyperobjects*, as has Lawrence Buell in a paper on the material turn in ecocriticism. Moreover, if one steps back from *Hyperobjects* and remembers today's attempts by Bill McKibben and others (like Naomi Klein) to midwife a necessarily heterogenous mass movement against climate change, Morton's work shrinks somewhat in importance. What Morton gains in intensity, he perhaps loses in delimiting agency and requiring a kind of purist, because esoteric and exclusivist commitment as precondition to entering the battle. Emanuelle Leonardi, "Global Warming: Between History and Ontology," *Reviews in Cultural Theory* 5.1 (2014), reviewsinculture.com; Lawrence Buell, "Material Ecocriticism" (paper presented at Environmental Memory and Medieval Icelandic Literature, a symposium in Stortvellir, Iceland, August 2, 2014).

64   Helen Simpson's "Diary of an Interesting Year," in the anthology *I'm with the Bears: Short Stories from a Damaged World,* invokes the release of toxics and spread of infectious disease as parts of global warming catastrophe, as does Butler's *Parable*, discussed above. Still, the degree to which they channel the gothic rhetoric associated with these issues is limited. David Mitchell's "The Siphoners" in the same anthology movingly invokes memories in a post-meltdown world of unsustainable comforts past, and does so in a way that invokes older traditions of environmental mourning and memory that run back to *Soylent Green.* His real success in this story makes it outshine the much more complex, but ultimately less interesting, endeavor from which it is spun off, namely his recent novel *The Bone Clocks*. The two stories are in the anthology *I'm with the Bears*, ed. Mark Martin (London: Verso, 2011); Mitchell's novel is *The Bone Clocks* (London: Sceptre, 2014).