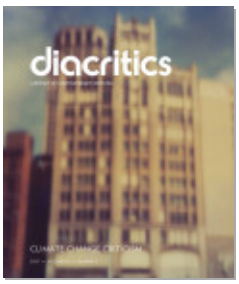
The Catachronism of Climate Change

Srinivas Aravamudan



diacritics, Volume 41, Number 3, 2013, pp. 6-30 (Article)

Published by Johns Hopkins University Press
DOI: *https://doi.org/10.1353/dia.2013.0019*

THE CATACHRONISM OF CLIMATE CHANGE

SRINIVAS ARAVAMUDAN

At the beginning there will have been speed.
—Jacques Derrida, "No Apocalypse, Not Now"

Present trends will simply take us in 50 to 150 years where nuclear war could now take us in 50 to 150 minutes.
—Paul Ehrlich, "The Nuclear Winter"

Srinivas Aravamudan teaches at Duke University. He is the author of *Tropicopolitans* (Duke University Press, 1999) and *Guru English* (Princeton University Press, 2006). His most recent book, *Enlightenment Orientalism* (University of Chicago Press, 2012), has won the Oscar Kenshur Prize and the George and Barbara Perkins Prize. His current research is on how theories of the Anthropocene are revising the Enlightenment catachronistically.

Derrida's aphorism about speed, with which he began his contribution to the *diacritics* special issue on nuclear criticism thirty years ago, might very well be modified to read, "at the beginning there will have been genres," indeed differing kinds of formal containers that both present—and represent—life. The essays in the 1984 special issue cohere around the challenge offered by the nuclear age to human life and thought, even as they fan out in their enactment of a series of genres that seek answers to the impossible question of how to conceptualize species death. Extinction names not just private deaths of finite individuals but the irreversible disappearance of kinds—much more than many little deaths. Humanity orchestrates the peril of mass extinction through species suicide, ecological devastation, and planetary obliteration. If nuclear holocaust could eliminate not just lives but life-forms, what literary genres are adequate to representing such permanent annihilation? Can there be genres that portray the decimation of genres? Derrida parodies the Biblical apocalypse that doubles up as prophecy and revelation; Frances Ferguson mobilizes the Kantian sublime that allows her to contemplate nonexistence in terms of the uninsurable; and Michael McCanles deploys Machiavellian political philosophy to map how war and rationalization supplement each other when military threats are subject to entropy. Many of these essays find that nuclear deterrence is susceptible to disruptive supplementation. Only textual criticism can decipher the confusion of the discursive with the transdiscursive. In her essay, Zoë Sofia explores the nascent genetic discourse around biological reproduction, the complex trope of the "unborn," and the possibilities of extraterrestrial life. In his contribution, Derrick de Kerckhove adopts a McLuhanesque speculation that analogizes the link between atomization and alphabetization as generative. Worldwide mutation occurs through technodeterministic phase transformations that model the electrical on the neurological, just as the industrial age relied on the mechanical.

Derrida's essay, in many ways the most manifesto-like contribution heralding the future of nuclear criticism, derives its structure from a literary precursor that it echoes parodically. The essay's subtitle, "full speed ahead, seven missiles, seven missives" alludes idiosyncratically to John of Patmos's prophecy concerning the seven seals in the Book of Revelation. Derrida's chosen genre reveals the manner in which a putative exchange of nuclear warheads is thoroughly confused with an act of theological communication, transacting animosities among enemy powers locked in a struggle unto death. As Derrida's second and third aphorisms assert, while laying claim to the professional expertise of humanists to analyze the nuclear, "we can therefore consider ourselves

competent because the sophistication of the nuclear strategy can never do without a sophistry of belief and the rhetorical simulation of a text."[1] Nuclear war, no different from other projections concerning war since Clausewitz and Jomini, involves scenarios, projections, narratives, and hypotheticals, within which the technical aspects of weaponry, launch sequences, and kill ratios are embedded, as simulation and performance.[2] Whether or not military situation rooms require the presence of literary critics as de rigueur, the fantasy component of all-out nuclear war is richly textual, generating literary conjecture, conceptual refinement, and diplomatic maneuver in the world of Realpolitik. As we will see, climate change criticism also fans out into various genres, even as it poses a different kind of philosophical challenge.

In what way does climate change continue the same nuclear logic of planetary obliteration except slightly more slowly, as Paul Ehrlich argues in 1984, the same year as the *diacritics* special issue?[3] As we know, in terms of geological timespans of hundreds of millions of years, there is not all that much to separate an hour from a century, given that the presence of the human species on the planet, in terms of its geological age, is relatively fleeting. On the other hand, human ingenuity can accomplish a great deal within a century as opposed to within an hour, and the borrowed time on our hands with respect to the urgency (but slightly less than absolute inevitability) of climate change throws us from the nuclear frying pan into the fire of global warming. The "Anthropocene" has been proposed as the name for the new geological epoch of the Quaternary within which we suddenly find ourselves, one in which anthropogenic activity has already become an objective physical force that will have its finite outcome as a physical layer of the planetary terrain, anticipated from some future standpoint that could very well be a vantage point beyond human existence.[4] *Catachronism*—or the inversion of anachronism—characterizes the backlash of the Anthropocene as posthuman nomenclature. Similar to anachronism that reimagines the past in terms of the present, catachronism re-characterizes the past and the present in terms of a future proclaimed as determinate but that is of course not yet fully realized. To that extent, catachronism cannot function without the operational assumptions of a theological grasp of time, whereby anticipation, belief, and application on the present are integrated as inexorably leading to a known and inevitable outcome, especially after the bombshell dropped by the 2007 report of the Intergovernmental Panel on Climate Change (IPCC).[5] As the report summary says, "Anthropogenic warming and sea level rise would continue for centuries due to the time scales associated with climate processes and feedbacks, even if greenhouse gas concentrations were to be stabilized."[6] Is this transformation of

Anthropogenic activity has already become an objective physical force that will have its finite outcome as a physical layer of the planetary terrain, anticipated from some future standpoint that could very well be a vantage point beyond human existence.

emphasis—from a slightly receded (but by no means abolished) nuclear threat to a far more anxiety-producing climate change threat—one to be welcomed, as a perverse sign of partially cancelled despair rather than all-out hope? But then, no respite: this diacritical shift that adds further anxiety about climate change needs to be examined. Creeping catastrophism has to be understood as a catachronistic history that inexorably begins to reverse the Enlightenment. The shadow of tomorrow's impending ecological disaster leaps over today and reunites with abandoned conceptions of human finitude from a past rich with apocalyptic nightmares that the Enlightenment had temporarily vanquished.

>> A New Conflict of the Faculties

How does the macrostructural shift promised by climate change alter the anthropological function of critique, whose rhetorical appeal depends on the prediction of an open rather than determined future? Is there a manner in which climate change alerts us to the recalcitrance of the planetary system as an antecedent object that underlies the post-Copernican subject, immanent to any "merely" interpretive gesture? The threat of an all-out nuclear war that has yet to occur is a nonevent that hangs over us but does not yet kill us (even as the threat transforms other actualities). In that sense, Ferguson's characterization of the sublime as a paper tiger is apt in that it does not obliterate us with shock and awe even as it scares us with the prospect. Wordsworth's romantic aesthetic has the observer stop just short of "the stationary blasts of waterfalls," an experience that modifies the subject into thinking about obliteration, seeing nature's grandeur as "Characters of the great Apocalypse / The types and symbols of Eternity, / Of first, and last, and midst, and without end."[7] Using the power of nature as a backdrop, the modern subject can fashion its historical agency. In contrast, anthropogenic and nonanthropogenic climate change is inexorable, scientifically proven, and creeping upon us with iron certainty, ongoing and already undergone, with many technical arguments about whether we are indeed beyond the trigger point of carbon dioxide increase after which all resistance to catastrophic climate change might just be futile (and hence we need to act immediately if we are to avoid the unfolding catastrophe).[8]

If deconstruction was a powerful critical methodology with which to approach the age of nuclear blackmail, speculative realism and object-oriented ontology (OOO) represent a new wave of post-Heideggerian climate change philosophy that claims a greater relevance in a world suddenly obsessed with geophysical apocalypse rather than its nuclear predecessor. If climate change criticism forms under the diacritical sign of catachronism, or the conceptual re-inflection of the present by apocalyptic futures, nuclear criticism had poised itself on the cusp, profiting from the conventional space for critique that involves the suspension of temporality (and hostilities) before the event. Conversely, climate change criticism unfolds after the clinamen.[9] The prospect of species extinction common both to nuclear and climate challenges forces any critical observer to revisit the question of the trace, from the standpoint of the Anthropocene. Is the Derridean concept of the trace a quasi-transcendental "last stand," a deconstructive sublimation

of earlier Judeo-Christian theologies of divine transcendence? The weak messianicity without messianism of justice or "democracy-to-come" does not make sense for a posterity lacking human presence—unless the human target of such an arrival was redefined as something altogether different: life in general, the cyborg, even the inanimate.

Despite some of these differences, both nuclear and climate change criticism possess common aspirations. They are both attempts to reexamine, suspend, and eventually overturn apocalyptic discourses and practices with universal planetary consequence even if it appears that one is at the cusp and the other after the clinamen; both are institutionally based para-scientific forms of criticism (Kantian critique supplements and queries technical forms of assertion with general philosophical inquiry). Nuclear and climate change criticism reenact a conflict of the faculties, even as they both gather speed and hurtle toward the future. Nuclear criticism, on the cusp, is still hopeful that the emergency can be averted. The prospect of a climate change criticism, poised after the clinamen, makes us wonder if there can indeed be a criticism of scientific destiny and species finitude. All the same, for both forms of criticism, we need to update the initial Kantian dynamics that pitted philosophy (including science) as the junior faculty in relation to (the then) socially superior faculties of theology, law, and medicine.[10] Nuclear criticism and climate-change-induced critique recompose certain trends within an altered state of play with respect to the various disciplines. The superior faculty against which nuclear criticism sharpened its teeth happened to be technical military engineering and applied nuclear physics combined with a meta-strategic communication repertoire based on the crudest of fear-based psychologies, activating dissuasion instead of persuasion, combining two games of bluff—poker and chicken—to produce a logic of last-minute mutual stand-down and survival as preferable to mutual obliteration. The incoherent confusion of referent and communicative act by nuclear strategists dangerously belied the deterrent efficacy of the standoff. Against this confusion of *doxa* and *epistēmē* by the higher faculty, as Derrida neatly observes, the "lower" faculty of nuclear criticism is a deconstructive riposte, arguing for humanistic competence and the superiority of the archival trace.[11]

In the case of climate change criticism the disciplinary antagonists shift yet again. The higher faculty is composed of earth scientists, extinction biologists, political economists, and bureaucratic rationalists with critique (supposedly) coming from a lower faculty who deploy (a much less persuasive) witch's brew of utilitarian ethics, political theology, post-humanist ecology, and object-oriented ontology. Such criticism could face the counteraccusation of obscurantism from scientific interlocutors. Does critique lead to the triumph of philosophical judgment, as Kant aspires to within the terms of the original conflict, or to the triumph of the dubious social values upheld by the vested interests that critique denounces? If Kant's admittedly partial dechristianization was interrogated, who will detranscendentalize today's unreconstructed political theologies?

Catastrophe is oddly comforting—Hollywood thrives on the genres that the concept produces. The sped-up time of lurching toward a cataclysmic event allows for many grand clichés around life and death and the intoxicating spectatorial sense produced by an aesthetic return to the grand canvas of epic. Robert Oppenheimer already

experienced such a nuclear sublime when he witnessed the first nuclear explosion in Los Alamos as a reenactment of the moral message of the Bhagavad Gita.[12] The nuclear ending of the world summons up spectacular violence, from pyrotechnic explosions to mushroom clouds and radioactive fallout: an outcome of man-made artifice but reminiscent of major geological events, such as hurricanes, volcanic eruptions, and tsunamis. Climate change, on the other hand, works according to the logic of what Rob Nixon has called "slow violence," moving at a glacial but irreversible pace that nonetheless wreaks havoc on untold millions.[13] If the 1.6-mile-thick Greenland Ice Sheet melted in the next century as is often predicted, world sea levels would rise by 23 feet creating tens of millions of climate refugees from coastal areas around the world, but not in a day or a week.[14] This would happen over several decades in a manner that would be in danger of becoming "naturalized" as part of the general story of human misery, exploitation, and damage over history, rather than narrated as a single spectacular event. According to the Red Cross, by 2001 there had already been 25 million environmental refugees around the world.[15] Doomsday estimates suggest there may be as many as a billion environmental refugees by 2050, but the most widely cited assessment endorsed by the International Organization for Migration still puts the figure at potentially around 200 million.[16] Perhaps some posthuman geologist might consider the melting of the Greenland Ice Sheet and its consequences as one event, a Hundred Years' War of sorts, but that would necessarily be from a retroactive perspective.

Perhaps some posthuman geologist might consider the melting of the Greenland Ice Sheet and its consequences as one event, a Hundred Years' War of sorts, but that would necessarily be from a retroactive perspective.

While the noun that most frequently accompanies the "nuclear" is the fearful condition, "war," the noun that follows the modifier "climate" is the seemingly neutral "change." Climate change criticism has much more work to do to unpack the ideological simplicity of "change," to most people the most natural, normal, and expected thing in the world. *Plus ça change, plus c'est la même chose*. Global warming? Ho hum! More air-conditioning and less heating, I suppose. What's all the fuss about? By misrecognizing the climate as the weather, the substantial and potentially fatal determinations are collapsed into the contingencies of the quotidian and the ephemeral. As Heidi Cullen complains, why is it that the ignorant response to climate change forecasts is always an anxiety (or a joke) about real estate prices?[17] If nuclear war, as Ferguson discusses thirty years ago, cannot be insured against, climate change is sometimes minimized as one of those risks taken when purchasing oceanfront property.[18] If only it were that simple.

The sublime has its paradoxical comfort by representing "the end of the world" as we know it. The Armageddon of unlimited nuclear exchange could incinerate billions. Climate change, by contrast, would not be one spectacular event, but experienced over

several centuries in the manner of regional weather-related catastrophes that profoundly alter ecology, habitat, and species survival. The failure of seasonal monsoons would create devastating droughts over South and Southeast Asia and West Africa; the gradual conversion of the Amazon rainforest into a deciduous forest or savanna and the decline of Canadian boreal forests into tundra would alter global precipitation patterns; and the melting of the sea ice in the Arctic and the major ice sheets in Greenland and West Antarctica would generate catastrophic sea-level rises and contribute to the mounting albedo (heat absorption index) of the earth when the reflecting function of all that ice would be lost.[19] With the ongoing presence of economic globalization, climate challenges in one part of the world could be experienced indirectly as catastrophe elsewhere: crop failures in China and India would increase global food prices and in turn generate famine in Africa.[20] A Chinese drought could be felt in the Congo, just as Greenland's melting ice sheet eliminated the Maldives.

What really appears to be at stake with climate change, as Dipesh Chakrabarty argues in a recent essay, is the secular basis of human history as one that wrests freedom from necessity.[21] Climate change predictions undermine the time-horizon of Enlightenment progress with the sense of a premature ending.[22] The move from history to geology with the application of the concept of the Anthropocene shifts a social science of life evolving over time (and within a lived environment) to a natural science of species death, discovered afterward as a geological stratum of so many fossils of life once lived. Who comes after the subject?[23] For Chakrabarty, the epistemology of the Anthropocene puts the history of capital in conversation with the history of the species.[24] Suddenly, the law of karma trumps the Hegelian master-slave dialectic—there is no human freedom to be wrested from the environment rendered as non-human "nature."[25] "Nature" is itself an accretion, a residual set of structural determinants created by previous human actions retroactively understood as follies—massive deforestation, pasturage, agriculture, industrialization, depletion of fossil fuels, ecological toxification, and overpopulation, all in combination about to instigate the sixth major planetary extinction event in the history of the earth that could render extinct 15 to 37 percent of all species, if we believe the most dire predictions. The "negative universal history" that Chakrabarty laments as a very recent discovery is not so unusual: the Russian mineralogist Vladimir Vernadsky had declared human life as a geological force as early as the 1920s, and a reading of Darwin's understanding of the origin and disappearance of biological species punctures idealistic expectations concerning the historical eternity of

The move from history to geology with the application of the concept of the Anthropocene shifts a social science of life evolving over time (and within a lived environment) to a natural science of species death, discovered afterward as a geological stratum of so many fossils of life once lived.

humankind.[26] These idealizations concerning an endless future of secular human history came from Hegel and Marx describing the human being as *Gattungswesen*, a species-being thoroughly in itself and for itself, misread against the environment as a passive and inert backdrop.[27]

We are neither the first species to threaten the mass extinction of other species nor are we the first to have its predominance challenged through the circumstantial transformation of the underlying bio-ecological conditions. Anthropogenic climate change is another paradoxical corrective to our anthropocentrism, coming after the Copernican and Darwinian corrections. The last major extinction event in the geological history of the planet was the K-T (or Cretaceous-Tertiary) event that occurred 65 million years ago when collision with an asteroid created the Chicxulub crater in the Yucatán Peninsula, and a planetary ice age that rendered extinct 50 percent of all species, including the dinosaurs. A volcanic eruption and coal deposit fire might have caused the Permian mass extinction of 252 million years ago. There have been other major extinctions before and after that event; the first great extinction occurred 2.4 billion years ago when the Great Oxidation Event caused by cyanobacteria (or pond scum) massively eliminated anaerobic species that still survive in volcanic and subterranean spaces lacking oxygen.[28]

Such long time frames are potentially meaningless in emotional terms even if we accept them as true when pertaining to planetary and bio-ecological realities. But on a slightly smaller (yet still long-term) scale, over the last million years our human ancestors have experienced eleven major climate change events that involved glaciation and interglacial interludes, with the last one being 12,000 years ago when the sea level rose by 100 meters and the global mean temperature by 9 degrees Celsius (marking the shift already underway from the Pleistocene to the Holocene). Deforestation leading to agriculture began the process as human activity rendered Pleistocene mammals extinct. While industrialization led to an accelerated despoliation of the environment since 1800, human-ecological agency precedes modernity. The relative smoothness of climate during the Holocene—a mere 11,700 years in geological chronology—might officially be declared as having already ended a while ago. The International Commission on Stratigraphy will decide the endpoint of the Holocene in 2016, but this marker of the end of the Holocene and the beginning of the Anthropocene could be placed at 1800, with the start of the Industrial Revolution, or at 1945, which would fittingly make the beginning of the Anthropocene coincide with the start of the Atomic Age. If 1945 were chosen, such a catachronistic periodization would see climate change anxiety voraciously incorporate nuclear anxiety, making the Paul Ehrlich epigraph to this essay even more coincidentally appropriate. Were it to come about, this would be a truly catachronistic nomenclature, whereby a scientific prediction about the future recalibrates the chronology of the present. At the beginning there was speed, and moral categories—intention or responsibility—arrived after systemic constraints.

Some of the consequences of climate change we now face are not just those stemming from the rapid industrialization and population growth within the last three centuries, but a longer result of agriculture and settlement that began five thousand years ago when

atmospheric methane increased with animal husbandry. It is not always that the success of a species lays the groundwork for its own earthly demise—but the breathing of human beings and their domestic pets and livestock accounts for 23 percent of all planetary carbon dioxide production, and when we include that caused by the fossil fuels involved in food production we are up to half of all global carbon dioxide production.[29] With continued population growth, and as the Keeling curve for carbon dioxide goes higher and higher, how can we achieve the 60 to 80 percent reduction by 2050 necessary to avoid the trigger that will take global average temperatures several degrees higher over the next century and lead to great loss of human life and ecological devastation?[30]

The death-orientedness of the modern individual makes the category of species extinction possible for contemplation even if it is not the most comforting prospect. It is in this way that Ferguson describes the nuclear sublime, allowing us to "think the unthinkable and to exist in one's own nonexistence."[31] But the sublime, despite its grandeur, is nothing more than an aesthetic-epistemological projection: to think from the vantage point of the species is to inhabit a generic abstraction that is not even biologically valid. Ecological criticism creates the illusion of nature as a referent, whereas in fact it is the increasing managerialism and governmentalism around the production of toxic waste that most clearly spell out human freedom amid the unequal distribution of the benefits of advanced technological utopia. Anthropomorphization appears to be both the problem and the solution. We have been taught by philosophers not to anthropomorphize nature as this is an error of personification in relation to entities that are not agential, but given the increasing volatility of nature (as belated and indirect human agency) in the age of the Anthropocene, does the refusal to anthropomorphize become just as naïve as the opposing impulse, which, even if misplaced, ascribes agency in a direction that actually uncovers real, if delayed, causes? How does one understand non-human agency and the delayed effects of dormant causes that imbricate past human activity? Bruno Latour's actor-network theory has certainly been a sophisticated lead to follow as also Niklas Luhmann's systems theory that explains interactions without falling into subject-object dichotomies.[32]

Ecological criticism creates the illusion of nature as a referent, whereas in fact it is the increasing managerialism and governmentalism around the production of toxic waste that most clearly spell out human freedom amid the unequal distribution of the benefits of advanced technological utopia.

Yet on that side of things there are also pitfalls. The status of James Lovelock's Gaia hypothesis is a case in point. After massive initial rejection by proponents of earth sciences such as H. D. Holland, James Walker, and Richard Dawkins, Gaia has now at least been partially reinstated through the modified formulation of the Amsterdam

Declaration that the "Earth System behaves as a single, self-regulating system comprised of physical, chemical, biological and human components."[33] Scientists such as Lovelock seek a holistic rather than a reductive science in opposition to the Cartesianism of mainstream science, but they are also partially re-enchanting nature against Enlightenment.[34]

The battle lines indeed are drawn. In *The New Ecological Order*, Luc Ferry sees a dangerous collusion between fascistic ideas as well as ecological ones, tracing the first extensive nature protectionist legislation to the Nazis, who combined preservation, misanthropy, and zoophilia.[35] For Ferry, Enlightenment humanism is a glorification of uprootedness, innovation, and avant-garde thought, something ultimately opposed to the rights of rocks, stones, and trees.[36] The paradox of environmentalism for Ferry is that it is produced by advanced industrial societies as a nostalgic back-formation, connected to Eden in the past and Utopia in the future when it exhibits leftist tendencies, but dangerously rightist and misanthropic in the form of "deep ecology" as promulgated by Arne Næss and even Michel Serres.[37] Ferry's resolutely humanist approach sees value in nature as entirely anthropocentric, and unashamedly so. The Enlightenment was against nature but this is not something for which we need to apologize. Perfectibility, as Rousseau calls it, led the human out of the cave and into the skyscraper. If we fear the ecological viability of the planet for long-term human habitation, we should not forget that human beings created this rich world around them (Heideggerian *Weltbildend*), unlike animals that are poor in world. Ferry is scathing about any alternative to anthropocentrism as a sacralization of the natural world that would then inadvertently privilege earthquakes, hurricanes, and microbes. To what end is such sacralization? The self-abnegation of the human relinquishes mastery over nature and confers equality on many potential biological adversaries. Such generosity can only be suicidal, a kind of autoimmune disorder. Seeing a normative anti-humanist ethics as a contradiction in terms, Ferry proposes reformist rather than revolutionary environmental ethics, arguing that the ecological crisis stems from the democratic melancholy of the West now that its enemies have disappeared.[38] For him, humanism is irreplaceable; the alternatives are much worse.

By radical contrast, Timothy Morton suggests in *The Ecological Thought* that we let go of nature. Promulgating a "dark ecology" Morton waxes melancholic about the existing responsibility we have to hyperobjects such as Styrofoam and plutonium—that will vastly outlive many generations—as the democratization of risk in terms of posterity (although Larry Summers's secret memo at the World Bank in 1991, asking that first-world toxic wastes be traded to Africa to equalize global pollution, should give all of us more pause).[39] Morton romanticizes Tibetan Buddhist theology's relationship to outer space and intriguingly suggests that the "animal question" is a postmodern version of the "Jewish question."[40] We have to acknowledge other species as coequal partners on the planet. For Morton, war is part of the environment just as much as peace, and the monstrosity of evolution indicates the uncertainty of "the mesh" (his term updating the biological network we inhabit as unbounded and messy).[41] Living beings are neither optimal nor cuddly nor sadistic—they are "satisficing" in relation to their environment,

embodied but without essence, "queer" rather than "natural."[42] This leads to a paradoxical embrace of genetic engineering.[43] A paean to our collective depression, Morton's climate change criticism is also an upgraded animism, against masculinist nature, and for the feminine as abject. By caring for strangers as well as plutonium (presumably we would caress the former but use radiation protection gloves to handle the latter) we might show a Levinasian commitment to radical alterity. Morton's intervention reinforces the idea that we ought to take responsibility for climate change, but "satisficing" is still dissatisfying. If we sidestep causal narratives of how we got here and where we might be headed and who is responsible, would we end up ignoring the necessary intersection between science and politics that epitomizes the Enlightenment?[44]

The bewildering variety of responses to climate change also derives from the larger existing condition of a global (post)modernity that many observers have commented upon as exhibiting a weakened sense of both social and individual time. In *Postmodernism*, Fredric Jameson remarks upon the heightened perception of the present as intoxicating and hallucinogenic, even as the future is split off from the present.[45] Multiple lines of flight lead off from this hyper-presence that arrests time into both instantaneity and simultaneity, without possibilities other than those already inherent in the system, leading to the by now well-circulated quip by Jameson that, in the post-political world of late capitalism, it is easier to contemplate the end of the world than to envisage the end of capitalism.[46] And by an extension of this syndrome, we might say that the world is not ready for climate change criticism just as much as it was not ready for nuclear criticism: both forms of criticism aim to reach beyond the determining parameters of the "worldness" of that world. We face a complete reconceptualization of temporality by the media that envelop us. While Derrida asks us to be able to think and move both slowly and quickly in the context of nuclear criticism, with climate change criticism we are similarly in need of understanding and acting according to a multiplication of scales that are scientific but also ultimately cosmological. The billions of years covered by the study of geology, biogeochemistry, and evolutionary biology are inassimilable to the relatively miniscule timescales of human history, let alone the election-based rhythms of the political news cycle. Almost half a century ago, Jürgen Habermas had already commented on the decline of politics into a managerial decision-making of a technical-bureaucratic nature, a veritable "legitimation crisis."[47] Where do we find ourselves in today's climate-related legitimation crisis, with dire predictions of imminent ecological catastrophe, but all the same with no stomach for political action?

Where do we find ourselves in today's climate-related legitimation crisis, with dire predictions of imminent ecological catastrophe, but all the same with no stomach for political action?

Ursula Heise comments perceptively on the "fragmented plots" and "accelerated temporal rhythms" of postmodernity and post-*histoire*, within which only non-universal

ruptures are operational.[48] Amid generalized historical amnesia concerning the past, and impoverished abilities to imagine the future except in fantasy sci-fi mode, human existence on the planet is increasingly "poor in future" to adapt Heidegger's phrase. Time-space compression has led to a complete misunderstanding of history and a pathological approach to preservation and memory. While we do not have the ability to process an action plan to deal with catastrophic climate change, we obsessively save every e-mail and tweet for posterity assuming that trillions of bits of communicational noise might prove one day to have historical and archaeological relevance, in the manner of the potsherds of ancient settlements painstakingly reassembled by archaeologists, but for whom? At the same time, the coevolution of the human alongside the machine and computerized automation alongside the bioinformatic revolution point to a radically unfinalizable evolutionary plasticity of the brain.[49] Do we anticipate dystopian cyborgs in chains or disembodied utopian intelligences existing across material incarnations?

>> From Nuclear Texts to Anthropocene Objects

Just as nuclear criticism focused on the imminence of an "event" that was yet to take place but that could be fabulous textualized with all kinds of real-world consequences, climate change criticism focuses on the event within which it already exists and describes a catachronistic process that is already picking up speed. Can the event be reversed even though it has already begun? We might find ourselves within the impossible narrative logic of Andrei Tarkovsky's film *The Sacrifice* (1986) that alludes to a nuclear war that has already been launched even as the possibly insane protagonist wishes to trade his life for mankind's future. While the political idea of "revolution" was a transformation of a natural meaning drawn from the sidereal motion of the earth and its movement around the sun to be re-signified as a violent political disruption, many observers believe that the increasing global hegemony of capitalism has snuffed out the possibility of social revolution. Unlike political and social events that are caused by human activity and whose interpretation gets caught up in conflicts around rival intentions and interests, natural disasters produce a different kind of tear in the social fabric than even war. As the world witnessed with the Boxing Day tsunami in 2004 and Hurricane Katrina in 2005, natural disasters put a spotlight on the humanitarian impulses of the state and society, revealing all their flaws and inconsistencies in a much clearer light. Natural disaster can also be the new version of revolutionary possibility: hence a movie such as Roland Emmerich's *The Day after Tomorrow* (2004) has to articulate the otherwise tendentious wish to "forgive all Latin American debt" as coming about from the world's only extant superpower experiencing near extinction through natural disaster.[50]

The recent movement around "speculative materialism" or "object-oriented ontology" is important to assess for its close proximity to certain aspects of climate change criticism. Much more able to thematize itself relative to ecological crisis, this movement reacts to deconstruction and other "correlationist" forms of post-Kantian metaphysics as ultimately limiting our ability to comprehend aspects of the world that are diachronically

outside an anthropocentric framework. Anticipating the Anthropocene is tantamount to this "big picture" view, not even biocentric or geocentric except by default, and one that is mainly interested in abandoning humanist subjectivism for "a democracy of objects" or "an alien phenomenology" within which subjects are to be treated just like any other objects.[51] One of the leading lights of this movement is Quentin Meillassoux, who claims that the Kantian turn shifted Western philosophy decisively from the substrate to the correlate. Meillassoux's grand narrative describes the natural sciences as disciplinarily evolving from a baseline Cartesianism, even as the Kantianism of the human sciences perversely reappropriates the Copernican turn, demonstrating that human life on earth was not the center of the universe. Meillassoux alleges that Kantianism snatched victory from the jaws of defeat, developing an obsessive anthropocentric humanism over the last two hundred years. Inadvertently, the postmodern turn of recent decades has led to a "sceptico-fideist" closure, "by forbidding reason any claim to the absolute, the end of metaphysics has taken the form of an exacerbated return of the religious."[52] Arguing that philosophy has lost its sense of "the great outdoors," Meillassoux suggests that philosophy needs to think about "ancestrality" as natural science does, relying on a *cogitamus* of scientific consensus within an interpretive community rather than on an individual *cogito*.[53] This does chime familiarly with the manner in which the hypothesis of anthropogenic climate change is a scientific consensus developed through interdisciplinary collaboration among vastly different areas of study—atmospheric and ocean sciences, terrestrial geology, evolutionary biology, and organic and inorganic chemistry. Science undertakes a cognitive process and corrects itself by consensus building and peer review, making it not just one mythology among others.

The sciences lapsed into naïve realism even as Continental philosophy continued with its deadly embrace of metaphysical idealism from Kant and Hegel.

Meillassoux acknowledges that philosophy faces an impasse: the realist absolutes of natural science cannot pass through correlationism even as the correlationist absolutes of (post)humanist philosophy cannot pass through the facticity of the natural world.[54] There are multiple solutions to this impasse, all of them unsatisfactory. Meillassoux turns to a mathematical and probabilistic ontology that forces him to posit the natural world as a physical invariance or background that he then associates with a concept of the "transfinite."[55] Accepting a fundamental mathematization of nature, Meillassoux challenges Kantianism with the charge that it continues to be a "Ptolemaic" counterrevolution of metaphysical idealism when assessed against the Copernican background, leading to error on both sides of the famous "two cultures" divide.[56] The sciences lapsed into naïve realism even as Continental philosophy continued with its deadly embrace of metaphysical idealism from Kant and Hegel. For Meillassoux, Heidegger and Derrida do not alter the framework radically despite their criticisms, as they continue to feast on the remains.

Meillassoux's option—to theorize a speculative materialism that opens itself toward the possible that is also necessarily untotalizable—seems compatible with a certain kind of deconstruction despite its reliance on Badiou-inspired Cantorian set theory. Graham Harman's object-oriented ontology (OOO) presents us, however, with a more dogmatic take on the subject-object dichotomy. Harman also has a strong Anthropocene impetus away from the metaphysics of subjectivity even though it is something of a cheap shot: "while human philosophers bludgeon each other over the very possibility of 'access' to the world, sharks bludgeon tuna fish and icebergs smash into coastlines."[57] Harman's essential insight, to which he returns obsessively, is that Heidegger's distinction between *Vorhandenes* and *Zuhandenes* (presence-at-hand or tool-like objectivity versus being ready-to-hand, or non-teleological being-in-the-world, human-like subjectivity) is fundamentally flawed, as referential contexts determine instrumentalization, and all beings (from hammers to animals to humans) can be tools in some contexts, and broken tools with ontological excess in other contexts. Bernard Stiegler had already developed a powerful oppositional reading of this longstanding contradiction in Heidegger's residual humanism that had hierarchically placed all objects below the instrumental intentionalities of the human subject.[58] Harman's approach discovers *Dasein* in the hammer, granting all objects in the world an inner totality. This "volcanic core" of all objects is invisible and in excess of every object's participation in revealing secondary qualities and related phenomena. We find Harman to be reimagining the object with all the qualities that, since Kant and Heidegger, were invested in the human subject: freedom, agency, and prehension (a category taken from Whitehead that bypasses the anthropomorphism of apprehension, intentionality, and consciousness). Subjective solipsism is replayed here as a kind of objective solipsism: "objects never touch, since they recede into the monastic solitude of private vacuums."[59] Freedom becomes an ontological principle characteristic of all objects. While Meillassoux criticizes as fideism Levinas's desire to evolve toward a wholly other, Harman and others have rediscovered the metaphysical "allure" of objects as their new gods. Objects are liberated from the taint of subjectivity and anthropotropic being-at-hand. While Harman claims that "the progress of technology is leading us toward a completely de-fetishized world," he lovingly endorses Alphonso Lingis's claim that the de-fetishized original object becomes a "phantom object devoid of any serviceability," or an "orchid."[60] But isn't the useless idea of the object as hothouse flower the greatest fetish of unserviceable indulgence? God is multiplied into the atoms. Harman's metaphysics is also an inadvertent reinscription of a Platonic aesthetics of mutual attraction. A world as "a system of dueling, seducing, turbulent objects" is also a world of polymorphous perversity and infantile cathexis, even though it is one that does not recognize itself as such. This is a world without subjects, inhabited by a sorcerer's apprentice, where magical properties exist in objects that are animated and appear to have agency.[61] Rejecting networks and all naïve relationality, OOO exists in a kind of frozen permanence, before space and time.

Instead, all objects—from the most simple and inanimate to the most complex and imaginary—are granted a stolid (not just solid) interiority analogous to that of

subjectivity. The paradox of Harman's position is that while all relationality "objectifies" and reduces the objects put in relation, non-relationality conversely "subjectifies" and enhances all objects into quasi-subjects. Finding these objects their place under the sun also renders them fixed and unusable, enacting the proud purposelessness of "broken tools" in Heideggerian language. A world where all objects and subjects are on strike (with aspirations of aristocratic leisure) is a world where nothing much happens. Here begins Harman's Ptolemaic counter-revolution (to adopt Meillassoux's pejorative term about Kantian subjectivism). To mitigate this deadly tranquility at the heart of OOO, Harman wheels in a theory of "vicarious causation" to account for causality. (Harman rejects "occasional cause" for its theological overtones, but the substitution creates similar difficulties.) Reminiscent of Malebranche's metaphysical idealism, objects are irreducible substances or monads that can only interact as the result of a wholly alien tertiary principle.[62]

Instead, all objects—from the most simple and inanimate to the most complex and imaginary—are granted a stolid (not just solid) interiority analogous to that of subjectivity.

Real objects exist alongside intentional objects (a Husserlian adaptation) and to some degree the wheel is being reinvented or renamed, as intentional objects have a parallel "encrusted" existence based on real objects that are always "withdrawn" and inaccessible. For Malebranche, the principle of the occasional cause of every event from the trivial to the catastrophic was God. Descartes needed energetic vortices in ether. It is from a love of the transcendental that Harman can deem objects substantially primary and time and space secondary; essence is reposited as primary and objective relationality emanates as multiple secondaries. Even though Harman professes a post-metaphysical version of *Dasein* whose essence is in its existence, he inadvertently rigidifies object boundaries into eternal impermeability. The refusal of relationality results in philosophical permafrost. Just as the methane that bubbles up from the Arctic tundra might alter climate change equations for the worse, OOO would need to come to terms with interactive philosophy before it outmodes itself as a solipsistic form of thought. The very characterization of action as resulting from "occasional cause" (or "vicarious causation") demonstrates that events are secondary to this world of immanent objects.

Our expository detour into the new objective essentialism of Harman's is nonetheless useful, as it indirectly reveals the escapist philosophy of various dimensions of the hypothesis concerning the Anthropocene. Trying to free themselves from the taint of subjectivism, correlationism, and human messiness in our involvement with the world, object-oriented ontologies parallel the Anthropocene by taking the position of Olympus (or Hades), giving its adherents a ringside view of objects that collide and interact in parallel universes and alternative realities. Object metaphysics refuses all access to essence even while an intransitive, static atomism of objects sans relations occasionally reveals casual contexture and causal function. A somewhat masculinist, disorientated

ressentiment seeps through at the edges, as OOO is a withdrawal from a world of the subjective fetish.[63] The OOO proclamation that "everything exists equally" shows that Harman and his colleagues wish to return to philosophy as a "flat" ontological realism that promulgates a direct contemplation of reality; they see themselves as theorizing the existence of subjectless objects rather than as mere human beings contemplating their navels. Levi Bryant refuses what he terms the narcissism of subjectivist "Malkovichism" (drawn from Spike Jonze's 1999 film *Being John Malkovich* that invites spectators to spend time vicariously in John Malkovich's brain) in favor of an ontological egalitarianism that supposedly puts all objects on the same footing and treats them with equal dignity.[64] But this is where the ringside entertainment of a cosmological scopophilia is preferred to the Heideggerian category of boredom, induced by omphaloskepsis. Present at the other side of Archimedes's lever, OOO seems very compatible with Hollywood blockbusters featuring the end of the world, investigating the sensuous insides of objects, while claiming to be tired with one more bout of endless auto-psychoanalysis.

Nonetheless, any focus on the anthropogenic nature of climate change has to contend, not just with OOO, but with the elementary logic of the subjectivist fetish that inaugurates infantile subjectivity in Sigmund Freud's *Beyond the Pleasure Principle*, "Fort-Da," or "o-o-o-o."[65] The interactive world-making in the links among the rings of small o's in Freud's grandson Ernst's baby talk connects objects with subjects and textual understandings with embodied performances. Yet the weaving process of relationality is anathema to the OOO crowd. While OOO is a fideism focused on the object, its skeptical refusal to endorse the realist concept of the "world" as a totalization is a salutary dimension. However, object entanglement (rather than object solipsism) is indeed what can allow for us to understand the challenge of climate change. The sum of the OOO objection to worlding is as follows: can we really think of "the planet" or "the universe" in meaningful ways and doesn't such totalization always err? There is something methodologically amiss in a dogmatic attachment to the impermeability of object boundaries even while there is an ethical refusal to contemplate world-boundaries and overlapping pluralities. While "correlationist" philosophies allow world and object boundaries to be done, undone, and redone, perhaps too easily, those redoings are precisely the operations, not just of anthropocentric thought, but of objects in their multiple worlds. Boundaries exist and are redrawn; if objects exist, worlds as their concentric temporary universes also exist. If boundaries do not exist and a world is a fiction, objects too must be fungible. If meaning-making always involves an embodied subjectivity, "to see a world in a grain of sand," as William Blake poetically opined, a hermeneutic manipulation of an object is akin to having a measuring instrument with which the operation of thought (whether human, animal, or cybernetic) doesn't just prehend but apprehends the world. The toy in Ernst's hand drops in and out of his cot, substituting for his mother as a relational object no doubt, but such an activity is material and yet transcendental, relational and also substantial. For Ernst, his mother is the genetic universe he inhabits that he is trying to reduce into an object, yet through this yo-yo he constructs another universe involving his father as a missing object, who "has gone to the f*w*ont."[66] Through

Ernst's evocative modeling operation we see the attempts of internal objects (human, animal, vegetable, or mineral) that reconfigure their multiple temporary containers or universes, through the consciousness of both present and absent objects that emerge and disappear out of temporality and experiential collision. That reconfiguration can be crucial, from which we can infer climate change criticism at the end of a very long stretch of Ernst's yo-yo, looking behind battlefronts to frontal systems of weather and, ultimately, to climate. The battlefront that Ernst imperfectly enunciated refers now to a different kind of war, not World War I but the yet-to-take-place World War III, no longer nuclear Armageddon, but re-inflected as climate change catastrophe, the unnerving idea of the perpetual peace that will be produced once there is a war that will end all wars. It will be an unthinkable but also an unavoidable war, a political split and a philosophical dispute, a war of substance as well as a war of relation.

Here we can bring to bear an alternative reading of subjectivism that arises from Catherine Malabou's critique of Freud's psychologism and the hypothesis of the death drive that underwrites *Beyond the Pleasure Principle*. Criticizing Freud's theories for their relentless internal subjectivism and their inability to record or respond to external cerebral determinations, Malabou too opts for the great outdoors signaled by Meillassoux, as evidenced by her defense of "biological alter-globalism." In so doing, a new objectivism of neuronal fundamentalism comes into being, sitting somewhat awkwardly in relation to what still remain post-Hegelian, post-Heideggerian, and post-Derridean fixations.[67] This appeal to neuronal determinism is nonetheless subtler than it might initially appear, as the notion of "plasticity" deployed by Malabou, derived from Hegelian thought but rearticulated in relation to recent discoveries in brain science, stands as a figure for malleability and openness from the subjective to the objective world, crucial for any up-to-date critical attitude that takes climate change into account. Positioned between reification and fluidification, plasticity (from the Greek *plassein*, to model or mold) implies flexibility but also explosiveness, form-giving as well as generic annihilation.[68] In that sense, plasticity indicates Malabou's critique of the Derridean trace as giving in to a faulty temptation for transcendence; instead, Malabou offers the plasticity of the brain as the intermediary "form of alterity without transcendence."[69] However, in lieu of "the trace's nondeconstructed sanctification" she offers "change of form" as the neuronal equivalent of the trace.[70] From this move we could infer an implied return of Hegelian sublation, a metaphysical economy without remainders, or the reintegration of remainders in the forms that ensue after the extinction event that could accompany a climate catastrophe.

>> Agency after Apocalypse

By seeking higher levels of sublation, the Hegelian dialectic substitutes essence for accident and accident for essence. The overturning of civilizing logic, if one could apply Hegel to a species-stadial theory of control over the environment, leads to still unheralded realities that are unrevealed to the philosophical and scientific eye. The asteroid that set off the K-T extinction event could be represented as pure contingency from the

point of view of the unfortunate species that suffered its consequences, foremost being the dinosaurs. Yet we know that there are mathematical laws revealed to us by astronomy that could have predicted the arrival of that meteor through the data of cosmological telemetry from an earlier time, if such predictive calculus had been available to the sentient intelligences of the Cretaceous period. Now we hear occasionally about the possibility of forestalling such catastrophic asteroid hits by changing the orbits of subplanetary bodies through the launching of nuclear-tipped guided missiles. Upon closer examination, pure contingency is revealed as cosmological necessity that can in turn be thrust aside by purposive agency with the power to alter an imminent reality. Anthropogenic climate change brings along with it an additional moral charge: as a species we are responsible for all this despoliation (with due allowance that we were not fully aware of the catastrophic impact of our behavior until relatively recently). But we are limited by our inability to deploy radical sacrificial logic such as that proposed by the quasi-Nazi propositions of deep ecology. If long-term species survival means radical reduction of the population as some indeed do argue, which political philosopher would be willing to craft an acceptable modus operandi that can implement such an outcome? At the pole opposite to ecological neo-Nazism we find a gamut of neo-Franciscan political philosophies professing askesis: radically reduced consumption, the end of capitalism, and pure withdrawal while treading lightly upon the earth. Or, as counter-narrative, naïve techno-utopianisms (such as free energy from table-top fusion) wean us from hydrocarbons even as (risk-free?) modification of the human genome may help us withstand and even thrive in higher ambient temperatures. Again, would there be any takers? Climate change is all about politics, and yet the "wicked" problem that it represents puts it beyond politics altogether, in the manner of the prince's nephew Tancredi in Giuseppe di Lampedusa's *The Leopard*, who famously says that in a revolutionary situation "everything needs to change so everything can stay the same." Do we therefore wait in the middle, not convinced by eco-Nazism nor neo-Franciscanism nor transgenic utopianism, doing what we do anyway, waiting for the inevitable, but perhaps hoping that the future has an excess of future attached to it, as Malabou defines plasticity?[71]

Do we therefore wait in the middle, not convinced by eco-Nazism nor neo-Franciscanism nor transgenic utopianism, doing what we do anyway?

If a Derridean world, at the cusp marked by nuclear criticism, interconnects loss with the trace, and the inassimilable remainder with a certain melancholy hankering for the quasi-transcendental messianicity without messianism, Malabou's alternative, located at the clinamen past climate change, opts for a theory of assemblages that connects climate change with post-*histoire*, staying outside of any political theology, but sticking to formal plasticity even while locating transformational energy completely within it. Plasticity heralds a world of suppleness, with mercurial shifts and unfetishized remainders, but in doing so its proponent appears to have thrown her support to a world of Spinozistic immanence that is meta-transcendental in its utter refusal of even quotidian

transcendence, just as Harman's OOO denies the subject but reinvents the wheel of subjectivism as the inaccessible interiority of the object. If Levinasian-Derridean hospitality is a form of counterplasticity as Malabou appropriately worries, Malabou has not paid adequate attention to Derrida's anticipation of the Anthropocene as catachronistic, in terms of how "the event may . . . come from 'behind.'"[72] Indeed the Anthropocene is the messianic in another guise, the catachronistic prehension of the *catechon* that looses what has until now been bound.[73] In this respect, hospitality is not so much counterplasticity as it is a welcoming of that which exists on the other side of internal plasticity. The Anthropocene is a negative theology of messianicity, and it is not persuasive when Malabou relocates the event to the surface of the object. However, there is a glimmer of the opening to the outside that Malabou retains from the quasi-transcendental that she otherwise resolutely rejects, in that "'to see (what is) coming' (*voir venir*) thus means to see without seeing—await without awaiting—a future which is neither present to the gaze nor hidden from it."[74] The Anthropocene is never simply what you predict it will be; otherwise the future would just be an extension of the present. The future still holds some secrets from us; otherwise it would not be the future except in a trivial sense.

But how do we respond to all these attempts toward the complete dissolution of the subject even as neurons or objects are proclaimed to be the new gods? There is still a gulf of difference separating an ecological melancholy that anticipates mass extinction and a techno-utopian optimism for solutions that include the geo-engineering of solar parasols and carbon sequestration technologies. Incremental solutions are resolutely in the middle, including carbon taxes, and voluntary offsets of carbon footprints—feeble market-based solutions that "internalize the externalities" in the manner of papal indulgences allowing sinners to sleep at night with a greenwashed conscience. Is our zoontology ultimately not just carnophallogocentric but carbocentric as well? Is the deconstruction of texts best updated with the decarbonation of the planet? The new genres of philosophy that we are discussing are breakout conceptual structures in the wake of the Anthropocene, coming up with hybrid alternatives to Cartesian objectivism and Ptolemaic (or "Malkovichian") subjectivism. But these hybridities are symptomatic of the situation where the boundary between human and world is beginning to collapse even as the human represents a geophysical force in the world and the world makes visible as prophetic scientific law its anticipated obliteration of the human species that currently overruns it. This faceoff suggests that interactionism still has some life left in philosophy, despite the premature announcement of its demise, and that climate change criticism can still profit from holding equally contradictory propositions as valid. To emulate Derrida in the fourth and fifth missives of the nuclear criticism manifesto: "we don't believe in aporias of the nuclear referent" but we also "do not believe in anything except the nuclear referent." Similarly, the Anthropocene is scientifically undeniable, and yet its narrative frisson and totalizing framework give out an air of "end-of-the-world-is-nigh" fraudulence. After all, the Anthropocene is an impure designation that is neither scientific description nor humanist construction; it is a rhetorical gambit that inflects the science of geology with a catachronistic impulse. The Anthropocene thereby enacts a theological desire for the end times promulgated by Judeo-Christian and

secular Hegelian metaphysics, without which the warning would not be able to stake its claim. And this is where Malabou's intriguing notion of plasticity reasserts the "emergence and the annihilation of form" in a way that links biological fecundity with species death, turning the wheel full circle: "if [plasticity] expresses what is most essential and primal in life itself, it is no less in alliance with the atomic bomb (*Plastikbombe*)."[75] At the end of the day, Malabou has not strayed that far away from the nuclear: "a living and vital notion, plasticity is also a mortal notion." A vitalism and also an apocalypticism, the plastic is "a living kernel and the nuclear nucleus."[76]

Without having to adjudicate a fight to the death between subjectivism and objectivism, as well as one between earlier vogues for transcendentalism being replaced by contemporary insistences on immanentism, climate change criticism will benefit from more distributionist notions of agency and should encourage thinkers to draw theories of action and responsibility from across the human-nonhuman divide, looking to "a spectrum of agentic capacities" as Diana Coole has theorized.[77] Considering subjects as special kinds of objects implies a meta-subjective vantage point from where qualities and differences can be viewed. Likewise, theories of the decentering of the subject from Levinasian ethics to Lacanian psychoanalysis to Derridean deconstruction imagine meta-objects that alienate the subject, whether God, the Big Other, or democracy-to-come. Moving to a theory of systems and assemblages that collocates subjects and objects, as suggested by a number of divergent but still compatible Spinozistic/immanentist thinkers—Luhmann, Latour, and Deleuze—poses an alternative to those aspects of climate change that focus exclusively on the political theology of the nuclear. Climate change criticism can also anticipate the futuristic notion of a multi-species swarm, continuing the idea of a plurality of genres with which we began, rather than any homogeneous notion of the democratic human community. Such a "collective existence that has no ontological dimension" will eventuate beyond the unfolding of the catachronism, generated by speed and made real by genres, which are porous containers of objectivity and subjectivity, as well as the apparatuses of critical agency.[78]

It would only be symmetrical to suggest that if at the beginning there was speed, the end, if there is ever an end, would be excruciatingly and awfully slow, with none of the apocalyptic frenzy of the movies, but the reflective temporality and meditative awareness of literature. As the saw goes, all good things come to an end. But if that is so, don't bad things come to an end as well? With respect to the human species, those endings of good and bad with the ring of finality might add up to the same thing. But the human is by no means the only subject or object. Endings are also mutations. The end of a singular species would still not be the end of all genres. There will be a post-ontological future of unnameable others, still new swarms that, once conceived, could fill many Chinese encyclopedias. The Anthropocene sublime will yield its place to both the terrible and the beautiful. What began as catachronism, the burdensome experience of "living in the end times," could morph into the birth of many brave new worlds populated by those that come after the subject. Those who come after will treat us as their version of nature from which they will spell out their difference and articulate their critique.

Notes

1 Derrida, "No Apocalypse, Not Now," 24.

2 Aravamudan, "Introduction: Perpetual War," 1506–7. See also Clausewitz, *On War*; and Jomini, *The Art of War*.

3 Ehrlich, "The Nuclear Winter."

4 Crutzen and Stoermer, "The 'Anthropocene,'" 18; Steffen, Crutzen, and McNeill, "The Anthropocene."

5 The catachronism of climate change re-periodizes human history retroactively, but this is no simple "error." As I argue elsewhere, certain forms of anachronistic thinking are irreducible to the conceptualization of history, and cannot just be eliminated as "mistakes" in the way that simpler anachronisms can be. See Aravamudan, "The Return of Anachronism."

6 Intergovernmental Panel on Climate Change, "Summary for Policymakers," 16.

7 Wordsworth, *The Prelude* (1805), bk. 6, lines 558, 570–72.

8 For tipping points, see Guterl, *The Fate of the Species*, 64–78.

9 I use the Lucretian term, defined as the angle or swerve after which matter coheres following a constant chain of collisions.

10 Kant, *The Conflict of the Faculties*.

11 Derrida, "No Apocalypse, Not Now," 24.

12 Aravamudan, *Guru English*, 142–83.

13 "The faster we extract and consume our planet's compressed hydrocarbon inheritance the greater the likelihood that our actions will propel us—and other living multitudes—toward an abbreviated collective future as fossils in the making" (Nixon, *Slow Violence and the Environmentalism of the Poor*, 69).

14 Cullen, *The Weather of the Future*, 173–95.

15 Garvey, *The Ethics of Climate Change*, 9.

16 This figure comes from the 2001 analysis of Norman Myers in "Environmental Refugees: A Growing Phenomenon of the 21st Century"; quoted in "Migration and Climate Change," International Organization for Migration, http://www.iom.int/cms/en/sites/iom/home/what-we-do/migration-and-climate-change/definitional-issues.html.

17 Cullen, *The Weather of the Future*, xvii–xviii.

18 Ferguson, "The Nuclear Sublime," 4–5.

19 For regional forecasts, see various chapters in Cullen, *The Weather of the Future*.

20 This kind of argument is already being made. A winter drought in China combined with heat waves and floods in key wheat-exporting countries (Ukraine, Russia, Canada, and Australia) led to the doubling of global wheat prices in February 2011. This factor contributed to the food riots leading to the Arab Spring. See Werrell and Femia, *The Arab Spring and Climate Change*.

21 Chakrabarty, "The Climate of History," 208.

22 Ibid., 201–7.

23 See Cadava, Connor, and Nancy, *Who Comes after the Subject?*

24 Chakrabarty, "The Climate of History," 212–20.

25 Ibid., 220–22.

26 Ibid. See also Vernadsky, *The Biosphere*.

27 For Žižek's lengthy critique of Chakrabarty, see *Living in the End Times*, 327–36.

28 Guterl, *The Fate of the Species*, 32–43.

29 Lovelock, *The Vanishing Face of Gaia*, 74.

30 This question is in essence the "wicked problem" of climate change; the most catastrophic scenarios predict a rise of as much as 6 to 8 degrees, which would devastate many hitherto habitable environments.

31 Ferguson, "The Nuclear Sublime," 7.

32 See Latour, *Reassembling the Social*; and Luhmann, *Introduction to Systems Theory*.

33 Lovelock, *The Vanishing Face of Gaia*, 164, 179.

34 On the other hand, Lovelock is a proponent of nuclear power as the bridge energy source and despite his pessimism suggests that the earth can support life for another 500 million years (ibid., 96–97).

35 Ferry, *The New Ecological Order*, 91–105.

36 Ibid., 64.

37 Næss, *Ecology, Community, and Lifestyle*; and *Serres, The Natural Contract*.

38 Ferry, *The New Ecological Order*, 127–46. Ferry writes this essay in the 1990s, after the collapse of the Soviet Union but before the emergence of militant Islam as the chosen enemy of the West following 9/11.

39 Morton, *The Ecological Thought*, 130; Pellow, *Resisting Global Toxics*, 9–10. Once the memo was leaked, Summers claimed that it was meant to be sarcastic.

40 Morton, *The Ecological Thought*, 25–28, 40.

41 Ibid., 28–29.

42 Ibid., 81–87.

43 Ibid., 86.

44 Agamben, *The Coming Community*, 65.

45 Jameson, *Postmodernism*, 26–28.

46 Jameson, *Archaeologies of the Future*, 199.

47 Habermas, *Toward a Rational Society*, 58.

48 Heise, *Chronoschisms*, 7.

49 There is a longer discussion of Catherine Malabou later in the article.

50 In a forthcoming essay I discuss the thematization of catastrophic climate change in film and literature.

51 These are allusions to the titles of books by Levi Bryant and Ian Bogost, also adherents of object-oriented ontology, broadly speaking. Bogost prefers "thing" or "unit" to "object," as the latter term invites discussion of the absent "subject."

52 Meillassoux, *After Finitude*, 45.

53 Ibid., 50.

54 Ibid., 51.

55 Ibid., 103–4.

56 Ibid., 112–28.

57 Harman, *Towards Speculative Realism*, 94.

58 Stiegler, *Technics and Time I*, 264–66.

59 Harman, *Towards Speculative Realism*, 160.

60 Ibid., 19.

61 Ibid., 23.

62 Ibid., 157–65.

63 This is not meant to be ad hominem, as slightly self-deprecating asides about the "white male" tendencies of the philosophy's refusal of standpoint epistemology are hinted at in footnotes and headnotes throughout Harman's published work. At one point he wonders why 90 percent of all those drawn to OOO are white males. Bryant makes a game case for flat ontology's femininity, aligning Spinozistic immanence with the feminine and relegating the transcendental moves of metaphysics to the masculine.

Works Cited

64 Bryant, *The Democracy of Objects*, 257–58, 283.

65 Freud, *Beyond the Pleasure Principle*, 14–15.

66 Ibid., 16.

67 Malabou, *What Should We Do with Our Brain?*, 80.

68 Malabou, *The Future of Hegel*, 8–9.

69 Malabou, *Plasticity at the Dusk of Writing*, 66.

70 Ibid., 77, 81.

71 Malabou, *The Future of Hegel*, 6.

72 Derrida, "A Time for Farewells," xxxii–xxxiii.

73 See Agamben, *The Time That Remains*, 34.

74 Malabou, *The Future of Hegel*, 184.

75 Ibid., 193.

76 Ibid.

77 Coole, "Rethinking Agency," 127–28, quoted in Bennett, *Vibrant Matter*, 30.

78 Chakrabarty, "Postcolonial Studies and the Challenge of Climate Change," 13. Here Chakrabarty modifies his humanist take on the topic in "The Climate of History" to accommodate post-ontology.

Agamben, Giorgio. *The Coming Community*. Translated by Michael Hardt. Minneapolis: University of Minnesota Press, 1993.

——. *The Time That Remains: A Commentary on the Letter to the Romans.* Translated by Patricia Dailey. Stanford: Stanford University Press, 2005.

Aravamudan, Srinivas. *Guru English: South Asian Religion in a Cosmopolitan Language*. Princeton: Princeton University Press, 2006.

——. "Introduction: Perpetual War." Special issue on "War." Edited by Srinivas Aravamudan and Diana Taylor. *PMLA* 124, no. 5 (2009): 1505–14.

——. "The Return of Anachronism." *MLQ* 62, no. 4 (2001): 331–53.

Bennett, Jane. *Vibrant Matter: A Political Ecology of Things*. Durham: Duke University Press, 2010.

Bogost, Ian. *Alien Phenomenology, or What It's Like to Be a Thing*. Minneapolis: University of Minnesota Press, 2012.

Bryant, Levi R. *The Democracy of Objects*. Ann Arbor, MI: Open Humanities Press, 2011.

Cadava, Eduardo, Peter Connor, and Jean-Luc Nancy, eds. *Who Comes after the Subject?* New York: Routledge, 1991.

Chakrabarty, Dipesh. "The Climate of History: Four Theses." *Critical Inquiry* 35, no. 2 (2009): 197–222.

——. "Postcolonial Studies and the Challenge of Climate Change." *New Literary History* 43, no. 1 (2012): 1–18.

Clausewitz, Carl von. *On War*. Edited and translated by Michael Howard and Peter Paret. Princeton: Princeton University Press, 1976.

Coole, Diana. "Rethinking Agency: A Phenomenological Approach to Embodiment and Agentic Capacities." *Political Studies* 53, no. 1 (2005): 124–42.

Crutzen, Paul J., and Eugene F. Stoermer. "The 'Anthropocene.'" *International Geosphere-Biosphere Programme Newsletter*, no. 41 (2000): 17–18.

Cullen, Heidi. *The Weather of the Future: Heat Waves, Extreme Storms, and Other Scenes from a Climate-Changed Planet*. New York: Harper, 2011.

Derrida, Jacques. "No Apocalypse, Not Now (Full Speed Ahead, Seven Missiles, Seven Missives)." Translated by Catherine Porter and Philip Lewis. *diacritics* 14, no. 2 (1984): 20–31.

——. "A Time for Farewells: Heidegger (read by) Hegel (read by) Malabou." Translated by Joseph D. Cohen. Preface to Malabou, *The Future of Hegel,* vii–xlvii.

Ehrlich, Paul R. "The Nuclear Winter: Discovering the Ecology of Nuclear War." *Amicus Journal* 5, no. 3 (1984): 20–30.

Ferguson, Frances. "The Nuclear Sublime." *diacritics* 14, no. 2 (1984): 4–10.

Ferry, Luc. *The New Ecological Order*. Translated by Carol Volk. Chicago: University of Chicago Press, 1995.

Freud, Sigmund. *Beyond the Pleasure Principle*. In *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, translated by James Strachey, 18:1–64. New York: Vintage, 2001.

Garvey, James. *The Ethics of Climate Change: Right and Wrong in a Warming World*. New York: Continuum, 2008.

Guterl, Fred. *The Fate of the Species: Why the Human Race May Cause Its Own Extinction and How We Can Stop It*. New York: Bloomsbury, 2012.

Habermas, Jürgen. *Toward a Rational Society: Student Protest, Science, and Politics*. Translated by Jeremy J. Shapiro. London: Heinemann, 1971.

Harman, Graham. *Towards Speculative Realism: Essays and Lectures*. Winchester, UK: Zero Books, 2010.

Heise, Ursula K. *Chronoschisms: Time, Narrative, and Postmodernism*. Cambridge: Cambridge University Press, 1997.

Intergovernmental Panel on Climate Change. "Summary for Policymakers." 2007. http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf.

Jameson, Fredric. *Archaeologies of the Future: The Desire Called Utopia and Other Science Fictions*. New York: Verso, 2005.

——. *Postmodernism, or, The Cultural Logic of Late Capitalism*. Durham: Duke University Press, 1991.

Jomini, Antoine Henri. *The Art of War*. Translated by G. H. Mendell and W. P. Craighill. Westport, CT: Greenwood Press, 1971.

Kant, Immanuel. *The Conflict of the Faculties (Der Streit der Fakultäten)*. Translated by Mary J. Gregor. Lincoln: University of Nebraska Press, 1992.

Kerckhove, Derrick de. "On Nuclear Communication." *diacritics* 14, no. 2 (1984): 71–81.

Latour, Bruno. *Reassembling the Social: An Introduction to Actor-Network-Theory*. New York: Oxford University Press, 2005.

Lovelock, James. *The Vanishing Face of Gaia: A Final Warning*. New York: Basic Books, 2009.

Luhmann, Niklas. *Introduction to Systems Theory*. Translated by Peter Gilgen. Cambridge, UK: Polity Press, 2010.

Malabou, Catherine. *The Future of Hegel: Plasticity, Temporality and Dialectic*. Translated by Lisabeth During. New York: Routledge, 2005.

——. *Plasticity at the Dusk of Writing: Dialectic, Destruction, Deconstruction*. Translated by Carolyn Shread. New York: Columbia University Press, 2010.

——. *What Should We Do with Our Brain?* Translated by Sebastian Rand. New York: Fordham University Press, 2008.

McCanles, Michael. "Machiavelli and the Paradoxes of Deterrence." *diacritics* 14, no. 2 (1984): 12–19.

Meillassoux, Quentin. *After Finitude: An Essay on the Necessity of Contingency*. Translated by Ray Brassier. New York: Continuum, 2008.

Morton, Timothy. *The Ecological Thought*. Cambridge: Harvard University Press, 2010.

Myers, Norman. "Environmental Refugees: A Growing Phenomenon of the 21st Century." *Philosophical Transactions of the Royal Society of Biological Sciences* 357, no. 1420 (2002): 609–13.

Næss, Arne. *Ecology, Community, and Lifestyle: Outline of an Ecosophy*. Translated and edited by David Rothenberg. Cambridge: Cambridge University Press, 1989.

Nixon, Rob. *Slow Violence and the Environmentalism of the Poor*. Cambridge: Harvard University Press, 2011.

Pellow, David Naguib. *Resisting Global Toxics: Transnational Movements for Environmental Justice*. Cambridge: MIT Press, 2007.

Serres, Michel. *The Natural Contract*. Translated by Elizabeth MacArthur and William Paulson. Ann Arbor: University of Michigan Press, 1995.

Sofia, Zoë. "Exterminating Fetuses: Abortion, Disarmament, and the Sexo-Semiotics of Extra-Terrestrialism." *diacritics* 14, no. 2 (1984): 47–59.

Steffen, Will, Paul J. Crutzen, and John R. McNeill. "The Anthropocene: Are Humans Now Overwhelming the Great Forces of Nature?" *Ambio* 36, no. 8 (2007): 614–21.

Stiegler, Bernard. *Technics and Time 1: The Fault of Epimetheus*. Translated by Richard Beardsworth and George Collins. Stanford: Stanford University Press, 1998.

Vernadsky, Vladimir I. *The Biosphere*. Translated by David B. Langmuir. New York: Copernicus, 1998.

Werrell, Caitlin E., and Francesco Femia, eds. *The Arab Spring and Climate Change*. Washington, DC: Center for American Progress, 2013. http://www.americanprogress.org/wp-content/uploads/2013/02/ClimateChangeArabSpring.pdf.

Žižek, Slavoj. *Living in the End Times*. New York: Verso, 2010.