Christophe BONNEUIL and Jean-Baptiste FRESSOZ, *The Shock of the Anthropocene: The Earth, History and Us*, transl. by David FERNBACH (New York, NY, Verso Books, 2015)

We have heard this fable many times. It begins with a species that emerged in Africa. Its members spread across the earth. The planet becomes warmer. Many of the species decide to settle down. Those who settle down create "civilizations." For ten thousand years they make and destroy these things. Eventually, they invent an "engine," the solution to the Sphinx's riddle of how to become masters of the earth. But they must feed the engine with the dead matter of the deep time past, and its byproduct, "carbon dioxide," becomes their *hamartia*, setting in motion a tragic plot device. A small group of Cassandras warns of a looming disaster, but no one heeds their words. Now the curtain for the final act has been raised—"civilization" shall meet its fatal destiny—and we are the unfortunate audience, witnesses to the last chapter of how a featherless biped became life's greatest catastrophe.

The title of this fable is the Anthropocene, or "The Age of Humanity," the idea that *Homo sapiens* have become such a powerful planetary agent they deserve their own eponymous geological epoch. When this process began is a matter of stratigraphic debate: locating the "Global Boundary Stratotype Section and Point (GSSP)" or "golden spike" that would demarcate the lower boundary point of this epoch. The most popular candidates include the beginning of agriculture,[1] the "CO_2 minima" born from the Columbian exchange and demographic collapse of indigenous peoples in the Americas,[2] the start of the industrial revolution,[3] the "Great Acceleration" in population growth, food production, and energy consumption of the post-WWII era,[4] and the 1964 radionuclide "bomb spike" from nuclear weapons testing.[5] The Anthropocene Working Group

[1] William F. Ruddiman, 2007, "The Early Anthropogenic Hypothesis: Challenges and Responses," *Review of Geophysics*, Oct. 31.

[2] Simon Lewis and Mark Maslin, 2015, "Defining the Anthropocene," *Nature*, vol. 519: 171-180.

[3] Paul Crutzen and Eugene Stoermer, 2000, "The 'Anthropocene,'" *Global Change Newsletter*, 41: 17.

[4] J. R. McNeill and Peter Engelke, 2016, *The Great Acceleration: An Environmental History of the Anthropocene Since 1945* [Cambridge, Cambridge University Press).

[5] Zalasiewicz *et al.*, 2015, "When did the Anthropocene Begin? A Mid-Twentieth Boundary Level is Stratigraphically Optimal," *Quaternary International*, 383: 196-203.

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(AWG), tasked with determining if and when this epoch has emerged, seems inclined toward a combination of the last two, suggesting a date *c*.1950.[6]

The problem with the Anthropocene, however, is that it is "historically wrong." So begins the premise of Christophe Bonneuil's and Jean-Baptiste Fressoz's *Shock of the Anthropocene: The Earth, History and Us* (Verso Books, 2015). In the increasingly overcrowded field of Anthropocene literature, *The Shock of the Anthropocene* is by far one of the most nuanced and insightful syntheses on the topic. Bonneuil and Fressoz persuasively challenge what they label a "geocratic" grand narrative that depicts the earth as "seen from nowhere" and reduces history "to a set of exponential graphs" [xiv; 69]. "Now it is the sciences of the Earth system, and no longer historians, who name the epoch in which we are living" [66]. This epistemic transformation has resurrected the "excessively teleological" narrative of modernity's progressive character, becoming "an inverted replica of economic history à la Rostow" [54-55]. At the same time, the Anthropocene has brought the political into what had previously been the dusty province of stratigraphy. Instead of the material determination of a golden spike coupled with a "modernization front" of historical "stages of growth," Bonneuil and Fressoz demand the idea be given a "political charge in order to overcome the contradictions and limits of a model of modernity that has spread globally over the last two centuries", for "the opposition between a blind past and a clear-sighted present, besides being historically false, depoliticizes the long history of the Anthropocene [26; 76]."

Anthropocene is not a new way of thinking—it is the terminal point of a very old one. The "anthropocenologists," as Bonneuil and Fressoz label those scientists and theorists who have constructed this narrative, believe the "realization" of the environmental crisis today heralds the end of modernity's ideological separation of human and nature. They chart a movement from a 19th to mid-20th century period of environmental "non-reflexiveness" to that of a late-20th century reflexiveness, recapitulating the narrative of Anthony Giddens's "reflexive modernity" in ecological guise [74]. Even Bruno Latour, Bonneuil and Fressoz claim, falls victim to this narrative. While he may declare "we have never been modern," it seems that "we can take account of this only now and thanks to his sociology of scientific practice, which makes it possible to solemnly close a falsely modern

[6] Colin N. Waters *et al*., 2016, "The Anthropocene is Functionally and Stratigraphically Distinct from the Holocene," *Science*, vol. 351.

parenthesis of 300 years… once again the alleged novel of reflexivity!" [75]. Thus the "new teleology" of the Anthropocene "displaces the old teleology of progress. Such heralding of the end of modernization is in fact a new modernist fable" [78].

The Anthropocene has bifurcated into numerous other "-cenes" over the past decade: the "Capitalocene",[7] the "Chuthulcene",[8] the "Plantationocene",[9] and "Necrocene"[10] to name a few. Regardless of the prefix, all of the alternatives fault the Anthropocene for its underlying assumption "of a totalization of the entirety of human action into a single "human activity" generating a single "human footprint" on the earth. The anthropocenologists' dominant narrative of the Anthropocene presents an abstract humanity uniformly involved—and, it implies, uniformly to blame" [65-66]. This in turn obscures the inequity of who is responsible for this catastrophe. It is not an undifferentiated "humanity" whose blame is parceled out equally to the global population. The radionuclide bomb spike of 1964, for instance, is a nearly incontrovertible marker of the global impact of technology on the *longue durée* of the earth. But Anthropocene literature often depicts this as a uniform planetary event and neglects the unequal distribution of its impact on the global population. In the irradiation of the Marshall Islands, Arctic Circle, and the deserts of the Sahara and the American Southwest, it is on indigenous soils where one can see this "spike" the most.

And yet, Bonneuil and Fressoz observe, much of the literature seems either unaware of or unmotivated to tackle this contradiction. "Whole books can now be written on the ecological crisis, on the politics of nature, on the Anthropocene and the situation of Gaia without so much as mentioning capitalism, war or the US, or even name one big corporation" [68]. Those seeking to combat the discourse of a teleological universal human agent can still fall into this trap—to say, as Dipesh Chakrabarty writes, "that unlike in the crises of capitalism […] climate change is an unintended consequence of human actions" is to ignore a 40-year cover up by Exxon in denying its effects [Chakrabarty, 2009: 221].[11] When nearly two-thirds of all

[7] Jason W. Moore, 2015, *Capitalism in the Web of Life: Ecology and the Accumulation of Capital* (New York, Verso).

[8] Donna Haraway, 2016, *Staying with the Trouble: Making Kin in the Chthulucene* (Raleigh, NC, Duke University Press).

[9] Anna L. Tsing *et al.*, 2015, "Anthropologists Are Talking – About the Anthropocene," *Ethnos*, 81 (3): 535-564.

[10] Justin McBrien, 2016, "Accumulating Extinction: Planetary Catastrophism in the Necrocene," *in* J.W. Moore, *Anthropocene or Capitalocene? Nature, History, and the Crisis of Capitalism* (Oakland, PM Press: 116-137).

[11] Dipesh Chakrabarty, 2009, "The Climate of History: Four Theses," *Critical Inquiry*, vol. 35 (2): 197-222.

historical emissions are the responsibility of less than 100 corporations, the contention that this is an unintended consequence of the actions of humanity as a "species" appears downright absurd [68].

Bonneuil and Fressoz do admit that the "grand narrative" of the *Anthropos* makes one crucial distinction—it divides humanity into two categories. "On the one hand, the uniformed mass of the world population, who have become a geological agent without realizing it, and on the other, a small elite of scientists who reveal the dramatic and uncertain future of the planet" [79]. Literature in the history of climate science often reinforces this division, focusing on Cold War experts who, while developing the power of an industrial war machine through their research in nuclear weapons testing, weather modification, and environmental warfare, inadvertently discovered that we were careening toward imminent planetary collapse.[12] "These 'closed world' views," embodied in the "metaphor Spaceship Earth," gave scientific experts "a new sense of geo-technocratic power, the pleasure of imagining oneself piloting the whole system" [59-60]. Only scientists, having revealed the planetary rupture of the Anthropocene, can suture this wound—"not only do they appear as spokespeople of the earth, but also as shepherds of a public opinion that is ignorant and helpless" [80]. Such a perspective inevitably leads to the belief that "serious solutions can only emerge from further technological innovation in the laboratory, rather than from alternative political experiment "from below" in society as a whole!" [82]. "The sublime catastrophe" is then succeeded by "the giddiness of omnipotence," participating "in the dream of a total absorption of nature into the commercial technosphere of contemporary capitalism" [85; 86].

The Shock of the Anthropocene does not simply deconstruct the concept—it rewrites the Anthropocene's history to show how there were constant, and visible, exceptions to the rule of the ideology of a high modernist cleavage between humans and nature. What begs the question for Bonneuil and Fressoz is not how it is that "we knew not what we did," but rather how there have been centuries of knowing we are doing it without decisive action to head off the crisis. "Far from a narrative of blindness followed by awakening, we thus have a history of the

[12] Paul Edwards, 2010, *A Vast Machine: Computer Models, Climate Data, and the Politics of Global Warming* (Cambridge, MA, MIT Press); James Rodger Fleming, 2010, *Fixing the Sky: The Checkered History of Weather and Climate Control* (New York, NY, Columbia University Press); Jacob Darwin Hamblin, 2013, *Arming Mother Nature: The Birth of Catastrophic Environmentalism* (Oxford, UK, Oxford University Press); Naomi Oreskes and Erik Conway, 2014, *The Collapse of Western Civilization: A View From the Future* (New York, NY, Columbia University Press).

marginalization of knowledge and alerts, a story of 'modern disinhibition' that should be heeded. Our planet's entry into the Anthropocene did not follow a frenetic modernism ignorant of the environment but, on the contrary, decades of reflection and concern as to the human degradation of our Earth" [76]. It is this "forgetting" of the long history of the "environmental reflexivity of modern societies" that "depoliticize the ecological issues of the past and thus obstructs understanding of present issues" [78]. Their remedy is to structure the book around their own neologisms in order to enact a fundamental reevaluation of the historical trajectories that have led to the present moment, trajectories that do not follow a linear universal progression but rather a non-linear differential repetition. *The Shock of the Anthropocene* moves successively through chapters on the Thermocene (history of the carbon-industrial complex), Thanatocene (history of total war and ecocide), Phagocene (history of mass consumption), Phronocene (history of scientific "environmental reflexivity"), Agnotocene (history of "ignorance"), Capitalocene (history of capitalist world accumulation), and Polemocene (history of environmental justice movements).

In their chapter on the "Thermocene," they urge historians to "denaturalize" the history of energy and present it not as a linear progression of transitions toward accelerating intensity and efficiency (from charcoal to coal to oil to nuclear), but in fact the opposite. "There never has been an energy transition […] the history of energy is not one of transitions, but rather *successive additions* of new sources of primary energy […] energy history must therefore free itself first of all from the concept of transition" [101]. The history of energy must instead examine "political, military, and ideological choices […] by relating them to the strategic interests and objectives of certain groups" [107]. Bonneuil and Fressoz point to the process of sub-urbanization and motorization as a "most massive example of a technological and civilizational choice" that is "profoundly suboptimal and harmful" [113]. This sub-optimal choice could only have arisen in tandem with a mass consumerist culture guided by industrial experts, which they discuss in their history of the "Phagocene."

The chapter on the Thanatocene is the monstrous double of the Thermocene—the ecocidal (and genocidal) tendencies emergent from the consolidation of a global military-carbon-industrial complex over the course of the 20th century. Biopower and necropower go hand-in-hand: the invention of artificial nitrogen fixation by ammonia synthesis (the Haber-Bosch process) sparked a revolution in agricultural production and created a second-order function for hydrocarbons.

This in turn led to an explosion in the global population. But if the Haber-Bosch process spurred unprecedented population expansion, it was first used primarily for population reduction—its initial application was focused on the manufacture of poison gas during WWI. After WWI, chemical industries found justification for the continued production of poison gas by inventing a "war on insects."[13] When the collapse of global trade during the Great Depression prompted an autarkic resource scramble—the Lebensraum and Co-Prosperity Sphere—the rhetoric of an endless struggle against parasites and pests was re-transcribed into the battle cry of a novel military-industrial synergy that sought to wage a total war for the survival of the fittest, culminating in the Nazi's use of the IG Farben manufactured pesticide Zyklon B during the Holocaust.

Their chapter on the Capitalocene is the unification of the Thanatocene and Thermocene under the aegis of world capital accumulation over the past five centuries. It is the only term Bonneuil and Fressoz did not coin, but perhaps it is where they hew the closest in their overall historical analysis. "There may be many heuristic and explanatory advantages in speaking of a 'Capitalocene' […] a rematerialized and ecologized history of capitalism appears as the indispensable partner of the earth system sciences in order to understand our present epoch" [252]. The authors point to the ecologization of Wallerstein's world-systems analysis in the work of Jason W. Moore, who shows how capitalism is not only an economic system, but the generation of a world-ecology searching to exploit "cheap natures," a process that must perpetually reassemble life to penetrate more and more frontiers of potential surplus extraction.[14] The question becomes, then, is it the end of cheap nature today, or will capitalism find a way to suture its "metabolic rift" through a metabolic shift, perhaps via "sustainability" measures and "ecosystems services," capitalizing on the very catastrophe it has itself precipitated? Giovanni Arrighi argues that in the latter stages of a world accumulation cycle, the falling rates of profits from the production of material goods drives the emergence of financialization mechanisms that temporarily sustain the extraction of surplus value by divorcing it from material conditions.[15] And "since the present financialized capitalism has its own new forms of disinhibtion,"

[13] Edmund Russell, 2001, *War And Nature: Fighting Humans and Insects with Chemicals From WWI to Silent Spring* (Cambridge, UK, Cambridge University Press).

[14] Moore, 2015, cf. *supra*.

[15] Giovanni Arrighi, 2010, *The Long Twentieth Century: Money, Power, and the Origin of Our Times* (New York, NY, Verso).

Bonneuil and Fressoz write, "everything leads us to fear that things will continue as they have up till now" [286].

Bonneuil and Fressoz do acknowledge the unequal impacts of the Anthropocene along the lines of race, gender, and particularly class. They also emphasize that grassroots environmental and indigenous justice movements are the best hope of combatting the ecological crisis today. But given their attempt to capture the multi-faceted nature of the Anthropocene's history, it would have suited the book to include a full chapter on its racialized and gendered construction, both its ideological history and the material impacts of the mobilization of the concept itself. Their chapter on the "Polemocene," promises an "environmental history of the poor" acting both in "core countries and the periphery" in order to show how "rich countries would neither have succeeded in industrializing nor attained the post-war affluent society without the possibility of unequal exchange with the rest of the world" [253; 252]. Yet their discussion remains primarily concerned with Europe and the effects of industrialization, with some discussion of India, and brief mention of indigenous struggles in the Global South. Analysis of the slave trade is reduced to a few pages [231-232]. And though they acknowledge the ecofeminist narrative "that relates male domination to the degrading of the earth" as one of the five main theses concerning the "change of existential regime underway," their discussion of patriarchy is almost entirely focused on its relation to the Gaia theory [87].

The discourse of a universal human civilization was long used to justify a brutal primitive accumulation strategy driven by the extermination of indigenous peoples in the Americas and Australasia, the racialized enslavement of Africans, the confinement of European women to reproductive labor, and the destruction of native ecologies across the globe.[16] It was in the name of humanity that humanity was denied to so many. As Françoise *Vergès* asks, is not "the Anthropocene racial"?[17] The plantation is perhaps the generative site of ecogenocidal extractivism, a process that annihilated ecological diversity for the purpose of producing monocultured commodities in the service of capital accumulation, driving the logic of global imperial

[16] Silvia Federici, 2004, *Caliban and the Witch: Women, the Body, and Primitive Accumulation* (New York, NY, Autonomedia); Maria Mies, (1986) 2014, *Patriarchy and Accumulation on a World Scale: Women in the International Division of Labor* (London, UK, Zed Books); Achille Mbembe, 2017, *Critique of Black Reason*, transl. by Laurent Dubois (Raleigh, NC, Duke University).

[17] Françoise *Vergès*, 2017, "Racial Capitalocene," *in* G. Johnson and A. Lubin, eds, *Futures of Black Radicalism* (New York, NY, Verso).

expansion through the 19th century. Taken together, this history could be called the unpaid labor of the Anthropocene.

Patriarchal ideology is even built into the etymology of the *Anthropos*. Claire Colebrook rightly declares that feminism has always been in a "post-Anthropocene".[18] Women are disproportionately impacted by climate change and environmental degradation in the "Age of Man," reinforcing gender inequity in the Global North and South alike. Today in the United States women living near toxic "sacrifice zones" (most often found in the communities of people of color) have an increased risk of birth defects, learning disabilities, and leukemia in their children. Already burdened with a disproportionate amount of childcare, they must face greater costs and labor time for childrearing and immense psychological distress, leading to the inhibition of community health and wealth. In Sub-Saharan Africa, the majority of small subsistence farmers are women. As water sources such as Lake Chad dry up (a 95% reduction in the latter half of the past century alone), they must expend more energy for necessary laboring tasks such as collecting water, which in turn leads to increased exposure to vector-borne illnesses from expanding disease pools. Indigenous water and land protectors, whose campaigns are often led by women, face a massively disproportionate rate of assassinations and state violence compared to environmental activists in the Global North. Even in its stratigraphic determination, the complete lack of gender balance in the Anthropocene Working Group attests that naming the Anthropocene can itself be an exercise in constructing a "Manthropocene".[19]

The final question, then: is the Anthropocene salvageable? Or is it part and parcel of the crisis that has led to the naming of the Anthropocene itself? Bonneuil and Fressoz do not go so far as to directly declare that it must be discarded, but it would be difficult to finish this book without coming to such a conclusion. "These two centuries of scientific warnings and challenges likewise suggest that the attribution of a name to a new geological era is not sufficient to inflect the trajectory of two centuries of assaults to planet earth" [287]. The banality of the empty signifier "humanity" dissolves when confronted with the useless suffering of life past, present, and future.

[18] Claire Colebrook, 2017, "We Have Always Been Post-Anthropocene," *in* R. Grusin, ed., *Anthropocene Feminisms* (Minneapolis, MN, University of Minnesota Press: 1-20).

[19] Kate Raworth, 2014, "Must the Anthropocene Be a Manthropocene?", *The Guardian*, Oct. 20 [Last accessed September 17, 2018, https://www.theguardian.com/commentisfree/2014/oct/20/anthropocene-working-group-science-gender-bias].

From the vantage of his Anishinaabek ancestors, the indigenous philosopher Kyle Whyte argues that the contemporary ecological state of their former lands would lead them to believe they were already living in a "dystopian Anthropocene".[20] Bonneuil and Fressoz would likely agree. *The Shock of the Anthropocene* is an indispensible contribution toward thinking through our global ecological crisis, a work that is necessary reading for anyone who wishes to confront the hallucinatory nightmare of the Anthropocene today.

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[20] Kyle Whyte, 2017, "Our Ancestor's Dystopia Now: Indigenous Conservation and the Anthropocene," *in* U. Heise, J. Christensen, and M. Niemann, eds, *The Routledge Companion to the Environmental Humanities*, Routledge: 206-215.

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