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Dithering while the planet burns: Anthropologists' approaches to the Anthropocene

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Haraway, Donna J. 2016. *Staying with the Trouble: Making Kin in the Chthulucene*. Durham: Duke University Press.

Tsing, Anna L. 2015. *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins*. Princeton: Princeton University Press.

Moore, Jason W., ed. 2016. *Anthropocene or Capitalocene? Nature, History, and the Crisis of Capitalism*. Oakland: PM Press.

ABSTRACT

This review article argues that styles of thinking and writing recently encouraged in the environmental humanities are not conducive to analytical clarity, theoretical rigor, or effective critique of the practices and discourses that generate global inequalities and unsustainability. Critically discussing how global environmental change is being approached in anthropology and other human sciences, it concludes that the haziness, inconsistency, and inaccessibility of so-called post-human deliberations on the Anthropocene ultimately serve to promote the destructive economic forces that are responsible for such change. A recent attempt to bring together approaches from posthumanism and Marxism is also deeply flawed, failing to present a coherent theoretical outlook on the environmental history of capitalism. The article argues for more responsible efforts to build interdisciplinary theory of the Anthropocene.

KEYWORDS

Anthropocene; environmental history; global inequalities; Marxism; posthumanism; unsustainability

Like so much else, Donna Haraway has taken her designation for our current historical period, *The Great Dithering*, from a science fiction novel. My dictionary defines “dither” as “a state of nervous agitation or confusion.” To the extent that Haraway’s recent book, *Staying with the Trouble: Making Kin in the Chthulucene* (2016), is a reflection of our age, the designation is apposite. Indeed, the Anthropocene gives us plenty of reasons to be agitated, but whether it must lead to confusion is another matter.

In reading Haraway’s book alongside Anna Lowenhaupt Tsing’s *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins* (2015), I am struck by the many things these two influential authors have in common. Both are genuinely indignant about what capitalism has been doing to the world over the past few centuries. Neither of them has any hope that the planet can be saved through some kind of ecomodernist

engineering scheme. Tsing frankly realizes that “there might not be a collective happy ending” (2015:21). So far we are in agreement. But when it comes to how anthropology and other human sciences best ought to approach the situation, their perspectives raise several serious concerns.

For those of us who keep teaching our students that the very point of writing critical social science is to communicate clear and analytically rigorous arguments, it is frustrating to find them absorbing and trying to emulate the style currently prevalent in the environmental humanities. Rather than analytical clarity, the aim of much of this writing seems to be to fashion prose as imaginatively as possible, replete with evocative allusions, poetic metaphors, and unbridled associations. The style is personal and anecdotal, the engagement with theory journalistic and superficial. We might ask ourselves why anthropological deliberations on the Anthropocene increasingly sound like dinner conversations after some glasses of wine. I am not happy about the signals we are sending to our students, who discover that academic success (such as being published by a major university press) may be inversely proportional to clarity.

But let us consider what is being said. Haraway and Tsing both seem to want to show us examples of social activities that provide some measure of hope, indicating the kinds of projects by means of which we might survive and even transcend the Anthropocene. This is a worthy and respectable undertaking, but the examples they have chosen are dubious, frequently revealing inadequacies in their theoretical approach. In one of her chapters, Haraway provides four examples of “sympoietic worldings” that “nurture well-being on a damaged planet” (2016:76): a collaborative crochet artwork depicting a coral reef, an illustrated book series on the vanishing primates of Madagascar, a video game produced in collaboration with native people in Alaska, and the maintenance and resurgence of sheep breeding and handcraft weaving among the Navajo. What these examples have in common escapes me, as does their alleged capacity to inspire hope. Tsing’s example is the ecological encouragement, harvesting, and global trading of a prestigious and expensive mushroom (*matsutake*) for the Japanese market.

In both authors, there is a recurrent gap between interesting empirical accounts, on the one hand, and excursions into often obscure theoretical reflection, on the other. Tsing’s field experiences among ethnically diverse mushroom pickers in Oregon and landscape conservationists in Japan are brilliantly contextualized in terms of the historical dynamics of forest ecology, global migrations of humans and other species, and the shifting economic opportunities afforded by extractive capitalism. She persuasively shows how *matsutake* only temporarily assumes the alienated form of a commodity, when disentangled from the dense social contexts in which its life begins and ends. But the questions pile up. Why is capitalism so often referred to in the past tense? Have not opportunities such as the *matsutake* mushroom

continuously appeared (and disappeared) over the centuries? Why should these particular kinds of landscape restoration and harvesting skills give us hope of transcending the Anthropocene? Efforts to reproduce a specific ecological niche will be proportional to the financial strength of the niche market for which it is requisite. As long as *matsutake* remains a prestigious gift among affluent Japanese, there will be plenty of money to restore pine forests and attract pickers and traders.

It remains unclear, however, to what extent this particular commodity chain is relevant to the general destiny of people and ecosystems in South America, Africa, and Southeast Asia. Although diverse in terms of cultural and geographical context, Tsing's studies are almost exclusively conducted within the three wealthiest areas of the world system: the United States, Japan, and Europe. She thus marvels at the resurgence of forests after deforestation (2015:179) without considering the extent to which the global distribution of such resurgence is contingent on political economy. Even as she comments on the convergence between Japan and Oregon with regard to the abandonment of industrial forestry in both regions (2015:205–206), she does not reflect on how this convergence is related to the comparatively high price of land and labor in these economies. Tsing blames the outsourcing of forestry to Southeast Asia on the low price of global timber and the inability of Japan and Oregon to compete, but does not mention that this inability to compete has been determined by the relatively high wages and land rent in wealthier countries. What to Japan and America looks like the failure of the forest industry is really the displacement of environmental loads from these countries to Southeast Asia.

Tsing seems to suggest that human resource extraction is a “good thing” for people and ecosystems. Japanese forest managers convince her that “erosion is good” (2015:151) for pine forests and *matsutake*, and she endorses their struggles to remove broadleaf trees and even topsoil to recreate the heavily harvested peasant landscapes that nostalgic Japanese associate with *matsutake* and cherished tradition. Considering the financial significance of the market for *matsutake*, we realize why only *some* “traditional” landscapes are being restored, namely those that are profitable. Reflecting on parallels between China and Japan in terms of how deforested and eroded hills historically gave way to regularly harvested peasant oak-pine forests, Tsing concludes that “those eroded hillsides are the site of a lively regeneration in which oak, pine, and matsutake have a good thing going—not just for peasants but also for many kinds of life” (2015:189). Now that the peasants are gone, we must recall, the only thing that preserves such landscapes is money. But the profitability of a prestigious mushroom is no apology for deforestation, and very far from a representative example of livelihoods opened up by environmental degradation. Although Tsing cites an environmental economist in Kyoto who asserts that “future sustainability is best modeled

with the help of nostalgia” (2015:182), nostalgia alone clearly does not shape our landscapes, or the global South would be a very different place.

Haraway frequently refers to Tsing, and Tsing is obviously inspired by Haraway. Both draw conclusions from their case studies that seek to fuse an ecological critique of capitalism with excursions into specialized branches of biology. The average anthropological reader will be asking for a more profound theoretical engagement with capitalism, on the one hand, and evidence of the robustness of their biological deliberations, on the other. To rethink ecology through the lens of a nonmodern ontology is a supremely valid anthropological pursuit (e.g., Kohn 2013), but when an anthropologist personally deliberates on contested frontiers of natural science, it is less persuasive. Haraway does not hesitate, for instance, to discuss molecular and comparative genomic research on choanoflagellates (*Salpingoeca rosetta*) or the implications of pea aphid symbiosis with *Buchnera* (2016:65–66). When Tsing cites research finding that “single nucleotide polymorphisms (SNP) are good for population-level differentiations” (2016:236), we similarly wonder if this is a topic to be discussed by anthropologists. When she speculates about the possibility that mushroom spores “blow around the earth” in the stratosphere, it seems to be mostly just to provide her with “the pleasure of thinking: the spore-filled airy stratosphere of the mind” (2016:228). How “happy it feels to fly with spores and to experience cosmopolitan excess,” she exclaims (2016:238).

Like Haraway, Tsing has an urge to rephrase familiar thoughts in a more poetic, if less accessible, jargon. Foraging “might be considered dance” (2015:242). Traditional agroecology is the “polyphonic assemblage” of the “rhythms” of different crops resulting from “world-making projects, human and not human” (2015:24). To collaborate and communicate, within or across species, is to be “contaminated by our encounters” (2015:27). Consequently,

contaminated diversity is everywhere If a rush of troubled stories is the best way to tell about contaminated diversity, then it’s time to make that rush part of our knowledge practices It is in listening to that cacophony of troubled stories that we might encounter our best hopes for precarious survival. (2015:33–34)

Striking a good bargain on the market, in Tsing’s parlance, is an act of “translation” (2015:62). Capitalism “has the characteristics of an assemblage,” in which commodification and alienation are forms of “disentanglement” (2015:133). Assemblages, in turn, are “performances of livability” (2015:157–158). Although aware of the dangers, she finds it insightful that biological symbiosis is commonly referred to as “outsourcing” (2015:143–144). In this neoliberal idiom—which represents capitalism as “performances of livability”—it is not surprising to find ecological disturbance assessed as “ordinary” (2015:160) and precarious living as “always an adventure” (2015:163).

Although precarity means “not being able to plan... it also stimulates noticing, as one works with what is available” (2015:278). Tsing is aware that the freedom-loving, culturally “disentangled” entrepreneurs who are willing to live with precarity—without wages, benefits, or universal standards of welfare—are ideal participants in globalized supply chains (2015:106), but she does not seem to see the neoliberal reinterpretation of capitalism as sinister in itself. The fragmentation of protest against capitalism dissolves the “urge to argue *together*, across the viewpoints emerging from varied patches, about the outrages of accumulation and power,” yet “this is not the end of politics” (2015:134). “Without stories of progress, the world has become a terrifying place. The ruin glares at us with the horror of its abandonment,” Tsing concludes. “It’s not easy to know how to make a life, much less avert planetary destruction,” but we “can still explore the overgrown verges of our blasted landscapes” (2015:282). Tsing’s somewhat impalpable recipe is “a politics with the strength of diverse and shifting coalitions—and not just for humans” (2015:135).

Although its metaphors and reflections are frequently hazy, Tsing’s book pursues a consistent argument about the unpredictable conditions of economic survival in a globalized capitalism responding to the historical vicissitudes of cultural niche markets and biologically complex landscape transformations. It is difficult to find a similarly coherent theme in the way Haraway frames the sprawling fancies on which her diverse chapters are based. The designation “Chthulucene” is as difficult to comprehend as it is to pronounce. It is introduced to “name a kind of timeplace for learning to stay with the trouble of living and dying in response-ability on a damaged earth” (2016:2). Phrases such as these have not helped me to understand what point Haraway is trying to make, yet they recur throughout the book. Given that she repeatedly emphasizes the centrality of collaboration across all kinds of boundaries (often marked by adding “-with” to a verb), it is difficult to understand why she has not exerted herself more to communicate her ideas to readers like me. Her exertions seem instead to aim at maximum unintelligibility and inaccessibility. This is not to invite collaboration. When she introduces the book by explaining that her “fabulated multiple integral equation for Terrapolis is at once a story, a speculative fabulation, and a string figure for multispecies worlding” (2016:10), I am immediately lost. And thus it continues. The system of idiosyncratic tropes that organizes her text is no doubt “original” (as the blurb says), creative, and perhaps poetic, but clearly not intended to communicate an argument. Page after page, Haraway embarks on sentences that do not convey decipherable messages, but that delegate sense-making to the play of free and frequently unfathomable associations. I find myself paying more attention to the fact that identical sentences are repeated here and there than to their significance. After carefully

reading her book from cover to cover, I am unable to think of any single point that it has made. To the extent that its aspirations are poetical rather than analytical, a reviewer must ask if it is at all feasible to summarize a poem. How do you argue with a poet? The terror of the Anthropocene can obviously inspire poetry as well as analysis, but poems alone will not suffice to guide students who hope to engage in political activism.

Haraway acknowledges her “partners in science studies, anthropology, and storytelling—Isabelle Stengers, Bruno Latour, Thom van Dooren, Anna Tsing, Marilyn Strathern, Hannah Arendt, Ursula Le Guin, and others” (2016:5). Indeed, references to Stengers, Latour, Tsing, and Strathern recur throughout her book, and their blurbs decorate the covers (as Latour, Strathern, and Le Guin have also provided blurbs for Tsing). This inner circle of “tentacular” thinkers (2016:5) do seem to appreciate each other’s styles of thinking and writing (but I doubt that Arendt would have reciprocated the acknowledgement). Their current prominence within environmental humanities makes me wonder if the Anthropocene demands nothing less than a cognitive rewiring of the human species—the replacement of ideals of clarity and seriousness with a relaxed (dare I say lax?) and sensuous flamboyance—or if that prominence is itself symptomatic of the imminent collapse of our global civilization. Perhaps both are true. While I would be the first to agree that the restricted forms of rationality of economists and engineers are responsible for the Anthropocene predicament, I continue to hold that it is more promising to respond to the threat of apocalypse by rigorously challenging those forms of rationality than by abandoning serious analysis altogether. I do not believe that the “tentacular” thinking that currently is so popular in the environmental humanities could possibly qualify as intellectual progress.

Haraway’s chapters sprawl in diverse directions, apparently pursuing haphazard fancies rather than a coherent theme. A chapter called “Awash in Urine” explores various far-flung implications of the estrogen treatment that her aging dog receives for leaking urine in her owners’ bed. Almost seamlessly, the book finally turns into pure science fiction, as the author indulges her personal fantasies about world developments four centuries into the future. Haraway’s scenario emphasizes voluntarily reduced human reproduction, leaving a planetary population of only three billion in 2425. More remarkably, a growing proportion of this population are genetically engineered, cross-species “symbionts” combining human and nonhuman DNA. The central personality in the story, a sequence of five linked and overlapping lives all called “Camille,” is thus a hybrid between a human and a Monarch butterfly. The world is organized into “Communities of Compost,” and Camille is born into such a community named New Gauley, West Virginia. The year is 2025, midway through the period that future historians will call the Great Dithering. In such communities, Haraway imagines,

Decolonial multispecies studies (including diverse and multimodal human and nonhuman languages) and an indefinitely expandable transknowledging approach called EcoEvoDevoHistoEthnoTechnoPsycho (Ecological Evolutionary Developmental Historical Ethnographic Technological Psychological studies) were essential layered and knotted inquiries for compostists. (2016:150)

It struck me that Haraway does not devote a single word to New Gauley's economy or subsistence base. How does this imagined future community combine super-advanced biotechnology with a lighter pressure on the planet's resources? How does it feed its inhabitants? Although Haraway and Tsing share a passionate interest in nonhumans—Haraway calls herself a “lifelong animal lover”—it is evident that their practical engagement with other species does not extend much beyond owning dogs and picking mushrooms. For those of us who have spent decades in the countryside raising animals, growing crops, and caring for a forest, the notion of multispecies entanglement is more than intriguing jargon. Although it may sound innovative—even subversive—to urban academics comfortably at home in their offices, for many rural people it has always been obvious that sheep, mice, trees, and weeds have purposes and agency. I am reminded of the ontological gap I detected already as a graduate student between my urban colleagues in anthropology and my rural neighbors dedicated to farming and forestry. The anthropologists' reflections on the exotic life-worlds they had encountered during fieldwork on distant continents often sounded a lot like rural experiences anywhere. Their middle-class gaze frequently focused precisely on the embeddedness—among familiar persons and landscapes—of which urban modernity had deprived them. Over and over again I have been struck by the same reflection: much of what ethnographers seek, discover, and articulate in remote places is more about crossing social distances than geographical or cultural ones. Reading Tsing and Haraway, I have frequently wondered to what extent their neologisms and sense of discovery derive from an urge to verbalize a mode of experiencing the world that lies just beyond their reach, but remains fundamental to a great many people on the planet.

To the extent that the abandonment of serious analysis would be a symptom of the collapse of our exploitative global civilization, I would not have any objections, as this might halt the Sixth Extinction and other ongoing processes of planetary destruction. Unfortunately, however, the growth enthusiasts and ecomodernists who are promoting this civilization are unlikely to be the least perturbed by posthumanism. In keeping critical human science defused—preoccupied with crochet artwork, leaking dogs, and expensive mushrooms—the promotion of posthumanist discourse is ultimately tantamount to looking away while neoliberal capitalism continues to destroy the planet. In other words, it can only serve as a convenient accomplice of neoliberalism.

Haraway and Tsing both express critique and distrust of a loosely defined phenomenon of capitalism. Haraway repeatedly refers to geographer Jason Moore's efforts to champion the concept of the "Capitalocene," and she generously endorses his monograph *Capitalism in the Web of Life: Ecology and the Accumulation of Capital* (2015). Are we witnessing the unlikely convergence of posthumanism and Marxism? A major chapter from Haraway's *Staying with the Trouble* is included in Moore's (2016a) edited collection *Anthropocene or Capitalocene? Nature, History, and the Crisis of Capitalism*, and Part I of Moore's collection is even subtitled "Toward Chthulucene?" Moore's original aim appears to coincide with that of the conference on "World-System History and Global Environmental Change," which I convened in Lund in 2003, and to which he was invited, namely to bring together insights on the world system and the Earth system (Hornborg and Crumley 2007; Hornborg et al. 2007). Both Haraway and Moore acknowledge that the word "Capitalocene" was actually invented by my former graduate student Andreas Malm at a seminar in Lund in 2009, while Moore was employed as lecturer at our Human Ecology Division. However, the analytical implications of this concept for Moore appear to have been significantly different from those drawn by Malm and myself. Although we are all critical of the way mainstream discourse on the Anthropocene projects an image of the *human species* (rather than a privileged global minority) having transformed planetary biogeochemistry, which to Malm and me means couching a primarily *societal* predicament in the idiom of natural science (Malm and Hornborg 2014), Moore argues for a dissolution of the analytical boundary between the social and the natural. This concession to the posthumanist fads championed by Haraway's and Latour's cohort of "tentacular" thinkers is not only completely at odds with historical materialism and Marxist theory—as evident in a rudimentary reading of Latour—but in my view dismantles any chance of politically challenging the destructive forces ravaging our planet (Hornborg 2017). Moore's deliberations signify a posthumanist cooptation of the critique of capitalism, which serves no other interests than those of neoliberalism.

The diverse styles and outlooks of the different contributors to Moore's collection—*Anthropocene or Capitalocene?*—do not add up to a coherent approach to current global dilemmas. They range from the clear and cogent chapters by Eileen Crist and Elmar Altvater to the hazy and sometimes unintelligible reasoning of Haraway and Moore himself. Crist's (2016) chapter "On the Poverty of Our Nomenclature," previously published in *Environmental Humanities*, powerfully exposes the insidious vocabulary of Anthropocene discourse, "so matter-of-factly portraying itself as impartial and thereby erasing its own normative tracks even as it speaks" (Crist 2016:18). She points to the glaring contradiction between the hubris of our all-powerful species naming an epoch after itself and aspiring to control the planet, on the

one hand, and our catastrophic incapacity to control our demography, economy, or technology, on the other. To Crist, the contemporary rhetoric on the integration of the social and the natural conceals the “assimilation of the natural by the social” (Crist 2016:28). In retaining the distinction, this interpretation provides a welcome antidote to Moore’s and Haraway’s blurring of the analytical boundaries. Altvater’s (2016) chapter, “The Capitalocene, or, Geoengineering against Capitalism’s Planetary Boundaries,” similarly deplores how nature in modernity is “torn from its natural context and integrated into an economic circuit of value circulation” (Altvater 2016:149). This is not equivalent to saying, in a literal sense, that “the external world—what Marx calls external nature—is a creation of capitalist modernity” (Altvater 2016:149), but that the societal subsumption of nature is disguised by the *representation* of nature as detached from society. Altvater correctly observes that the technological augmentation of labor productivity (and of the *relative* production of surplus value) during the Industrial Revolution, which to Marx and Engels signified “a rupture in human history,” crucially derived from the harnessing of inorganic energy (Altvater 2016:143–146). This point should hardly be controversial (cf. Altvater 2007; Huber 2008; Malm 2016), yet, curiously, the significance of fossil energy is questioned in Moore’s own chapter.

Moore’s (2016b) chapter, “The Rise of Cheap Nature,” summarizes his outlook in *Capitalism in the Web of Life*. To redefine capitalism as “neither a purely economic nor social system” (but who said it was “purely” either?), Moore (2016b:81) resorts to Haraway’s wording, “a historically situated complex of metabolisms and assemblages.” This is neither a contradiction nor a clarification vis-à-vis Marx. Like Haraway, Moore muddles the indispensable analytical distinction between the social and the natural, without which any critique of capitalism would be impossible. He then goes on to challenge the “fossil capital narrative” of the Industrial Revolution, tracing capitalism’s “fundamentally new law of environment-making” (Moore 2016b:89) to the 15th century. Moore asserts that

the rise of capitalism after 1450 marked a turning point in the history of humanity’s relation with the rest of nature. It was greater than any watershed since the rise of agriculture and the first cities. And in relational terms, it was even *greater than the rise of the steam engine*. (Moore 2016b:96, emphasis in original)

This is not a persuasive way of writing environmental history. Preindustrial forms of capital accumulation have occurred for millennia—the most significant discontinuity was indeed the 18th-century harnessing of fossil fuels as a source of *mechanical* energy. As Altvater (2007, 2016) and others have made very clear, it was the unprecedented increase in labor productivity afforded by fossil-fuel technology that created modern capitalism and the predicament of the Anthropocene (cf. Malm 2016). The destructive environmental history of preindustrial European expansion traced by Moore is well known, but the

global prerequisites and repercussions of the Industrial Revolution require a theoretical framework that transcends his account of the particular kind of social organization established in Europe in the 15th century (Hornborg 2013). In its blatant Eurocentrism, this aspect of his argument is very difficult to reconcile with his aspiration to provide a global account of the emergence of capitalism.

Moore's most fundamental muddle pertains to the appropriation of what he calls the "unpaid work/energy of global natures," which highlights the "unity of human and extra-human work" hitherto enveloped in a "Cartesian fog" (Moore 2016b:89). Certainly, as I myself have argued for decades—ironically contradicted 17 years ago by Moore (2000) himself—labor-power as conceptualized in classical Marxism is not the only productive resource that is asymmetrically appropriated, and energy is indeed a common denominator of these appropriated resources. Furthermore, such appropriation is an essential prerequisite of technological progress, which is nevertheless understood in Marxist thought merely as an increase in labor productivity contingent on the inexorable (and morally neutral) advance of the productive forces. But Moore's emphasis on the conversion of nature into advancing labor productivity does not lead him to critically theorize the phenomenon of modern technology as a global social strategy of utilizing nature to physically establish social inequalities. This is what I have referred to as "machine fetishism" (Hornborg 1992, 2001). As for so many others concerned with the ecological dimensions of capitalism, Moore's dilemma is how to reconcile global environmental inequalities with classical Marxist theory, particularly its labor theory of value and its technological optimism. The labor theory of value is misguided in aspiring to analytically derive exchange value from inputs of labor energy, technological optimism in not recognizing that technological progress is contingent on asymmetric transfers of resources. Rather than replace the Marxian labor theory of value—which is *not* only an account of capitalist valorization, but Marx's (1976[1867]: 151–152) explicit conviction regarding value production everywhere, even in ancient Greece—with an equally misguided energy theory of value, Moore chooses to escape into the conceptual haze of posthumanism. "Capitalism's metabolism of work/energy is crucial," he writes, "because it sharpens our focus on how human work unfolds through the *oikeios*: the pulsing, renewing, and sometimes-exhaustible relation of planetary life" (Moore 2016b:90). While such phrases no doubt appeal to the likes of Haraway, I cannot see how they sharpen our focus.

Moore's argument that much of the work/energy appropriated by capital is "unpaid" is difficult to distinguish from the assertions of mainstream economists about environmental externalities, undervalued "true costs," and unpaid ecosystem services. Conventional Marxism thus continues to be

conceptually constrained by the monetary bias of the economic system that it challenges: to use concepts such as “value” and “cost” is to implicitly assume a society organized in terms of (general-purpose) money. Altvater (2016:148), like Christian Parenti (2016:167–169) in his contribution, joins Paul Burkett (1999) in understanding Marx’s concept of “use values” as referring to biophysical qualities that should be distinguished from the monetary exchange values that conceal them, but to conceptualize biophysical nature in terms of “value” is to confuse physics and economics. Such tortuous struggles of heterodox economists to integrate the social and the natural are as futile as the attempts of neoclassical economists to deal with environmental degradation. When the neoclassical economic outlook was established by British economists in the 1870s—abandoning all concerns with the material substance of commodities in favor of an exclusive focus on market equilibrium—it permitted the asymmetric global resource flows of the British Empire to continue, invisibly, beyond the official end of colonialism. It requires a great deal of analytical effort to expose this historical and continuing appropriation of embodied labor and ecological resources by wealthier parts of the world system (Hornborg 1998, 2013; Dorninger and Hornborg 2015), but connections are increasingly being made between the theory of “ecologically unequal exchange” and the dilemmas of the Anthropocene (e.g., Roberts and Parks 2008; Jorgenson and Clark 2009; Malm and Hornborg 2014; Bonneuil and Fressoz 2015). By now it has become widely recognized that the disastrous ecological trajectory of global society is inextricably connected to its widening inequalities. The missing link in fully grasping what I call the money-energy-technology complex, however, is a necessary reconceptualization of modern technology as a global strategy of physically redistributing work and environmental loads. It is the very ontology of “technology” that is at stake. Rather than merely a category of magical ingenuity, technology is the link between our planetary overshoot and the increasing polarization of rich and poor.

The 19th-century consolidation of the disembedded “economy” simultaneously provided the foundation for modern “technology” by outsourcing or displacing resource appropriation, by means of the world market, to sectors of the world system with lower wages and lower land rent. The profound “rupture” represented by the emergence of modern technology—discussed as a source of both marvel and dread by social philosophers such as Marx, Heidegger, Mumford, Ellul, and Marcuse—signified the appearance of a new and uncanny rationality, the efficacy of which is dependent on *not being recognized as contingent on asymmetric exchange* (Hornborg 2016). To conclude that technological artifacts are fetishized social relations of exchange is thus to pursue Marx’s insights on fetishism beyond his own 19th-century horizon. But such a conclusion would be as devastating for

conventional Marxism as for mainstream economics and engineering, because it would undermine their common trust in technological salvation. Much as economic progress must continue to be perceived as independent of Nature, technological progress must continue to be perceived as independent of world Society. Economics and engineering are thus equally dependent on a general denial of how nature and society are actually interfused.

Moore's amorphous intuitions about a capitalist "world-ecology" do not provide an analytically rigorous account of the money-energy-technology complex. He does not explain how the artifact of money is the source of asymmetric exchange and prerequisite to modern technology, nor does he allow his notion of "unpaid work/energy" to explicitly undermine the labor theory of value. In not grasping how 19th-century Marxian value theory is ultimately founded on the monetary framework of the society it aspires to challenge, he is unable to provide an analytically coherent account of the relation between the social and the natural. Money-based concepts of "value" that are derived from capitalist society and ideology must be kept analytically distinct from labor energy and other biophysical resources of nature in order to understand how society and nature, through asymmetric exchange, are interfused in technology. To simply dispel the distinction between society and nature is not at all helpful in our struggles to grasp the current global predicament.

The currently widespread urge to abandon an analytical distinction between the social and the natural can often be traced to Bruno Latour's (1993) seminal book *We Have Never Been Modern*, which argues that the society-nature distinction is merely an ideological prop for modernity. In *Capitalism in the Web of Life*, Moore indeed refers to Latour, apparently unaware that the latter has explicitly denied the very existence of capitalism. Latour's prolific deliberations on the Anthropocene tend to dwell on its alleged monist implications, supposedly contradicting modernist ideology by decisively dissolving the distinction between society and nature. In his view, apparently, this is equivalent to verifying the acknowledgement of agency in nonbiotic things such as geological formations and greenhouse gases. In Latour's (2014) Holberg Prize Lecture, *Agency at the Time of the Anthropocene*—given in response to what he refers to on his website as the equivalent of a Nobel Prize in the humanities—he argues that the agency of general Kutuzov in Tolstoy's *War and Peace* is comparable, if not identical, to the agency of the Mississippi River. This argument has several absurd implications for moral philosophy, law, the humanities, and human social life in general. It implies, for example, that a hermeneutic perspective is completely irrelevant (or should we apply *Verstehen* to rivers?) and that rivers are as accountable for their "actions" as army generals. The most problematic implication of Latour's ambition to dissolve the subject-object distinction is

arguably not the fetishistic attribution of agency to nonliving entities, but the withdrawal of responsibility and accountability from human subjects. The ontological denial of accountability in human subjects—accomplished by putting them on a par with nonhumans—is quite congruent with the disturbing relinquishment of responsibility that is characteristic of the posthumanist rhetoric of Latour and his followers. The undeniable uniqueness of human responsibility—which simply cannot be extended to rivers, volcanoes, or even dogs—remains an insurmountable dilemma for posthumanism. When Haraway (2016:29) asserts that “[w]e are all responsible to and for shaping conditions for multispecies flourishing,” the humanist must ask who or what she includes in the category of “we.”

As clarified by the environmental historians Christophe Bonneuil and Jean-Baptiste Fressoz (2015:75), Latour and others have subscribed to “the overly simple thesis according to which modernity has established a great separation between nature and society, a separation that allegedly prevented us from becoming aware of ecological issues, and that was only challenged quite recently.” The claim that the interfusion of nature and society has been ignored in modernity is historically false (Locher and Fressoz 2012). Given the historical evidence of “a very acute awareness of the interactions between nature and society” throughout the Industrial Revolution and the entire modern period, Bonneuil and Fressoz (2015: 76–82) observe that such a misleading view not only tends to depoliticize environmental issues in the past, but also permits Latour to join the ecomodernists of the Breakthrough Institute in endorsing the technological domination of nature.

Latour’s crusade against dualism is not only historiographically flawed and ideologically dubious, but also misleadingly tends to conflate the distinction between society and nature with the distinction between subject and object, and the latter with the distinction between a calamity and its victims. He thus attributes to the Anthropocene an “utter confusion between objects and subjects” (Latour 2014:9). But the distinction between the social and the natural is *not* synonymous with the distinction between the subjective and the objective. There are *social objects* (artifacts) and *natural subjects* (nonhuman organisms), and only the latter have purposes and agency (Hornborg 2017). Latour insists that even planets and rivers have “goals” just as humans and other living organisms do, but he is quite mistaken to interpret global warming as a “complete reversal of Western philosophy’s most cherished trope,” through which “human societies have resigned themselves to playing the role of the dumb object, while nature has unexpectedly taken on that of the active subject!” (Latour 2014:13).

Global warming is no more nature’s purposive revenge on human society than was the Dust Bowl of the 1930s or any other environmental disaster over

the course of human history. Nor should the relation between calamities and their victims be confused with the ontological distinction between sentient subjects and nonsentient objects. To distinguish between sentience and nonsentience is *not* to comment on—let alone justify—any infliction of harm, whether by humans on nonhumans, humans on other humans, or nonhumans on humans.

Such analytical confusion often makes me puzzled by Latour's professed influence on a vast number of colleagues in the human sciences, many of whom attempt to emulate his witty and sophisticated style but would have serious problems persuasively reiterating his arguments. As I concluded regarding Haraway, Latour's primary aim is obviously not to communicate clear lines of reasoning. His mission is definitely not to help his readers grasp what he is saying. A professional expert on the building of alliances to promote particular and esoteric discourses, Latour has excelled in putting such insights into practice. Most importantly, I am disturbed by the absence in his work of political positioning. I have vainly searched his texts for an indication of some observation that could be regarded as subversive of the neoliberal world market that continues to generate the obscene inequalities, environmental degradation, and financial instability of the Anthropocene. Even Latour's most explicit attempts to elucidate how his approach might be compatible with criticism (2004a, 2004b) are characteristically obscure and evasive. Although fans like Graham Harman (2007) find it strange that Latour's "impact among philosophers has so far been minimal," it may be because philosophers tend to adhere to incontrovertible criteria for analytical rigor. Sophistication and wittiness cannot ultimately substitute for clarity.

Latour's wildly creative but frequently unintelligible streams of thought have contributed some gems of insight, but not a coherent perspective on the Anthropocene. He has taught us not only that artifacts are what distinguish human societies from those of baboons, but that the specific features of our artifacts are significant for the trajectories of our societies. Incomprehensibly, however, he has completely ignored the "agency" of the quintessential artifact of money. He has taught us that it is misguided to "purify" hybrid, socionatural phenomena as *either* social or natural—which is indeed supremely true of the sequestration of the modern categories of "economy" and "technology"—but is mistaken in wanting to jettison the analytical distinction between nature and society altogether. Mainstream economists indeed appear to believe that their accounts of economic progress have no need for Nature, while mainstream engineers appear to believe that their accounts of technological progress have no need for world Society. Yet Nature and Society are not figments of modernist imagination. The modernist trust in an economy sequestered from Nature and a technology purified from Society is what has brought us the Anthropocene.

This review article has not dealt with empirical indications of the Anthropocene. There is a voluminous literature that does so (e.g., McNeill and Engelke 2014; Steffen et al. 2004, 2015; Bonneuil and Fressoz 2015). It has instead critically discussed the academic discourses within anthropology and other human sciences inspired by this global predicament. If my tone has been agitated, it is because I am as dismayed by the ongoing destruction of our planet as Haraway, Tsing, and Latour, but strongly feel that academics deliberating on the Anthropocene have a responsibility that goes beyond publishing hazy and elusive dithering. I am agitated not only because we are destroying the planet, but because legions of critical academics are devoting their intellectual energies to everything *but* contributing to an analytically rigorous grasp of our dilemma. Such a synthesis must necessarily be interdisciplinary. It can only benefit from indignation, but it must not abandon ideals of clarity and analytical rigor.

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