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The Arrival of the Anthropocene in Social Theory: From Modernism and Marxism towards a New Materialism

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Abstract Since its origin in the natural sciences in the early 2000s, the concept of the Anthropocene has spread far and wide. Following the concept's journey away from the natural sciences, where it was invented to designate the advent of a new geological epoch, and into the social and human sciences, its meaning has opened up to many different interpretations. This article examines three competing theoretical narratives about the Anthropocene, which have gained particular traction within social and political theory in recent years: The 'good' Anthropocene promoted by ecomodernists. The 'bad' Anthropocene, or so-called Capitalocene, critiqued by eco-Marxists. And, lastly, the 'uncanny' Anthropocene envisioned by new materialists. Each of these three stories differ not only in their interpretation of the Anthropocene, they also engender notably different political responses. Echoing the insights of new materialists such as Jane Bennett, Bruno Latour and Donna Haraway, the article argues that we cannot rely on a single grand narrative of the Anthropocene today. What is needed, instead, is the proliferation of a multiplicity of different Anthropocene stories: Situated, troubling and more-than-human stories that seek to displace idiosyncratic notions of the autonomous human subject so that we might begin to see what else is there.

Keywords Anthropocene, ecomodernism, eco-Marxism, new materialism, storytelling

Introduction

The arrival of the Anthropocene – this new geological epoch in which 'humanity' has become a planetary force of its own – entails a captivating story. But what kind of story is it? A tale of increased human powers? A tragedy of human fallibility? Or something else entirely? In this article I introduce three different stories of the Anthropocene that have gained increasing interest within social and political theory in recent years: The "good" Anthropocene promoted by the so-called ecomodernists, the "bad" Anthropocene critiqued by the eco-Marxists, and, finally, the "uncanny" Anthropocene envisioned by new materialists. I retrace each of these stories as they unfold in the works of some of the most influential proponents within each tradition, and pay specific attention to the way in which each story answers questions such as: What are the origins

of the Anthropocene and who are its main actors? What kind of problem does the Anthropocene pose, and what political response is required to solve those problems?

While all three stories entail valuable lessons for living in the Anthropocene, I argue that the new materialist story of the Anthropocene is preferable to its two alternatives. There are several reasons for this, including the need to pay renewed attention to the more-than-human entanglements of the climatic and ecological crises of the Anthropocene, as well as the recognition that these crises cannot be reduced to either a crisis of technology or politics, but goes deeper, all the way to the cultural, even spiritual. In this article, however, I emphasize another argument in favor of the new materialist story: Its ability to account and hold space open for what one might call ‘ontological multiplicity’, rather than insisting on the universality of a single grand story of the Anthropocene. As the anthropologist Anna Tsing and others have suggested, the Anthropocene is not a new, universally shared global condition, but more like a ‘patchwork’ of multiple, different, and differing localities that do not scale neatly into a unified global whole (Tsing, 2015; Tsing et al., 2019). The argument is not that all grand narratives of the Anthropocene are entirely false, but that they are at best partly true, that they pertain only or mostly to certain localities, and that they must therefore be supplemented with – and decentered by – a rush of smaller, more situated, and open-ended stories of multispecies survival on a damaged planet.

In what follows, I begin by briefly tracking the origin of the concept of the Anthropocene from its initial inception in the geological sciences and its first entry into parts of the social sciences, such as anthropology and social geography, all the way to its current arrival at the forefront of debates about climate change and ecological within social and political theory. In the three sections that follow, I develop each of the three narratives about the Anthropocene – the modernist, the Marxist, and the new materialist – on their own account, pointing out both their theoretical origins and their sociological reproduction in the landscape of climate politics today, before offering a critical commentary. Lastly, in the final section, I develop my argument for embracing the new materialist story, by insisting that it is best viewed a sort of meta-narrative calling for multiple, situated, and open-ended stories that seek to uproot dominant discourses of the Anthropocene today.

An Origin Story: From Geology to the Human and Social Sciences

Coined as part of a discussion about geological periodization within the natural sciences in the early 2000s, the concept of the Anthropocene has since then proliferated across the social and human sciences, and even outside the walls of academia into art, music, and dance.¹ The scholar often credited with bringing the concept into social science is the historian Dipesh Chakrabarty. In his now seminal article *The Climate of History: Four Theses* from 2009, Chakrabarty argued that the advent of the Anthropocene rearranges the age-old distinction between “human” and “natural” history, and that because humanity has become a geological force of its own, the histories of society and nature have become inextricably meshed (Chakrabarty, 2009).

In the last decade, the Anthropocene concept’s journey into the social sciences and humanities have helped open up new theoretical avenues for thinking about the new epochal condition, with numerous books, anthologies and research articles now centering around the concept (Schlosberg, 2014; Hamilton et al., 2015; Purdy, 2015; Scranton, 2015; Altvater et al., 2016; Davies, 2016; Altvater et al., 2016; Tsing et al., 2017). Despite the concept’s prolificacy, however, it remains highly contested within the social sciences, particular in the disciplines of anthropology and social geography, where it has been criticized for being both too male, too western, and too white (see Todd, 2015; Grusin, 2017; Whyte, 2018; Yusoff, 2018). These issues continue to divide the ongoing academic debates about the Anthropocene, and a number of alternative concepts have been introduced, including neologisms such as the Capitalocene, the Chthulucene, the Planthropocene and many more. Nevertheless, the concept of the Anthropocene, and its alternatives, has come to anchor many of the theoretical debates about the present and future of climate change and the ongoing ecological crises.

In this journal, too, discussions around the Anthropocene have been connected to issues ranging from how failed ‘techno-fixes’ and colonial histories become entangled with the spread of new pathogens and other hard-to-live-with lifeforms (Giraud et al., 2019); the rise of a new type of geo-politics that shifts its focus to the management of the Earth system as a whole (Clark, 2014); to a critical engagement with appeals to ‘sustainable consumption’ as a way of addressing the challenges associated with the Anthropocene (Evans, 2019). Closest to the aims of this article is the contribution by Blok & Jensen from 2019, where they argue that the Anthropocene ‘event’ requires a new kind of social theory, one that draws on a tradition of Science and Technology Studies (STS) and entails slowing down and paying “immanent attention to the politics of varied matters as they unfold across the whole ecology of practices” (Blok & Jensen, 2019, p. 1208).²

While sympathetic to Blok & Jensen’s philosophical project, this article seeks to build on and expand their arguments by turning ‘slow’ and ‘immanent’ attention to how competing conceptions of the Anthropocene prefigure different visions for climate politics today. More specifically, the article addresses three competing narratives of the Anthropocene that have gained particular attention in the last decade: The ‘good’ Anthropocene proposed by the ecomodernists, the ‘bad’ Anthropocene critiqued by the eco-Marxists, and the ‘uncanny’ Anthropocene envisioned by the new materialists. Each of these visions entail different interpretations of the current moment, propose different future trajectories, and depend on different underlying onto-epistemological worldviews. By attending more carefully to each of these world-making projects, we learn something not only about the Anthropocene concept, but also about how the different interpretations of the current moment come to inform and shape politics.

Modernism and the “good” Anthropocene

The most widespread approach to climate politics among political leaders in Western democracies today is undoubtedly the one informed by a modernist view of the Anthropocene. In many ways, this modernist view stands on the shoulders of the scientific understandings of the Anthropocene that came out of the natural sciences in the early 2000s. Here is the Anthropocene, as it was first described by atmospheric chemist Paul Crutzen and fresh water biologist Eugene Stoermer in their scientific newsletter from 2000, which is often credited with coining the concept:

“Considering ... major and still growing impacts of human activities on earth and atmosphere, and at all, including global, scales, it seems to us more than appropriate to emphasize the central role of mankind in geology and ecology by proposing to use the term “anthropocene” for the current geological epoch.” (Crutzen & Stoermer, 2000, p. 17)

On this view, the concept of the Anthropocene has become relevant today because of an increase in human powers: The unprecedented ability of humanity to reshape the contours of this planet has reached a level that now requires the introduction of a new geological epoch. Crutzen and other leading earth scientists have later suggested that because of this new Anthropocene

condition, and the ecological crises it entails, it is time for humankind to own up to its new role as a geological force and become ‘stewards’ of the planet (Steffen et al., 2011).

This scientific understanding of the Anthropocene, and the responsibility it puts on humankind, was brought into a more explicitly social and political register in *an Ecomodernist Manifesto* from 2015.³ Here, a group of 18 scientists, journalists, and environmentalists affiliated with the American think tank The Breakthrough Institute developed their political blueprint for how to achieve a “good, or even great” Anthropocene (The Breakthrough Institute, 2015, p. 6).⁴ Interestingly, the manifesto is highly optimistic about the current outlook. The backdrop to this optimism is a selective history of continued economic growth and human flourishing that have taken place over the past two centuries: Global living standards have gone up and life expectancy has more than doubled, while individual economic and political liberties have spread across the world and are, as the manifesto puts it, “today largely accepted as universal values” (The Breakthrough Institute, 2015, p. 8).

According to the ecomodernists, the achievement of a “good, or even great” Anthropocene hinges on human efforts to “liberate the environment from the economy”, or what the ecomodernists call *decoupling* (The Breakthrough Institute, 2015, p. 18). A successful example of decoupling is the increase in agricultural productivity from the mid-17th century to the 19th century, which reduced the amount of land needed to grow crops and food for an average person by half. There are several other emergent processes of such decoupling taking place today, including stagnating population growth, increasing urbanization, and decreasing resource intensity. Each of these developments are likely to reduce the total human impact on the environment; but they will have to be assisted and accelerated by technological innovations. Rising to the climatic and ecological challenges of the Anthropocene is ultimately a question of increased technological progress. As the authors of the manifesto write: “Absent profound technological change there is no credible path to meaningful climate mitigation” (The Breakthrough Institute, 2015, p. 21).

Here lies a central element of the ecomodernist story: Averting the dangers of climate change hinges not only a decoupling of human *from* nature, but also on an increased technological control *over* nature. The creation of a “good” Anthropocene, it turns out, depends on our ability to effectively intervene in and control natural ecosystems. Mark Lynas, who is an environmental journalist and co-author of the manifesto, describes it the following way in his book from 2011: “playing God (in the sense of being intelligent designers) at a planetary level is

essential if creation is not to be irreparably damaged or even destroyed” (Lynas, 2011). It is the increased powers and influence of human beings that have brought the planet into the current mess, and it is now up to humanity to use its powers to bring it back on track again.

This story of near-divine human powers is deeply entangled with contemporary attempts to address climate change through so-called *Geoengineering*, which refers to “intentional large-scale manipulation of the environment, particularly manipulation that is intended to reduce undesired anthropogenic climate change” (Keith, 2000). Another of the manifesto’s 18 authors, Harvard professor in applied physics David V. Keith, is the founder and executive chairman of the Canadian company *Carbon Engineering*, which works to develop and commercialize Carbon Capture and Storage technologies that can remove CO₂ from the atmosphere in order to reduce global warming. These technologies, while still not fully developed, remain only a subset of a much larger set of geoengineering ‘solutions’ that vary significantly in terms of technological complexity, scope and impact.

At one end of the continuum are relatively low-tech and simple technologies, such as reforestation and greening of dry lands. The mitigating effects of such technologies are not insignificant, but they remain at best supporting measures in a more holistic approach (Boysen et al., 2017). At the other end of the continuum, however, are much more drastic, far-reaching, and risky technologies that have the potential to bring about radical changes to earthly ecosystems. One of the most popular types of high-risk, high-impact geoengineering technologies is Solar Radiation Management (SRM), which entails manipulating the amount of sunlight that enters the atmosphere in an attempt to reduce global warming. Scientific debates about SRM first gained traction in 2006 when atmospheric chemist Paul Crutzen published an article on the potentials of *Stratospheric Aerosol Injection* (SAI). SAI involves spraying sulfate aerosols into the upper atmosphere in an attempt to block out sunlight and thereby reduce global temperatures, similarly to what happens in the event of large volcano eruptions (Crutzen, 2006b).

In his book, *A Case for Climate Engineering* from 2013, Keith makes a distinctly ecomodernist case for SAI: Injecting sulfuric acid particles into the upper atmosphere is not only possible but also “cheap and technically easy”, he writes, making it an ideal geoengineering solution for ecomodernists who insist on the inseparability of economic growth and climate mitigation. It is a technology that could be up and running in “a few years for the price of a Hollywood blockbuster” (Keith 2013, ix). But the questions remains: Should it? Keith ends up conveying a firm ‘yes’ to this question when measured against the dangers of maintaining status

quo. There is “no reasonable doubt,” he writes, that it could be used as an efficient geoengineering measure to significantly slow down global warming and reduce its most severe impacts over the coming decades (Keith & Chasman, 2013, pp. 8–10) .

While the jury is still out on these technologies – both in terms of their desirability and long-term effects⁵ – geoengineering proposals remain a site of hope for many ecomodernists. This hope is sustained, in part, by an underlying understanding of the Anthropocene as a story of increased human powers. As the opening lines of the manifesto goes: “To say that the Earth is a human planet becomes truer every day.” (The Breakthrough Institute, 2015, p. 6). In the ecomodernist Anthropocene, it is humanity, as a species, that has created the current mess, and it is now up to humanity – with its world-altering powers – to ensure a good, or even great, Anthropocene, even if it requires becoming miniature Gods.

There are several reasons to be skeptical of this ecomodernist story, which include its emphasis on sustained economic growth as a precondition for “good” Anthropocene, as well as its naïve optimism in technological interventions. But in order to see just how deep the problems with the ecomodernist worldview go, we might as well turn to the next story of the Anthropocene, the one promoted by the eco-Marxists.

Eco-Marxism and the “bad” Anthropocene

On the surface, the ecomodernist and eco-Marxist stories of the Anthropocene could hardly be more at odds: Where the ecomodernists see climate change and global warming as challenges to be solved within existing political and economic systems, through decoupling and technological innovation, the eco-Marxists argue that any feasible solution to these crises require a fundamental break with those same systems. The eco-Marxist tradition has a long intellectual history, but in recent decades it is in particular thinkers like John Bellamy Foster, and his theories of a ‘metabolic rift’, that has helped bring eco-Marxist thinking back onto in the forefront of social and political theory (Foster, 1999, 2000). To see how this eco-Marxist tradition have tried to come to terms with the concept of the Anthropocene, more specifically, we are going to turn to another prominent figure within contemporary eco-Marxists circles, namely the professor of human ecology, Andreas Malm.

In his book *Fossil Capital* from 2016, Malm lays out a straightforward eco-Marxist account of the Anthropocene.⁶ In contrast to the ecomodernists, the main ecological problem today is not the unintended aggregated consequences of humanity at large, but the systematic

effects of what he calls the ‘fossil economy’: a socio-ecological structure “of self-sustaining growth predicated on the growing consumptions of fossil fuels” (Malm, 2016, p. 4). Malm locates the historical origins of this fossil economy in the British Industrial Revolution and the invention of the steam engine in the late 18th century. While the steam engine itself did not itself cause global warming, the introduction and dissemination of the steam engine, and the fossil economy more generally, helped consolidate new social and economic relations of power that made a small capitalist elite increasingly powerful at the expense of all the rest of humanity. The first step in addressing the challenges associated with the Anthropocene, therefore, is tracing the human origins of these power relations so that we might identify “at least a hypothetical possibility of changing course” (Malm, 2016, p. 19).

Malm’s historical account of the fossil economy goes like this: Up until the invention of the steam engine, the British economy had relied primarily on water power, but the arrival of the steam engine, and the shift from water power to coal, created several advantages for owners of private capital. First, coal could be commodified, stocked, and circulated in the marketplace in ways that the flow of a river could not. It did not require the same laborsome management schemes like shared access to a communal river, and unlike the river, it was spatially and temporally mobile, allowing employers to move freely to areas with the most readily accessible and profitable labor pool. Moreover, the introduction of the steam engine provided an important benefit to capital owners: It could impel a machine, making employers less dependent on labor and insulating them from the resistance of their workers. As Malm writes: “The struggle against labour called for machinery, which called for steam power, which called for coal” (Malm, 2016, p. 222). The combination of these factors drove capital owners in late 18th century Britain to adopt the steam engine, thereby putting the world on the path towards fossil fuel combustion, greenhouse gasses, and global warming we are still on today.

With this historical account in place, we can begin to understand Malm’s broader claims about the Anthropocene, and his objections to the Anthropocene narrative promoted by the ecomodernists. It is not, after all, ‘humanity’ that initiated the fossil economy, and it is not all of humanity that bears the responsibility for global warming. In fact, it was a “tiny minority”, a small “all-male, all-white” class of British capitalists in the late 18th century, that installed the steam engine and ushered in the fossil economy (Malm, 2016, p. 267). Even today, it remains a tiny subset of humanity that emits the majority of the world’s greenhouse gasses: At the start of the twenty-first century, “the poorest 45 percent of humanity generated 7 percent of current CO₂

emissions, while the richest 7 percent produced 50 percent,” and a single US citizen “emitted as much as upwards of 500 citizens of Ethiopia, Chad, Afghanistan, Mali, Cambodia, Burundi” (Malm, 2016, p. 268). One of the core issues with narrative promoted by ecomodernists, therefore, is that it denies the differentiated responsibilities within humanity (Malm & Hornborg, 2014) .

What is the eco-Marxist alternative? This question is addressed head on by Malm in his book *The Progress of This Storm: Nature and Society in a Warming World* from 2018. Here, Malm leaves behind the more historical approach of *Fossil Capital* and engages in an explicitly philosophical and normative project. The book is, in his own words, an attempt to lay out a “conceptual map” that can help guide revolutionary climate action and resistance (Malm, 2018, pp. 16–18). In order to do this, he develops what he calls a *historical materialist* approach to climate change that forefronts unequal social and economic powers among humans beings (Malm, 2018, pp. 161–163). The purpose of such an approach is to highlight the fundamental antagonism that exists today between the ultra-rich capitalist elites and everyone else: In a world where “the richest 1 percent have a carbon footprint some 175 times that of the poorest 10 percent”, we simply “cannot afford *not* to draw lines of separation.” (Malm, 2018, p. 189).

A social theory suited for the Anthropocene, then, must work to attenuate the division that exists between the capitalist elites and everyone else, and push that antagonism towards a radical polarization. Only then can it remain any hope of promoting radical political action and contribute to a revolutionary ecological politics that seeks to liberate both nature and humans from the destructions of fossil capitalism. There might still be a slim chance to avoid worst-case scenarios, but even that window is rapidly closing. Current trajectories of climate change are undeniably apocalyptic, why one must “dare to feel the panic” and then use that panic as a catalyst for radical action (Malm, 2018, p. 226). In the end, the arrival of the Anthropocene and its ecological crises leave us with a straightforward choice according to Malm: “commit to the most militant unwavering opposition to this system, or sit watching as it all goes down the drain” (Malm, 2018, p. 226).

An alternative version of this eco-Marxist story of the Anthropocene can be found in Jason W. Moore’s book *Capitalism in the Web of Life* from 2015. While the primary target of critique here remains fossil capitalism, Moore insists (contra Malm) that capitalism is best understood as “a way of organizing nature” rather than merely a social or economic system (Moore, 2015, p. 2). The ecological history of capitalism is, Moore argues, a history of ongoing

appropriation and transformation of natural environments into capital value. Global capitalism has survived and thrived only by materially transforming its environments, and ceaselessly producing what Moore calls ‘cheap natures’: cheap labor-power, cheap food, cheap energy, and cheap raw materials. Capitalism owes its success to the material and extra-economical appropriation and primitive accumulation of those cheap natures, which have taken place, recurrently, since the colonial expansions of the long sixteenth century. The problem confronting capitalist societies today, and the reason behind the current crises, is that it is becoming “increasingly difficult to get nature – of any kind – to work harder” (Moore, 2015, p. 13). Faced with the intertwined challenges of agricultural stagnation, antibiotic resistance, productivity slowdown, biodiversity collapse, rising commodity prices, and – above all – global warming, fossil capitalism is coming up against its own biophysical limits. In fact, Moore finds the internal contradictions of capitalism today so profound that he considers the continued survival of the system impossible and predicts that “capitalism will give way to another model ... over the next century” (Moore, 2015, p. 294).

Moore’s world-ecological approach remains highly contentious within contemporary Marxist circles, both because of its dissolution of any clear-cut distinctions between society and nature and because of its optimism about the inevitable breakdown of fossil capitalism. Andreas Malm has called Moore’s work “unbridled hybridism in Marxist garb” (Malm, 2018, p. 181), and John Bellamy Foster said in an interview that Moore’s work has “moved to the other side, and now stands opposed to the ecosocialist movement and socialism (even radicalism) as a whole” (Angus & Foster, 2016). This makes Moore’s story all the more interesting here, because it reveals the existence of ongoing intellectual struggles over what is the ‘right’ eco-Marxist story of the Anthropocene, and reminds us that there might not be one single narrative.

Nevertheless, the story told by Malm remains the dominant eco-Marxist view of the Anthropocene. As we have seen, it is a story that works directly against the modernist one: Where the ecomodernists argue for technological fixes and seek to defend existing political systems including its liberal world-view, eco-Marxists like Malm aim to overturn the system and subvert capitalist systems through revolutionary political action. Despite their overt differences, however, the two stories share an underlying similarity: The eco-Marxist story of the Anthropocene is, too, a story of increased *human* powers, even if the increase in powers is ascribed not to humanity as a whole, but to a subset of humanity, the capitalist elites who have power over everyone (and everything) else. In contrast to the ecomodernist story, there is nothing

good or hopeful about this new epochal condition. In fact, the Anthropocene and its ecological crises represent the inevitable and inherently bad outcome of a fundamentally destructive capitalist system. Still, the eco-Marxist story of the Anthropocene remains a distinctly human-centered story, populated solely by human protagonists and antagonists: a small group of capitalist elites, not humanity as such, have brought us into this mess, and now it is up to the rest of us, the 99%, to rise up against the rule of the few, overthrow fossil capitalism, and thereby avert the imminent dangers of an impending climate catastrophe.

Like with the ecomodernist story, there are several reasons to be skeptical of the eco-Marxist story of the Anthropocene. Among these reasons are its preoccupation with capitalism as the single all-encompassing ill of the current moment, as well as its attribution of the origin of the Anthropocene to the early-industrial Great Britain, which not only reflects an underlying eurocentrism, but also misrecognizes that the way in which many of the social and economic dynamics of the current crises goes much further back, and have its roots, at least in the long sixteenth century and the ongoing histories of settler colonialism. But the problems with the eco-Marxist vision of the Anthropocene cuts even deeper than that, and in order to see this, we now turn to the new materialist vision of the Anthropocene.

New materialism and the “uncanny” Anthropocene

The third story of the Anthropocene, the one told by the new materialists, begins where the eco-Marxists put down their brakes: by upsetting the distinction between society and nature, between humans and the rest of the world.⁷ We can get a better sense of this by turning to one of the central texts within the new materialist tradition, namely Jane Bennett’s *Vibrant Matter: A Political Ecology of Things* from 2010, where she lays out the kind of horizontal ontology that underpin the new materialist story of the Anthropocene. Bennett and other contemporary new materialists are not the first, nor the only, to make the claim that the human and the more-than-human world is deeply intertwined, and that forms of agency are distributed across the artificial division between society and nature. As several authors have noted, such insights draw on and have come out of a long tradition of indigenous and non-Western thinking that goes back centuries, even millennia, as well as more recent developments within deep ecology and feminist thought during the second half of the 20th century.⁸ The ‘new’ in new materialism does not suggest unprecedented, it suggests merely a different *kind* of materialism, one that can be

contrasted with earlier forms of materialism such as ‘historical’ materialism, and one that takes seriously the active and agentive capacities of matter (Coole & Frost, 2010).

The starting point for the new materialist story is that the current ecological crises do not simply constitute a technological problem (as suggested by the ecomodernists) or even a political problem (as suggested by the eco-Marxists) but reflect a deeper cultural and existential problem. In *Vibrant Matter*, Bennett argues that the dominant Western worldview, which envisions matter as inert and passive, provide philosophical fuel for human “fantasies of conquest and consumption” that see the natural world as a resource to be extracted and thereby contribute to the current destruction of the conditions of life on the planet (Bennett, 2010, p. ix). What is needed today, therefore, is not just a new kind of politics, but also a philosophical and sensorial reorientation that challenges the ontological separation that divides the world into passive matter and active human beings – the hope being that such a reorientation can help cultivate new desires and sensibilities that will enable wiser and more ethical relations between humans and the more-than-human world (Bennett, 2010, p. 4).

Bennett embarks on this project through a series of theoretical reflections that she refers to as speculative “onto-story” rather ontology, thereby emphasizing the conditions of contestation and unknowability inherent to ontological argumentation (Bennett, 2010, p. 4). Drawing on thinkers such as Spinoza and Deleuze, Bennett’s onto-story is one where deep down everything in the world is made of “the same quirky stuff, the same building blocks” that “we might call ... atoms, quarks, particles streams or matter-energy” (Bennett, 2010, p. xi). These building blocks exist on a “turbulent, immanent field in which various and variable materialities collide, congeal, morph, evolve and disintegrate” making up what we, humans, perceive to be the world. Everything in the world – not only human beings, but worms, rocks, and metallic substances too – exhibit an intrinsic drive to persist and exert different degrees of thing-power that can “affect other bodies, enhancing or weakening their power” – they entail what Bennett calls a vitality intrinsic to matter itself (Bennett, 2010, pp. 2–3).

This intrinsic vitality of all things can be difficult to discern in our daily lives, where most material things appear fixed and lifeless, because their rate of movement and change “proceeds at a speed or a level below the threshold of human discernment” (Bennett, 2010, p. 58). When viewed from the perspective of other temporalities, such as biological evolution or deep geological time, seemingly stable things like minerals and mountains quickly begin to move, transform, and become active shapers of the world, while the seemingly active powers of

“human beings, with their much-lauded capacity for self-directed action” begin to look less significant and much more passive (Bennett, 2010, p. 11). Paying attention to these and other temporalities, therefore, can help challenge the conventional belief that human beings are the only, or even the most important, agents operating in an otherwise passive material world.

From an ecological perspective, human beings are but “a particularly rich and complex collection of materials” that exist ontologically, materially, and practically within a world that is always-already inhabited by a myriad of other human and non-human forces (Bennett, 2010, p. 11). The powers of human beings work with and against a multiplicity of other kinds of non-human agencies that co-shape and often outstrip our human capacities to change the world, even if they do so at different scales and temporalities. By understanding human beings in this way, as operating on the same ontological plane as the rest of the world, the new materialist story displaces human-centric worldviews that insist on distinguishing humanity from nature, by placing humans “at the ontological center or hierarchical apex” (Bennett, 2010, p. 11). This displacement of humans is not meant to not deny the importance of the “often awesome, awful powers” of human beings (Bennett, 2010, p. 10). It does, however, entail an explicit and active attempt to “distribute value more generously” by inspiring “a greater sense of the extent to which all bodies are kin, in the sense of inextricably enmeshed in dense networks of relations” (Bennett, 2010, p. 13).

This emphasis on relationality and ontological entanglement is particularly important to the new materialist story. As Bennett writes with echoes from Spinoza, it is a material and ontological condition of any existing body that it “depends on the collaboration, cooperation, or interactive interference of many bodies and forces” and therefore “never really acts alone” (Bennett, 2010, p. 21). Everything in this world exists and becomes what it is only through its intricate and overlapping relations and interconnections with numerous other things and beings. To capture this ontological entanglement, Bennett borrows the concept of an ‘assemblage’ from Deleuze and Guattari: Assemblages are lively and diverse constellations of “vibrant materials of all sorts” that are “not governed by any central head” (Bennett, 2010, p. 24). A human body, for example, is a complex assemblage of cells, microbes, flesh, water molecules, desires, thoughts, and so on, all of which play a role in determining its capacities. At the same time, human bodies are part of numerous other complex assemblages, say as a work place or political community, which are in turn comprised of a numerous other human and non-human entities. Even the Earth itself, as suggested by James Lovelock and Lynn Margulis in the early 1970s with their ‘Gaia

hypothesis,' can be understood as particularly complex kind of assemblage, made up of a multiplicity of other complex assemblages that constantly encroach upon and develop in relation to other assemblages (Lovelock & Margulis, 1974).

In a series of lectures called *Facing Gaia: Eight Lectures on the New Climate Regime* from 2017, the French philosopher Bruno Latour invokes this assemblatic concept of Gaia to tell his version of a new materialist story of the Anthropocene. When moving from the Holocene to the Anthropocene – from an image of a stable globe to the lively assemblages of Gaia – a post-enlightenment cosmology that posits a bifurcation between humans and nature on the grounds that humans have escaped from or can be distinguished from nature, no longer rings true. For Latour therefore, as for Bennett, rising to the challenges of the Anthropocene requires not only a new politics, but also a whole new cosmology, or what he calls a “counter-Copernican revolution” (Latour, 2017, p. 61).

As the crisis of the Anthropocene suggest, Gaia has starting to “treat us as enemies” (Latour, 2017, p. 281). Throughout most of the Holocene, natural environments remained largely indifferent to the miniscule effects of dispersed human activities, but today they are “no longer indifferent to our actions.” (Ibid). Therefore, in order to avoid waging an outright war against the planet, human beings of the Anthropocene must learn how to respond to Gaia with care, and how to free themselves of the illusions of infinite growth or infinite progress that brought about this mess in the first place. Only by accepting the finitude of human existence and coming back down to earth, by becoming “earthbound” as Latour writes, can humans begin to find and learn new ways of living within the boundaries on this planet (Latour, 2017, p. 244).

Ultimately, for Latour, the ecological crises of the Anthropocene have brought humans into a new condition of Schmittean war between friend and enemy; a war between those still “living in the epoch of the Holocene,” who have not yet realized that the Earth is moving beneath their feet, and those living as “Earthbound in the Anthropocene,” who have realized that in order to survive, they will have to come down to Earth and learn how to sense and respond to nature, to Gaia (Latour, 2017, p. 261). While the simplicity of Latour’s story of a war between good and evil might seem appealing, his story of the Anthropocene is challenged by the eco-feminist philosopher Donna Haraway in her book *Staying With the Trouble* from 2016. Instead of stories of war and conflict, which draw up new lines of friend and enemy, Haraway invites us to pursue what she calls ‘tentacular’ thinking: “a method of tracing, of following a thread in the dark, in a

dangerous true tale of adventure, where who lives and who dies and how might become clearer for the cultivating of multispecies justice” (Haraway, 2016, p. 3).

With a playful curiosity, Haraway follows such tentacular threads into many places, finding valuable lessons in everything from art-activism projects in Southern California that cultivates interspecies trust between humans and pigeons, to the chthonic (under)worlds of Gorgons in Greek myths, the frontiers of biological research on symbiogenesis, and the science-art worldings of a computer game informed by experiences of native Inupat people in Alaska. If this sounds a little troubling and a bit speculative, it is because it is. While invoking new concepts and modes of story-telling that rely on speculation, fabulation, and science fiction, Haraway intentionally pushes against the limits of existing scientific epistemologies. For Haraway, this speculative work is required, because the Anthropocene has left us in the dark without bearings, and with no stories or concepts to rely on other than those of the outdated dualisms nature/culture, organism/environment, subject/object, which we can no longer think with (Haraway, 2016, p. 30).

But think we must! So, we must learn to think differently, and when doing so it becomes immensely important who and what we think with. This is part of the reason why Haraway takes issue with the story of friends and enemies told by Latour, even if they otherwise share many sympathies. By enlisting Carl Schmitt as his thinking companion, Latour gets too caught up in a story of war that rely on masculine tropes of heroes, victory and defeat, with all of its antagonistic dualisms and apocalyptic futures (Haraway, 2016, pp. 42–43). Today what is needed instead, Haraway insists, is a different kind of stories: More situated, patient, and tentacular stories that extend their webs in many directions and include both Gorgons, spiders, corals, and octopuses, to name just a few of Haraway’s protagonists. Stories that seek to world other worlds, new worlds that can help envision and prefigure a coming-into-being of multi-species justice.

As the title of her book suggests, Haraway urges us to stay with the trouble. She wants us to remain in the troubled, muddled waters of the present instead of returning to simplified grand narratives or leaping into uncertain futures. Staying with the trouble means acknowledging the complex, entangled, often destructive histories that have brought about and still exist within the present moment – such as the histories of settler colonialism that still have their creepy tentacles all over the place today – without thereby succumbing to the belief that is either impossible or already “too late” to think and act differently (Haraway, 2016, p. 56). It means recognizing, and here she agrees with Latour, that there is still time for new and different stories, but these stories

cannot rely on grand narratives of either apocalypse or salvation; neither can they rely on illusions of a return to a stable past, which never existed to begin with, as has become popular in ethno-nationalist movements today. We must, Haraway argues, give up hope in airy promises of solutions that project us into the future or wish for a return to the past, and instead begin to look for muddled hope in the troubled present. Then, and only then, might we begin learning to live with others on this damaged planet.

In the end, the new materialist stories of the Anthropocene told by Bennett, Latour, and Haraway leave us with a decidedly different view of the world than the one conveyed in the human-centered stories of ecomodernism and eco-Marxism. It is one in which the main actors are no longer human beings alone, but a much wider range of actors that include oceans, rivers, metals, corals, spiders, mythical creatures, and Gaia. It is a story in which the identification of the current crises shifts away from a sole focus on CO₂ emissions or fossil capitalism to a much broader philosophical and cultural problem that is deeply connected to the ways in which we, as humans beings, think about and act in relation to the more-than-human inhabitants of this world.

For new materialists, the Anthropocene condition entails an uncanny double movement.⁹ On the one hand, the Anthropocene signals an increase in the world-making powers of (some) human beings over others, including many natural environments. On the other hand, the ecological crises and subsequent lack of human responses simultaneously demonstrates the limits of human powers and reminds us that the Earth is inhabited by many entities whose powers outstrip humans many times over. To new materialists, the crises of the Anthropocene is an invitation to challenge the way we currently think about and perform the relationship between society and nature, between the human and the non-human, and to start paying more attention to the dependencies, entanglements, and resonances that cut across and interrupt those distinctions. Reformulating the problem in this way both changes and expands the range of politics that must be engaged in. Politics-as-usual, technological solutions, or even taking down capitalism is no longer going to cut it. What is needed is a whole new way of understanding of ourselves in the world, a whole new cosmology.

Telling Other Stories: Less Than One, More Than Many

Both the ecomodernist and the eco-Marxist story rely on a dualist ontology that partitions the world into two realms with active and agential human beings on one side and passive law-abiding natural environments on the other. They remain couched within explicitly human and

sociocentric perspectives that overestimate the world-making capacities of human beings and downplay our dependence on, as well as the active powers of, the myriad of non-human forces upset our bids for control. These post-enlightenment stories render the world of non-human matter passive and inert, in turn make us less attentive and responsive to its active and agential (thing-)powers. By telling stories of the Anthropocene that feature almost exclusively human beings and a natural environment that exists ‘out there’, as something that must be protected *by* and *for the sake of* human beings, all the other myriad of beings and things that inhabit and shape our world remain out of sight, out of sense.

The new materialist story explicitly challenges the human-centrism of these other stories. Not because human beings have ceased to matter in the Anthropocene. In fact, human activities matter more than ever, not only from a human perspective, but from an ecological perspective too. As Haraway writes,

the doings of situated, actual human beings matter. It matters with which ways of living and dying we cast our lot rather than others. It matters not just to human beings, but also to those many critters across Taxa which and whom we have subjected to extermination’s, extinction, genocides, and prospects of futurelessness. (Haraway, 2016, p. 55).

But even from a purely self-interested human perspective, the only way to survive in this world is to survive in collaboration with other things and beings, whether it is the microbes in our guts, the pollinators in vital ecosystems, or the oxygen in the troposphere. Of course, we can never completely escape our distinctly human perspectives; we meet and experience the world through our embodiment as human beings with a specific temporality and spatiality. Neither are there any reason to resist our own humanity, nor to reject the special ethical commitments we have towards human others because of our perspectival position (Bennett, 2010, p. 104).

However, we can begin to cultivate a new and more ecological human sensibility towards a more-than-human world, and one way to do so is by telling other stories. Stories that exercise our blunted capacities for caring for and responding to multispecies others (Haraway, 2016, p. 29). If story-telling is a practice of thinking that exercise capacities for caring, the stories we tell both represent and reconfigure what we find worth caring for and are capable of attending to. Thus, in order to start recognizing more-than-human others, and to become attentive and capable of responding to them, we will have to become better at telling less human-centered stories (Van Dooren, 2014; Tsing, 2015; Haraway 2016). Stories that seeks to displace, or at least decenter,

the idiosyncratic Western understanding of the human individual, so that we might begin to see what else is there, what else could be there.

The new materialist insistence on paying attention to more-than-human assemblages and their agentive capacities offers an important counter-narrative to the anthropocentrism of the ecomodernist and eco-Marxist stories. But – and this is important – if the new materialist story of the Anthropocene becomes just another grand narrative, which positions itself as the only story relevant for understanding the current condition, we have not come very far. As Haraway suggests in *Staying With the Trouble*, the stories we tell about the climate and ecological crises are constantly on the verge of becoming ‘too large’, making us unable to see and sense outside its limits. This goes for the new materialist story too. If the increasing popularity of theories of new materialism within universities in recent years means that it gets to position itself as a new hegemonic position, and (against its initial promises) renders us inattentive to, for example, the potential benefits of new technology, the destructive dynamics of capitalist patterns of economic production and consumption, or the situated struggles of marginalized communities, it must certainly be subjected to critique.

Making room for other stories about the Anthropocene requires affirming multiplicity and creative experimentation, rather than insisting on a single overarching narrative. But this is exactly part of the reason why the new materialist story is preferable to the ecomodernist and eco-Marxist alternatives: It recognizes that there is no single story to be told today, and seeks to keep space open for a complex and interlinked world of social and ecological multiplicity. In this sense, it is perhaps better thought of as a sort of meta-narrative – a carrier bag to use a metaphor by writer Ursula Le Guin (1996) – that makes room for other stories, rather than aspiring to become the full story. As a result, the new materialist story of the Anthropocene is not a complete narrative, but one that be supplemented with, populated by, situated stories about the many dispersed and ongoing efforts to promote ecological sustainability and multispecies justice, unfolding in communities around the world today.

In a playful reversal of anthropologist Marilyn Strathern’s original saying, we might say with Anna Tsing and her co-authors that the Anthropocene is ‘Less Than One, More than Many’ (Swanson et al., 2015). It is less than one, because it does not signify a new unified global condition; and it is more than many because its patchwork of different, situated, and increasingly fragile Anthropocene realities, human as well as nonhuman, constantly exceed our capacities for describing them in generalized terms (Tsing, 2015; Tsing et al., 2019). Therefore, if the concept

of the Anthropocene is to continue to foster insightful theoretical insights about the ongoing ecological and climatic crises, new studies of the Anthropocene will have to move beyond the abstract analyses of the new epoch, and towards more concrete analyses of specific lived Anthropocene realities, which can help to challenge and pluralize the grand narratives that posit the Anthropocene as a shared global epochal condition.

To put it differently, not everyone is living in the same Anthropocene. That might sound like an admission of political defeat: How can we begin to push back against climate change and global warming, if we do not even agree upon the premises, if we do not even agree what world we are living in? But that question reverses the real political challenge: it assumes that if only all agreed that we were, for example, living in the Anthropocene envisioned by the eco-Marxists, then we could finally begin to do politics from the same conceptual vantage point. But politics have never started with that kind of common ground. Politics is about creating, or to use Latour's term 'composing' common ground where it does not already exist. It will not do to presuppose a new shared global condition where it does not already exist, whether that condition is described in terms of a single 'humanity' or a single enemy 'capitalism'. Instead, there is an urgent need to act despite ontological uncertainty and with a recognition of situated difference. Doing politics in the Anthropocene, therefore, will have to begin 'in the middle of things', in the complex and muddled realities from which politics arise. Only from here can we begin to compose new and more ethical multispecies relations for the Anthropocene.

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Notes

¹ To read more about how the concept was first introduced and popularized in the natural sciences, see for example Crutzen, 2002, 2006a; Crutzen & Stoermer, 2000; Zalasiewicz et al., 2008.

² Blok & Jensen distinguish their own STS-inspired approach from that of the ‘new materialism’ of thinkers like Nigel Clark and others. I suspect, however, that they would find themselves in sympathy with much, if not most, of the more encompassing vision of a new materialist Anthropocene that I lay out in this article.

³ While the 2015 Ecomodernist Manifesto has gained a lot of attention since its publication, for other contributions to an ecomodernist world-view see also (Brand, 2010; Lynas, 2011; Nordhaus & Shellenberger, 2007; Pielke, 2010).

⁴ Among the 18 co-authors of the manifesto are prominent figures from environmentalist circles, such as Stewart Brand, the controversial author of *Whole Earth Catalog*, and Ted Nordhaus, who is recurrently cited for his proposition that postponing action of global warming is a cost-effective strategy.

⁵ A critical engagement with these kinds of high-risk geoengineering projects can be found in (Hamilton, 2014).

⁶ It should be noted here that many eco-Marxists oppose the concept of the Anthropocene itself. Andreas Malm and others have suggested, instead, the name “Capitalocene”, which emphasizes the decisive and detrimental role played by capitalism in bringing about this new geological epoch and its ecological crises. However, I stick to the more general usage of Anthropocene here. For a more thorough discussion on these matters see the volume *Anthropocene or Capitalocene?: Nature, History, and the Crisis of Capitalism* edited by Jason W. Moore.

⁷ I use ‘new’ materialism here in a rather capacious sense that encompasses both Bennett’s materialism, which draws on a vitalist tradition, and Latour’s materialism, which comes out of Science and Technology Studies and Actor-Network-Theory. While there are notable differences between the two traditions, what connects them here is both their difference to earlier forms of ‘historical’ and ‘economic’ materialism, as well as their insistence on extending agentive capacities across human-nonhuman distinctions. See also *Can We Get Our Materialism Back, Please?* (Latour, 2007).

⁸ Theories of new materialism are sometimes critiqued for silencing, or at least neglecting, the importance of earlier theoretical contributions, in particular by indigenous and non-Western thought, or even extending colonial imaginaries. See for example Sherilyn MacGregor’s recent article “Making Matter Great Again” in *Environmental Politics*, where she writes that “we did not need Bennett to write *Vibrant Matter* to help us see the non-binary enmeshment of materiality and values” when several traditions of thought were already making similar arguments (MacGregor, 2021, p. 50). Critiques like these are important, and suggest a real need for new materialists to acknowledge the connections to prior work and thinking, both in terms of academic recognition and citation practices, while fostering new alliances across lines of difference that do not exacerbate existing inequalities and hierarchies of privilege (see also Todd, 2015).

⁹ I am using the word ‘uncanny’ here in the sense suggested by Nils Bubandt, to capture the feeling that something which previously seemed safe and familiar, such as life on this earth, suddenly takes on a new and unhomely character (Bubandt, 2018).

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