13 Unnarratable Matter

Emergence, Narrative, and Material Ecocriticism

Juha Raipola

How can we make sense of the emergent, self-organizing capacities of the material world? This question has been recently addressed by two otherwise quite divergent fields of literary and narrative theory – cognitive narratology and material ecocriticism. In both approaches, the problem of anthropocentrism is often a guiding principle of investigation. For cognitive narratology, this is typically a question about how narrative fails in the representation of a certain kind of complex causality, and how "we",[1] as members of a certain natural species, almost invariably use narrative logic to make sense of both ourselves and our environment. According to the situated and enactivist paradigm of the field, human understanding of temporal phenomena is, at its heart, based on narratives; storytelling is an ability that allows us, as human individuals, to manage time by discovering or imposing links between different cultural and material phenomena. There is, however, an anthropocentric and anthropomorphic bias in the narrative logic used by such sense-making: we have a general tendency to approach the world through narrative explanations, even when they crudely misrepresent the systemic logic of emergent behavior under investigation.

In the theoretical horizon of material ecocriticism, a similar question is more standardly addressed in terms of nonhuman agency. Drawing from the recent discourses of "new materialisms" and the wider "material turn"[2] in humanities and social sciences, material ecocriticism investigates the capacity for material objects to act with effectivity – to have agency or even a "voice" (or several voices) of their own. This is contrasted to the more traditional, anthropocentric view of human individuals as the only beings endowed with mind and agency, a perspective where the material world – including both "inanimate" matter and nonhuman forms of living – is seen as largely passive, inert, and unable to communicate any independent expression of meaning. Material ecocriticism aims to situate human agency in an ecological field of more-than-human forces and substances, which often merge with the life of our bodies and environments. In this complex landscape of both human and nonhuman "actants" – to use Bruno Latour's terminology – agency is not the sole property of intentional human beings but something that also belongs

to such entities as hurricanes, rocks, environmental pollutants, or nonhuman animals, to mention just a few examples. Critically informed by Karen Barad's theory of agential realism, material ecocriticism situates all phenomena as the "intra-actions" of material and discursive practices and agencies, which co-emerge at once in the world's "ongoing becoming". In contrast to the usual "interaction", which presumes the prior existence of independent entities, the notion of intra-action proposes that distinct entities do not precede, but rather emerge through, their intra-actions (Latour 2004, 237; Barad 2007, 33; Iovino and Oppermann 2014, 1–10).

One of the key concepts of material ecocriticism is *storied matter*, which emphasizes the capacity of nonhuman matter to participate in the construction of stories. The two foremost architects of the field, Serenella Iovino and Serpil Oppermann (2012, 83), posit that matter, "in all its forms, becomes a site of narrativity, a storied matter, embodying its own narratives in the minds of human agents and in the very structure of its own self-constructive forces". In this way, material ecocriticism sees material reality as endowed with a narrative agency – an ability to partake in the narrative process. In fact, Iovino even questions our conventional notions about storytelling as a mere human activity. For her, "every living being tells us evolutionary stories of co-existence, co-dependence, extinctions and survivals" (Iovino 2015, 71), and for a similar reason, she also wonders:

> *[W]ho* is the storyteller of these stories narrated through and across bodies by actants such as toxic waste, sick cells, individual organisms, and social forces? *Who* is really the "narrating agent", if things' agency is a narrative agency? Rather than (metaphorically, of course!) "killing" the author, we should maybe re-draw the boundaries of authorship in a more realistic way.
>
> (Ibid. 83; emphasis in the original.)

In Iovino's account of material ecocriticism, human individuals are not the true "authors" of the stories we tell about our nonhuman surroundings. According to her, part of the story is always "told" by nonhuman agencies – such as electricity, toxins, fungi or climate patterns, and their entangled co-dependencies – in the creatively emergent becoming of the material world. From this perspective, "reality emerges as an intertwined flux of material and discursive forces, rather than as complex of hierarchically organized individual players" (Iovino and Oppermann 2014, 3). This means that the anthropomorphization of things, places, natural elements, and nonhuman animals is recognized as a narrative technique employed to stress the agentic power of matter and the horizontality of its elements. Drawing upon the assumption that narratives about the agentic capacities of matter can be enlightening and important

ways to involve nonhuman entities into our social, cultural, epistemological, and ethical landscape, material ecocriticism treats stories as a form of "strategic" anthropomorphism, which liberates things from their silence.

With its task of giving voice to nonhuman matter, material ecocriticism has so far remained silent about the failures of narrative in addressing the complex behavior of the material world. In this chapter, I will try to remedy this oversight: rather than focusing upon the "storied" nature of matter – the capacity of nonhuman agencies to influence our narrative sense-making – examined so far by the majority of studies in material ecocriticism, I will employ the theoretical landscape of cognitive narratology as an entry-point to the inherent creativity of "unnarratable" matter. With this move, I aim to highlight how a central attribute of complex natural-cultural systems is actually unrepresentable in narrative discourse and thought, and how narratives are often antithetical to our aspiration to grasp the true complexity of material processes. By exploring the creative tendencies of matter beyond narratives, I will thus try to demonstrate why the creativity of matter should not be equated to mere narrative agency. In fact, my intention is to sketch out a notion of unnarratable matter, of material agency that defies our human sense-making by not conforming to the implicitly anthropomorphic logic of narrative.

Narrative and Complex Material Systems

Material ecocriticism, as defined by Iovino and Oppermann (2014, 7),

> is the study of the way material forms – bodies, things, elements, toxic substances, chemicals, organic and inorganic matter, landscapes, and biological entities – intra-act with each other and with the human dimension, producing configurations of meanings and discourses that we can interpret as stories.

Intrinsically, it is a theory which "investigates matter both *in* texts and *as* a text" (ibid., emphasis in the original). This means, first of all, that it is an approach which focuses on the way matter's (or "nature's") nonhuman agentic capacities are described and represented in narrative texts. As such, material ecocriticism can be seen as a method for literary and cultural interpretation: it is an approach for analyzing narrative representations with its focus on the agentic power of matter. Second, however, it also means that material ecocriticism focuses on matter's own "narrative" power of creating configurations of meanings and substances. Matter itself is seen as a "text", where "dynamics of 'diffuse' agency and nonlinear causality are inscribed and produced" (Iovino and Oppermann 2012, 79–80) – material ecocriticism attends to the stories and the narrative potentialities that develop from matter's process of becoming.

Taking matter as a text means, quite obviously, questioning the very idea of text: for material ecocriticism, text includes both human material-discursive constructions and nonhuman things such as water, soil, stones, metals, minerals, climate, bacteria, toxins, food, electricity, cells, atoms, and all cultural objects and places. The characteristic feature of these material configurations is that they are not made of single elements, isolated from each other. Rather, they form complexes that are both natural and cultural, and in many cases, human agency and meanings are intensely entwined with the emerging agency and meaning of these nonhuman beings. From such a perspective, the separation between human and nonhuman agency is ultimately blurred: it is often impossible to draw clear lines between the subjects and objects of actions in line with modern thought. In our contemporary world, this is rather uncomfortably demonstrated by global environmental problems such as climate change, where the material "nature" is always escaping from the assumed human control.

Cognitive narratology may seem like a strange bedfellow to the discourses of this kind of ecocritical theory: cognitive science is not a field particularly well known for its environmental awareness. Contemporary narratological theory, however, is often informed by the post-computational, embodied, and enactivist paradigm of cognitive science, which shares a significant number of similarities with the basic tenets of new materialisms. Most importantly, it is based on a non-anthropocentric view of human cognition: it approaches human individuals as biological organisms among others, and is typically concerned with embodiment as well as the interactive "structural coupling" of all organisms with their environments. According to cognitive narratologist Richard Walsh (2011, 75), for example, "the laws of natural selection represent the base level of a complex system from which genes, organisms, species, ecosystems, and the whole of natural history are emergent phenomena". Why is this kind of evolutionary view of the material world relevant for narrative theory? Mainly because of the limitations of our narrative understanding: in narrative accounts of evolutionary processes, we can only attribute agency to one or other of these phenomena and so "inevitably traduce the way the laws of natural selection operate" (ibid.).

One of the inherent key characteristics of all narrative representation, as noted by Walsh, is the fact that it tacitly gives agency to both human and nonhuman entities, be they individual organisms (such as humans or ants), collectives (human societies or ant colonies), inanimate objects (power lines or pheromone trails), or abstractions (the stock market or natural selection). As the theories of material ecocriticism and the new materialisms suggest, we can use such narratives to make sense of the complex "intra-actions" of the material and the cultural spheres. The problem with this kind of narrative representation is, however, that it

also imposes an anthropocentric perspective on the ongoing processes; it renders them intelligible, as Walsh (2016, 274) puts it, "by representing them in fundamentally human terms". With this quasi-automatic act of narrative sense-making, we are actually actively reducing the complexity of the more-than-human world to deceptively clear narrative patterns and causalities.

According to Walsh, there are several problems associated with the anthropocentric and the anthropomorphic features of narrative representations. First of all, they ascribe human-like intentionality to nonhuman entities: narrative agents are portrayed as the initiators of their own actions – as if they chose what they do and what they want to do (Walsh 2016, 274–275). Here, the problem of anthropomorphism is not really the attribution of agency to the nonhuman environment, but rather the mistaken notion that all agency is based on centralized "top-down" control. Even when the creative tendencies of matter are wholly appreciated and approved, this kind of intentionality typically seems like a misrepresentation of the complex actions of the material processes. Nonhuman entities and material bodies can certainly "do stuff", act on each other and on us with different kinds of meaningful effectivity, but not really in the same manner as human individuals. Ignoring the differences between human and nonhuman agency might seem like a move that disputes human exceptionality, but in actuality, it may just as well serve as a universalizing cognitive strategy, which reduces the threatening unpredictability and the causal complexity of the material world to more humanly understandable terms.

Second, Walsh also notes the perspectival quality of narrative. Narratives are constrained by the fact that "every unit of narration involves selection, from the systemic network of relations in any conceivable situation, of a foreground, a line of action, a protagonist" (ibid. 275). This means that we cannot represent the systemic interaction (or, for that matter, intra-action) of multiple concurrent events in narrative. We can either follow the behavior of one ant, for example, or the congregate behavior of a collective group of ants, but we cannot form a satisfying narrative representation of all the reciprocal and recursive networks of interaction in a complex system. Since the logic of narrative is sequential, it is inherently based on the idea of a chain of cause and effect, which cannot really account for the multi-causally interrelated behavior of material systems. Finally, Walsh (ibid.) also mentions how "the global logic of narrative is driven by its orientation towards an end": instead of focusing upon the systemic logic of complex material and cultural processes, we use the logic of narrative to explain the behavior in terms of humanly understandable goals and conclusive endings.

Keeping these observations in mind, it is rather easy to see why the stories or the narrative potentialities that emerge from matter's process of becoming should not be too eagerly accepted as the central objects

of inquiry for material ecocriticism. Once we have acknowledged that "all constituents of nature from the subatomic to the higher levels of existence possess agency, creativity, expression, and enduring connections that can be interpreted as a mélange of stories" (Oppermann 2013, 57), we should be able to move on to the next question: can we really understand the creative dynamics of matter through narrative logic? From the point of view of both material ecocriticism and today's cognitive narratology, the notion of nonhuman agency is inextricably linked to meaning. Nevertheless, in the light of the recent discussions in narrative theory, it would seem like a rather unfortunate mistake to assume that the meanings produced by such agency are already in some sort of narrative form. Stories, instead of pre-existing in the matter as meaningful units to be picked up by us, are employed in order to make sense of the complex interchanges between innumerable human and nonhuman agencies. Matter can, sure enough, produce meaningful actions, which can then be represented and interpreted as stories by human individuals and collectives. The problem with nonhuman agency, however, is exactly the fact that these actions are not compatible with narrative explanations, and for this reason, instead of positing these nonhuman "voices" as our narrative partners in crime, it might be more reasonable to recognize our own limitations in interpreting them.

Plausible Stories

According to contemporary cognitive narratologists such as Walsh and H. Porter Abbott, our narrative logic fails us every time we try to make sense of emergent behavior in natural or cultural systems. In fact, Abbott (2008, 228) even defines "emergence" as a certain kind of complex causality which cannot be readily represented in narrative form. This kind of behavior includes – among other things – such systemic processes as traffic, the stock market, the immune system, ant trails, hurricanes, landslides, flocks of birds, schools of fish, the growth of cities, the construction of beehives, and the neurology of thought. All of these behaviors demonstrate the coming into being of objects or patterns that are not the result of any kind of intention: they are not caused by any sort of centralized authority, plan, guiding hand, or any other kind of overarching control. Instead, they are the result of countless local interactions. There are several ways in which this kind of temporal action can be converted into a coherent narrative, but the most obvious in producing the impression of narrativity is causality. Indeed, many narrative theorists hold the opinion that there is no narrative without a causal sequence of events. According to Abbott, emergent behavior presents a special challenge to our need or desire to perceive narrative "belonging", meaning some sense of how the details of events in time make it possible to perceive a story of change.

In effect, he explains that emergent behavior can actually be understood as a gap between different levels of narrative explanation.

The main example provided by Abbott (2008, 234–238) concerns the logic of natural evolution. By examining the evolutionary story of dolphins and their ancestors, for instance, we can readily see the gaps between different levels of narrative. The species of Ambulocetus – also called the walking whale – was an ancestor of modern whales and dolphins that lived in the Early Eocene (50–48 million years ago), and could both walk and swim. The fossilized remains of Ambulocetus belong to so-called transitional fossils as they show how whales evolved from land-living mammals. Based on the fossil remains of Ambulocetus individuals, we can create a story or several stories about a specific male Ambulocetus that lived during that time period. We can follow the temporal progression of the individual's life – how he was born, how he grows up, suffers hunger, escapes from predators, mates, and how he finally dies. This kind of a chain of events can be readily portrayed as a narrative, and with millions of instances of comparable narrative material, this story belongs to the micro level.

Out of these actions of Ambulocetus individuals emerges another story – the story of the evolution of modern dolphins. Without any overarching plan, guidance, or coercion, and without any intention of their own, the individuals participate in the production of a macro-level story, where the protagonist is no longer the individual Ambulocetus but the whole species. The story goes like this: Ambulocetus evolves into Kutchicetus; Kutchicetus evolves into Protocetus; Protocetus evolves into Basilosaurus; and so on, until we get to the modern, extant family of dolphins, Delphinidae. This narrative, which tells the evolutionary story of dolphins, has the phrase "evolves into" as its moment of causal action. We can narrate this story just as we can narrate the fluctuations of the stock market, the construction of a beehive, or the growth of a nation, without any reference to the emergent processes that actually bring them into being. In each case, the pattern of change at the macro level is produced by aggregate behavior at the micro level, yet we cannot tell a coherent story about the relationship between the two.

In emergent behavior, the necessary sense of narrative "belonging" is lost in a massive distribution of cause among agents, all of which interact, to some degree, by chance and each of which lacks a dominant role in the emergent behavior of which it is a part. The changes that occur at the macro level are the combined consequence of thousands, millions, or billions of small stories that play out at the micro level. For this reason, there is no narratable thread between the micro level and the macro level: massive distribution of causal agents means that there is "action" but not really a "chain of events" needed for a coherent story. In fact, according to Abbott (2008, 233–234), emergent behavior is by definition unnarratable: it is action that specifically defies the formal structure of

narrative for its representation. Something happens, and we can see it happening or even chart its progress, but we cannot really employ narrative logic to explain what is actually going on – how the changes at the macro level emerge out of the systemic actions at the micro level.

According to Abbott (2008, 238), the unnarratability of emergent behavior means that we are prone to representing such action as a narrative of centralized control, which assumes that the collective behavior of a process must be under the control of an entity distinct from the mass. Typically, this leads to misinterpretations about the causal relationships between the participants responsible for the emergent phenomenon. For example, before the bottom-up approach to producing emergent behavior was introduced in modern computing, the flocking of birds was often thought to be based on the leadership of one bird. Similarly, we are also prone to introducing anthropomorphic gods and spirits into our stories about our environment and our own coming into being. If we are to believe Abbott, these sorts of stories with centralized control actually indicate a fear of losing cognitive control. By reducing causal complexity and the role of chance and unpredictability, the narrative of centralized control allows the perceiver to gain the sense of cognitive control in their imagination. Especially in times of personal or national stress, we have a tendency to use cognitive heuristics and produce quick, reductive narrativizations of cause and effect, somewhat plausible stories that help us manage the complexity of the world – with often disastrous results.

The language we have for describing any kind of action over time is almost inevitably saturated with narrative discourse. In the words of Abbott (2008, 240): "[i]t is the language of characters and events, of action and reaction, feeling and intention". In fact, each and every narrative about emergent processes is responsible for reducing hugely complex causal relationships into stories with single causal actors. Narratives are then based on such anthropomorphic actors as Evolution, Nature, Nation-State, City, Climate Change, Stock Market, or Intentional Human Individual, which are portrayed as the protagonists or antagonists responsible for different actions and changes. Instead of explaining the complexities of the stock market, we can simply note how "the market responded with panic to today's news". Instead of explaining the full range of, for example, social, neurological, bacterial, chemical, and ecological complexities behind all human actions, we can tell a story about an intentional human individual writing a scholarly chapter. With such stories, we are constantly misrepresenting the reciprocal interactions of the system by assigning agency to a singular actor with "humanlike" motives and objectives.

Agency in the Anthropocene

Agency, in modern philosophy and sociology, has typically been defined as the human capacity to make choices and act on them. In the

discourses of new materialisms and material ecocriticism, in contrast, matter is considered as a form of "emergent" agency that is combined and interferes with every act of "intentional" human agency – and for this reason, none of our intentional acts is restricted to the sphere of pure intentionality, but always "situates itself within a setting of co-emerging material configurations" (Iovino and Oppermann 2012, 86). Heather Sullivan (2013, 147–150) explains that this viewpoint modifies the modern conception of agency in two important respects. First, it expands the sense of agency to include the more-than-human world, where such entities as nonhuman animals, power grids, environmental toxins, floods, rivers, or blood cells are moving through space and creating an effect in their surroundings. At the same time, however, it also diminishes the agency of the human subject as it is no longer seen as an outside force freely shaping the world: embodied human individuals are examined as part of a larger, interlinked system of things, matter, and living beings, where people, animals, artifacts, technologies, and elemental forces share powers and operate in entangled but often disharmonious conjunction with each other.

One of the defining features of our current time period of the Anthropocene – the geological epoch during which humanity has come to play a critical role in the planet's ecology and geology – is the emergence of the human species as a material agency of its own. Perhaps the most prominent indication of this newly gained agency is the global environmental crisis set in motion by anthropogenic climate change. According to historian Dipesh Chakrabarty (2009, 201–212), anthropogenic explanations of global warming have led to a collapse of the modern distinction between natural and human history: in this day and age, humans are considered a force of nature in the geological sense. Thinking of humans as a geological force involves positing "human species" as an actor responsible for the current ecological problems. As Timothy Clark (2015, 14–15) has noted, this "transpersonal agency" of the species consists of the emergent effects of collective human actions on the scale of the entire planet. As such, this species-level agency is not "capable of voluntary action or planning" (ibid. 15) – it arises from the typically unforeseen consequences of the plans and acts of its constituents.

With the methodological framework of material ecocriticism, the emergence of the human species as a geological force could be interpreted as a material story – a story about the combined effects of human activity as a material agency among others. In fact, Bruno Latour (2014, 3) has recently suggested that in the age of the Anthropocene, human history is to be joined to planetary ecology in what he calls a "geostory" – a dynamic unfolding of human and nonhuman forces where neither humans nor ecosystems are in complete control. If one actually tried to construct such a story, however, one would quickly

encounter the restrictions of narrative in representing the complex causality of material processes. At the outset, one would have a hard time identifying the main actors – protagonists and antagonists – of the story. Climate change and other global environmental problems are based on numerous, interrelated changes in our environment, none of which are truly "responsible" for the potentially catastrophic outcomes of the current developments. In order to narrate the progress of the ongoing environmental crisis, one would need to be able to point out such individual anthropomorphic actors as the Greenhouse Effect, Carbon Dioxide, Fossil Fuels, Livestock, Deforestation, Waste, Human Species, Ecological Footprint, Natural Processes, Ecosystems, Petroleum Industry, or Global Capitalism, all of which then supposedly contribute in different ways to the permanent changes in global weather patterns. With such a multiplicity of active participants – which vary depending on the choices made by the storyteller – narratives have a tendency to become perplexingly complex, and even then, they cannot account for the true complexity of the ongoing material processes. Furthermore, narrative logic struggles to track the nonlinear behavior of the systems, and it cannot really explain, for example, the emergence of climatological "tipping points", where a relatively slight rise in Earth's temperature can cause an intensely more dramatic change in climate. It is no wonder, therefore, that the typical everyday representation of the climate change still consists of a hugely simplified narrative of centralized control – one in which the intentionally acting "Humanity" has unconsciously disturbed the peaceful functioning of the outside "Nature", and now needs to revert this process or at least minimize its impact.

The problem of agency in narrative sense-making has already been tacitly implicated by much of the discussion surrounding the emergent notion of the Anthropocene. One of the most pertinent criticisms of the concept has stemmed from the purported role of the entirety of the human species as the main perpetrator of planetary-scale ecological problems. In their critique of the "Anthropocene narrative", Andreas Malm and Alf Hornborg (2014) point out how the standard story of the newly found Anthropocene epoch essentially ignores the socio-critical fact that uneven distribution and exploitation of resources is a basic condition for modern fossil fuel technology. By tracing the historical development of fossil energy as the quintessential productive force in modern capitalist economy, Malm and Hornborg suggest that the global ecological impact of fossil fuels has not truly been effected by humankind in general, but rather by the richest subset of the human population. The Anthropocene narrative, which depicts the emergence of the entirety of humankind as a geological force, is thus based on a crude misrepresentation of intra-species inequality. With the abstract ensemble of *Anthropos* as its main actor, the story of collective human impact and responsibility evades any questions of the unequal role of different

social and ethnic groups, genders, and social classes or societies in the production of global-scale ecological change.

Similar issues have been raised by Christophe Bonneuil and Jean-Baptiste Fressoz (2016), whose historical account of the Anthropocene strives to critically deconstruct the standard story of the newly found geological epoch. This naturalist "grand narrative" of the new geological epoch dominated by human activity originates from the same group of specialists in Earth system sciences whose work helped to establish the entire scientific debate on the question of the Anthropocene. Rather than simply producing data about the current state of the planet or suggesting a systemic view of its possible future, the scientists who named the Anthropocene also provided it with a certain history – an authorized narrative account of the Earth system and its co-evolution with the human species over the last centuries. Approaching the issue from the point of view of humanities and social sciences, Bonneuil and Fressoz remain acutely critical about several aspects of this naturalized account of geohistory. As historians of science, their objective is not to undermine any of the empirical measurements or material realities related to the concept of the Anthropocene but rather to question the relevance of the official narrative, especially in its managerial and depoliticized overtones.

As stated by Bonneuil and Fressoz, a major issue of the standard story of the Anthropocene stems from its depiction of history as a contest between the human species and the planet, "with societies as ignorant and passive masses who can only be guided by scientists and saved by green technologies" (2016, xiv). With this kind of narrative orientation, the Earth is habitually represented as a totality to be governed: historical facts are only relevant in as far as they can be measured as quantifiable data, and the entire planet is routinely observed from a strategic external viewpoint from which it can be "objectively" studied as a global system subjectable to human management and control. The managerial emphasis of the naturalist grand narrative is accompanied by the abstract category of "humanity" as a universal agent uniformly responsible for the Earth's new geological regime. The historical story is regularly construed around the idea of sudden enlightenment: after hundreds of years of ill-fated ignorance, during which the human species has unconsciously destroyed the planet to the point of shifting it into new geological epoch, "we" are now finally awakening to the planetary-scale environmental consequences of collective human action. According to Bonneuil and Fressoz, however, such a shift from unawareness to awareness only exists as a story maintained by present-day scientists: historical evidence clearly suggests that the destructive practices and technologies of the modern capitalist economies have not been adopted in any sort of blissful ignorance, but more often in full knowledge of their potentially harmful effects.

With similar reasoning to Malm and Hornborg, Bonneuil and Fressoz argue against the dominant conception of the Anthropocene as the

collective result of undifferentiated human action: in the standard narrative of the new epoch, the abstract category of "human species" effectively masks huge dissimilarities of responsibility between different actors and institutions in the complex production of global ecological disturbance. The problem stems mainly from the natural scientific background of the main popularizers of the Anthropocene narrative: while the Earth system sciences can productively continue to pursue their quantifiable research interest with a generalized notion of human impact, any kind of social or cultural analysis of the development of planetary-scale environmental change would clearly require a more differentiated view of humanity. In order to confront the main issues of the naturalist narrative, Bonneuil and Fressoz seek after a more culturally and socially informed perspective on the questions of Anthropocene – a view that would "have to take into account social asymmetries and inequalities, exploring how these are mutually constructed – on different scales, including the global – with the distribution of flows of matter and energy through economic, political and technological mechanisms" (Bonneuil and Fressoz 2016, 69). In their account, such a differentiated viewpoint is needed not just to maintain historical accuracy, or to evaluate the responsibilities of the past, but also to pursue future policies that would be more impartial and more effective.

While the above evaluations of the standard narrative of the Anthropocene bring forth a number of important insights about the questionable results of utilizing the abstract totality of "human species" as an anthropomorphic narrative actor, their socio-critical viewpoint comes with its own set of problems and dilemmas. One of the most pressing issues concerns the distinctly anthropocentric orientation of the critique: by focusing their attention on the questions of social action and responsibility, researchers in the humanities and social sciences run the constant risk of overemphasizing the role of intentional human agency as the main causative factor responsible for the future of the Earth. Pinpointing the guilty parties through social and cultural analysis, even when it is ourselves who are shown to be guilty, can generally produce a false sense of agency: as Slavoj Žižek (2011, 423) has argued in his account of the Anthropocene, "we like to be guilty" for environmental threats since the admission of guilt can successfully delude us to think that the situation depends primarily upon our own choices. In the time of the Anthropocene, however, human agency can no longer be conceived as existing in such a void. The new geological epoch indicates a reunion between human and natural histories; it bridges the great divide between nature and society that widened in the nineteenth and twentieth centuries, and suggests a co-entangled relationship between human and nonhuman agencies.

Even though the concept of the Anthropocene is commonly conceived in predominantly anthropocentric terms, as an account of how "we"

have presently arrived at a new geological epoch due to the emergence of human species as a geological force, the consequential effects of global environmental transformation also suggest the idea that humanity is not making its history by itself but in constant interaction with a dynamically changing planet. In the words of Nigel Clark, the Anthropocene is thus "as much about the *decentring* of humankind as it is about our rising geological significance" (Clark 2014, 25; emphasis in the original). According to Clark (2014; Clark and Gunaratnam 2017), there exists a widespread tendency to portray humans, and humans alone, as the sole actors and players of environmental changes. While much of the discussion surrounding the Anthropocene adheres to this idea, the notion of a new geological epoch also proposes a decidedly less anthropocentric viewpoint on the matter: it allows one to "replace the narrative of humanization of geology with an approach to the geologization of human history" (Granjou 2016, 145). As stated by Clark, there has been a growing consensus in natural sciences of past decades that Earth systems are inherently changeable, with or without human influence. From the perspective of the Earth system sciences, the Anthropocene can thus be considered as merely one more set of transformations in the vast and eventful history of the planet – a history in which human agency is portrayed as one kind of physical agency among numerous others. This means a fundamental shift in the basic orientation of the narrative – the story of increasing human impact upon nature is substituted with a bigger picture of dynamic Earth processes whose timescales reach back far beyond recorded history. Such a shift in narrative scale extends agency to nonhuman telluric elements and forces, and explains human history as conditioned by the Earth's powers of transformation.

In the light of the recent interdisciplinary discussion relating to the Anthropocene, the foremost eco-narrative problem of the current situation does not truly seem to concern the narrative agency of nonhumans, but rather the newly required merging together of socio-cultural and natural perspectives in the interpretation of planetary environmental changes. While the global environmental issues characteristic to the new epoch can certainly give rise to different kinds of stories, their narrative agency appears secondary to their raw material effectivity – the climate change or the ongoing mass extinction of species, for example, can hardly be described as processes that are primarily related to questions of narrative. Both the causes and the effects of anthropogenic planetary changes take place as dynamic material shifts resulting from a complex interrelationship between innumerable human and nonhuman participants. When these co-entangled material forces are subjected to narrative form, their physical effectivity is reshaped into narrated agency of clear-cut actors acting upon each other. Depending on the scale and orientation of the narrative, the complex planetary changes may then be explained as the effects produced by such actors as greenhouse gases,

fossil fuel technologies, human individuals, social groups, the human species, or the entire Earth itself. As the Anthropocene erodes the modern separation between the sphere of actively produced human history and the slow changes of natural processes, it also brings forth the dilemma of selection: since narrative choices always delimit the scale and the perspective of the narrative, there is no real possibility for a construction of a neutral, singular "geostory" of human and nonhuman agencies in action.

The Anthropocene seems to involve a narrative impasse, which manifests itself as a set of incompatible stories about the origins and the future of the latest planetary epoch. On one end of the spectrum, there are the anthropocentric stories of human action on either physical or social level – narratives of the entire human species or different social groups acting upon natural systems and altering their behavior. Some of these accounts tend toward a more structural view, emphasizing the role of anthropomorphized social institutions and policies in the production of planetary change. On the other end, human agency is diminished to the point of non-existence as it is situated within a vast history of climatic and geophysical transformation. Such a viewpoint highlights the creative role of more-than-human material forces but can also ultimately lead to a political or ethical paralysis: by downplaying the impact of intentional human agency, narratives focused on the fluctuations of Earth systems provide very little room for socially induced change. In all varieties of Anthropocene narratives, the perspective always remains limited – instead of providing a clear view into the dynamics of distributed and diffuse agency, narrative form binds environmental change into the shape of human or natural protagonists and antagonists, subjects or objects of the Earth's ecological shifts.

Conclusion

Contrary to some recent accounts of material ecocriticism, there are really no "ongoing stories" in the material world – no previously unaccounted Great Book of Nature opening before our eyes. Instead of continuing stories, matter consists of countless emergent processes which can never be reduced to our narrative representations. Thus, when we interpret the more-than-human world through a narrative lens, we must also remain wary of our own tendency to narrativize complex, emergent behavior into simplified and anthropocentric stories. If we want to respect the creativity of matter in its own terms, we have to acknowledge that its numerous agencies are not performing stories for the human audience, but exist and act of their own accord. No matter how hard we try to fit this world into our cultural landscape of narrative sense-making, a major part of its behavior always remains unreachable.

On the whole, better understanding of the agential capacities of nonhuman things and processes seems to require a clearer distinction between two different notions of material agency. The first variety of agency is the actual, distributed agency of emergent processes: it is the agency of entangled, non-specified human and nonhuman "forces" that continuously come into being without plan or intentional guidance. This entails the intertwined, systemic behavior of material objects and organisms – the entwined activity of different agencies – which can later be interpreted as narratives. There is, however, no pre-given meaning attached to this agency – the behavior of material systems does not consist of any kind of narratives, and can go on just fine without narrative explanations. When approached through narrative logic, a major part of the complex entanglements of human and nonhuman agencies is ultimately lost and ignored. Thus, this kind of agency might be termed a "semiotic agency" or "meaning-producing agency", but identifying it as a "narrative agency" seems like a definite misnomer. Outside the most metaphoric use of the term, material things are not telling their "own stories" to anyone, but are simply behaving in a way that can be interpreted as a story or several stories.

The second type of nonhuman agency is an attribute assigned to someone or something in narrative representation. This kind of *narrated* agency is always ascribed after the fact or in anticipation of a fact, in an effort to make sense of the temporal progress of the action. With this interpretative act, one projects agency to singular actors within the systemic behavior: the non-definable intra-actions of material processes are transformed into subjects and objects, protagonists and antagonists of narrated events. Here, one can encounter such entities as human individuals, genes, seas, volcanoes, methane, carbon sinks, evolution, or climate change acting upon each other. Even though these narratives are based on the actual agency of creative matter, they are bound to narrative logic, which ultimately fails in its representation of the complex causality of material systems. With their limited perspectives, unwarranted human-like intentionality, and tendency toward teleological explanations, narratives skew the emergent, distributed agency of matter to far too familiar forms. Paradoxically, however, we still need these stories to make sense and respect the role of the world beyond us.

Narrative, of course, is not the only cognitive strategy we can use to make sense of the world, but it is one of the most prominent and weighty. Accordingly, instead of endless celebrations of the "narrative" agency of matter, it might often prove more fruitful to analyze the numerous ways in which matter escapes our desire for narrative descriptions. With only a slight change of perspective, material ecocriticism could even be seen as the study of all the complex relationships that are lost when active and emergent matter is in fact "storied" and brought into our

cultural landscape. The focus would no longer be on the question of nonhuman agency, which is taken as a given, but on the question of how even the most accommodating narrative representations of matter inevitably leave out important details, disentangle significant interdependencies, or simplify the ongoing emergence and emergency of the material world into linear stories of cause and effect. Stories, in such an approach, would not be seen as the patent answer to our global environmental crisis, but rather as a major part of the problem.

Notes

1 As can be deduced from the overall argument of the chapter, usage of inclusive terms such as "we" or "one" is highly problematic in the context of environmental humanities. This kind of imprecision in discourse is, however, hardly avoidable, and I will continue to use these terms throughout the chapter for the sake of rhetoric.

2 The material turn, as a field of inquiry, generally considers inanimate matter to possess agency and vitality. In the new modes of materialist analysis, complex issues such as climate change or population dynamics are approached as subject matters that require a reorientation in the methodology of the humanities and social sciences. By highlighting the significance of material factors and corporeality in different aspects of social and cultural life, scholars in new materialisms wish to abandon the idea that the main task of cultural theory is to study the world as it is represented and interpreted by human beings. Matter, in such an approach, is to be understood as a vibrant force, and culture is to be reconceptualized as a material entanglement of humans and nonhumans. For an overview and a philosophical introduction about the material turn, see Coole and Frost's introduction to *New Materialisms* (2010).

References

Abbott, H. Porter. 2008. "Narrative and Emergent Behavior." *Poetics Today* 29 (2): 227–244.

Barad, Karen. 2007. *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*. Durham, NC: Duke University Press.

Bonneuil, Christophe, and Jean-Baptiste Fressoz. 2016. *The Shock of the Anthropocene: The Earth, History and Us*. Translated by David Fernbach. London: Verso.

Chakrabarty, Dipesh. 2009. "The Climate of History: Four Theses." *Critical Inquiry* 35 (2): 197–222.

Clark, Nigel. 2014. "Geo-Politics and the Disaster of the Anthropocene." *The Sociological Review* 62 (suppl. 1): 19–37.

———, and Yasmin Gunaratnam. 2017. "Earthing the Anthropos? From 'Socializing the Anthropocene' to Geologizing the Social." *European Journal of Social Theory* 20 (1): 146–163.

Clark, Timothy. 2015. *Ecocriticism on the Edge: The Anthropocene as a Threshold Concept*. London: Bloomsbury.

Coole, Diana, and Samantha Frost. 2010. "Introducing the New Materialisms." *New Materialisms: Ontology, Agency, and Politics*, edited by Diana Coole and Samantha Frost, 1–43. Durham, NC: Duke University Press.

Granjou, Céline. 2016. *The Futures of Nature*. London: ISTE Press.

Iovino, Serenella. 2015. "The Living Diffractions of Matter and Text: Narrative Agency, Strategic Anthropomorphism, and how Interpretation Works." *Anglia* 133 (1): 69–86.

———, and Serpil Oppermann. 2012. "Material Ecocriticism: Materiality, Agency, and Models of Narrativity." *Ecozon@* 3 (1): 75–91.

———. 2014. "Introduction: Stories Come to Matter." In *Material Ecocriticism*, edited by Serenella Iovino and Serpil Oppermann, 1–17. Bloomington and Indianapolis: Indiana University Press.

Latour, Bruno. 2004. *Politics of Nature: How to Bring the Sciences into Democracy*. Translated by Catherine Porter. Cambridge, MA: Harvard UP.

——— 2014. "Agency at the Time of the Anthropocene." *New Literary History* 45 (1): 1–18. doi: 10.1353/nlh.2014.0003

Malm, Anders, and Alf Hornborg. 2014. "The Geology of Mankind? A Critique of the Anthropocene Narrative." *The Anthropocene Review* 1 (1): 1–8.

Oppermann, Serpil. 2013. "Material Ecocriticism and the Creativity of Storied Matter." *Frame: Journal of Literary Studies* 26 (2): 55–69.

Sullivan, Heather. 2013. "Material Ecocriticism: Goethe as a Case Study." *Literatur für Leser* 12 (3): 147–160.

Walsh, Richard. 2011. Emergent Narrative in Interactive Media. *Narrative* 19 (1): 72–85.

———. 2016. "Narrative Theory at the Limit." In *Theory Matters: The Place of Theory in Literary and Cultural Studies Today,* edited by Martin Middeke and Christoph Reinfandt, 265–280. London: Palgrave Macmillan.

Žižek, Slavoj. 2011. *Living in the End Times*. London: Verso.