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Human and Non-human Agencies in the Anthropocene

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Abstract



The era of human impact throughout the Earth's biosphere since the Industrial Revolution that has recently been named the Anthropocene poses many challenges to the humanities, particularly in terms of human and non-human agency. Using diverse examples from literature, travel reflections, and science that document a wide range of agencies beyond the human including landscape, ice, weather, volcanic energy or gastropods, and insects, this essay seeks to formulate a broader sense of agency. All of our examples probe new kinds of relationships between humans and nature. By configuring a close interconnection and interdependence between these entities, the Anthropocene discourse defines such relationships anew. On the one hand, our examples highlight the negative effects of anthropocentric control and supremacy over nature, but on the other, they depict ambivalent positions ranging from surrender and ecstasy to menace and demise that go hand in hand with the acknowledgment of non-human agencies.

Keywords: ecocriticism, agency, anthropocene, new materialisms, posthumanism.

Resumen

La era del impacto humano en la biosfera de la Tierra desde la Revolución Industrial y que ha sido recientemente nombrada Antropoceno plantea muchos retos a las humanidades, especialmente en términos de agencia humana y no-humana. Usando varios ejemplos de la literatura, reflexiones de viajes y ciencia que documentan una gran variedad de agencias más allá de la humana incluyendo el paisaje, el hielo, el clima, la energía volcánica o los gasterópodos e insectos, este ensayo busca formular un sentido más amplio de agencia. Todos nuestros ejemplos investigan nuevos tipos de relaciones entre ser humano y naturaleza. Al configurar una interconexión e interdependencia cercanas entre estas entidades, el discurso del Antropoceno define tales relaciones de forma diferente. Por un lado, nuestros ejemplos destacan los efectos negativos del control antropocéntrico y de la supremacía sobre la naturaleza; pero, por otro lado, representan posiciones ambivalentes que van desde la rendición y el éxtasis a la amenaza y la desaparición que van codo con codo con el reconocimiento de las agencias no-humanas.

Palabras clave: ecocrítica, agencialidad, antropoceno, nuevos materialismos, posthumanismo.

The so-called "Anthropocene," or the epoch of accelerated and global human impact throughout the Earth's biosphere since the Industrial Revolution, poses many challenges to the humanities, particularly in terms of human and non-human agency. As we begin to understand the scope of the anthropogenic influence that now extends beyond the local, regional, and even continental into global and planetary geography, climate, and pollution, we face a quandary. In short, the Anthropocene suggests an almost paradoxical contrast: on the one hand, human agency is now, according to the very definition of the era, equivalent to a geological force in terms of its vast impact; on the other hand, the sum of countless human activities lacks any characteristics of a

coordinated collective action. Additionally, human choices are determined by specific cultural and material circumstances that themselves shape further actions. At the juncture when the human ecological impact has clearly reached a planetary level, scholars have also noted how our agency is nevertheless always part of larger cultural and material flows, exchanges, and interactions. Indeed, as the new materialisms emphatically demonstrate, the world is rich with agencies in various forms, human and non-human. This essay utilizes the insights from these recent scholarly studies in order to re-consider how various literature, travel reflections, and scientific texts from Goethe until today portray a wide range of agencies or “agentic” forces in the biosphere beyond the human. This broader sense of agency includes diverse depictions of landscape, ice, weather, volcanic energy or gastropods, and insects. Linking all of the examples in this essay are the themes of flow, bodily immersion, and how even the seemingly static and massive structures like mountains and ice are active, changing forces in their own right.

Goethe’s *Die Leiden des jungen Werthers* (*The Sorrows of Young Werther*, 1787) and his *Wilhelm Meisters Wanderjahre* (*Wilhelm Meister’s Journeyman Years*, 1821) are our starting points. We then turn to nineteenth-century scientific treatises and travel documents by James David Forbes and Leslie Stephen that begin to conceptualize the agentic capacity of ice and mountains. For the twentieth and twenty-first century Döblin’s Expressionist novel *Mountains, Oceans, and Giants* (1924) depicts an ever-transforming nature that is also shaped by the agency of various organic and technological materials; and Karen Duve’s novel *Rain* (1999) documents the agentic impact of endless precipitation, swamps, and slugs. The plurality of agencies highlighted by material ecocriticism shares much with the long tradition of animism which is, in many ways, also continued in the deep ecology movement; one key difference appears in the specifically new insights from the ecological sciences and quantum physics that add a very “material” approach to the activity of our surrounding beings and things. Additionally, the textual depictions of various nonhuman agencies considered here conceptualize human beings “ecologically,” that is, as co-participants within active biospheric systems. By investigating and acknowledging a broad spectrum of agencies, this essay therefore attempts to formulate an ethical stance acknowledging both our shared participation in matter’s prism of forms and yet also, simultaneously, the increasingly damaging anthropogenic influences during the Anthropocene. In this essay, we address shifting subjectivities in the anthropogenically altered biosphere, and provide literary examples from the 18th to the 21st centuries that oscillate between surrender and supremacy but offer an increasingly complex understanding of the intersections between human and non-human agency.

Agency and the New Materialisms in the Anthropocene

After the chemist Paul Crutzen and the biologist Eugene Stoermer proposed the concept of the Anthropocene as an age characterized by “the central role of mankind in geology and ecology” in 2000 (Crutzen and Stoermer 17), the claim has been supported by evidence of anthropogenically altered sedimentations rates, ocean chemistry, carbon

dioxide ratios, climate change, global distribution of plants and animals, and species extinction (Zalasiewicz et al. 2010). The realization that deforestation, river damming and diversion, the use of fertilizers, and the depletion of fossil fuels have permanently altered the entire surface of our planet is now entering public consciousness. Stratigrapher Jan Zalasiewicz, chairman of the Anthropocene Working Group, hopes to bring the matter to a formal vote of the International Commission on Stratigraphy in 2016, meaning that the Anthropocene as the current geological era would supersede the Holocene (the previous 11,700 year-long warm period). Most scholars of the Anthropocene assert that this era started with Western industrialization in the late eighteenth century.¹

In considering the economic, ecological, political, ethical, and cultural consequences of the Anthropocene, two competing perspectives have emerged with relevance for questions of agency: on the one side, a pessimistic emphasis of humankind as an unintentional destroyer of the planet, a status earned through the accidental “collateral damage” of our activities. In other words, this view asserts that the Anthropocene signifies the “sum of the ecological crimes” (Leinfelder 15) and is in line with the Club of Rome report on *The Limits to Growth* (1972). The other side pleads for a pragmatic emphasis of humans as designers of the earth, a view which rejects the idea that we can only react to the global damages and instead advocates efforts to mitigate the changes we have wrought and to adapt ourselves to these changes. Placing the emphasis on mitigating the causes, particularly of climate change, asserts the necessity of “a responsible stewardship of the Earth System,” “vastly improved technology,” and a “wise use of Earth’s remaining resources” (Crutzen and Steffen 256). This ethical idea and managerialist approach differs from another approach seeking to mitigate the consequences of anthropogenic climate change, namely geo-engineering (large-scale manipulation of the atmosphere and the biosphere). From the perspective of its critics, particularly geo-engineering assumes straightforward human agency and a new hubris. In broader terms, these critics see the risk of a neo-Promethean manipulation of nature and the perpetuation of its destructive effects on the economic, social and ecological systems. (Steffen et al. 620; Rose et al. 2) We therefore explore questions of agency that contextualize human actions and choices not only within economic and cultural systems but also within material and ecological systems. What if, we ask, we try to approach climate change not from the normative viewpoint of exclusive human agency (human exceptionalism), but rather from the perspective that we are a species living in conjunction with our co-species and interacting with—not just impacting or controlling—the weather, the water flows, the landscapes? All of these things are active forces that impact our choices just as our choices impact their flows. This is the approach of the new materialisms: a study of the reciprocity of energy and matter exchanges in which manifold types of agencies engage.

¹ Crutzen and Stoermer; Steffen et al.; Zalasiewicz et al.

Agencies

We need, therefore, an expanded sense of “agency”; this means re-thinking the traditional subject-object delineation and the simple association of “will” or “rationality” as primary drivers in earthly actions. It also links to the much older as well as non-Western discussions of an animated world as in vitalism or animism, in which things, animals, and human beings are all active forces. In philosophy and sociology, agency is often defined as the capacity of humans to make choices. While agency is thus contrasted with the deterministic response of natural forces, it is also distinguished from the philosophical concept of “free will.” The concept of agency, thus, in contrast to that of free will, acknowledges the fact that humans make decisions to act, but does not indicate whether this happens based on choice or other factors, whether internal or external. To this broadening of agency, the insights of the historian Dipesh Chakrabarty are relevant. He highlights two reasons why the established categories of Western history (which typically assume a nature/culture divide and a specific sense of human agency driven by our will) are no longer adequate: (i) Paleoclimatologists no longer write “natural history” because nature has become an anthropogenic nature on a global scale, and the history of global warming cannot be separated from human activity. (ii) Considering human beings as a “geophysical force” also dissolves the traditional subject-object dichotomy between human and nature. Integrating a revised sense of agency in “our telling of the human story” means “to develop multiple-track narratives” as Chakrabarty (6) puts it.

The work in the new materialisms by Andrew Pickering, Bruno Latour, Karen Barad, David Abram, Jane Bennett, Stacy Alaimo, and Susan Hekman has inspired an increased emphasis on material agencies in ecocriticism. This direction, recently delineated as “material ecocriticism” by Serenella Iovino, Serpil Oppermann, Heather Sullivan, and Dana Phillips, has brought agency to the fore in a new context. In this vein, the so-called “material turn” in ecocriticism contextualizes and broadens our understanding of agency to include the activities of all living things as well as matter’s vibrant energies. As Iovino and Oppermann emphasize, “the main feature of the ‘material turn’ is the refusal to talk of matter in reductionist and essentialist terms,” (Iovino and Oppermann, “Theorizing” 450). Material ecocritics emphasize how all living things impact and change their surroundings, and how the abiotic chemical and energy processes also shape our world. Bacteria, for example, occupy and impact every space of our bodies. Thinking of reciprocity instead of simple linear subject-object relationships is a central feature of material ecocriticism. Additionally, material ecocriticism highlights the *creativity* of all such interactions, and so describes the world in terms of “storied matter,” whether human narrative or the textuality of matter’s activities (Iovino and Oppermann, *Material* 1).

Material ecocriticism and posthumanism both offer insights for a broader definition of agency, particular their emphasis on how humans share agency with many other actors. In this understanding, (human) intentionality is not the sole defining moment of agency. Similarly, Bruno Latour’s “actants” can be human or nonhuman

entities that function as the source of action (Latour 237). Others have also pointed to the advantages of acknowledging widespread agency in living beings and material phenomena. In *Vibrant Matter: A Political Ecology of Things* (2010), political theorist Jane Bennett, for example, describes the “vitality of matter” with a clear similarity to some aspects of vitalism and animism, yet within the framework of recent science. She calls attention to the full range of nonhuman bodies and processes that surround and influence human behavior. To Bennett, matter sets into motion interactive processes. Things themselves have histories and undergo transformations, thereby also altering their surroundings. Bennett therefore revises the definition of agency to be a form of “creativity”: “a capacity to make something new appear or occur” (Bennett 31). Whereas traditional notions of agency emphasize the intentionality of a subject bringing about motion through the will, a “theory of distributed agency, in contrast, does not posit a subject as the root cause of an effect. There are instead a swarm of vitalities at play.” (Bennett 31–32) Agency, understood broadly to include living beings as well as such forces as radioactivity, solar energy, weather, gravity, and flows of matter, is thus a distributed, emergent force that can create order or disorder with or without intentionality. Willpower exists, but it functions in response to many factors including linguistic, cultural, biological, chemical, and ecological ones. This more encompassing view is inherently environmental in that it situates the human being within a realm of manifold actants, and insists that we are participants—instead of the overseers—in the ongoing exchanges that encompass the biosphere. Defining agency broadly to include human and animal activity as well as other nonhuman factors does not eradicate human agency, but rather aligns it on a continuum with matter’s agentic capacity.

The texts analyzed here include various examples of non-human agencies engaging with human agencies. This muddled zone of agentic pluralism contextualizes – or limits—the power of human agency, while simultaneously documenting powerful nonhuman forces like water, weather, and the wild (examples used are here insects and slugs). Thinking in terms of agentic pluralism inscribes literary characters into a web, or mesh, to use Timothy Morton’s term for the ecological framework in which we exist.² It also means that landscapes are no longer a mere backdrop but rather characters of a kind. In short, studying portrayals of non-human agencies in the Anthropocene requires restructuring our knowledge about foreground and background, subject and object; it leads us to shift the frame and focus into a broader scope.

Goethe and the Agency of Water and Weather

Crutzen suggests that the Anthropocene began in 1784, coinciding with James Watt’s patent on a parallel motion steam engine. It was also during this time that Johann Wolfgang Goethe started to reflect on the age of mechanization, which allowed exploitation of natural resources on a new scale.

² Cf. Timothy Morton.

Goethe's semi-autobiographical and epistolary novel *The Sorrows of Young Werther* is an eighteenth-century entrance into the Anthropocene that juxtaposes Werther's struggles regarding his own self-determination with the power of water. As a natural agent, water shapes life and land, and is an age-old metaphor for change itself. In the novel, Goethe portrays the impact of natural forces such as flooding rivers, torrential rain, and the teeming insect life frolicking next to the stream that have as significant of an impact on the eponymous protagonist as do the social developments and the changing sense of individuality emerging with the middle class. Social changes are, in fact, expressed most poignantly by Werther in terms of his relationship to nature, especially streams, rivers, insects, and storms.

Werther revels in nature's harmony, for example, early in the novel in the famous May 10, 1771 letter describing his thoughts as he lies by a stream relishing the tiny insects in the grass. He longs to delve into nature's ceaseless activities as a means of accessing divine power. He celebrates nature's agentic comings and goings as active forces:

When the lovely valley teems with mist around me, and the high sun strikes the impenetrable foliage of my trees, and but a few rays steal into the inner sanctuary, I lie in the tall grass by the trickling stream [...]; when I hear the humming of the little world among the stalks, and am near the countless indescribable forms of the worms and insects, then I feel the presence of the Almighty [...]. (Goethe, *Sorrows* 6)

While reposing (passively) in the forest, he experiences nature as comforting and yet external to himself, so that he happily succumbs to an immersion in its activities while not really participating in them. Instead, he imagines that perceiving and describing their sounds and sights brings him closer to the divine. Nature is, he seems to assert here, a site that allows him to transcend both society and nature itself.

Later, however, Werther transforms his view of nature due to his unhappiness at sharing Lotte with her fiancé Albert, and begins to describe not a sphere of separation and transcendence but rather of active agencies of which he himself is a part—but only in a destructive manner. In the letter from August 18, 1771, he declares that both he and nature are monstrous, destructive forces that rage without direction and control. He thus portrays himself as a stomper on ants—inadvertently, but nevertheless, a murderous force. While detailing nature's horrific storms, he connects his every step with the same destructive power on a wide range of scales: "There is not a moment in which you don't yourself destroy something. The most innocent walk costs thousands of poor insects their lives; one step destroys the delicate structures of the ant and turns a little world into chaos" (Goethe, *Sorrows* 37). In other words, a simple stroll is an act of destruction, and, similarly, nature is an "all-consuming, devouring monster" (Goethe, *Sorrows* 37). In declaring himself part of the stomping force, Werther attributes a kind of distributed agency to his existence, one in which he engages alongside storms and floods that rip us along with stormy winds as participatory and monstrous destroyers. There is no more transcendence; Werther sees only power and devastation. This sense of destroying nature does not yet reflect industrialization, but it does suggest an awareness of growing human power that coincides with devastating natural forces.

In terms of his relationship to human culture, Werther's efforts at finding his own self-determination and agency continually fail in his restrictive society, so he continually turns to "nature," which seems to offer him a sense of freedom and choice. Nature as a site of agency may be disturbing (monstrous, stormy, destructive), yet it appears to have more to offer than his helplessness in the face of both middle-class and aristocratic systems. In the letter of December 8, 1772, he documents the torrential rain and flooding river and considers uniting himself with its energies by throwing himself into its raging waters in the abyss below.

The furious torrents rolled from the mountains in the moonlight—fields, trees, and hedges torn up, and the entire valley one deep lake agitated by the roaring wind! And when the moon shone forth, and tinged the black clouds, and the wild torrent foamed and resounded in this grand and frightening light, I was overcome by feelings of terror, and at the same time yearning. With arms extended, I looked down into the yawning abyss, and cried, 'Down! Down!' For a moment I was lost in the intense delight of ending my sorrows and sufferings by a plunge into that gulf! (Goethe, *Sorrows* 67–70)

With this letter, Werther describes his internal turmoil and sees it enacted in the flooded river. He sees no direction open to him but "down"; indeed, he fails to re-shape social norms by loving Lotte, and fails to re-align the class distinctions by socializing with the noble Lady B at court. The river, in contrast, actively creates its own path. Rivers often model individual subjectivity in Goethe's poetry ("Gesang der Geister über den Wassern" [Song of the Spirits over the Waters]) and *Faust* (when he describes himself as a dangerous river threatening to destroy the delicate little cottage that is Gretchen); the river's forceful flows portray the striving, self-determining force that participates in larger cycles but still remains powerfully agentic.³

Werther considers the destructive act of leaping into its currents that will make him a part of an active "agency." Standing at the edge of the abyss, he nevertheless decides not to take the fatal step into the waters, but instead selects a different fate. Since his social efforts reveal that he has little agency in the rigid class structure, and since nature beckons as a frighteningly distributed form of agency that he can only embrace passively, he instead chooses suicide with a pistol shot to the head. Hence, at the very beginning of the Anthropocene, Goethe's novel portrays some challenges of acknowledging various forms of agency, but provides only paradoxical and troubled responses. The novel links human and nonhuman agency such that of water, but leaves the potential implications open and undecided. It raises questions relevant for our analysis such as how to describe and evaluate the relationship of cultural structures, individual agency, and natural forces. Werther's demise suggests that these are not simple problems; furthermore, the novel's emphasis on the need of the individual to describe his/her own path despite facing overwhelming social and natural forces provides a model for considering later texts that address the human and non-human interactions in even more dramatic conflicts.

³For an expanded discussion of *Faust*, water systems, and agency, see Heather I. Sullivan "Affinity Studies."

Agentic Landscapes: The Dynamism of Mountains

Compared to the gendered agency of water, mountains are frequently depicted as grand, immovable obstacles that possess little agency beyond posing strategic vantage points, forming national barriers, hosting mineral and coal deposits, offering sites of spiritual enlightenment, and serving as a vehicle for a Romantic sublime experience. All of these views conceptualize the mountain statically, as an admittedly impressive yet inert barrier forcing humans into either submission or dominance. Such perspectives began changing with the late eighteenth-century shift in scientific thinking from a world laid down by God to an immediate present shaped by dynamic past geologic forces. The understanding of mountains' continuing dynamism emerged with the rise of new scientific fields such as geology and biology and a more general understanding of entangled agentic geologic forces. In this context, mountains held particular importance since they were thought to hold clues as to the formation of the earth, be it through sedimentation from the Great Flood and subsequent floods (Neptunism) or through continual processes of deposit, uplift, and tilting from volcanic heat (Volcanism). Mountains, in other words, reveal a surprising fluidity. Goethe was intrinsically interested in questions of their transforming geology and rock formation. In the *Bildungsroman*, *Wilhelm Meisters Wanderjahre*, Wilhelm inquires about the agency of rock and ice, asking his friend Jarno: "Sage mir was du an diesen kalten und starren Liebhabereyen gefunden hast" (tell me what you have found in these cold and lifeless love affairs, Goethe, *Wilhelm* 45). In the following, Jarno patiently explains the value of geology. Far from being "starre Felsen" (lifeless cliffs, Goethe, *Wilhelm* 45), Jarno compares rocks to letters forming words and sentences in an unknown language: "wenn ich nun aber diese Spalten und Risse als Buchstaben behandelte, sie zu entziffern versuchte, sie zu Worten bildete und sie fertig zu lesen lernte, hättest du etwas dagegen?" (What if I would treat these cracks and fissures as letters, tried to decipher them, form them into words, and learned to read them?, Goethe, *Wilhelm* 46). Mountains, in other words, reveal stories of a dynamic earth—are "storied matter"—that we can only come to know by learning a different, scientific language that addresses nature's ongoing changes.

Nineteenth-century scientists readily embraced such models that granted the natural world a history of development and destruction. In order to understand the new parameters of science, scientists moved their indoor laboratories to outdoor sites, and in particular began to explore the Alps, whose central location, combined with increased ease of accessibility and improved infrastructure, made this mountain range a premier venue for scientific engagement. In this way, nineteenth-century exploration of the Alps took place in what Horace-Bénédict de Saussure called the "laboratory of nature,"⁴ where the site and the object of scientific inquiry became identical. In a reciprocal dynamic, scientists immersed themselves in their surroundings while simultaneously trying to analyze them. More recently, the sociologist Andrew Pickering has

⁴ "Laboratoire de la nature" (de Saussure xiv).

characterized the performative and unpredictable nature of scientific research as a *dance of agency*, both active and passive: Scientists actively and intentionally carry out research, constructing and operating machines and apparatuses to their advantage, but they also need to adopt a passive stance as observers, monitoring the performance of machines and allowing material agency to “actively manifest itself.”⁵ Pickering’s concept not only makes for an interesting and provocative understanding of science, but also proves helpful in characterizing the unstable and shifting interactions between humans and their environment. The dynamic environment of mountains that, by the very nature of their size, altitude, eruptions, and weather forces humans to adapt, makes a particular case in point. In this relationship, nineteenth-century mountaineers/scientists began to conceptualize mountains as active, agentic forces.

It is no coincidence that the above-referenced Goethe quote graces one of the most important and original works of glaciology in the nineteenth century, namely *Travels through the Alps of Savoy* (1843) by the Scot, James David Forbes (1809-1868). As one of the foremost glaciologists, Forbes vividly describes the immense powers of glaciers that chafe and polish rocks and leave moraines in their paths. Forbes’s perception of such power becomes particularly evident in his book’s third chapter, aptly entitled “On the Geological Agency of Glaciers.” Here he reveals that his infatuation with glaciers is precisely not a cold and lifeless love affair, but rather acknowledges a highly dynamic, volatile, and agentic environment. Focusing in particular on glacial movement, Forbes comes to read the landscape before him anew, as shaped by ice rather than water alone. Struggling to incorporate his fundamentally impassioned approach to ice in a largely scientific text, Forbes frequently reaches for literary sources that romantically approach mountains as subjects, as for instance Lord Byron’s *Manfred*: “The glacier’s cold and restless mass / Moves onward day by day” (Byron 228). Quoted in Forbes’s study, such understanding of glaciers revises previous ideas of mountains as immovable barriers in favor of a model that assigns distributed agency to manifold environmental forces.

Forbes’s dynamic conception of the mountainous environment actually goes beyond a Victorian Romantic notion of nature largely influenced by theories of the sublime. To illustrate the point, we cite from Percy Bysshe Shelley’s well-known poem “Mont Blanc: Lines Written in the Vale of Chamouni,” that celebrates the sublime power of the mountain in exceedingly Romantic terms such as “dark gloom,” “awful scene,” “lone, loud sound,” and “infinite sky” (Shelley 47-48). To this gloomy cacophony of sounds and colors, Shelley adds his description of a glacier: “The glaciers creep / Like snakes that watch their prey, from their far fountains” (Shelley 49). While these lines personify the glacier, they only grant agency within the scope of a metaphor. Thus, the glacier and the mountain in general are merely an inspirational vehicle for the poet’s sublime experience. As indicated in the poem’s title, the poet contemplates the mountain from a distance, making the experience one of reflection and imagination. In contrast to this Romantic approach of reflective distance, Forbes comes to imagine giant forces of

⁵ See Andrew Pickering 22.

ice sweeping the country while actually confronted with its unstable and shifting environment. Such novel experience, coupled with revolutionary thinking in interpreting the land before him, allows for a shift in agency and a reflection on the convergence of natural and cultural processes as equally active.

While not primarily a scientist, the prominent mountaineer, journalist, and philosophical theorist Leslie Stephen (1832-1904) delineates a similar interaction with the mountain, moving from sublime reflection to immersion and an acknowledgment of agency. His essay “Sunset on Mont Blanc” starts with typical Romantic reverence as hinted at in the title, but soon moves to skepticism: “Natural Scenery, like a great work of art, scorns to be tied down to any cut-and-dried moral. To each spectator it suggests a different train of thought and emotion, varying as widely as the idiosyncrasy of the mind affected” (Stephen, “Sunset” 180). While Stephen here still assumes the role of a “spectator,” who, in the tradition of the sublime, is moved to inner contemplation, he rejects a fixed moral message and ceases to decode and define nature. Going further, Stephen surrenders visual distance to describe his deep and physical enmeshment with his environment:

Does not science teach us more and more emphatically that nothing which is natural can be alien to us who are part of nature? Where does Mont Blanc end and where do I begin? That is the question which no metaphysician has hitherto succeeded in answering. But at least the connection is close and intimate. He is a part of the great machinery in which my physical frame is inextricably involved, and not the less interesting because a part which I am unable to subdue to my purposes. The whole universe, from the stars and the planets to the mountains and the insects which creep about their roots, is but a network of forces eternally acting and reacting upon each other. (Stephen, “Sunset” 180-81)

Using nineteenth-century science to argue that man and mountain are part of the same nature, Stephen elaborates on man’s intimate, physical connection with his environment. There is no clear boundary. Rather than sublime adulation of the rational mind, he understands that the human being is not separate from, but rather part of nature, emphasizing a physical and dynamic relationship that cannot be controlled at will. In the ever-physical dimension of mountain climbing, the subject can’t remain a detached observer but becomes continuously involved, participating with body and mind. This is a profound linking of the small-scale individual human body to the larger-scale mountainous body.

Barad’s concept of “intra-action” significantly sharpens Stephen’s perceptions. According to Barad, intra-action:

signifies the mutual constitution of entangled agencies. That is, in contrast to the usual ‘interaction,’ which assumes that there are separate individual agencies that precede their interaction, the notion of intra-action recognizes that distinct agencies do not precede, but rather emerge through, their intra-action.” (Barad 33)

In other words, Stephen’s question as to the boundaries between man and nature could be read as acknowledgment that nature and culture are always already “intra-actively” engaged, as Barad claims. In this case agency does not belong to one or the other faculty but emerges in what Stephen calls “the great machinery” involving both “He” (Mont Blanc) and the self. While Stephen begins to question the scope of human rationality and

assures us that the material world is but a network of interactive forces that cannot be controlled, Barad's posthumanist perspective rejects prevailing notions of causality altogether by suggesting that agency exists uncoupled from human subjectivity and intentionality.

Even while still partially beholden to the nineteenth-century prevailing paradigms in the representation of nature, especially Romanticism and the sublime, the scientists and mountaineers Forbes and Stephen nevertheless move beyond a mere worship of nature to accept a reciprocal, dynamic interaction with their environment. In this way, they not only describe a volatile, dynamic environment but also delineate natural forces as active agents in the shaping of the world. According to Forbes, moving masses of ice formed countries and continents. Stephen questions the boundaries between the human and non-human. When reading their texts through the lens of current theories on non-human agency, we can distinguish emerging ideas about agentic natural forces, allowing for a re-conception of nineteenth-century natural history, specifically views of the fluidity of mountains.

Agencies and the Anthropocene in Döblin's *Mountains, Oceans, and Giants*

In contrast to the nineteenth-century visions of uniting with an agentic nature, whether mountainous or fluvial, in the twentieth century Alfred Döblin's science-fiction novel *Berge Meere und Giganten* (*Mountains, Oceans, and Giants*, 1924) unfolds a narrative of alienated bodies on a grand scale, neo-Promethean dominance of the natural world, and the unexpected consequences of an eventual destructive response by non-human agencies. In depicting nature striking back instead of inviting participation, Döblin's novel problematizes the ambivalent role of humankind as designer and destroyer in the Anthropocene. The forms of agentic nature discussed in the previous examples are here amalgamated into manifold forms of natural forces and their ongoing transformative power, including not only water, mountains, and ice, but also oceans, concentrated volcanic energy, rapidly proliferating seaweed, and hybrid creatures.

The epic novel comprises nine books and spans no less than eight hundred years into the future; the variegated sceneries cover the entire planet. The novel has been regarded as a poetic response to World War I (Scherpe 141), which culminated in a catastrophe for the rapidly industrialized societies of the West. Döblin's text depicts a broad range of technological inventions (such as airplanes with flame-throwers and beam-weapons) in a grand, Expressionist gesture often reminiscent of modernism and futurism, both celebrating the new technologies and highlighting their destructive power. The plot includes what would today be considered geo-engineering, i.e. the intentional manipulation of the climate, reduction of the ocean's salt content, and creation of a new continent through the highly technological project of the de-icing of Greenland. The latter forms the core of the novel and reflects certain ambiguous aspects of the Anthropocene such as the massive intervention into nature with machine power. This process destroys the volcanoes in Iceland and gathers their energy for melting the seemingly eternal ice, setting free unknown organic processes threatening the

Promethean explorers. Through a sequence of disasters, the boundaries between human and non-human agency blur, and chemical, physical, and technological forces are amalgamated into hybrid, post-human agencies on a vast scale.

The narrative constructs a world in which the Western continents have overcome national and racial differences through the creation of huge urban industrial centers, so called city-states—London, Brussels, Berlin, New York (thereby still Eurocentric). These are dominated by a few families who control the technological know-how for the production of machines, weapons, and synthetic food. The first part ends after the Ural War and a transcontinental outburst of brute force between a Western and an Eastern, Chinese-Japanese alliance, but without catharsis. The second part unfolds a “geognostic narrative,” which “narrates the space of the entire planet and lets things narrate” (Honold 213) Rather than portraying characters and their interpersonal conflicts and struggles, the text now mobilizes mountains, oceans, and giants. The reader is confronted with an overwhelming, colossal, and highly agentic nature of which s/he is clearly part. Mountains crash, land masses shift, and the entire globe, current and past, is brought into consideration when the novel appraises future conditions of human societies.

The extensive narration of the de-icing of Greenland depicts, in a gesture of excess, exuberance and Expressionist dynamics, how a Western expedition blasts two Icelandic volcanoes in order to extract geothermal energy with which to cover Greenland in artificial oil clouds and veils of volcanic tourmaline. The ice cover melts and Greenland cracks into two parts, being transformed into a tropical island in the process. Despite its initial success, the operation’s unintended effects include exponentially growing seaweed and other vegetation that capture the boats of the expedition and overpower the horrified crew. Simultaneously, the tourmaline veils emit an “auroral light” and “high-pitched sound” (*Berge Meere* 426⁶), seducing humans to indulge in sexual pleasures before perishing. Furthermore, the diffusing tourmaline revives monstrous “Ur-creatures” (*Berge Meere* 370), dinosaur-like beasts that take revenge for the “male, technologically-driven war against nature” (Dollinger 99). In return, the Western leaders order hybrid giant creatures (“Turmmenschen”) erected in the ocean—huge cranes made from organic plant and human body parts, forming “a mutual constitution of entangled agencies” (Barad 33) or cyborgs. This second attempt to subordinate non-human agencies also fails; after another series of disasters humans cease to control the world and must escape to subterranean dwellings where they decline into cave men. Typical for a science fiction setting, a small group of survivors finally form an agricultural community and settle in Southern France, worshipping Venaska, a primordial mother, and remembering the former giants through the medium of cult monuments. After the excessive progression of dystopian settings, this close points to a possible utopian vision, yet perhaps in an ironic perspective.

⁶ Since the text is not available in translation, all translations of Döblin quotes are our own and page numbers refer to the German edition of the text.

In terms of form, this is a hybrid text where the authority of the narrator has been replaced by a multifaceted collage of texts covering almost every contemporary scientific field. The narrator resigns himself to the authority of quasi-objective bits of knowledge from geography, geology, physics, chemistry, ethnography, and other fields.

In the novel, the initial Promethean aggression against nature leads to a literal meshing between human and non-human agencies, also in the metaphorical cosmos. The human world is often described in fleshy organic symbols, while physical and chemical processes are associated with technical terms, describing the auroral light and its high-pitched tone as resembling the sound of a steam engine (*Berge Meere* 426), thus blurring the boundaries between nature and technology. An inconspicuous cue at the end of the seventh book hints at the novel's conscious inclusion of a principle like Barad's intra-action of entangled agencies:

There were heads, skulls whose jaws had transformed into legs, the throat into a bowel, the eye-sockets into mouths. Ribs curled up as worms. Living soil teemed around a spine, affixing itself. It was as if a network of veins spread to every side from the remains of bones as if they were crystals, points of germination in an oversaturated solution ("übersättigte Lösung"). (*Berge Meere* 488)

Döblin envisions the process whereby crystals grow in "oversaturated solutions" as one of perpetual transformation rather than linear evolution. Mixed forms emerge and become a "hybrid thing between sprawling earthy substances and living beings" (*Berge Meere* 489). Thomas Borgard has emphasized the "heterogeneity of purposes" in Döblin's novel, noting that the "final result is the unintended effect of an aggregation of intentional actions" (Borgard 340). Indeed, the Greenland chapter envisions unintended natural catastrophes, which the novel narrates as a monstrous spillover of contingency or a large-scale laboratory experiment, by depicting the emergence of terrifying primeval creatures in the sea and other hybrid beings of organic and non-organic material which bear some similarity to the fecund power of the mud and slugs we shall see in Duve's work. The slide back into the Cretaceous when the creatures are revived is a paradoxical consequence of the high-technological intervention in natural processes. Remarkable is the reversion of time scale when industrialization ceases to produce continuous progress in the science-fictional future: elements of deep time unexpectedly emerge in the midst of modernist technology. Rather than welcoming a fallback into the deep time of mountains as long-term slow agencies, however, the narration describes a metamorphic cosmos in which ancient life forms interact and meld with new vital and more rapid processes. The vitality of watery life surprises in both Goethe's and Döblin's novels (also in Duve's, which is discussed below), and the ever-transforming power of life forms prefigures what Donna Haraway calls the "tentacular" and the "Chthulucene". Here, the narrative style of exuberance and excess in *Mountains, Oceans, and Giants* accompanies the depiction of an agentic nature and creates new metaphorical images. In this scenario, natural agencies are capable of continuous regeneration by incorporating vital alien forms and transforming them; for example when a giant turmalic net enriched by "bitumen shale", ship's planks, "juicy" plants as well as "fat animals" and even parts of humans is tied together (*Berge Meere* 465).

The poetic conception of a nature with quasi-animate qualities is also found in contemporary vitalism and in Döblin's natural philosophy, which Döblin elucidated in his *Remarks on Mountains, Oceans, and Giants* (1924):

I experienced nature as a mystery. [...] I saw, I experienced nature as a universal being [*Weltwesen*], i.e.: the heavy, the colorful, the light, the dark, the countless substances, as a wealth of processes that mix soundlessly and cross with another. [...] I know that I often became anxious, bodily anxious, dizzy among these things—and, as I confess, I am sometimes still not well now. (Döblin, *Schriften* 51–52)

While Döblin at first tried to resist the overwhelming force and constant flux of natural transformation, he later conceded the “impotence of human power,” (Döblin, *Schriften* 54) as Roland Dollinger has shown for both Döblin's natural philosophy and his novel (Dollinger 98–99). Accordingly, the novel concludes with a short utopian outlook hinting at a new understanding of the relationship between humans and nature and states in short sober sentences: “They were giant humans. We also have fire. It has not been lost to us. We have to keep hold of it. [...] the land takes us, but we are something in the land. It does not devour us. [...] we have the power, the real knowledge, and the humility” (Döblin, *Berge Meere* 630). In keeping with the Anthropocene discourse, the epic encompasses a large-scale time span with a global perspective, and it grapples with the fluent agency of natural processes and human attempts to find their place in an ever self-transforming cosmos. Döblin's science fiction, with its sober and distant style at the end, advocates an ethical perspective of respect, acknowledgment, and humility in regard to nature's forces rather than their domination, exploitation, or subjection, and thereby gains a new urgency in the context of the Anthropocene discourse. Poetically, Döblin's epic novel presents the Anthropocene *avant la lettre*; its highly artistic collage of contemporary scientific texts constitutes a post-sovereign narrative perspective that mirrors the changing position of human beings entering a new stage in human-ecological history. Döblin's work illustrates ambivalent positions between surrender, ecstasy and demise, which are intertwined with a new perspective on agentic forces in the physical world.

Karen Duve's *Rain: Weather and the Wild* (slugs)

Döblin's account of nature lashing out and fighting back provides fertile ground for our final literary example, *Rain*, in which one man cannot overcome the onslaught of slugs. Duve's novel from 1999 depicts the troubles of a West German author, Leon, who takes his new wife, Martina, to a house in the East, in Priesnitz, which they hope to remodel. However, they are plagued by endless rain, soggy walls, swampy surroundings, and by a surreal and appalling take-over by slugs. Every chapter begins with a brief weather report, which is always dominated by precipitation. The impact of the rain includes erosion, damp rotting house walls, softening the ground, aiding the encroaching marsh, and consequently helping the slugs, all of which slowly destroy their country house and their confidence alike. Material ecocriticism describes such impacts as part of the “agentic capacity” of the material world. Non-human agency here is watery, reproductive, and overtakes the males with an irrational and bodily force. Duve

contextualizes human agency within this rainy, flooded framework with an ever-increasing agentic capacity. She begins with small-scale description of individual bodies but then expands to swamp-scale.

Individual agency fails no less dramatically in this novel than in Döblin's *Mountains, Oceans, and Giants* and Goethe's *Werther*: despite Leon's early self-confidence, his novel-writing career collapses when he fails to produce an appropriately celebratory biography for the boxer who pays his salary. In retribution, the boxer and his thugs take Leon's car, rape his wife, and leave him alone in the soggy house overrun with slugs and a strangely swampy woman neighbor. This woman appears to mate with the mud, and she eats voraciously so that she is a vast body that appears to absorb the world around her. Leon sleeps with, immerses himself within her, and then, finally, immerses himself in the swamp itself, with fatal, Wertherian results.

During his decline, Leon attempts to assert himself against this world which expands to swallow him. He hopelessly battles the slugs, picking them off the plants individually, putting heaps of them on roads to be run over by cars, putting out egg shells as a boundary, and boiling them and smearing them on the roses as a gory deterrent, but all to no avail: they continue their march through the garden and slime their way up the porch. They make dreadful noises as they consume the plants and ooze along in hordes, distracting him from writing. Finally, he loads five buckets full of slugs in order to drive them elsewhere, but some of the buckets end up being spilled in the house and they escape. The final slug victory eradicates any hopes of human agency:

Leon was about to go into the house, but just as he was pressing down the door handle he saw another slug. It was sitting on top of the folded plastic table. It was not brick-red or brown like the slugs he had just collected. It was yellowish-white and exuding milky slime. It had crawled up the side of the table and was now trying to reach the wall, which was not easy, since its wrinkled and much-elongated lower body seemed to be full of eggs. The white slug reared up like a performing animal in a circus, waved the front of its body about in the air, and spread its feelers in a 'V' shape. 'V' for Victory." (Duve 100)

In the face of the unceasing rain, the hopelessness of his writing, and especially the advancing slugs, Leon falls apart, losing his job, wife, health, the car, and the house, which eventually collapses into the watery world of the slugs and mud. During this decline he himself begins to expand, gorging himself until he swells up bodily like the swamp all around. Finally, he gallops off into the swamp almost naked, and sinks into the mud, swallowing it, and breathing it to become one with the swamp, water, elements which actively take over his body:

Mud made its way into his mouth and nose, mud filled his ears and every fold of his body. Leon smacked his lips and swallowed, filling his stomach with mud and darkness. How good it was to be mould beneath the mould. Leon sank back into the womb of his true mother [...]. Sighing, he gave himself up to that damp embrace. Immediately the mud burst into his lungs with fierce pain. Leon struggled for breath, and swallowed nothing but swamp. (Duve 246)

Leon literally drowns in the watery mud. Like Werther, he cringes when facing agentic nature, but Leon, in contrast to Werther, follows through with the immersive desire and willingness to capitulate his own agency completely, allowing the active swamp mud to

enter his lungs. Goethe's Werther experiences both nature's and his own agentic capacity as disturbing: rather than sinking under the watery elements, he chooses a technological and agential death.

All of these novels written between the earliest and the high Anthropocene grapple with disturbing aspects of our relationship to matter's energies. Goethe presents nature's agency as parallel to human agency, that is, they are equally dramatic, unpredictable, destructive, and yet wildly creative. This is neither neo-Promethean nor an example of animism but rather a spectrum of conflicting and interacting agentic capacities including nature and human beings in a form relevant for material ecocriticism. Forbes and Stephen provide glimpses into the emerging re-animation of nature as dynamic, self-shaping forces on large scales, including even mountains. Döblin takes us into a similarly broad scale of vast volcanic, oceanic, and seaweed power. Duve's Leon returns us to a more local bodily realm. He dwells, in contrast to the mountaineers and giants (Döblin), in a world where masculine agency is enacted by violent thugs who function in contrast to Gaia-like nature embodied by slimy, feminine swamp mud. Although Duve in one way perpetuates the tired association of women with watery nature overwhelming the males, she also uses Leon as a foil to Martina, his wife, who suffers from bulimia, itself a battle for control of sorts. She finally escapes into some form of independence by leaving Leon and burning her father's car. Like Werther, she asserts herself violently; unlike Werther, she survives. While the spectrum of agencies in Duve's *Rain* includes human and natural forces, the full range of possibilities appears irrational, gendered, uncontrollable, and dominated by weather. In the Anthropocene, as the era of anthropogenic climate change, such weather-driven novels offer us a framework for addressing myriad agencies, yet without conflating entirely the human and non-human, and without either simple reconciliation or a dichotomy. The material realities of the body prevail in all of these texts.

Conclusion

The act of scraping away the very illusions of control and power that allow us to function day to day, as Goethe, Forbes, Stephen, Döblin, and Duve do so adroitly when portraying their various visions of distributed agency, reshapes our human sense of agency during the Anthropocene and places it into a larger framework of weather, landscape, and other material circumstances. This contextualization provides a grounded sense of the Anthropocene that moves away from the simplified Promethean notion and opens up our actions into a spectrum of agencies. It also makes our choices for future actions much more complex if our world is composed of a co-shaping of vitalities as well as of unintended effects of human actions rather than of straightforward human architecture. In the late eighteenth century, Goethe presents us with an ambivalent vision of water that ranges from a pleasant bubbling stream, home to a host of insects, to a raging river destroying everything in its path. Werther cannot find a stable ground for the conflicts of an emerging middle-class agency in the face of both social restrictions and the powers of water. The nineteenth-century glaciologist Forbes

provides a frame for viewing human and non-human agencies together with the greater scientific knowledge of the nineteenth century. His texts imagined the vast agentic powers of moving ice in literary tropes. These thoughts are furthered by Stephen who began to conceptualize mountains as an agentic landscape in which humans are inextricably involved. Döblin's 1924 novel not only combines "mountains" and "oceans" as agentic landscapes, but significantly adds another element, that of human and non-human hybrid "giants." When delineating an ethical perspective of respect and acknowledgment of the fluent agency of natural processes at the very end of the epic—also based in Döblin's natural philosophy—the text offers a new perspective on the human position in human-ecological history. Finally, Duve's novel, *Rain* documents similarly active grounds, with her consuming swamp and rampaging slugs, in the face of which human agency appears troubled if not laughable. In the end, we are back in our own bodies that are imbricated, however, in all levels of other bodies, from the micro to the macro of ecological agency.

In sum, human agency appears in these texts as part of the broader spectrum of non-human agencies. As these diverse texts since the late eighteenth century show, we are on a spectrum along with other, nonhuman agents in a realm of messy intra-actions. According to material ecocriticism, distributed agency is indeed our circumstance, and embracing and exploring its manifold nonhuman forms through literary and scientific perspectives critically reflects on the ambivalences of interconnectedness. Each of these authors and works presents a similar kind of nature-culture entanglements where the boundaries between bodies and landscapes blur and shift, though not always with ideal outcomes.

By configuring a close interconnection and interdependence between the various entities engaged in intra-actions, these texts evoke and re-define forms of Anthropocene discourse. On the one hand, our examples highlight the negative effects of anthropocentric control and supremacy over nature, but on the other, they depict ambivalent positions ranging from surrender and ecstasy to menace and demise, that go hand in hand with the acknowledgment of non-human agencies.

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