

From Posthumanism to Posthuman Ecocriticism¹

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ABSTRACT

This essay explores the impact of the posthuman turn on ecocriticism. It proposes that post-human ecocriticism is a more engaged, more diffractive mode of reading the co-evolution of organisms and inorganic matter in their hybrid configurations. Simply put, ecocriticism becomes post-human, post-natural, and post-green in critiquing the taxonomy of the human and the nonhuman. In doing so, posthuman ecocriticism expands and enhances material ecocritical visions and includes such material agencies as biophotons, nanoelements, and intelligent machines that are expressively agentic, story-filled, efficacious, and co-emergent with homo sapiens. It critically discerns the cultural implications of bio-nano-technologies and life sciences. How do we read, for example, the blurred boundaries between iCELLs (carbon-free inorganic chemicals) and cells (organic matter)? How do we interpret synthetic matter that responds to stimuli? What are the cultural implications of these technoscientific agencies that exhibit signs of spontaneous activity? How do we make sense of this new reality in its concrete character, and conceptualize the cultural and ecological layers of “creative becoming” encoded in material agencies? Such questions are pertinent for the apprehension of posthuman ecocriticism that offers immersion in previously uncharted territories as a post-human structure within which to think about human/nonhuman/inhuman natures. The newly emerging strange natures that transfigure human ecologies will be part of my discussion, and there will be references to literary texts that are labeled posthuman novels.

Keywords: posthuman ecocriticism, ecological posthumanism, new materialisms, nonhuman agency, naturalcultural forces, postnatural environments, inorganic life, material ecocriticism, narrative agency, storied matter.

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With their intersecting stories and theories, posthumanism and ecocriticism have something in common: they introduce changes in the way materiality, agency, and nature are conceived. This essay rethinks the latest trend of environmental literary criticism – material ecocriticism – through the theoretical interconnections between posthumanist and ecocritical forms of engagement with matter and life, thus paving the way to a new form of analysis here called “posthuman ecocriticism”. After a brief conceptual outline of posthumanism, I introduce posthuman ecocriticism. This context is necessary to clarify how material ecocriticism transforms into posthuman ecocriticism and is needed for critical reflection on the emerging reconceptualizations of life and their scientific, literary and cultural interfaces. I wish to consider the theoretical frameworks of posthumanism that have changed the ecocritical understanding of what exactly is natural, environmental, and, most importantly, alive.

1. POSTHUMANISM: A CONCEPTUAL OUTLINE

In their “Introduction” to *The New Materialisms* Diana Coole and Samantha Frost argue that “the ways we understand and interact with nature are in need of a commensurate updating” (2010, 5). Posthumanism seems to be the site of such updates where various theoretical threads of new materialisms – among them material feminisms, eco-materialism, agential realism, prismatic ecology, and material ecocriticism – converge to produce new epistemological configurations. These new materialist epistemic positions draw upon a broad field of studies, in particular quantum physics, biological sciences, bioethics, critical animal and plant studies, as well as advanced technologies that herald the beginning of a posthuman reality in which the figure of the human as we know it comes under scrutiny. Stacy Alaimo, for example, introduces “Post-humanist new materialisms” (2011, 282) consonant with the intersections and alliances between these inter-related theoretical discourses. While Alaimo presents “a new materialist and posthumanist sense of the human as perpetually interconnected with the flows of substances and the agencies of environments” (2014, 187), Karen Barad proposes a posthumanist ethics of mattering to describe “how *values are integral to the nature of knowing and being*” (2007, 37; italics in the original), and to emphasize the accountability of human activities and knowledge practices to the environments. Human responsibility for the environmental relations figure centrally here as humans are integral parts of “agentially intra-acting components” of nature (Barad 2007, 33).

Conceived this way, the posthumanist approach induces an out-of-the-box-thinking which, in Katherine Hayles's words, "evokes the exhilarating prospect of getting out of some of the old boxes and opening up new ways of thinking about what being human means" (1999, 285). Like Hayles, who inaugurated posthuman theorizing, Cary Wolfe suggests that we must "rethink the notion of the human *tout court*" (1998, 42). The conceptual frameworks within which we have defined the human are now being replaced by interlinked posthuman and new materialist viewpoints that not only delegitimize the central position of the human among other species by acknowledging the permeable boundaries of species in the natural-cultural continuum, but also recognize the profound interconnections between different forms of life in the composite world where previously we had seen separations. Engaging with techno-scientific reconceptualizations of life, posthumanism also blurs the boundaries between humans and machines, as the other-than-human agency in the posthumanist vision is not a biological category only. In such posthumanist thinking which inquires into non-human life from animals to artificial intelligence, human exceptionalism inevitably gets eroded. Pramod K. Nayar, for instance, posits that human "uniqueness is a myth", because "the human incorporates *difference* in the form of other DNA, species and forms of life" (2014, 4). This understanding, however, has also engendered deep fears that we may be heading toward what David Roden calls "a posthuman succession", which he claims is "possible in principle even if the technological means for achieving it remain speculative" (2015, 5).

Although robot technologies, genetic engineering, cybernetic mechanisms, and biotechnological developments indicate a speedy move beyond the speculative in alarming ways toward a more literal disavowing of human control, the fundamental question framing posthumanism is not about superseding the human and establishing a robotic culture, but admitting the human as an interdependent part of the material configurations of the world "in its differential becomings" (Barad 2007, 185). Even if the advanced techno-scientific practices generate considerable anxiety, it must be noted that the posthuman "does not really mean the end of humanity" as Katherine Hayles also maintains: "It signals instead the end of a certain conception of the human" (1999, 286). We are joined together, Hayles proclaims, "in a dynamic co-evolutionary spiral with intelligent machines as well as with the other biological species with whom we share the planet" (2006, 164). Confronting the question of "humanness itself" (Kirby 1997, 5) outside the human hubris, this formulation of posthumanism calls upon a relational ontology that announces itself in an affirmative fashion. Posthumanism, in other words, is not an anti-humanism that dismisses

human existence to celebrate posthuman succession. Instead, as expressed by Francesca Ferrando, “[t]he posthuman refusal of the ontological primacy of human existence, invites a review of practices such as uncritical omnivorism, overharvesting, and the unrestricted consumption of nonrenewable resources” (2012, 10). Therefore, rather than worrying about the undermined status of human ontologies that glorify our species identity, we should read the new category *human* in terms of an evolutionary co-emergence within a shared field of existence marked by the interdependency of life.

Posthumanism, as Eileen Joy and Christine M. Neufeld pertinently argue, may have “complicated how we conceptualize and enact our human identities”, and destabilized “the category ‘human’, in its biological, social, and political aspects” (2007, 171), yet it is this complication that has enabled a significant departure from predominantly anthropocentric discourses and practices in all aspects of social, cultural, political, biological, and ecological relations. Rosi Braidotti calls this strand of posthuman thought “contemporary critical posthumanism” (2013, 47), which incorporates “ecology and environmentalism” with a special emphasis placed on relating to all “earth-others” (48). “It produces”, Braidotti writes, “a new way of combining self-interests with the well-being of an enlarged community, based on environmental inter-connections” (48). Critical posthumanism then maps what we can call ecological posthumanism that stresses the significance of complex environmental relations, perviousness of species boundaries, and social-ecological-scientific networks within which humans and nonhumans, knowledge practices, and material phenomena are deeply enmeshed. Understood this way, posthumanism amplifies the new materialist endorsement of the complicity of nature and culture, or in better terms, the mutual involvement of discursive practices and the material world. Serenella Iovino’s words – “Our world is pervious and fluid, and so must be the notions that help us to read and to describe its ecologies of ideas and bodies” (2016, 2) – illustrate best this material-discursive map of posthumanism in its onto-epistemological gravitation. As a generative category, “networked relations” in this layout seems well suited to elucidate posthuman meanings and experiences, and even contradictions and anxieties that also inform the current discussions.

If humans and nonhumans are “networked with each other and with technologies, practices, and disciplines which may cluster and co-constitute them regardless of species designation” (Wolfe 2013, 34-5), humans can no longer be defined in a separate ontological zone, but as “hybrids of nature and culture” (Latour 1993, 11). In this hybridized world, while we can understandably remain skeptical of the possibility of our dissolution

into an utterly alien category, like disembodied intelligence entrenched in a digital medium, many of us would acknowledge the human indexed in processes of co-emergence with other beings. Jane Bennett's identification of human agency as "an interfolding network of humanity and nonhumanity" (2010, 31) exemplifies this process as the key point in posthumanist accounts of new human ontologies. The posthuman contesting of human agency here is a critical recalibration of the human sphere aimed at dissolving the desire to exploit the coexisting sphere of the nonhuman. This is, in brief, a contesting of the notion of "anthropocentric humanism" (Herbrechter 2013, 78) grounded in human solipsistic supremacy and its interrelated hegemonic traditions and discourses.

Posthumanism thus understood makes us more aware of the biological fact that "[w]e are crisscrossed and cohabited by stranger beings, intimate visitors who affect our behavior, appreciate our warmth, and are in no rush to leave", as Dorion Sagan reminds us (2013, 21-2). Therefore, we are, in a way, what Nayar calls *humanimal(s)* (5), because our environmental relations are always characterized by networks of complex crossings and interchanges with other beings and material forces. When these networks are ostensibly disrupted by anthropogenic factors, the posthuman condition becomes an entanglement in many antagonistic forces with formidable efficacy and humans are not immune to their material effects. Matter's effectivity in these networks becomes much more pronounced when interfered with anthropogenic factors. Acting like "the *mirror* of our energies", as Gaston Bachelard has claimed (2002, 17), material forces can never be contained in boundary-specific practices. Consider the effects of carbon emissions, hydraulic fracturing², the Great Pacific Garbage Patch, electronic waste discarded in landfills, radioactive debris, invasive species, mutating viruses, and other environmental complexities inseparable from environmental and socio-economic relations. In Jane Bennett's incisive words, we live at a time "when interactions between human, viral, animal, and technological bodies are becoming more and more intense" (2010, 108). On a larger scale, this connection is also manifest in dramatic earth changes – from earthquakes, volcanic eruptions, tornadoes, tsunamis, to deterioration of ocean ecologies, and extreme weather conditions, which deeply affect bodies, daily lives, economy, health, and politics. The striking image Ted Hughes sketches in his poem *Wadsworth Moor* epitomizes the consequences of such earth changes: "Earth bleeds her raw true darkness / A land naked now as

² Also known as "fracking", this is the process of drilling and injecting fluid, filled with carcinogens and toxins, into the ground at a high pressure in order to fracture shale rocks to release natural gas inside.

a wound / That the sun swabs and dabs” (1993, 53). As indicated in this poem, the agentic power of matter becomes alarmingly disquieting when it interacts recursively with the human-induced toxic environments. This is what, as Eileen Joy puts it, encourages “critical examinations of the aliveness and agency of animals, objects, environments, and other nonhuman forces and propensities, all enmeshed with humans” (2014, n.p.).

Chris Jordan’s feature film *Midway* that lays bare the tragic story of the Laysan albatross on Midway Island in the North Pacific Ocean epitomizes such a problematic human-nonhuman enmeshment and poignantly demonstrates the dire consequences of the social and the natural interpenetrating each other. Worse than T.S. Eliot’s river that sweats oil and tar, the landscape here sweats unfortunate birds engulfed in plastic inducing deadly effect on their bodies. Is it any wonder that plastic permeates biological organisms, their flesh, their blood stream, and their bodily mechanisms, practically interfering with the evolutionary cycles of life by its very indestructible nature? *Midway* reveals this fact as a “ghastly tale” by zooming into the plastic-filled stomachs of dead birds. “Do we have the courage to face the realities of our time?” asks Jordan inviting the audience to a journey “across an ocean of grief”. Marked by an explosion of material vitality literally colored by the countless plastic objects, and by a shocking recognition, the images of the dead albatross confront the challenge of dissolution when the agency of manufactured substances dominate the ecosystems. In this film, the “ocean of grief” is caused by “petroleum-species”, which are manufactured by greedy human petro-cultures. As such, it mirrors a posthuman environmentalism of “the incalculability of other than human forces we typically fail to acknowledge, yet which haunt all considerations of environmental change” (Hird 2010, 54). When “the natural life forms” and “cultural forms of life” (Helmreich 2009, XI) are so deeply entangled across the spheres of human and other biotic forces and material agencies, what ensues are posthuman choreographies linking the biosphere with the technosphere.

This posthuman condition is captured quite arrestingly, and of course ironically, in the famous opening of Charles Dickens’s *A Tale of Two Cities*. Ironic as it may sound, this is the best delineation of the present posthuman reality: “It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness” (1939, 1). It is worth noting that living in the best and the worst of times can also occasion a Gulliver syndrome. Like Gulliver, we are forced to step into somewhat strange environments of beings and forces that are *worlding*³ with us.

³ I use the term “worlding” in the sense of becoming and being-in-the world.

This means to take account of the shared environments saturated with alien substances and metabolic forces, and of how natural/cultural forces, bodies, and material agencies bear witness to the viral condition within which the nonhuman (animal, vegetal, mineral) is as much enmeshed as the human. Like the “acidic tomatoes” that can “power a small radio / or cause / phototoxic / burns on exposed skin” (2013, 57) in the Canadian poet Adam Dickinson’s poem *Hand Picked*, this viral condition is visible in every aspect of life. Indicated by Dickinson’s poems, “the animating force of hydrocarbons and their crudely oiled futures” (100), or what he calls the “age of polymers” (100), thus become significant poetic substances in the contentious landscape of posthumanism. Expressing some of the posthuman quandaries, Dickinson ironically writes: “A human has the alien right to viruses in her genome, microbes in his gut, phthalates in her blood, pharmaceuticals in his brain, contacts in her eyes, and a battery against his heart” (100). Although such poetic images imply that we have shot the albatross like Coleridge’s ancient mariner, and are “now living on a qualitatively different planet”, we can reinvent our knowledge practices “from an entirely different angle” (Ellsworth and Kruse 2013, 8). This is necessary to understand the significance and depth of our interactions with the earth’s variously uncanny nonhuman players, and the complexity of the world’s posthuman co-shapers. Then, perhaps workable solutions would follow.

It is within this conceptual framework that I reflect upon the morphing of material ecocriticism into posthuman ecocriticism.

2. POSTHUMAN ECOCRITICISM

Since material ecocriticism has progressively co-opted many of the critical posthuman visions, forging a post-naturalist environmental imagination in the making, it has already become part of the posthuman turn and can thus be called posthuman ecocriticism. The central argument of material ecocriticism – that matter is endowed with creative expressions, manifesting as *storied matter*, and that creative materiality is encoded everywhere⁴ – is amplified in its new form with the inclusion of matter’s abiotic components that are transmitted through techno-scientific practices. Posthuman ecocriticism investigates the literary, cultural, and philosophical implications of how these practices seek to graft the technological onto the biologi-

⁴ See Iovion and Oppermann’s “Introduction: Stories Come to Matter” in *Material Ecocriticism* (2014).

cal – for example, inorganic nanodesigning of biophysical systems (Parisi 2008, 294, 297) and the ecological consequences of such practices. Matter today is storying itself not only through biological and material forms but also through these biophysical systems, the new biotech forms, and other techno-scientifically engineered entities, such as robots that are story-filled as biological agencies, revealing “a posthuman performativity in its narrative disclosures” (Iovino 2012, 58). In this ecocritical perspective, whether elemental, biological, geological, climactic, or technological, the world’s manifold agencies are always deeply interlaced with human mindscapes, reflexivity, and imagination. This is a re-alignment of material ecocriticism’s conceptual templates to critically discern the cultural implications of life sciences and new technologies. In this approach, the world’s dynamic self-articulation, or narrativity, is deemed to open a radical perspective – one that cannot be dismissed as the stuff of dreams though it strangely “alters the tenor of our reflections and the tonality of our dreams”, as David Abram eloquently articulates (2010, 141). The voyage of the storied matter currently generates material narratives of what Latour calls an “ecology of collectives consisting of humans and nonhumans” (2004, 61), with an expanded understanding of the nonhumans beyond the biological species. Put differently, in the posthuman moment intelligent machines also story themselves to join the hybrid compounds of the Earth. This is the juncture where material ecocriticism becomes *post-human* and *post-natural*, and also *post-green* in critiquing the taxonomy of the human, the nonhuman, and the machine.

Conserving the new materialist understanding of the nonhuman (biotic and abiotic) as already part of the human in the world’s becoming, posthuman ecocriticism seeks to maintain a sustainable ecological critique of the material interaction of bodies and natures in a highly technologized world and their conceptualizations in literary and cultural texts. The principal concepts of material ecocriticism – storied matter and narrative agency – that explain the agentic dimension of living matter in terms of its stories, are particularly suitable for exploring the emerging posthuman agencies, the technological posthuman forms⁵. By re-working these concepts in the light of abiotic visions of materiality, posthuman ecocriticism becomes a way of reading the biosphere and technosphere transversally in the variations of matter, interpreting ecologically the ethical and social implications of existence beyond the carbon-based life embedded in agential intra-actions with

⁵ As Luciana Parisi explains, “technical machines are able to enter in direct relations with the biophysical layers of matter” (293). Thus, posthuman forms are agentic and expressive.

the biotic forms. Neither fully imaginary nor real, animal-machine hybrids, cyborgs, cloned animals, aliens, synthetic matter, and toxic bodies populate contemporary scientific and literary narratives, offering a critical prism for posthuman ecocriticism to scrutinize their stories' corrosive as well as productive powers.

The cataclysmic narratives of toxic accretion in the human body, for example, are also the stories of massively distributed pollution in the earth's biosphere, showing the "extent to which all bodies are kin in the sense of inextricably enmeshed in a dense network of relations" (Bennett 2010, 13). They may appear in scientifically convoluted literature not too accessible to the general public, but when these stories appear in visceral states of anguish in literary texts such as the Scottish writer John Burnside's *The Glisters* (2008) – a highly disconcerting novel about how densely bodies and ecosystems are interrelated in ominous toxic kinship – they bring many resistant forms of nonhuman agency into sharper focus. *The Glisters* exposes the bodily and environmental effects of toxic chemicals in a gripping depiction of how toxic agencies induce a bodily crisis and also cause spiritual infection in the vicinity of a chemical plant. The runoff from the shut down plant that was built 30 years earlier by the Consortium to manufacture chemicals has not only thoroughly poisoned the inhabitants of the Innertown, but also irreversibly contaminated the entire environment. Incurable diseases, "mysterious behavioral problems", and mutant creatures haunt the Innertown daily. The local constable John Morrison says: "You could see evidence wherever you looked of the plant's effects on the land: avenues of dead trees, black and skeletal along the old rail tracks and access roads; great piles of sulfurous rocks where pools of effluent had been left to evaporate in the sun" (chap. 1). The forest nearby is so contaminated that the people call it "the poison wood", where the trees "were veined with a dark, poisoned sap" (chap. 1). Leonard Wilson, a pedantic teenager says, "This wood has poison running in its veins, in the sap of every tree, in every crumb of loam and every blade of grass" (chap. 7). In such a dismal environment where "the entire land under their feet is [...] poisoned by years of runoff" (chap. 1), humans, living like Latour's collectives, suffer from "unexplained clusters of rare cancers", "terrible diseases", "untreatable illnesses", "depression", and "blossoming madness", while animals develop "swollen, twisted bodies" (chap. 1).

Disclosing a posthuman condition not too remote from our reality, *The Glisters* sheds light on the fact that technology can no longer be disentangled from biology, inviting a complementary reading of natural-cultural dynamics of human-nonhuman existence. The lethal interchanges of bodies and xenobiotic substances that percolate through soil, air, and

water point to the hazy nature of boundaries between the social and the scientific, technology and morality in an illuminating way. The intimate entanglement between humans and effective toxic agencies running in and around them is also figured as a diagrammatic invocation for posthuman dystopias. Instead of an imagined dystopian future, however, *The Glister* presents quite a realistic scenario of humans dwelling in daunting material networks which invite us to examine the corporeal dimension of a poisoned nature and the intensities of its transformed vital forces. Post-human ecocriticism exposes the dynamics of this unfolding causality in humanity's composite story with a special focus on the constitutive role of posthumanly intertwined agencies. We are all parts of the earth narratives engendered by entangled forces whose impact may range, to quote Rob Nixon, "from the cellular to the transnational" (2011, 47). The varieties of biotechnological relationship that emerge from within hybrid geographies as showcased by *The Glister*, require distinct ecocritical attention, not in order to expose the toxic kinship only, but to analyze the currents of material narratives running through the social, the technological, and the political. In posthumanist ecocritical analyses we are confronted with how the human is submerged in inhuman loops, and how literature, biology, chemistry, technology, aesthetics, and politics become inseparable from the material networks, forming a naturalcultural space as an intermingling spillway of science and literature.

Posthuman ecocriticism is also concerned about the social, political, and ethical implications of hybrid life forms, and draws attention to the ambivalent ethical stakes of certain new developments; for example, designing new life with inorganic or synthetic matter as nanotechnologies today are already attempting to do. Self-replicating iCHELLS (carbon-free inorganic-chemical-cells) are the best examples here⁶. iCHELLS are queer constructions, hybrids of life and nonlife with a capacity to evolve⁷. Their story supports a profound conceptual shift in our understanding of evolution as it inscribes the artificial into the natural, and writes life into nonlife. Apparently, it expressly closes the great divide between the natural and the artificial. Such narratives are examined as viable expressions for a new understanding of life that has gone *post* in almost every sense. When natu-

⁶ See Deren Quick at <http://www.gizmag.com/bringing-life-to-inorganic-matter/19855>.

⁷ Another example is the invention of "the world's first synthetic life form" by geneticist Craig Venter and his team in 2010. This is a single-celled organism, Venter claims, that "heralds the dawn of a new era in which new life is made to benefit humanity, starting with bacteria that churn out biofuels, soak up carbon dioxide from the atmosphere and even manufacture vaccines". This invention Venter also says, changed his "views of definitions of life and how life works". See Sample 2010.

ral and technological actors transcend their radical divides, what happens is a shift from nature toward a posthuman life-text that tells the story of a messy vision of coexistence. This story that began with ecological postmodernism⁸, got forged into new kinds of collective with material ecocriticism, is now pulling more of the unexpected into this hybrid formation with posthuman ecocriticism. It is, thus, no longer possible to rely on notions of green ecologies, such as cooperative, congenial coexistence in this new ecocritical framework. Instead, posthuman ecocriticism entertains the intricacies of environmental anomalies caused by climate change, anaerobic environments, pesticides, invasive species, toxic bodies, hybrid natures, intelligent machines, and a motley of other strange agencies. Embedded in this background are the intriguing maps of co-evolution of organisms, inorganic matter, perception and imagination in interesting hybrid life-worlds. Taking this complex background into account, posthuman ecocriticism scrutinizes the intertwined experiences of emerging naturecultures to build novel forms of post-anthropocentric discourses.

Probing thus into the interfaces between biophysical, cultural, and technological environments, and by engaging strategically with a vast array of nonhumans that are not always biological, posthuman ecocriticism discloses the “topographies of the world’s hybridization” (Iovino and Oppermann 2013, 334) to capture a sense of “what we made and what we became co-evolved together” (Hayles 2006, 164). The complexly bio-engineered and mechanically augmented hybrid forms in Justina Robson’s sci-fi novel *Natural History* (2004) illustrates this shift in vision quite well, providing a palpable literary example. It focuses on a distant future, the third millennium, when the expansion of humanity through the solar system is made possible via many redesigned humans represented by hybrid beings, the Forged. They “had originally been created for work of specific kinds” (85) for the Earth-bound humans called the Unevolved, or monkeys. Being embodiments of human DNA and animal genes coupled with metal and silicon, the Forged come in all sizes and shapes: hives of bees, birds, beasts, spiders, armored machines, space combat vehicles, titanic Gaiaforms (terra forming spaceships designed to rebuild planets), and other monstrous and protean forms that can travel between planets. Realizing “the Monkey wasn’t worth the effort any longer” (85) – because they find the human claims to superiority and governance false – the Forged “want to make a new beginning and forget their origins” (86). As posthuman successors composed of multi-natures, the Forged epitomize “the co-extensive mate-

⁸ On this point, see Oppermann, “From Ecological Postmodernism to Material Ecocriticism: Creative Materiality and Narrative Agency” in *Material Ecocriticism* (2014).

reality of humans and nonhumans” (Alaimo and Hekman 2008, 9), as in the case of the Pigeon, a gigantic human-bird hybrid designed to carry passengers:

What was the protocol for dealing with the entry into another’s bodily cavity? Should she move the hatch membrane aside like a curtain? The Pigeon put her out of misery by drawing aside the sheets of skin with a smooth flex of muscle and machinery in her hatch-rim. (82)

With the Forged representing “trans-species flows of becoming through interaction with multiple others” (Braidotti 2013, 89), *Natural History* poses fundamental questions about the nature of life, the future of evolution, and the possible coalitions of humans and nonhumans that spawn the posthumanist vision of “the differential constitution of the ‘human’” (Barad 2008, 144). If fictional texts can project such imaginable pathways for a material-conceptual horizon of humanity, literature becomes a useful site to explore the unfolding implications of posthuman identities, bodies, and natures. All are essentially multiple within themselves, and identity as it is envisioned in *Natural History*, as Karen Barad states, “is diffracted through itself” (2012, 32). For example, Isol’s identity – the Forged entity searching for earth-like planets – is at once in the skin of her hand, her organic cells, her engine, her reactor core, and her dreams. She also finds her “self” entangled with ocean creatures like the octopus, sharks, and whales. This is what makes her radically posthuman. Isol is shaped by technological and biopolitical forces as effectively as evolutionary ones, and this is not an ultimately distant issue from our own posthuman reality with possibilities opened up by biology and technology.

Posthuman entities, not only as envisioned in such literary fictions but also produced in real life like the evolving synthetic cells, push life to its “conceptual limits spilling across scales and substrates, becoming other, even alien to itself” (Helmreich 2009, 8). When borders between life and nonlife are so blurred, one feels compelled to ask the “question of what, exactly, is alive”, as molecular biologist Lawrence E. Hunter pertinently does in *The Processes of Life* (2009, 4). Claiming that even “fundamentally ordinary materials can be alive in so many extraordinary ways” (1), Hunter invites us to the study of life:

While some materials (like DNA and proteins) are found in nearly all living things, it is not a special kind of stuff that makes something alive. The mere presence of any particular material (including DNA) doesn’t make something alive. The materials of life, it turns out, are just fairly ordinary chemicals, in particular combinations. What makes something alive is not what it *is*, but what it *does*. (2)

If “doing” is the life-principle, matter, organic or synthetically engineered, emerges as the enactment of its ongoing materialization. All forms of life in this vision – living organisms, forces of nature, a DNA protein, or an inorganic chemical compound – are co-constituted. It means: “Life in any form is part of life in every form” (Llywelyn 1993, 281). Put differently, not all material agencies are metabolically active, but they all represent different episodes of life’s alterity in posthuman reality. This is also a good way to understand why all agencies matter, and why we should be more attentive to their agentic role in today’s world, and be ecologically aware of the crisscrossing strands of their stories. Once in the purviews of posthuman ecocriticism, the study of the episodes of such alterity, not only as they emerge from scientific research but also in their emulated fictional accounts, now traverses a range of disciplines as a seismic shift in the way life is imagined and experienced.

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