



BOOK REVIEW:

*Stages of Transmutation: Science Fiction,
Biology, and Environmental Posthumanism*

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Idema, Tom. *Stages of Transmutation: Science Fiction, Biology, and Environmental Posthumanism*. Routledge, 2019. ISBN 978-0415788229.

Tom Idema's compact volume joins the tradition of posthumanist theories that draw upon works of SF to interrogate the relationship between the human and nonhuman. According to Idema, environmental posthumanism is a necessary corrective to posthumanist theories that focus overwhelmingly on technology. Instead, environmental posthumanism captures the web of interrelations among humans and the environment, broadly construed, thus undercutting the illusion of the human as an autonomous and superior subject. Expanding this concept of environmental posthumanism through an analysis of a variety of SF novels, Idema offers two especially unique approaches. First, he draws on debates within the biological sciences demonstrating an admirable method of interdisciplinarity. Second, Idema turns to the language and concept of performance to illustrate how environmental posthumanism becomes more than a metaphor on the page. The novels in Idema's selected archive not only serve as "platforms staging an epistemological encounter between literature and science" but also invite readers to (re)conceive "*life as a dramatic performance*" (5, 166). That is, according to Idema, understanding environmental posthumanism in this way can spark both epistemological and ontological change. Still, while these two strategies offer both rich readings of SF texts and a model for other scholars to follow, Idema overlooks the intellectual tradition of performance studies scholarship that has long been engaged with similar issues.

Idema has the difficult task of entering several academic debates with long histories, including SF, ecocriticism, the relationship between science and culture, and the definition(s) of posthumanism. As Idema points out, the conversation around this last issue is “urgent and compelling but also parochial”, having become a “familiar posthumanist story” (1). Rather than opening up new possibilities for the relationship between the human and the nonhuman, posthumanism as a field of study is all too often reduced to concerns of technology. At the same time that he draws important threads from the tradition of posthumanism, Idema also expands the scope of the conversation in two ways. First, Idema shifts the focus to SF works that concern biological transformations, a “different kind of affront to humanism” (2), which Idema names “environmental posthumanism” – the volume’s central theoretical intervention. While sharing much with other ecocritical and posthumanist theories, including those of Rosi Braidotti (the necessity of interdisciplinarity), Stacy Alaimo (the permeability of bodies, which are always in relation to other bodies), Cary Wolfe (rejection of humanist conceptions of the human as rational), and Donna J. Haraway (the embeddedness of humans in the environment), Idema argues that environmental posthumanism represents a departure from these and others for several reasons.

First, Idema points out that environmental posthumanism overlaps with theories in biology – constructive interactionism (organism development as the result of complex, multi-system interactions); symbiogenesis (DNA acquired via symbiotic relationships between organisms); Gaia theory (the planet as a self-regulating, living system); and coevolution (organisms and species evolve together in complex relations) – which are played out in literary texts. According to Idema, stories of human transformation due to environmental interaction are rare in Western culture because they contradict two major pillars of biology: the neo-Darwinian tenet that nature does not include sudden transformations, and the genetic perception of the environment as external to life. Idema turns to a number of post-1970s biological theories – epigenetics, symbiogenesis, coevolution – that reject these concepts in favour of more expansive understandings of the nonhuman as a primary (rather than secondary) influence on the human. Second, works of environmental posthumanism, which are not always but are often SF, “figure life as *staged*: an environmentally mediated, dramatic, and largely inscrutable event *enacted* by human and nonhuman characters” (12, original emphasis). For Idema, this staging is in effect a new literary form in which both environment and characters are co-constitutive; the separation between character and environment is erased. Third, environmental-posthumanist SF departs from the dominant Marxist tradition of SF studies. This tradition of cognitive estrangement, as articulated by Darko Suvin in particular, limits the changes in an SF world to the social and economic. Idema rejects this premise throughout the volume, articulating the many ways SF can and does concern environmental metamorphoses.

Idema presents a number of examples of environmental-posthumanist SF where “literature becomes a stage on which the dramas of science and philosophy are performed” (27). In other words, novels become the space of encounter for scientific knowledge and investigations of the human experience. Only by direct interpolation with relevant biological discoveries, Idema argues, can the environment become a participant in, rather than background for, narrative. For each SF text Idema uses to articulate environmental post-

humanism, he provides a biological counterpart. For example, he pairs Kim Stanley Robinson's *Mars* trilogy (1992–1999) with psychologist Susan Oyama's theory of constructive interactionism to show how human and planetary transformations are interrelated and entangled. Oyama rejects the nature/nurture binary, arguing that organisms are not synonymous with their DNA and that evolution is the result of complex interrelations between the environment and organisms. Idema uses this theory to reconceive the *Mars* trilogy's story of terraforming as one of coevolution rather than human transcendence of a new planetary environment. Likewise, Idema rereads Greg Bear's *Darwin's Radio* (1999) through Lynn Margulis's understanding of evolution as a creative and collective process and Deleuze and Guatarri's nomad science. Bear's novel depicts a viral pandemic with disastrous effects on human reproductive capacities. Idema identifies the practice of nomad science among the novel's characters, who pursue alternative methods reminiscent of Margulis's theories of evolution as the result of symbiotic relationship. This contrasts with what Deleuze and Guatarri call "State science", which would search for a single, discrete cause of the pandemic.

In addition, like many other SF scholars, Idema chooses Jeff VanderMeer's *The Southern Reach* trilogy (2014) as a literary site of theoretical innovation. Idema demonstrates how the trilogy's hybrid narrative form portrays the nonhuman world as actant, a philosophical expression taken from James Lovelock's Gaia theory. Lovelock uses Gaia as a metaphor to emphasise the agency of the planetary living system; Idema sees this same metaphor at work in VanderMeer's Area X, which not only directly transforms individual human bodies but actively resists interpretation by any human epistemological framework. Finally, in Octavia Butler's *Lilith's Brood* (1987–1989), Idema sees multiple forms of amalgamation – including evolutionary – that underscore the myriad relationships that compose life. Butler's tale of humans both being physically transformed by and learning to live alongside an alien race enacts Donna J. Haraway's concept of sympoiesis, the creation of novel interrelations for mutual flourishing.

Collectively, these readings capture the multiple dimensions of Idema's environmental-posthumanist proposal. One of the volume's strengths is the way Idema simultaneously acknowledges and surpasses perennial and "parochial" posthumanist debates in favour of a thoughtful expansion of the kind of work – theoretical and material – that a concept of posthumanism can do. Idema's analyses don't become mired in the specifics of techno-optimism or over-emphasise the role of technology. Instead, his readings of his chosen case studies offer ways to understand human and environmental transformation through SF.

In particular, Idema's readings of Bear and Butler stand out for their nuanced and reflexive analyses of SF. Idema acknowledges the problematic biological determinism of *Darwin's Radio* while moving beyond such critique to illuminate the ways Bear's novel helps "flesh out" theories of nomad science. He also questions the role of narrative in environmental understanding: "In unsettling habitual relations between the human subject, (molecular) embodiment, and environment, *Darwin's Radio* challenges the traditional humanist sense of the literary as a window to the human soul" (82). This line of thinking turns a discerning eye on the functions of narrative in attempting not only to comprehend, but also to reimagine, human-environmental relations;

such an approach is imperative to sustainable planetary futures. Similarly, in his analysis of *Lilith's Brood*, Idema resists the tendency to view such works as allegory, which “reduces them to dramas of human differences of race, gender, class, and so on”; instead, Idema argues that the novel understands life as “not the privilege of humans or human-like creatures but a result of ongoing relationships that are, first and foremost, sensorial and aesthetic” (138). As part of this reading, Idema makes the important point that science and technology studies are as “empirical as the natural sciences and [are] implicated in their most empirical questions, just as science is implicated in STS’s social and epistemological quandaries” (147). The productive tensions between science and STS will also prove to be vital to any serious (re)consideration of the place of humans in the biosphere.

Another strength of Idema’s argument is its focus on performance. Idema repeatedly asserts the role performance plays in his thinking: the environment triggers *staged* development of humans and others; the environment itself is a *stage* upon which life transforms; and novels *stage* encounters between literature and science. Even life itself is *staged*: an “environmentally mediated, dramatic, and largely inscrutable event *enacted* by human and nonhuman characters” (11, emphasis original). This line of thinking has the potential to shift conversations on the role of literature, the relationships between humans and their environments, and how we face the planetary future.

However, Idema does not engage with the rich scholarly tradition of performance studies that pursues similar lines of inquiry; his text would have been strengthened by concrete engagement with theatre studies and performance theory. In the book’s coda, “Bringing Literature to Life”, Idema sums up his approach as follows:

science fiction allows scholars to not only explore science as a kind of theater piece in which crucial epistemological and biopolitical tensions are fleshed out but also to think of *life* as a dramatic performance. (166)

Many works have drawn on performance to articulate and understand environmental questions, including but not limited to ecocritical works. Canonical works by Bonnie Marranca (*Ecologies of Theater*, 1996) and Una Chaudhuri and Elinor Fuchs (*Land/Scape/Theater*, 2002) thoughtfully interrogate the ways the environment becomes both stage and actor. Baz Kershaw (*Theatre Ecology: Environments and Performance Events*, 2007) shows how performance theory can illuminate the ways humans and non-humans interact. Other performance theorists who have considered life as performance (Richard Schechner, Bruce McConachie, Diana Taylor, Rebecca Schneider, D. Soyini Madison) would have enriched Idema’s analysis as well. After all, what is theatre and performance studies if not an exploration of how to bring ideas to life?

Additionally, *Stages of Transmutation* embodies another wider issue in SF and literary studies: the absence of non-Western voices. Idema explicitly recognises this in his introduction, writing, “I limit myself to Western (and mostly Anglophone) literature, a major shortcoming that I hope will be compensated by others, if indeed the knowledge is not already available in other languages” (6). I find two significant issues in this claim. First, like much SFF

scholarship, Idema's project concerns the dismantling and/or deconstruction of dominant Western epistemologies, a task for which non-Western perspectives would be exceptionally appropriate. Attention to such texts will only enrich the field. Second, addressing the omission of non-Western views will take conscious effort on the part of individual scholars and the field as a whole. Having read similar disclaimers in several recent works of SF scholarship, it's apparent to me that if we all keep relying on others to address this absence, it will never be filled.

In sum, Idema's book proffers a number of ideas both intriguing and necessary for articulating the role of SF in our time of monumental environmental change. His interdisciplinary interweaving of narrative, empirical science, and STS provides a valuable springboard for wider interrogation of SFF. Scholars from any number of fields would benefit from remembering that "culture does not come after nature, and scholarly problems of the humanities cannot be reduced to scientific problems without impoverishing thought. Neither can humans be given the exclusive privilege of thought and consciousness without endangering life" (166). *Stages of Transmutation* is an example of how interdisciplinarity can instead enrich thought, an increasingly important exercise in light of the social, political, ethical, and environmental challenges we face.

Biography: Shelby Brewster is a Postdoctoral Research Associate at Michigan State University and Associate Editor of *Public Philosophy Journal*. She received her PhD in Theatre and Performance Studies from the University of Pittsburgh in 2021. Her scholarly interests include environmental humanities, theories of (post)humanism, and editorial theory and practice. Her work has been published in *Performance Research*, *Foundation: The International Review of Science Fiction*, and *Theatre Journal*, and multiple online venues.