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# ***Experiments in Thinking across Worlds***

## ***Introduction***

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The anthropological interest in fiction is growing. In the introduction to *Crumpled Paper Boat*, Anand Pandian and Stuart McLean (2017, 1–2) describe ethnography as carrying “beings of one world into another,” and writing as a “material adventure.” Their emphasis is on anthropology but the point is far more general: novels and poems, for example, can also be seen as adventurous movements of being across forms and worlds. Decades ago, Donna Haraway (1990, 149) made a similar observation with particular reference to science fiction: any supposedly clear boundary with “social reality,” she wrote, is but “an optical illusion.” Years later, upon receiving the Pilgrim Award,<sup>1</sup> she presented her version of “material adventure” with the image of Navajo string figures, *na’atl’o’* (Haraway 2011). Rather than “containing” worlds, she argued, speculative science fiction should be seen as an emerging, co-created web—as patterns made and transformed as they are passed on, from one writer or reader to the next, with unpredictable effects.<sup>2</sup> This issue on “Experiments in Thinking across Worlds: Anthropology and Science Fiction” is intended both as *an exploration of* and *an addition to* this emergent web.

One of the most influential theorizers of SF, the literary theorist Darko Suvin depicted the genre as recognizable by “the presence and interaction of estrangement and cognition” (1979, 7–8). For Suvin, the genre’s “main formal device is an imaginative framework alternative to the author’s empirical environment,” and he introduced the term “*novum*” to designate the foreign element that accomplishes the required estrangement. To prevent SF from sliding into fantasy, he argued that the *novum* should be cognitively explained in a manner that

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<sup>1</sup> A lifetime achievement award presented by the Science Fiction Research Association.

<sup>2</sup> See also the interview with Isabelle Stengers (2019) conducted for this special issue.

convincingly ties the fiction to existing reality (Suvin 1979, 64–65). Conventionally, it would thus take the form of a futuristic techno-scientific novelty. As speculative fiction developed, however, it came to take numerous other forms as well.<sup>4</sup>

Long before Haraway exploded the term SF in her Pilgrim award acceptance speech (it turns into string figures, so far...), the literary critic Robert Scholes had defined speculative fiction as a form of “structural fabulation” (1975, 41). On the one hand, it entailed “an awareness of the universe as a structure of structure.” On the other, similar to Suvin, he observed that the “fictional point of departure” was often based on “the insights of the past century of science.” A structured but fictional universe, then, the plausibility of which is premised on drawing on real scientific principles and accomplishments. Noticeable in these formulations is a firm distinction between fiction and reality. Indeed, it is because the boundary is so clear that elements from real science is required as a bridge. With some assistance from the heterodox philosopher Michel Serres, however, it is possible to configure the relations between structure, fabulation, and science fiction quite differently, setting us on the path of Haraway’s string figures.

Contrary to conventional structuralism, which has its starting point in linguistics, Serres took inspiration from the so-called Bourbaki group of mathematicians for whom structure designated

a set of elements whose number and nature are not specified, a set provided with one or more operations, one or more relations which possess well-defined characteristics. If one specifies the number and nature of the elements of the structure and the nature of the operations, then its model becomes evident (Serres 1982, 16).

The procedure is as follows: Start with a relation, drawn from the description of a specific problem, and then proceed to a model (Brown 2002, 3). Rather than aiming for generalization, the model will be gradually enhanced by addition and substitution of new elements. Consider the 1986 explosion of the NASA space shuttle *Challenger*, 73 seconds after it took off from Cape Canaveral in Florida. The causes of this catastrophe can, of course, be examined in technical, sociological and organizational detail (e.g. Vaughan 1996). Serres, however, evokes the explosion in the context of a discussion of the foundations of social order,

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<sup>4</sup> In this article, speculative fiction can be thought of as an umbrella term for multiple literary genres including science fiction, fantasy, horror, magical realism, and so on; however, the term is used in quite diverse ways (cf. Atwood 2011).

and depicts *Challenger* as a modern descendant of Baal's statue, inside which humans were burned alive. The elements are completely different—not a hollow statue but a space shuttle, not sacrificial victims but astronauts and the first schoolteacher in space—but the “nature of the operations” are analogous. Nothing, he concludes, “could be more mythical or anthropological, nothing more religious in its primitive sense, yes, naïve and native, than the contemporary state of the sciences and technologies” (Serres 2015, 22).

This model disrupts any notion of a clean break—either in substance or time—between the rational and the mythical. Where Scholes depicted SF as *beginning* with scientific findings, which it augments by *adding* speculative elements, Serres prefigured Haraway's refusal of the boundary between reality and fiction, and Stengers' (2018)<sup>5</sup> elucidation of the world-constructing powers of speculative science fiction, by characterizing the boundaries between science and fiction as constitutively unstable and permeable. One can, he wrote, detect “as much myth in the sciences as true knowledge in myths” (Serres 1989, 12). He went so far as to equate “true knowledge, prescience” with what “is nowadays called science fiction” (15).<sup>6</sup>

### Worlds of Speculation

Now fast forward to the present moment, and step sideways into anthropology. At this point, the editors of *Cultural Anthropology*'s “Speculative Anthropologies” series argued that the mutual attraction between SF and anthropology lies in a shared “commitment to difference” (Anderson et al. 2018). They described a simultaneous movement in two directions. SF's “heterotopic wildness of imagination” enables anthropologists to “confront our world's inclusions and exclusions” and to trouble conventional notions of the individual, the alien, or the planet. Reversely, anthropology offers to SF “its principled relativism and radical empiricism.”

This description has interesting points of connection with the unorthodox communication theory developed by François Cooren (2009), which, fusing themes from deconstruction and ethnomethodology, focused attention on *textual agency*. Resonant with Haraway's blurred boundaries, and Stuart McLean's (2017, xi) more recent depiction of anthropology as a “fabulatory art” with the capacity to disturb common sense distinctions between the real and the fictive, the unruliness of textual agency—characterized by slippages and ambiguity, mobility and transformability—means that we can never be certain which “heterotopic” fragments or “wild” elements are stealthily at work at the heart of what we study.

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<sup>5</sup> See, again, Stengers (2019).

<sup>6</sup> Cf. Kim Stanley Robinson (2019) who calls SF the “realism of our time.”

Yet, while ethnographic context does not *determine* the effects of textual agency, the ability to recognize its manifestations depends on a radical empirical attentiveness to the specificities of practice, which remains as crucial as ever.

To describe anthropology as a fabulatory art that is concerned (at least in part) with other peoples' varied imaginaries and forms of story-telling is of course also to see it as in some sense *continuous* with SF. Margaret Atwood (2011, 24), among others, has indeed suggested that the interest in imagining other worlds—whether as myths or as SF—is deeply embedded in human psychology. At issue is the capacity to imagine beings different from oneself and how they would see the world (21). We do not need to get bogged down in discussions about dubious cognitive universals to appreciate the point, as well as her follow-up observation that such imaginings usually involves traveling in some form. In SF, people journey to different worlds, and foreigners arrive unexpectedly in 'ours.' Analogously, the anthropological imagination thrives on perspective shifts often brought about by traveling far from home.

As anthropologists know, ethnography can be both intellectually and emotionally taxing. One of the challenges facing the returning fieldworker is how to convey the texture, meanings, and implications of encounters with other worlds in the form of writing. Symmetrically, however, immersive engagement with other worlds—whether quite alien or rather close to home—is made possible by speculative fiction. Indeed, the capacity to show the contours and implications of other worlds through the subjective experiences of their protagonists means that fictional worlds have the potential to facilitate deeper emotional or intellectual engagement with urgently important actual topics that might elude the reader in their real life (Haran 2002). From the author's standpoint, as the acclaimed SF writer Kim Stanley Robinson (2019) attests, real experiences can also catalyze the SF imagination.

Shared among the partially connected observations and trajectories we have just sketched is an effort to replace an understanding that sees "real" and "fictional" worlds as fundamentally, ontologically distinctive, with images of looping, recursive implication, lateral movements, and blurred zones of interaction. As experiments in thinking across worlds, each of the contributions to this issue use SF *as* ethnographic data that provides imaginative entry points for considering a variety of actual events and issues.

### **Alternative Parables for the Virtual**

The editors of "Speculative Anthropologies" characterized the interest SF holds for anthropologists as relating to the genre's obsession with "alternative futures, otherwise presents, and counterfactual pasts" (Anderson et al. 2018). Borrowing a term from Priya

Chandrasekaran's (2018) discussion of Octavia Butler's (1993; 1998) unfinished trilogy of *Parables*, they designate it as a matter of "thinking parabolically." What does this mean? Parables, of course, are short stories that offer instruction or moral lessons. And parabolic thinking in this sense can be illustrated by our first contribution, by Marisa Brandt and Lisa Messeri, which analyses contrasting depictions of virtual reality: from Steven Spielberg's heroic-masculinist *Ready Player One* (2018) to small screen productions like *Reverie*, *Kiss Me First* and *Philip K. Dick's Electric Dreams* that explore alternative imaginaries and possibilities of technology-enabled care.

Thinking parabolically, however, goes beyond any simple normative register. There is the profound moral ambiguity of Octavia Butler's own parables to consider, as well as the fact that SF—in the words of Isabelle Stengers—is a large continent created by many different authors and inhabited by many kinds of actors<sup>7</sup>—with very different political and ethical inclinations. Not to mention that the surprises of textual (or filmic) agency and the divergence of reader-responses comes in the way of any easy judgment based on authorial intent.

Moreover—similar to Serres' cross-over between algebra and mythology—it is possible to imagine parabolic thinking differently if one begins not with the parable but with the parabola. In fact, Priya Chandrasekaran (2018) plays with this possibility, writing that since "all of the points on a parabola are equidistant from a focus point and a fixed straight line, a multiplicity of nonarbitrary relationships exist ... The infinite triangles that crosscut a parabola have distinct properties, which illuminate the relationship between points and other points as well as points to the whole. These triangles have been used to explain wonders of natural and social phenomena."

*A multiplicity of nonarbitrary relations...an infinity with distinct properties, illuminating both specific relations and the whole.* This image intensifies the strategy—well-known in both SF and anthropology—of simultaneously familiarizing otherness and defamiliarizing oneself from what is close. Brandt and Messeri's intimate descriptions of the varied ways in which virtual reality transports users between worlds can indeed also be seen as parabolic in this second sense: they illuminate nonarbitrary relations between real and virtual worlds and the "distinct properties" that qualifies these worlds and relations. Gesturing at the potentials of differently articulated—more capacious and more caring—worlds, their article can then also be read as offering alternative parables for the virtual (cf. Massumi 2002).

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<sup>7</sup> See Stengers (2019).

### **Increasing Eccentricity**

Might parabolical thinking be pushed further? Perhaps, if we recall that ‘eccentricity,’ geometrically speaking, is a quality of parabolas and hyperbolas. The Greek root “*ekkentros*” means off-center. In regular parlance it refers, among other things, to somewhat off-kilter behavior. While parabolas have an eccentricity of one, that of a hyperbola is always higher. Perhaps hyperbolic readings, too, have a higher eccentricity.

An example is provided by Bill Maurer’s (2011) “Money Nutters,” a brief comparison of a “Really Really Free Day” that took place at Long Beach, California and...bitcoin. He describes each as a ‘quirky’ experiment with what money might mean, or become, each of which generated its own curve of action. The two “curves” never met, empirically speaking, but in Maurer’s hyperbolic reading they contextualized one another, while both also indexed broader anxieties over money’s contemporary status and function.

Transposed to the present context, this hyperbolic move can be characterized in terms of risking more eccentric interpretations of the entwinement of SF and ethnography. It is exhibited in Asli Kemiksiz’s contribution, which centers on the materialization and translation of SF imaginaries—from Karel Čapek’s (1920) *R.U.R* over Isaac Asimov’s (1995) numerous robot stories, on to the manga series *Astro Boy*—and into Japanese robotics. Kemiksiz deploys Haraway’s notion of string figures to capture the ongoing traffic across these realms. Her analysis, too, might be said to describe several curves that never quite meet.

In contrast with the regularly amazing capacities of their fictional kin, and notwithstanding business hyperbole, humanoid robots remain largely devoid of function. They are nevertheless, as Cooren (2009) might say, “haunted” by SF’s textual agencies. Indeed, Kemiksiz shows contemporary humanoid robots to be quite diversely inhabited by numerous imaginary-fictional fragments, from gender stereotypes and conventional fears of robot invasions, to more unusual manifestations like robots that dream or are reluctant to labor. More than anything, argues Kemiksiz, robots are (eccentric) machines that induce curiosity in researchers, enabling them to think about *many other things*—including life, agency, and cognition.

### **Stranger Structures**

As far as Michel Serres (1989, 15) was concerned, novelists like Jules Verne and Émile Zola invented ways of questioning life unimaginable to either contemporary philosophers or scientists. But the point of his strange structuralism was not to upend a traditional hierarchy of knowledges and locate fiction at the apex. Instead, he saw the scientific and literary endeavors

as complementary and mutually illuminating. For example, when Jules Verne tried to be properly scientific, Serres wrote, he merely showcased his limited knowledge. Even worse, his prose tended to become boring. In contrast, when he immersed himself “in areas where science officially has no place,” he was able to anticipate “from afar the gesture, the thought, the system of the scientist” (7). Rather than competitive or hierarchical, the landscape of knowledges into which we are catapulted by Serres is thus characterized by heterogeneity, mixture, and unexpected crossings. He likened it to the traversal of the “Northwest Passage” that separates and connects the Atlantic and Pacific Oceans. Here, there is no failsafe route but only an “adventure to be had” (Serres with Latour 1995, 70).

In his illuminating exposition of Serres’ thought, Steve Brown (2002, 2) wrote that this kind of journey will “involve much doubling back and complex navigation.” And as Brown (in this issue) explores China Mieville’s fiction—*also* both weird and structural—this indeed turns out to be the case. He examines three novels—*The City and the City* (2009), *Kraken* (2010) and *Embassytown* (2011)—from the point of view of the figure of “the embassy,” which in each case defines a space of miscomprehension, communicational ambiguity and inter-species bodily exchange, which entails significant dangers—as exemplified by *Kraken*’s Goss and Subby who “open and close temporal loops of conflict” through assassination. Lightyears from Jürgen Habermas’ theory of the “ideal speech situation,” Brown writes, Mieville continuously brings us face to face with situations in which “we do not really know what is either given or received in communication.”

In different ways, the ‘embassies’ operate as membranes that make possible communication between humans and nonhumans but also scramble the messages. As temporal rifts are bridged, and seemingly separated agents and situations turn out to be obscurely linked, we find ourselves in the vicinity of Serres’ juxtaposition of the statue of Baal and the Challenger shuttle. Indeed, Brown explicitly characterizes Serres as ‘Mievillian,’ and he connects the figure of the Embassy with the problems of climate change as discussed in Serres’ (2018) and Latour’s (2018) most recent work. Brown suggests, however, that diplomacy in the age of rapid climate disruption may require even more of future ambassadors than these scholars have been able to envision. Who, then, “will step into the breach?”

### **Into the Breach**

It could be argued that anthropologists interested in multi-species encounters have started to enter the breach opened by climate disruption. We now have complexly entangled stories of mushrooms (Tsing 2015), dogs (Haraway 2008), and assorted animals from cats to elephants



(Despret 2016). Of course, SF, too, is chockfull of such encounters—from the alien hive mind of the television series *Stranger Things* to the Cetacean becomings of Alastair Reynold's (2012) *Blue-Remembered Earth*. What opportunities are provided by considering multi-species relations not through live encounters but through lively fictions?

Gilles Deleuze and Félix Guattari, who were always obsessed with bodily encounters, described art as involved in the invention and bringing to light of “unknown or unrecognized affects,” and in making “perceptible the imperceptible forces that populate the world, affect us, and make us become” (1994, 174, 182). According to their radically decentered view of agency, affects surpass “feelings or affections; they go beyond the strength of those who undergo them” (164). In Herman Melville's (1851) *Moby Dick*, they suggested, we are faced not with a perception of the ocean or the White Whale, but with “oceanic percepts” (Deleuze and Guattari 1994, 168). Similarly, while Virginia Woolf's (1925) *Mrs. Dalloway* certainly perceives the town, it is only because she has “passed into” it like “a knife through everything” (Deleuze and Guattari 1994, 169) and has herself metamorphosed in the process. At issue are “nonhuman becomings of man”—or woman—in situations where even a common village turns out to be “nonhuman landscape” (169).

Resonant with Brown's readings of embassy diplomacy in interstitial spaces, the question of how to breach human-nonhuman barriers, and the implications of doing so, is dead at the center of Michael Fisch's analysis of Adrian Tchaikovsky's (2015) *Children of Time*. This story tells of the troubled emergence of a distinctly weird multispecies alliance—between human and spiders—eventually brought into being in a manner that makes co-existence possible but also radically modifies both species. Among other things, Fisch argues that the novel offers an alternative and counterpoint to Thomas Hobbes' notion of the social contract, which remains fundamental to modern environmental governance, but appears increasingly ineffectual for dealing with present and future Anthropocene emergencies.

“Truth becomes fiction when the fiction's true/ Real becomes unreal where the unreal's real.”<sup>8</sup> Written by Cao Xueqin in the 18<sup>th</sup>-century during the Qing dynasty, these words tantalizingly gesture at the leaky interfaces between fact and fiction at the center of these explorations of thinking across worlds. After all, even if spider-human transformations remain beyond the pale, we *already* share existence with spider silk extracted from the milk of trans-genetic goats and tomatoes experimentally enhanced with genes from deep-sea fish (Haraway

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<sup>8</sup> From the epic *The Dream of the Red Chamber* by Cao Xueqin. The translation is from Jeannie Jinsheng Yi (2004, 19).

1997, 88). Arguably, leaks in and out of reality can be detected even in the realm of ‘environmental governance,’ which has seen recent extensions of agency to a New Zealand river, and the enshrinement of the rights of Pachamama in Bolivia.<sup>11</sup> This is not to say that reality has already gone beyond science fiction. Yet, these developments hint at the possibility that we *are* already inhabiting zones of indiscernibility, where the relations between fiction and reality are much more ontologically unstable than we are prone to think (see also Jensen 2018).

While Fisch’s article, as the others that make up this special issue, each defines their own zone, Geoffrey C. Bowker and Bodhisattva Chattopadhyay take a full plunge into indiscernibility, with a contribution that breaches the boundaries of fabulation and science, social and natural with manifest glee.<sup>12</sup> Also an exploration of “multi-species entanglements,” the text is a mash-up actor-network theory and insectoid science fiction. On the dizzying journey we once again encounter Tchaikovsky’s human-spider interactions, alongside a bricolage of characters ranging from Dr. Vy, participating in a conference for Assisted Evolution, to Intominne 7flae5pl9, trail keeper of prehistorical memories, and the abiogenesis pod 3720, which is released at the end of the text. While we don’t know what will emerge from the mysterious pod, Bowker and Chattopadhyay’s contribution itself releases into the world an *Ant network theory*, which—extrapolating from ANT and splicing it with numerous foreign elements—works towards a profound rethinking of assisted evolution and the potentials of collective multispecies intelligence.

### Experiments in Thinking Across Worlds

Joanna Russ (1971) described SF as “what if literature.” Ursula K. LeGuin (1976) characterized it as thought-experiments entailing a “strange realism.” But then, she added, reality, itself, is already strange. More recently, Isabelle Stengers pointed to the potentials of speculative fiction for assisting the “strange and adventurous task of trying to believe in this world and in this life” (2005, 42). And the philosopher Deborah Danowski and anthropologist Eduardo Viveiros de Castro has recently characterized SF as the “pop metaphysics of our time” (2017, 7). In different ways, each of the contributions to this issue testify to the prescience of these formulations. Whether seemingly close to reality or very far away, they engage with SF as laboratories of other-than-real worlds, with tentacles stretching into actualized ones. In some

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<sup>11</sup> See Zyga (2010), Roy (2017), and Vidal (2011) on transgenic goats, the New Zealand river, and Pachamama in Bolivia, respectively.

<sup>12</sup> Thereby creating their own inventive analogy of Serres’ interpretive style, the premise of which, in the words of Bruno Latour (1987, 90–91) is that “characters of one language” are incessantly “crossed with attributes of a different origin.”

cases, new technologies like VR or humanoid robots contain outmoded aspects, concerning gender or sociality, for example, while in others, things that seem already well-known—like the interdependence of species—is opened up to foreign, even threatening, implications.

When it comes to VR or robotics, the alternative possibilities for reconfiguring social relations imagined by SF is perhaps *farther away* than often assumed. Reversely, contributors' discussions of weird material configurations and hybrid-species transformations also make it possible to grapple with the strangeness or even *implausibility of existing realities*, from environmental governance to the maintenance of social and communicational orders. With the advent of “the Anthropocene”—ongoing climate disruption—and tendencies everywhere towards the breakdown of modern certainties, not to mention the return of political archaisms in new technologically-mediated guises, there is every reason to think the world is only going to get stranger. Correlatively, finding resources for dealing with its strangeness, learning to recognize its dangers, and to pursue its possibilities are only likely to become more important.

Our orientation to SF in general—via Haraway, Serres, and numerous others—and the specific vocabulary we have adopted to describe the contributions reflect these observations. Thus, we have highlighted multi-directional and lateral connections, pointed to the importance of creating *alternative* parables for the virtual, and emphasized the creative potential in pursuing *eccentric* readings that—to adapt Mieville's term—*breach* expectations.

In its entirety, the issue can thus be described as an invitation to anthropologists and other social scientists to step into the breach in order to *reach* further, to make themselves (ourselves) available to the empirical, speculative, and pragmatic possibilities of SF. What matters is to learn new pedagogies for thinking and acting across worlds.

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## References

Anderson, Ryan, Emma Louise Backe, Taylor Nelms, Elizabeth Reddy, and Jeremy Trombley. 2018. “Introduction: Speculative Anthropologies,” Theorizing the Contemporary, *Fieldsights*, December 18, 2018.  
<https://culanth.org/fieldsights/introduction-speculative-anthropologies>.

- Asimov, Isaac. 1995. *The Complete Robot*. London: Voyager.
- Atwood, Margaret. 2011. In *Other Worlds: SF and the Human Imagination*. New York: Nan. A. Talese/Doubleday.
- Brown, Steven D. 2002. "Michel Serres: Science, Translation and the Logic of the Parasite." *Theory, Culture & Society* 19(3): 1–27.
- Butler, Octavia. 1993. *Parable of the Sower*. New York: Four Walls Eight Windows.
- . 1998. *Parable of the Talents*. New York: Seven Stories Press.
- Čapek, Karel. 1920. *Rossum's Universal Robots*. Translated by David Wyllie.  
<https://ebooks.adelaide.edu.au/c/capek/karel/rur/>.
- Chandrasekaran, Priya. 2018. "Thinking Parabolically: Time Matters in Octavia Butler's Parables," *Theorizing the Contemporary, Fieldsights*, December 18, 2018.  
<https://culanth.org/fieldsights/thinking-parabolically-time-matters-in-octavia-butlers-parables>.
- Cooren, François. 2009. "The Haunting Question of Textual Agency: Derrida and Garfinkel on Iterability and Eventfulness." *Research on Language and Social Interaction* 42(1): 42–67.
- Danowski, Déborah and Eduardo Viveiros de Castro. 2016. *The Ends of the Worlds*. Cambridge & Malden, MA: Polity Press.
- Deleuze, Gilles and Félix Guattari. 1994. *What is Philosophy?* New York: Columbia University Press.
- Despret, Vinciane. 2016. *What Would Animals Say If We Asked the Right Questions?* Minneapolis, MN & London: University of Minnesota Press.
- Haran, Joan. 2002. "Why Turn to Speculative Fiction? On Reconceiving Feminist Research for the Twenty-first Century." In *Gender, Health and Healing: The Public/Private Divide*, edited by Gillian Bendelow, Mick Carpenter, Caroline Vautier and Simon Williams, 68–91. London and New York: Routledge.
- Haraway, Donna. 1990. *Simians, Cyborgs and Women: The Reinvention of Nature*. New York: Routledge.
- . 1997. *Modest Witness@Second Millennium.FemaleMan Meets OncoMouse: Feminism and Technoscience*. New York & London: Routledge.
- . 2008. *When Species Meet*. Minneapolis, MN & London: University of Minnesota Press.
- . 2011. "SF: Science Fiction, Speculative Fabulation, String Figures, So Far." Pilgrim Award Acceptance Comments.  
<http://people.ucsc.edu/~haraway/Files/PilgrimAcceptanceHaraway.pdf>.
- Jensen, Casper Bruun. 2018. "Wound-Up Worlds and the *Wind-Up Girl*: On the Anthropology of Climate Change and Climate Fiction." *Tapuya: Latin American Science, Technology and Society* 1(1): 50–64.
- Latour, Bruno. 1987. "The Enlightenment without the Critique: A Word on Michel Serres' Philosophy." In *Contemporary French Philosophy*, edited by A. Phillips Griffiths. 83–99. Cambridge: Cambridge University Press.
- . 2005. *Reassembling the Social: An Introduction to Actor-Network Theory*. Oxford: Oxford University Press.
- . 2008. "Powers of the Facsimile: A Turing Test on Science and Literature." In *Intersection: Essays on Richard Powers*, edited by Stephen J. Burns and Peter Demsey, 263–292. Champaign, IL: Dalkey Archive Press.
- . 2018. *Down to Earth: Politics in the New Climactic Regime*. London: Polity.
- Le Guin, Ursula. 1988. "The Carrier-Bag Theory of Fiction." In *Women of Vision*, edited by D. D. Pont, 1–12. New York: St Martin's Press.
- Massumi, Brian. 2002. *Parables for the Virtual: Movement, Affect, Sensation*. Durham, N.C. & London: Duke University Press.

- Maurer, Bill. 2011. "Money Nutters." *Economic Sociology: The European Electronic Newsletter* 12(3): 5–13. [http://econsoc.mpifg.de/archive/econ\\_soc\\_12-3.pdf](http://econsoc.mpifg.de/archive/econ_soc_12-3.pdf).
- Melville, Herman. 1851. *Moby-Dick; or, the Whale*. New York: Harper & Brothers.
- McLean, Stuart. 2017. *Fictionalizing Anthropology: Encounters and Fabulations at the Edges of the Human*. Minneapolis: University of Minnesota Press.
- Miéville, China. 2009. *The City and The City*. Basingstoke: Pan Macmillan.
- . 2010. *Kraken*. Basingstoke: Pan Macmillan.
- . 2011. *Embassytown*. Basingstoke: Macmillan.
- Pandian, Anand and Stuart McLean, eds. 2017. *Crumpled Paper Boat: Experiments in Ethnographic Writing*. Durham, NC & London: Duke University Press.
- Reynolds, Alastair. 2012. *Blue-Remembered Earth*. London: Victor Gollancz.
- Robinson, Kim Stanley. 2019. "Writing Science Fiction Out of Experience: SF, Social Science and Planetary Transformations. An interview with Kim Stanley Robinson." Interview by Asli Kemiksiz and Casper Bruun Jensen. *NatureCulture*. <https://www.natcult.net/interviews/writing-science-fiction-out-of-experience-sf-social-science-and-planetary-transformations/>
- Roy, Eleanor Ainge. 2017. "New Zealand river granted same rights as human person." *The Guardian*, March 16, 2017. <https://www.theguardian.com/world/2017/mar/16/new-zealand-river-granted-same-legal-rights-as-human-being>.
- Russ, Joanna. 1970. "The Image of Women in Science Fiction." In *The Red Clay Reader*, edited by Charleen Whisnant, 35–40. USA: Southern Review.
- Scholes, Robert. 1975. *Structural Fabulation: An Essay on Fiction of the Future*. Notre Dame, IN: University of Notre Dame Press.
- Serres, Michel. 1982. *Hermes: Literature, Science, Philosophy*. Baltimore, MD: Johns Hopkins University Press.
- . 1989. "Literature and the Exact Sciences," *SubStance* 18(2): 3–34.
- . 2015. *Statues: The Second Book of Foundations*. London, New Delhi, New York & Sydney: Bloomsbury: Stanford University Press.
- . 2018. *The Incandescent*. London, New Delhi, New York & Sydney: Bloomsbury.
- Serres, Michel with Bruno Latour. 1995. *Conversations on Science, Culture and Time*. Ann Arbor, MI: University of Michigan Press.
- Stengers, Isabelle. 2005. "Whitehead's Account of the Sixth Day." *Configurations* 13(1): 35–55.
- . 2014. "Gaia: The Urgency to Think (and Feel)." Paper presented at the *Os Mil Nomes de Gaia* conference, Rio de Janeiro, Brazil, September 2014.
- . 2018. "Science Fiction to Science Studies." In *The Cambridge Companion to Literature and Science*, edited by Stephen Meyer, 25–42. Cambridge: Cambridge University Press.
- . 2019. "Reclaiming Imagination: Speculative SF as an Art of Consequences. An interview with Isabelle Stengers." Interview by Casper Bruun Jensen and Line Marie Thorsen. *NatureCulture*. <https://www.natcult.net/interviews/reclaiming-imagination-speculative-sf-as-an-art-of-consequences/>
- Tchaikovsky, Adrian. 2015. *Children of Time*. London: Pan Macmillan.
- Tsing, Anna. 2015. *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins*. Princeton, NJ & Oxford: Princeton University Press.
- Vaughan, Diane. 1996. *The Challenger Launch Decision: Risky Technology, Culture, and Deviance at NASA*. Chicago: University of Chicago Press.
- Vidal, John. 2011. "Bolivia enshrines natural world's rights with equal status for Mother Earth." *The Guardian*, April 10, 2011. <https://www.theguardian.com/environment/2011/apr/10/bolivia-enshrines-natural-worlds-rights>.

- Woolf, Virginia. 1925. *Mrs. Dalloway*. London: Hogarth.
- Yi, Jeannie Jinsheng. 2004. *The Dream of the Red Chamber: An Allegory of Love*. Paramus, New Jersey: Homa & Sekey Books.
- Zyga, Lisa. 2010. "Scientists produce goats that produce spider silk." *Phys Org*, May 31, 2010. <https://phys.org/news/2010-05-scientists-goats-spider-silk.html>.