"You Can't Trust Planets": Review of *Terraforming: Ecopolitical Transformations and Environmentalism in Science Fiction* by Chris Pak

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connection with the Futurian fan group, whose left-wing perspectives colored much of his later fiction, as well as his apprenticeship assembling fanzines and professional magazines (a wunderkind, he edited two minor pulps at the age of twenty). While his early science fiction was at best “workmanlike” (28), his ambition and artistry grew during the subsequent two decades (1952-1969), covered by Chapter 2, during which he was closely aligned with the vein of social-satirical sf pioneered by Galaxy (which Pohl himself edited, along with its sister magazine Worlds of If); such classics as The Space Merchants (1953, with Kornbluth), “The Midas Plague” (1954), Slave Ship (1957), Drunkard’s Walk (1960), and The Age of the Pussyfoot (1969) were featured first in Galaxy’s pages. Chapter 3, canvassing 1970-1987, sees Pohl’s steady maturation as an author and editor, transforming the field with novels such as Man Plus (1975), Gateway (1976), and JEM: The Making of a Utopia (1979), as well as with his editing for the “Frederik Pohl Selects” series released by Bantam Books. As Page astutely observes, although Pohl was overtly hostile to the New Wave movement, his own professional development was significantly accelerated by its innovations in content and form. Finally, Chapter 4 looks at Pohl’s late-career work from 1988-2003, offering valuable assessments of such important but neglected efforts as Homegoing (1989) and Outnumbering the Dead (1990).

Throughout, Page draws effectively upon critical studies, reviews, memoirs, and letters (some held in the sf archive at the University of Kansas), and the result is a well-rounded and appealing portrait of an intellectually fertile and sophisticated talent. The volume is capped with the transcript of an interview Page conducted with Pohl (and his wife, Elizabeth Anne Hull) shortly before the author’s death, with Pohl as engaging and lively as ever.

Frederik Pohl is highly recommended for all college and university libraries.—Rob Latham, Los Angeles


“I find it is a very good thing to begin thinking that we are terraforming Earth—because we are, and we’ve been doing it for quite some time,” remarked Kim Stanley Robinson during an interview with the website BLDDBLOG in 2007. “We’ve been doing it by accident, and mostly by damaging things…. People kind of shrug and think: a) there’s nothing we can do about it, or b) maybe the next generation will be clever enough to figure it out. So on we go.” In a year where average global concentration of CO2 has now crossed 400 parts per million—a threshold long heralded as a “point of no return” for the climate—Robinson’s remarks are utterly chilling. In 2017, terraforming emerges for us as an urgent location in contemporary ecopolitics, in multiple registers. We need to understand terraforming to understand what we have already done to the planet, as well as consider what we might do to (begin to) (partially) (hopefully) fix it—not to mention to take
seriously what it might mean to inaugurate permanent human settlement of Mars, a long-desired feat that every year seems ever more tantalizingly close to attainment.

_Terraforming_, Chris Pak’s magisterial study of terraforming-centered science fiction, takes up all these concerns and more as it traces the history of terraforming as a concept in US, British, and global sf. Pak’s study shows not only the longevity and persistence of terraforming as both fantasy and thought experiment but also its centrality to the development of sf as a genre, establishing terraforming as a point of commonality that unexpectedly links diverse works. (One brief section, for instance, impressively reads _Dune_ [1965], _The Moon Is a Harsh Mistress_ [1966], and _The Dispossessed_ [1974] against each other—works one might not otherwise think to compare outside this context.) In Pak’s hands we find that works of ecological sf focusing on terraforming “offer imaginative spaces for reflection on fundamental issues regarding our place in relation to Earth, the planets in the solar system and the universe, reflection that in turn feeds into our practical attitudes and behavior towards those spaces” (8): such works thus raise provocative questions not just about the practicalities of terraforming the planets (or the Earth itself) but also about who should have the right to do so and under what circumstances. These works thus become not simply abstract fantasies but vivid premediations of the sorts of near-term, large-scale terraforming projects that now seem imminent, either in the name of colonizing a lifeless Mars or more likely, and in desperate panic, trying as best we can to geoengineer back into existence a stable climate for the Earth.

_Terraforming_ is articulated through a mostly chronological, semi-progressivist internal logic that runs from “living planet” fantasies of the 1930s and 1940s (chapter one) through space-frontier pastoral nostalgia in the 1950s (chapter two) to the consolidation of environmentalism as a political, economic, ethical, and legal opponent to unchecked capitalism in the 1960s and 1970s (chapter three). The book then considers what it calls the “eco-cosmopolitan” visions of the 1980s—most of which are in one way or another considerations of James Lovelock’s famous “Gaia” hypothesis—before concluding with a chapter on Kim Stanley Robinson’s _Mars_ trilogy (1993-1996). This organizational scheme reveals, incidentally, the only aspect of the book that I would characterize as a significant flaw: it is simply too short and ends too early. One could imagine full chapters on the 2000s and 2010s as well, in lieu of the comparatively brief discussion of works such as _Avatar_ (James Cameron, 2009), _Prometheus_ (Ridley Scott, 2013), and _Man of Steel_ (Zack Snyder, 2013) in the conclusion. In particular, the chapter on Robinson’s _Mars_ books, while smart and very welcome, seems to come to us already out-of-date, given Robinson’s own sustained reconsideration (and even out-and-out revision) of the _Mars_ trilogy’s foundational assumptions in works such as _Galileo’s Dream_ (2009), _2312_ (2012), and especially _Aurora_ (2015)—as well as his geoengineering-centered _Science in the Capital_ trilogy (2004-2007), recently released in a slightly abridged, single-volume edition as _Green Earth_ (2016). _Terraforming_’s incredible usefulness both as a history of
Terraforming sf and as a theoretical schematization of terraforming as a form is unhappily disrupted by the book’s too-early temporal cut-off.

Likewise—as with any work of great scholarship—one immediately begins to craft a shadow version of the book composed of all the things that went undiscussed, wondering what Pak might have had to say (for instance) about a geoengineering-gone-horribly-wrong narrative such as *Snowpiercer* (Bong Joon-Ho, 2013), or the brutally inventive survivalism of Neal Stephenson’s *Seveneves* (2015), or the many varieties of terraforming as tool and as weapon in *Star Trek* (1966–), or about the way the Gaia-infused idea of Galaxia emerges as an unsolvable conundrum in Asimov’s later *Foundation* books (1981–1993), or about Octavia E. Butler’s highly ambiguous terraformers in *Xenogenesis* (1987–1989) and unfinished *Parables* trilogies (1993–1998), or…. One must hope that Pak and other scholars continue to move this construction forward, using *Terraforming* as a strong foundation.

Alongside its history, philosophy, and close readings, the book also introduces helpful interdisciplinary frames to organize its study, derived from disciplines both inside and outside the humanities, from philosopher Keekok Lee’s axioms on nature to NASA’s Chris McKay’s ruminations about whether Mars might in some sense have a right not to be terraformed, alongside more popularized thinkers such as Rachel Carson and the aforementioned Lovelock. Readers of *SFS* will likely be delighted to see sf writers being used not simply as objects of study but as theorists of terraforming and the environment; the book takes seriously sf’s capacity not simply to distract and entertain but to intervene in social controversies (in ways that can be both beneficial and deeply distorting of the appropriate course of action). In particular, *Terraforming* articulates the different ways that science fiction has both reinforced and resisted technocratic ideology, as well as the more general sense in which Western culture has tended to frame humanity and nature against one another in a war for domination. In many cases reframing these positions requires reconsideration of the most beloved assumptions of sf and of our ideas of progress more generally. “You have to beat a planet at its own game,” announces one of Bradbury’s memorable characters, whom Pak discusses in chapter two: “Get in and rip it up, kill its snakes, poison its animals, dam its rivers, sow its fields, depollinate its air, mine it, nail it down, hack away at it…. You can’t trust planets. They’re bound to be different, bound to be bad, bound to be out to get you” (qtd. in Pak 66–67). Is that revulsion we feel reading these words, or the horror of self-recognition? Can there ever be terraforming without some anthropocentric, species-narcissistic imperial violence at its core? And if not—if terraforming is always already tainted by our selfishness—what does that suggest for the future of Elon Musk’s happy Martians or, for that matter, for the rest of us, stuck down here on Earth? How can we ever begin to balance human needs with nature’s independence without placing our own thumbs on the scale, and without giving up any hope for a better, more prosperous future for humans?
In the case of terraforming—as with genetic engineering, nuclear weaponry, cybersecurity, algorithmic and artificial intelligences, and other cutting-edge discourses of emerging futurity—we thus find a clear and indisputable case for the relevance and pragmatic value of both science fiction and sf studies as means of framing debates about emerging technologies. Science fiction, after all, has always been a site for speculation about the world we are collectively bringing into existence, both deliberately and without any thought at all. Pak’s *Terraforming* certainly rises to the challenge, making a strong case for ecological science fiction not simply as an important subliterature worthy of attention by English specialists but also as a mode of creative mythopoesis that, in a very real sense, has now become able to bring into actual existence the worlds it once dreamed up—and wonders if it should.—*Gerry Canavan, Marquette University*


Patrick Parrinder’s astute examination of utopian writing begins with the premise that imagined utopias of the modern period are inextricably linked to science. Theoretically, humankind’s increasing ability to understand and manipulate the environment will bring about a period of plenty. Competition and the struggle over limited resources will be eradicated in the future, allowing a harmonious society to evolve. There is a tension, however. Parrinder notes that from as early as Francis Bacon’s *The New Atlantis* (1627), science has been recognized as a “destabilising force” (2). The culture of nineteenth-century science in particular, while steeped in older mythologies of transgression and rebellion, uniquely positioned itself in opposition to the status quo. Attempting to contain the subversive potential of science, H.G. Wells argues that utopia must be “kinetic”—i.e., in a constant process of development. Parrinder, building upon Wells’s distinction “between classical and modern utopias—utopias of perfection and utopias of progress” (3)—emphasizes in his study the seemingly irreconcilable impulses of restless humanity nevertheless yearning for perfect balance. The scientist, as the embodiment of this anti-authoritarian, disruptive perspective, is not a natural fit for utopia, and it is this essential conflict that is explored in Parrinder’s study.

Part I, “Sciences of Observation and Intervention,” focuses on two aspects of scientific inquiry: the first discerns the movements and guiding principles of the material world and the second manipulates these conditions for the benefit of humankind. The telescope is one optical hypostatization of “observation” and the microscope is another—both making visible what was once invisible and, potentially, revealing human possibility and future utopic worlds. Yet while the telescope looked to the cosmos for existential clarity and the possibility of engaging with advanced extraterrestrial life, the microscope, according to Parrinder, is “associated with dirt, disease, and bodily shame” (11). In his examination of the microscope and the scientists who employ it,