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

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“You Can’t Trust Planets.” Chris Pak. *Terraforming: Ecopolitical Transformations and Environmentalism in Science Fiction*. LIVERPOOL SCIENCE FICTION TEXTS AND STUDIES 55. Liverpool: Liverpool UP, 2016. x + 243 pp. £80/\$120 hc.

“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 BLDBLOG 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 "ecocosmopolitan" 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 her 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 and 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**