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Eric Otto, *Green Speculations: Science Fiction and Transformative Environmentalism* (Columbus: Ohio State University, 2012), 176pp.

Science fiction's recently recognised contribution to environmental thought and debate has done much to redress the perception that the two are incompatible: that its interest in the technological means for controlling nature, for example, compromises the value of science fiction for the environmental humanities. Eric Otto's *Green Speculations: Science Fiction and Transformative Environmentalism* is a welcome addition to a small body of work that seeks to highlight those generic or thematic aspects of science fiction that offer valuable ways of engaging with the concerns central to environmental thought. Otto situates his study amongst the work of Ursula K. Heise, Noel Gough, Patrick D. Murphy and Ernest J. Yanarella, thinkers whose writings have begun to examine the important contribution that environmental science fiction brings to contemporary transformative environmentalism. Otto describes "transformative environmentalism" as a form of radical ecology that, from the 1960s, has diversified into a collection of movements that have as the basis for their protest over environmental degradation the observations generated by ecology. *Green Speculations* phrases environmental interactions in terms of inputs and outputs into ecological systems. Because transformative environmentalism "borrows insights from science to challenge explicitly and change those governing worldviews that to the detriment of global health fail to generate knowledge about Earth and its interconnected species" (21), it offers a way to explore the value of science fiction's engagement with ecological thought and its significant potential for criticism, pedagogy, and activism.

Green Speculations is a slim volume of four chapters, the first of which establishes the theoretical approach to nature taken throughout the text, and the final three of which frame their analyses of science fiction through a major theoretical domain of environmental thought: deep ecology, ecofeminism, and ecosocialism, respectively. In his introduction, Otto devotes some space to outlining critical terms basic to science fiction scholarship, namely estrangement, extrapolation and the sense of wonder. This discussion offers to readers unfamiliar with the field a summary of the main literary strategies that science fiction uses to consider the implications of various cultural paradigms relevant to environmental thought. They "constitute an ecorhetorical strategy" that allows science fiction to engage philosophically with environmentally transformative movements (17). Otto highlights the fruitful intersections between science fiction and the aims and practices implied by environmental philosophy. His

choice of exemplary science fiction texts is drawn from a canon of acclaimed works by writers who have helped in part to shape environmental thought. Otto's analyses of these influential works of ecological science fiction explore the ways in which it has reflected, sometimes prefigured, and in other cases theoretically engaged with the premises and targets of transformative environmentalism's critique.

Chapter one, "The Subversive Subject of Ecology", argues that the exploration of evolution by writers such as H.G. Wells and W.H. Hudson, when considered in the context of Victorian literature, established for science fiction an early environmentally transformative potential. This chapter examines three works for the various strategies that they use to address a fundamental concern of ecological science fiction: that humankind cannot disconnect itself from the ecological systems constituting its environment. Otto's comparison of Olaf Stapledon's *Last and First Men* (1930) alongside George R. Stewart's *Earth Abides* (1949) offer convincing examples of science fiction that deal with what he calls the "Illusion of Disembeddedness" from nature. This chapter then considers the classic novel *Dune* (1965) by Frank Herbert to explore the complexities involved in reading such works as exemplary of "part of nature" thinking, a holism that refuses to disconnect human nature from the non-human. Otto emphasises humankind's embeddedness in aspects of non-human nature to highlight how human culture and technology are themselves part of nature in the cosmological sense. Icons of radical otherness in science fiction are thus downplayed in order to draw attention to the ways in which human relationships to nature must negotiate multiple interactions with aspects of the non human.

The next chapter, "Ecotopia, Ecodystopia, and the Visions of Deep Ecology", uses insights from deep ecology to explore how environmentally focussed utopian writing interacts with the tenets of this philosophical domain, making of this literature a valuable fund of voices for dialogical readings from the perspective of deep ecology. Otto argues that ecodystopias can be employed as a reality check to refine the ideas raised in ecotopias, and that ecotopian fiction in general offers deep ecology a space to reflect on and shape its own theory and practice. He notes that deep ecology and the fictions examined in this chapter, Ernest Callenbach's *Ecotopia* (1975), Marge Piercy's *Woman on the Edge of Time* (1976), and John Brunner's *Stand on Zanzibar* (1968) and *The Sheep Look Up* (1972), grew from the same climate as deep ecology, thus explaining their shared interest in ideas of demographics and overpopulation, biospherical egalitarianism, economic growth and consumerism, spirituality, community and bioregionalism. Chapter three, "Ecofeminist Theories of Liberation", considers three feminist positions that outline broad areas of an ongoing debate: cultural feminism, relational feminism and a dialectical feminism that synthesizes aspects of the other two. This chapter compares works from the 1970s - 1980s period of feminist science fiction, namely Sally Miller Gearhart's *The Wanderground* (1978), Ursula K. Le Guin's *Always Coming Home* (1985) and Joan Slonczewski's *A Door Into Ocean* (1986), noting that while they share elements of cultural feminism, Slonczewski's novel moves toward many of

the same ideals as expressed by dialectical feminism. These works, Otto contends, stage a theoretical debate that was contemporaneous to, and which sometimes preceded, the emergence of ecofeminism as an articulated theoretical position within academia.

The final chapter, “Ecosocialist Critique”, draws together the consideration of the impact of capitalist economic production and its ideological foundations demonstrated by all the works examined in preceding chapters. It focusses its comparative analysis on Frederick Pohl and C.M. Kornbluth’s *The Space Merchants* (1952), Le Guin’s *The Word for World is Forest* (1972) and Kim Stanley Robinson’s *Mars* trilogy (*Red Mars* 1992, *Green Mars* 1993, *Blue Mars* 1996) to explore how these works offer a critique of economic production in the capitalist mode and explore a range of alternatives based on a democratic political process. *Green Speculations* concludes with a brief consideration of Paolo Bacigalupi’s award winning *The Windup Girl* (2009), in which the insights developed in each of the preceding chapters are brought to bear on this novel’s portrayal of corporate agriculture’s future control of genetically modified foodstuffs and its devastating impact on the global environment. Otto provides a brief yet fascinating comparison between the “AgriGen” corporation of the text and contemporary Monsanto, contending that such representation “provides a clear opportunity for ecosocialist critique of particular capitalist strategies of global conquest” (125). More broadly, this example illustrates the array of environmentalist critique offered by ecological science fiction.

Green Speculations argues compellingly and persuasively for science fiction’s value as a form of cultural commentary which takes an important place as part of a broader collection of engagements with transformative environmentalism. As one of the few works that investigate the fruitful intersections between environmental philosophy and science fiction’s own strategies for considering nature, it provides a much needed introduction to the variety of its modes of engagement with transformative environmentalism and its interest in human relationships to their environment. Its claim that science fiction should be studied alongside environmental non-fiction (and non-science fiction environmental literature) is supported by connections that would prove useful to those scholars unaware of the cultural impact of science fiction on environmental thought. Similarly, its focus on fundamental axioms of environmental philosophy and on the intersections between human- and nature-centric discourses offer to science fiction scholars important avenues for considering the environmental contribution of other works of science fiction.