Chinese Science Fiction and Environmental Criticism: From the Anthropocentric to the Cosmocentric

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Over the past two decades, the interactions and connections between environmentalism and science fiction (hereafter sf) have been widely discussed, recognized, and valued by environmentalists, literary critics, and political scientists alike. When discussing the relationship between the literary text and ecocriticism in his book *The Future of Environmental Criticism*, Lawrence Buell claims that “no genre potentially matches up with a planetary level of thinking ‘environment’ better than science fiction does” (57). He further argues: “For half a century, science fiction has taken a keen, if not consistent interest in ecology, in planetary endangerment, in environmental ethics, in humankind’s relation to the nonhuman world” (56). Patrick D. Murphy finds in sf narratives “several varieties of nature and environmental engagement” (41). Some sf narratives “provide factual information about nature and human-nature interactions as well as provide thematically environmentalist extrapolations of conflict and crisis based on such information;” they “provide analogous depictions of ecosystems and human interaction with such systems;” and they “demonstrate the disastrous consequences of exploitive relationships between humans and other humans, humans and other sentient beings, and humans and ecosystems in which they are an exotic” (Murphy 41). Though the above scholars’ emphasis on the close relation between environmentalism and science fiction has mostly been based on Western sf works, environmental criticism has also been an important perspective in research on Chinese science fiction.

In Fall 2018, *Science Fiction Studies* published a special issue on science fiction and the climate crisis. In Spring 2020, Professor Huang Mingfen edited a special section on the fiction and film of the Chinese Anthropocene in the *Journal of Beihua University* (Social Sciences). Numerous conferences and journal articles have also explored the ecological and environmental issues reflected in Chinese science fiction over the past few years. These efforts show that more and more scholars have been paying attention to Chinese sf texts with environmental themes.

This essay will present my observations on Chinese science fiction produced in the People’s Republic of China (hereafter PRC) from the perspective of environmental criticism. Environmental and ecological issues, energy shortages, and climate change have been prominent thematic concerns in PRC science fiction since the 1950s. The subject matter of these texts includes creating artificial precipitation in order to increase agricultural yields, engaging in large-scale geoengineering projects on land reclamation, transforming the natural environment on an alien planet in order to make it humankind’s second planetary home, and exploring various dimensions of time and space in order to cope with societal problems of overpopulation and resource depletion. These narratives can be categorized under such subgenres as Anthropocene fiction, terraforming fiction, and climate fiction. These themes have tied in to such critical theories...
as “slow violence,” environmentalism of the poor, manufactured landscapes, and environmental injustice and ethics (Nixon 2). In this essay, I will review various PRC sf works with environmental themes and some critical theories that can help us analyze these works.

I would first like to clarify some of the terminology related to sub-genres often associated with environmental and ecological narratives; these are Anthropocene fiction, climate fiction, and terraforming fiction. Around the turn of the 21st century, the Nobel Prize winner Paul J. Crutzen formulated the concept of the Anthropocene—human life as a geological force (23). This concept emphasizes that the earth's climate has been increasingly affected by human activities ever since the Industrial Revolution due to the build-up of atmospheric greenhouse gases such as carbon dioxide and methane. By the 1960s, the facts around human-induced climate change had been substantiated by various major scientific bodies and research organizations, and have been amplified by further confirmations since the 1990s. The literary critic Adam Trexler argues that “the concept of the Anthropocene helps explain the widespread phenomenon of climate change fiction” (9). He prefers to use the term ‘Anthropocene fiction’ instead of climate fiction when discussing novels dealing with the theme of climate change. In addition to the emission of greenhouse gases, there are other human actions that have also contributed to changes in global temperature and climate, including the rapid expansion of the human population, the unchecked conversion of wildlands to croplands and pastures, the increasing use of fossil fuels, and large industrial projects (9).

Terraforming fiction is another sub-genre whose thematic concerns often overlap with Anthropocene fiction and climate fiction. In his study of terraforming texts, Martyn J. Fogg indicates that terraforming encompasses two subsets of planetary engineering: terraforming alien planets and terraforming the Earth (90). Another scholar, Chris Pak, points out that “scientists and environmental philosophers have used the concept of terraforming as a thought experiment to consider human relationships to environments undergoing change” (8). Terraforming “involves processes aimed at adapting the environmental parameters of alien planets for habitation by Earthbound life, and it includes methods for modifying a planet's climate, atmosphere, topology, and ecology” (Pak 1). Terraforming fiction is a cousin of climate fiction, with which it sometimes overlaps. According to Trexler, “Human-altered climates were of grave concern to authors before greenhouse gas emissions attracted wide scientific interest. Terraforming—the purposeful transformation of a planet's climate (usually) to make it more hospitable to humans—surfaced in science fiction at least as early as 1951” (Pak 8). Based on the above-mentioned studies, we can see that terraforming fiction includes narratives dealing with such themes as weather modification, land reclamation, genetic engineering, and alien planet colonization.

Since the 1950s, many Chinese sf narratives have dealt with the themes of climate change and terraforming. Weather modification and land reclamation are two of the most dominant literary strategies connected with climate change and terraforming. In these narratives, artificial rainfall or snow is created mainly for the benefit of agricultural production and urban life. For example, in Tao Bennai's short story “Stories of a Climate Company” (Qixiang gongsi de gushi, 1959), the
business activities of a climate company in Beijing include the generation of artificial precipitation, the dispersal of fog, and the elimination of damaging meteorological phenomena such as typhoons and hailstorms. This company can also use technology to guide moisture-laden airflows from southern China to arid regions in northern China. In coastal areas, the company launches meteorological rockets over the sea in order to deprive tropical storm systems of the amount of heat energy they need to become bona fide hurricanes. Liu Xingshi’s “Northern Clouds” (Beifang de yun, 1962) provides the scenario of creating artificial precipitation as a solution to water shortages in northern China. In Wang Guozhong’s short story “Dragon in the Bohai Sea” (Bohai jülong, 1963), the author envisions using modern technology to drain submerged wetlands in the Bohai Gulf to reclaim land for agricultural uses such as growing legumes and herbs.

These themes continued to surface in the PRC sf narratives of the late 1970s. For example, in Xie Shijun’s “Stratospheric Precipitation” (Hangtian boyu, 1979), scientists pack a special type of soil nitrogen into rocket-bound bombs. Uncrewed rockets carry these bombs into the stratosphere and release them over the targeted drought region. Soil nitrogen from the exploded bombs reacts with moisture in the air to form rainfall. In addition, the extra nitrogen in the rain droplets also functions as a fertilizer to promote plant growth. In Wang Yafa’s “An Interesting Incident Outside the Sports Field” (Qiuchangwai de quwen, 1979), clouds are seeded with dry ice and silver iodide to induce precipitation. Scientists then use ultrasound waves to break down the ice crystals and water drops in the clouds to create rainfall.

In addition to this fiction about weather modification, some Chinese sf narratives expanded their thematic range to include terraforming alien planets or engaging in geoengineering projects on Earth in order to more fully exploit natural resources. For example, Wang Qi’s short story “Rose and Sword” (Meigui yu baojian, 1978) conjures forth the scenario of astronauts collecting specimens of rocks and ores while conducting a geographical survey of an alien planet called “N.” Liu Xingshi’s “Eye of the Sea” (Haiyan, 1979) is about building terrace dams in a subterranean stream in order to generate hydro power in the western part of Guizhou province; this underground water was thereupon diverted for use as agricultural irrigation.

In the course of addressing such themes as weather modification, land reclamation, and energy exploitation, a new sort of environmental awareness started to emerge among readers of these works around 1980. In many narratives, the purposes of the geoengineering projects were not only to advance agricultural production, but also to cope with such problems as environmental pollution, water shortages, and the depletion of fossil fuels and other natural resources. Many PRC sf narratives have addressed the theme of environmental pollution, especially the tech-sf (jishu kehuan) written from the late 1970s to early 1980s. Numerous tech-sf narratives offer bold ideas about how to solve environmental problems. Some works even directly address the impact of industrial pollution on marine ecosystems, as highlighted in Huang Shengli’s “A Mysterious Incident” (Shenmi de shijian, 1981). More critical and skeptical views about terraforming and the ability of humans to manipulate the climate emerge in Zheng Wenguang’s Descendant of Mars (Zhanshen de houyi, 1983). This novel reflects the author’s heartfelt skepticism about human
interference with nature and climate, specifically Mao Zedong’s radical assaults against nature during the 1950s and 1960s. This reflective and critical trend in Chinese Anthropocene fiction in the early 1980s was influenced by the liberal intellectual trends of “bidding adieu to the revolution” and “contemplative literature” during the Post-Mao cultural thaw (1976-1983) in China (Li, “Are We” 545-559). It also has a lot to do with China’s burgeoning new field of environmental studies. In the 1970s, severe environmental pollution from industrial wastes such as offshore from the northeastern port of Dalian garnered the attention of the central government. From that point on, the PRC government started to fund environmental research into the pollution of rivers, coastal waters, and farmland by industrial effluent.

Since the 1990s, there have been more sophisticated sf narratives written about weather modification, land reclamation, environmental degradation, and the depletion of energy sources. Mindful of the Chinese sf legacy of artificial precipitation, Liu Cixin wrote two narratives about human-caused rainfall, “Round Soap Bubbles” (Yuanyuan de feizaopao, 2004) and “The Butterfly Effect” (Hundun hudie, 2001). Round Soap Bubbles not only offers a method for solving the problem of water shortages, but also presents an analogue of the large hydro-engineering projects in contemporary China. In addition to Liu’s two weather modification stories, there were two more novellas dealing with the problem of water shortage. Xing He’s Mountains and Rivers (Shanshan shuishui, 2002) and Tianyi Jushi’s The Sky Tilts Toward Northwest (Tianqing xibei, 2003) are both about a fictional South-to-North Water Diversion Project, though the two authors have highly contrasting views about the advisability of this project. Chen Qiufan’s novel Waste Tide (2013) specifically reveals how the recycling industry has caused severe environmental and occupational impacts on nature and humans, exploring the complex connections between technology, the economy, and the environment. Liu Cixin’s The Micro Era (Wei jiyuan, 2001) and He Xi’s novellas Alien Zone (Yi yu, 1999) and Six Realms of Existence (Liudao zhongsheng, 2002) push terraforming methods to an extreme—by genetically engineering human body size and exploring more dimensions of both space and time in order to create more living space and food for the exponentially rising human population. Yang Dantao’s short story “Uranium Flowers” (You hua, 2004) focuses on the dystopian global consequences of a disastrous nuclear war, along with the politics of nuclear power plants.

The above-mentioned Chinese narratives about climate change and terraforming not only provide factual information about interactions between humans and the natural environment, but also demonstrate the disastrous consequences of an exploitative relationship between humans and other sentient beings within an ecosystem. Such narratives have spurred literary critics to examine these texts through a variety of theoretical frameworks related to environmental criticism. In the following paragraphs, I will discuss some theoretical frameworks that have proven useful in the analysis of Anthropocene fiction, climate fiction, and terraforming fiction.

With the emergence of terraforming fiction in the 1950s, the environmental ethics of planetary engineering or geo-engineering have been discussed by philosophers, environmentalists, and scientists. Various scholars have exchanged a range of contrasting views about whether
human beings should transform a lifeless planet into a habitable planet. Scholars such as Erin Daly, Robert Frodeman, and Chris Pak have summarized various viewpoints in their studies of terraforming ethics. Arguments in favor of terraforming have normally been articulated from an anthropocentric perspective. They argue that terraforming a lifeless planet would benefit human beings by “significantly advancing our scientific knowledge of the nature of life” or expanding the living space for Earth's increasing population (Daly and Frodeman, 145). Robert Zubin even regards the possible future terraforming of Mars as a demonstration that “the worlds of the heavens themselves are subject to human intelligent will” (179). Don MacNiven explores the ethics of planetary engineering from three perspectives: the homocentric, the zoocentric, and the biocentric. On the basis of these viewpoints, MacNiven concludes that planetary engineering “would be morally permissible if either project helped protect and enhance the quality of terrestrial life” (442).

These views in favor of terraforming have two features in common. First, “they are all geocentric (Earth-bound) theories which automatically exclude from the moral universe Mars, the solar system, and indeed the universe as a whole” (MacNiven 442). Secondly, these viewpoints include within the moral universe nothing other than animate existence—human and other living organisms—and see them as intrinsically valuable because “life itself is the basis of value” (Ibid.). However, this Earth-bound perspective comes across as insufficient if we examine the moral issues of terraforming other inhabitable places in the universe such as extraterrestrial planets and moons.

Many scholars instead call for a cosmocentric perspective. Mark Lupisella and John Logsdon recommend a “cosmocentric ethic” for scrutinizing ethical matters related to terraforming (1). Daly and Frodeman capture the gist of a “cosmocentric ethic” as follows: “[I]t places the universe at the center…, [and] appeals to something characteristic of the universe (physical and/or metaphysical) which might…provide a justification of value, presumably intrinsic value, and allow for reasonably objective measurement of value” (qtd. Daly and Frodeman, 140). If we extend our environmental perspectives from the anthropocentric and the geocentric to the cosmocentric, we may well develop a different approach to the ethics of planetary exploration. Similarly, MacNiven points out that cosmocentrism articulates a new ethical perspective that transcends the distinction between animate and inanimate entities: “Everything which exists has value” (442). This perspective requires us to attach an intrinsic value to the presumably inanimate planet of Mars, such as its uniqueness and its role in the wilderness of space (442-43).

If we cast our gaze on Chinese sf, we find in He Xi’s *Alien Zone* and *Six Realms of Existence* exemplary texts to illustrate the cosmocentric ethics. Both narratives explore how humans might deal with shortages of both food and housing that have been triggered by major increases in population. This type of narrative first appeared in the PRC in the mid-1950s, became more widespread around 1980, and has especially surged in popularity since the dawn of the 21st century. However, He Xi’s narratives about shortages of food and housing mark a departure from assumptions about the supposedly unlimited scope for the expansion of housing and agricultural productivity—an idea widespread in PRC sf narratives from the mid-1950s to the 1980s. His
novellas also mark a shift to ideas about self-restraint in economic development. The two narratives also reject the longstanding approach to nature as ripe for plundering, and instead view nature as in need of healing. Instead of viewing nature as somehow unrelated to ethical concerns, these narratives imply that humankind is indebted to nature and must behave more ethically toward it. In addition, the hypothetical terraforming projects in the two texts provide a venue to examine humankind’s relationship with the vast and complex realm of nonliving space, as well as humankind’s proper place on the Earth from a cosmocentric perspective.

In addition to a cosmocentric perspective, the concept of a “manufactured landscape” is another useful lens through which to probe terraforming fiction. The “manufactured landscapes” presented in the large-scale photographs by Edward Burtynsky and captured in a documentary film by Jennifer Baichwal provide us with a critical perspective to ponder industrial society and technology since the Industrial Revolution. The term “manufactured landscapes” has negative, critical, and even ironic connotations. It refers to landscapes that have been deformed, destroyed, or devastated by human industrial endeavor, such as shipyards, dams, abandoned quarries and mines, and junkyards for recycling industrial waste. These human-made landscapes are closely related to energy consumption and environmental deterioration, and are symbols of troubled relations between humankind and nature. The image of mammoth industrial structures dotting an urbanized landscape was already a frequent motif in many Chinese sf narratives prior to the coining of the neologism “manufactured landscapes.” For example, coal mines on fire, an entire city festooned with soap bubbles, and a giant tunnel through the center of the Earth to Antarctica are among the images in Liu Cixin’s novellas, *Underground Fire* (*Dihuo*, 2000), *Cannonry of Earth* (*Diqiu dapao*, 2003), and “Round Soap Bubbles” (*Yuanyuan de feizaopao*, 2004). These images reveal a paradoxical relationship between the tapping of new energy sources and the devastating ecological consequences likely to follow. Readers can also find similar manufactured landscapes, such as the South-to-North Water Diversion project in Xing He’s *Mountains and Rivers* and Tianyi Jushi’s *The Sky Tilts Toward the Northwest*, and the silicon island and patches of plastic floating in the ocean in Chen Qiufan’s *Waste Tide*.

In contrast with the perspectives of cosmocentric and manufactured landscape, which examine Anthropocene fiction or terraforming fiction at the planetary and cosmic level, Rob Nixon’s concepts of “slow violence” and “environmentalism of the poor” focus on terraforming’s impact on human beings. In 2011, Nixon coined the term “slow violence” to emphasize the “slowly unfolding environmental catastrophes” caused by the “incremental and accretive” human activities during a relatively long period of time (2). By slow violence, Nixon means “a violence that occurs gradually and out of sight, a violence of delayed destruction that is dispersed across time and place, an attritional violence that is typically not viewed as violence at all” (2). These catastrophes include “climate change, the thawing cryosphere, toxic drift, biomagnification, deforestation, the radioactive aftermaths of wars, acidifying oceans, and a host of other slowly unfolding environmental” degradations (Nixon 2). According to Nixon, “it is those people lacking resources who are the principal casualties of slow violence. Their unseen poverty is
compounded by the invisibility of the slow violence that permeates so many of their lives … It is against such conjoined ecological and human disposability that we have witnessed a resurgent environmentalism of the poor” (4). Nixon argues that environmental catastrophes have yet to gain much traction in the mainstream media because of their delayed effects and less spectacular characteristics. He emphasizes that the significance of environmental narratives is that “imaginative writing can help make the unapparent appear, making it accessible and tangible by humanizing drawn-out threats inaccessible to the immediate senses” (15). He considers such environmental writers as Rachel Carson, Indra Sinha, and Nadine Gordimer to be “writer-activists” (5) because they “have deployed their imaginative agility and worldly ardor to help amplify the media-marginalized causes of the environmentally dispossessed” (5). If we cast our gaze on Chinese sf, we can find such environmental narratives as Waste Tide and “Uranium Flowers” exemplary texts to illustrate Nixon’s arguments of slow violence and environmentalism of the poor. Waste Tide specifically portrays a slow and attritional violence—namely, the ways in which the electronics recycling industry have had a severe environmental and occupational impact on nature and humans—through an exploration of the complex relationships between technology, the economy, and the environment. Similarly, in his short story “Uranium Flowers,” Yang Dantao utilizes a setting of the aftermath of a catastrophic nuclear war to provide a fresh perspective for critiquing environmental injustice for the poor in the contemporary globalized world. In “Uranium Flowers,” environmental degradation such as high levels of radiation after a nuclear war aggravate class divisions, leading essentially to the bifurcation of humankind.

The remarks in this essay are based on my own analysis of Chinese sf from the perspective of environmental criticism. Chinese sf narratives have made contributions to contemporary debates about environmental degradation and its origins. However, many issues remain to be explored in this area, such as deep ecology, social ecology, land ethics, landscape restoration, and the environmental movement.

Notes
1. For a more detailed analysis of these Chinese texts with environmental themes from the 1950s to 1980s, see Li, Huai. “The Environment, Humankind, and Slow Violence in Chinese Science Fiction,” Communication and the Public vol. 3 no. 4, 2018, pp. 270-82.

Works Cited


Li, Hua. “‘Are We, People from the Earth, so Terrible?: An Atmospheric Crisis in Zheng Wenguang’s *Descendant of Mars*.” *Science Fiction Studies*, vol. 45, no. 3, 2018, pp. 545-59.


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