

■ Lifeshaping a New Planet

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Abstract

In her novel *The Children Star* microbiologist and science fiction writer Joan Slonczewski analyzes the dangers and possibilities of interplanetary ecological coexistence. The human environment has become increasingly uninhabitable due to the abuse of natural resources, over-population, pollution and disease. A new planet, Prokaryon, beautiful but poisonous, might serve as the new habitat for human beings, but it would have to be "lifeshaped" first, which means its ecosystem would have to be destroyed. The decision to keep Prokaryon intact hinges on the discovery of intelligence which implies the ability to communicate across species. The novel raises important ecocritical questions about the consequences of the deep ecological concept of biocentric equality in a world in which humans are not the only intelligent beings. Scientific research is needed to establish contact to aliens radically different from humans, aliens who have already invaded the human body. Slonczewski supports feminist methods of scientific research which stress a conception of human relationship to nature as partnership not domination and the ideal of science as "subjective, relational, holistic, and complex" (Donawerth 2). Communication with the alien, intelligent invaders thus becomes a crucial requirement for survival.

Keywords: ecological coexistence, interdependence, cross-species communication, the posthuman, feminist science fiction, feminist conceptions of science, cyborgs

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I

Science fiction has become a rewarding field of ecocritical research when it deals with apocalyptic visions of our environment and with the nature of nature, especially human nature. A traditionally male genre, it has been appropriated by feminists since the 1960s to rewrite regressive notions of gender, such as essentialist notions about the “naturalness” of masculinity or femininity, and to test out new social roles especially for women. In traditional science fiction novels women were either mute and helpless objects of scientific research—damsels in distress—or dangerous and monstrous others from alien planets who had to be conquered. Feminist science fiction writers created heroines who were fully developed round characters in control of their actions and capable of fulfilling an active role in society. Feminist science fiction writers have also joined feminist science critics in their revisions of the discourse of science. According to Jane Donawerth, this revision stresses an inclusion in science of women’s issues, a conception of human relation to nature as partnership not domination—most commonly referred to metaphorically as “the web of nature,”—and the ideal of science as “subjective, relational, holistic, and complex” (2). “Feminist science fiction,” argues Robin Roberts, “can teach us to rethink traditional, patriarchal notions about science, reproduction, and gender. Only in science fiction can feminists imaginatively step outside the father’s house and begin to look around” (2).

In her novel *The Children Star*, published in 1998, microbiologist and science fiction writer Joan Slonczewski does look around and imagine human life under circumstances highly different from ours, circumstances that are, however, a logical result of hierarchical social behavior and of dominant treatment of the natural environment. These circumstances are also, conforming to the genre rules of science fiction, a possible extension of our contemporary technological and scientific know-how (Russ 4). *The Children Star* is a science fiction novel about the possibilities and limits of interplanetary ecological coexistence. It deals with crucial ecocritical issues about the nature of human nature in an increasingly technologized and toxic world. At the beginning of the novel the human environment has become uninhabitable due to the abuse of natural resources, overpopulation, pollution and disease. A new planet, Prokaryon, beautiful but poisonous, might solve the problems of the earth and provide a habitat for human beings. To make this possible, its biosphere has to be destroyed and lifeshaped, which means it has to be colonized and adapted to human needs. An alternative would be to lifeshape human beings, genetically alter them to make them fit for the alien planet and its different organisms.

Scientific research is needed to understand the mysterious life-forms on

Prokaryon, its results allowing either the destruction of mindless matter in the tradition of Western rationalism, colonialism and objective science, or demanding respect for sentient beings who are seen, in the deep ecological sense, as interdependent parts of an ecosystem in which all elements have “the equal right to live and blossom” (Naess 95).

With this possibility of choice Slonczewski steps right into the ecocritical debate about new concepts of nature—human and non-human—and about the relationship between various life-forms and their environments. In true ecocritical fashion Slonczewski also foregrounds the importance of science for an understanding of nature. Informed by feminist critiques of Western science, she discusses different methods of scientific research and their respective results. I will show that she supports the ecocritical concept of nature as an autonomous agent, as a trickster figure in Donna Haraway’s sense who subverts human appropriations of an ostensible mere object and becomes a subject never to be fully known (1991: 199). In Slonczewski’s fictional world the poststructuralist notion of “blurred boundaries” is fully realized: there is no clear separation between humans and animals, between humans and machines, between nature and culture, between men and women, which generates a particular image of the posthuman and raises important ethical questions. How are humans to define themselves in a world in which the “natural” self is nothing but a myth? How can they survive if a cooperation with alien others is forced upon them? If these others turn out to be sentient and intelligent, if nature, so to speak, becomes a subject, what relationship must humans develop towards it? Can this relationship be regarded as an alternative to our hierarchical and destructive attitude towards our environment and towards other humans? As a feminist and ecocritical thought experiment that critiques existing cultural assumptions and suggests solutions at the same time?

In order to answer these questions I will first take a look at the alien world humans are confronted with in *The Children Star* and explore the nature of its nature. I will then analyze the possibilities of approaching this world, mostly by certain scientific methods, and by political and economic strategies. This will lead me to ethical issues concerning the survival of human life in a world in which humans are not the only sentient and intelligent beings, in which they are forced to come to terms with a condition of the posthuman as articulated by N. Katherine Hayles in *How We Became Posthuman*.

II

Life on L’li, a thinly veiled version of earth and part of a union of planets called the Free Fold, has come to an apocalyptic ending, which is the result of

blind or willful human actions causing environmental problems common to our own times as well as a plague reminiscent of Mad Cow Disease. 'jum, a young girl from L'li and the last survivor of her family, is rescued by Brother Rod and transported to Prokaryon, where Rod and his fellow Spirit Brethren have founded a colony for human orphans. She is confronted with beings that are not only human, but sentient and fully intelligent, fantastic embodiments of Donna Haraway's famous cyborgs, creatures simultaneously organism and machine. Brother Geode, for example, is a self-aware machine, one of many sentients who gained their freedom after a revolt against their human creators two centuries before. "Geode himself had a torso of nanoplast about the size and shape of a pillow, with his star sapphire nearly buried in blue fur. His nanoplastic limbs could extend and mold themselves to any length and thinness. His limbs sported fur in each of the primary colors, giving him the appearance of a giant multicolored tarantula" (16). This obviously male creature has healing capacities and is an excellent nurse, using his numerous limbs to cuddle several infants at once, if necessary. Proud of being made, not born, and therefore almost without mistakes, he blurs not only the boundaries between organism and machine, but also between our traditional gender roles. Brother Geode embodies the positive aspects of Haraway's cyborg; he is a playful invention taking responsibility for his fellow creatures in an alien world. Another cyborg is the Reverend Mother Artemis who had been manufactured to raise wealthy Elysians and who had joined the Sacred Order after earning her freedom. One of her fantastic elements, besides her many breasts and her nanoplastic hair, are her skirts which can come alive with bears and lions and other animals when she tells stories. There are also medical sentients shaped like caterpillars, sentient lightcrafts and space ships who differ from mere servo machines or nanoservos. "Servo machines were intentionally built to as low sophistication as possible, to avoid the chance of their 'waking up' sentient, in which case they had the right to earn freedom" (47). All these cyborgs have no origin story and therefore, according to Haraway, no yearning for a return to some original unity, which would imply an identification with nature in the Western sense (1990: 192), meaning an essentialist notion of human purity. They are bizarre creations challenging the notion of a "naturally" pure human condition.

This is also true for another mixed creature, Khral, who is half animal, in her case simian, and half human, a descendant from gorilla hybrids created as slaves on ancient Urulan (54). Khral is a microbiologist from Science Park, the top research institute of the interplanetary world. She embodies the new female scientist of feminist science fiction, an intelligent, rational and highly efficient woman who will play an important role in analyzing the alien ecosystem of Prokaryon. (She is also part of the novel's love plot because Brother Rod will

finally renounce his religious vows to live with her.) Sarai, a Sharer, belongs to a human race who had settled the ocean world of Elysium, shaping her own genes for aquatic life. She is a rebel who had settled on Prokaryon in a distant place in the mountains, a secretive, elusive female, a lifeshaper and a healer, another creature intent on learning to read the alien ecosystem of Prokaryon.

This ecosystem is beautiful but highly toxic and therefore incompatible with the conditions of human life. Slonczewski describes its morphology in microbiological detail:

Prokaryon was named for its unique “prokaryotic” life-forms. Animal or vegetable, all Prokaryon cells contained circular chromosomes, free of nuclear membranes—like bacteria, prokaryotes. But Prokaryon cells were ring-shaped as well. And the higher structure of all the multicellular organisms was toroid, from the photosynthetic “phycooids” that grew tall as trees, to the tire-shaped “zooids” that rolled over the fields they grazed. (19-20)

The planet’s peculiarities are bands of singing-tree forests alternating with bands of wheelgrass. Singing-trees can put out light signals in thirty-seven distinct colors and are therefore assumed to be intelligent, the hidden masters of the planet. Tire-shaped tumblerounds, able to travel several meters per day, trampling and digesting whatever vegetation crosses their path, are thought to be either plant or animal. No one really knows, they don’t fit neat categories (102). Helicoids, tiny insects, fly around in the air, herds of four-eyes roll on the ground, brokenhearts are cultivated to provide food for those who are lifeshaped for Prokaryon.

The crucial question is how to deal with this planet. Alien ecocide is forbidden by the Fold, and exploitation of a planet’s resources is only allowed if there is no intelligence to be found. On the other hand human beings are starving, and they are worthy of protection and survival as well. The Fold Council has to decide whether Prokaryon is to be “cleansed” for human crops, the decision hinging on the existence of intelligence. Slonczewski thus picks up the deep ecological concept of biocentric equality, especially the statement that “The well-being and flourishing of human and nonhuman Life on Earth have value in themselves. . . . These values are independent of the usefulness of the nonhuman world for human purposes” (Naess 70). The implied “equal right to live and blossom” cannot be granted indiscriminately, however, especially when it results in the death of particular life-forms. Deep ecologists’ reliance on basic intuition and their identification with the biotic community as the premise for moral action has been criticized as a deficient political tool. Slonczewski, who shares the deep ecological notion of biocentrism, seems to solve this dilemma by limiting the realm of beings worthy of protection in the web of life to all intelligent creatures, beings with the capability to reflect upon themselves and their environment. But these are not

only humans.

One way to deal with Prokaryon is reminiscent of earthen capitalism and colonialism. Nibur, the ruthless boss of Proteus Unlimited, a servofirm doubling its sales every year, uses his economic power to buy a whole continent on Prokaryon. His plan is to destroy its biosphere and make it habitable for humans. He is not interested in human well-being, however, but exclusively in his own profit. As one of his opponents tells him, "You don't care about humankind. You only want to own that planet. You will buy and kill, until you've got it" (119). Nibur personifies all the negative characteristics of a man who supports and enforces elements of hierarchical dualism; he is the leading representative of an ideology which believes in a strict separation between subject and object, between nature and culture, between the dominant and the dominated others, an ideology which ecocritics have identified as the cause of our environmental, social and political problems. His attitude becomes obvious in his treatment of his dog whom he had lifeshaped to be ageless like his master. This dog would always return to him, unconditionally, even if he were to slit his throat. "The creature lived or died at his pleasure" (113). The same greedy and possessive motivation lies behind his desire to own Prokaryon. Nibur wants profit and power over others. Equal rights or any other concept of equality is foreign to him, an abomination even. It is his desire to resettle the colonists on Prokaryon, destroy the indigenous life-forms, reshape and tidy up the planet's rich, abundant vegetation according to his own taste which cannot tolerate the dynamic, ever-changing, messy force of nature. Just like Hawthorne's pale Aylmer in "The Birthmark" he embodies a life-negating principle who will create a perfect, unblemished, but rigidly fixed world which can only result in sterility and death.

Nibur is unambiguously depicted as evil in *The Children Star*, his characterisation an obvious critique of rampant capitalism and colonialism. Furthermore, his attitude towards the natural environment can be interpreted as an extreme version of Enlightenment rationality with its emphasis on the strict separation of mind and matter and its inherent imperative to dominate (and its permission to subdue and exploit) mindless matter. As Carolyn Merchant has aptly shown in *The Death of Nature*, in the early Western modern period the realm of nature was no longer perceived as a living organism, but as a machine or a clock, which had important consequences in terms of power relations. "The Baconian method advocated power over nature through manual manipulation, technology, and experiment" (216). New scientific methods were developed to dissect, analyze and control the unruly forces of nature.

In the Fold there are, however, competing forces who have scruples to destroy the toxic planet. Their concepts of science and their methods of scientific

research are opposed to those of traditional Western science. To them nature is a living organism, the sought for relationship with it is communication, not domination. According to Linda Jean Shepherd, the new scientific method depends on “openness to listening to nature and responding as in a conversation or as a cocreator with nature” (qtd. in Donawerth 25). It acknowledges the subjectivity of the researcher and includes feelings as well as intuition. Jane Donawerth has observed that many science fiction novels by women, in which the hero intuits the intelligence of another life-form, are based on establishing communication with the aliens before the “developers” destroy them and their planets (27).

Establishing communication with the life-forms of Prokaryon is also the main method of those scientists in *The Children Star* who want to rescue the planet from ecocide. Communication becomes the main criterion for the definition of intelligence, a form of communication, however, which goes beyond human language and accepts that nature first of all has agency or even subjectivity, and that it speaks, albeit in a language that seems unintelligible. The light signals of the singing-trees are a first indicator of intelligence, their repetition rate always being a prime number. As one scientist says, “We know there’s a language there, if only we had a Rosetta stone. Lacking that, we haven’t a clue until the natives respond to us” (88). The natives do respond. They infiltrate Brother Rod and create strange visions, first flashing colors, then showing him something like a hand, finally making letters and even words. Who or what are they? Khral, the Sharer Sarai and even little ’jum, the rescued orphan, make interesting scientific discoveries, each in her own way, with important ethical consequences.

The hidden masters of the planet are not the singing-trees or the tumblerounds, as was first suspected, but microzooids, tiny microbes that use whirrs to travel from one organism to another, one of them being Rod’s brain. Other than ordinary microbes, they pass on their knowledge from one generation to the next, flashing numbers at each other which are their “words.” Sarai is convinced that these microzooids are the true intelligence of Prakaryon who can adapt to live in almost any host and control it. Khral who was the first to discover them concludes that they are not to be seen as a new disease, although infiltrated humans can die from them, but as a new sentient race (229). As a consequence, the urgent task now is to make contact with them, to accept them on at least equal terms with the population in the Fold. It becomes important to find out whether an interplanetary coexistence is possible and, if so, on what (or whose) terms.

Slonczewski’s definition of intelligence contains the ability to communicate not only among one species and from one generation to the next, but also across species-boundaries, among radically different life-forms. The microzooids, who

have a life-span of only one day, who learn very quickly, share information, travel and explore new territories, master this cross-species communication. Due to their form of embodiment they experience life differently from humans. To read the world “out there” they work visually. Therefore the human visual system is the one part that makes sense to them. They understand the human retina and, once inside humans, they see what humans see. Then they stimulate the human brain to “see” their own signals, which explains Rod’s vision of a hand and, once the microzooids have learned more from humans, of real words.

III

In my opinion this implies three important assumptions about the nature of a posthuman world and about a possible relationship to it. First of all the conception of intelligent others works against anthropocentric notions of human exclusiveness and superiority. Secondly, and at least as importantly, the discovery of this intelligence depends on methods of scientific research and on attitudes towards the natural environment that conform to feminist conceptions of science and to ecocritical ideas about interdependence in the web of life. Nibur with his fixed notion of “I” versus “them,” of dominance over inferior others, would never be able to see and understand alien life-forms. A necessary approach to another organism is curiosity, openness and a willingness to learn from it. Necessary is the acknowledgment of the researcher’s subjectivity and the belief that the object might also be a subject whose morphology and linguistics are hidden as long as the researcher lacks the tools to decipher their meaning. Necessary is the realization—and this is an important third assumption about the posthuman—that knowledge is embedded in the material, natural, and technological world, and that the world therefore exists differently for differently constructed organisms, as N. Katherine Hayles has pointed out. Based on Humberto Maturana’s scholarly work she argues that “We do not see a world ‘out there’ that exists apart from us. Rather, we see only what our systemic organization allows us to see. The environment merely triggers changes determined by the system’s own structural properties” (11). This is one reason why it is so difficult to cross species boundaries and understand another being’s mind. At the same time embodiment, or a “systemic organization,” may contain the Rosetta stone of another language.

Slonczewski’s creatures manage to transcend the boundaries between animal and machine or human and animal and many other constraints. Nevertheless they are not totally alien to us. Despite their radically new shapes they are, in the final analysis, all more or less humanized, communicating with each other, caring for each other, living a life which we as humans can recognize as very similar to

ours. Most of them (except Nibur) act in a morally and ecologically responsible way. They do not fall prey to the hubris of superiority and exclusiveness or autonomy, but realize their codependence in a network of relationships. The novel thus does not so much explore the conditions of alien life; it rather demonstrates how a willingness to accept even the totally different systemical experience and vision of another organism and of entering into a conversation with this “other” as a cocreator leads to astonishing and rewarding results that remain concealed to those who regard the other as nothing but a mute object. Slonczewski’s scientists are people ready to listen, people who were marginalized in traditional Western science such as women and children or who were simply non-existent, such as the strange hybrids Khral and Sarai. It is the girl ’jum with her extraordinary powers to visualize numbers who easily learns to decipher the microzooids’s messages and who can soon communicate with them because she calls them her sisterlings. It is Khral, half simian, half human, who with her outstanding rational intelligence and intuition detects crucial information about the new life-forms, and it is Sarai, the Sharer, who finally gives up her isolation and, true to her name, shares her knowledge to further develop scientific research. The communal effort of these female protagonists and others, many of them male, not all of them human, enables them to discover an intelligent species, read it on its own terms, and to enter into a conversation with it.

The motivation for this exchange is not altruism, to be sure, but the need to survive. The colonists want to stay on Prokaryon and keep its biosphere intact, an interstellar requirement once its intelligence is discovered. As soon as the aliens are inside humans, they are forced to cooperate with them or perish painfully as if beset by a plague. Cooperation, not domination is the key word, because as it turns out the microzooids need their human host just as humans need them to be able to live on the toxic planet. They have both to learn to treat each other with respect. Rod, for example, fears to be their beast of burden as they torment him with a loss of control over his emotions. Only when he learns not to call them animals any more, but micromen, are they ready to communicate on equal terms, with positive results. The micromen need a living host, and once they have come to understand human morphology and human needs, they are not interested in hurting or killing them. And humans begin to realize that the micromen can alter them genetically within a day, at no cost, so they can live on Prokaryon. Both profit from each other, both can survive. The future, however, is left open. It is not clear what it means in the long run that humans are carriers of micromen. It probably depends on how the two intelligent, albeit radically different beings treat each other, or what external factors contribute to their coexistence.

Slonczewski’s thought experiment in this science fiction novel must be read

as a comment on our contemporary assumptions about our natural environment and their consequences. She does not so much point out how our minds or our ideologies create a destructive world, a topic in many other apocalyptic science fiction novels. She rather challenges the notion of the purity of human nature or of other natural organisms. Not only are we already, as Haraway and Hayles have shown, cyborgs, hybrids between machine, animal and human, whether we like it or not. We are also symbionts, living in a symbiotic relationship with bacteria that are older than homo sapiens, as microbiologist Lynn Margulis has argued. Evolution, according to her, does not depend on the Darwinian succession of ever higher species, leading to the creation of homo sapiens as the most highly developed creature; it depends instead on a merging of organisms which results in the development of new species. According to this theory we have never been pure, and a return to a pure state or a defense of what we understand to be purely human is not possible. Our bodies are porous, flexible, always already infiltrated by other organisms, always in exchange with other living beings, always in a process of development. We must accept our embeddedness in the material, natural and technological world which is forever changing. We have no choice but to learn to live and to cooperate with an environment in which we are not the only intelligent species and in which we are not the only ones able to communicate. Slonczewski demonstrates that hierarchical, dominant behavior is blind towards the richness of the biosphere and finally self-destructive. Her vision of the future is not idyllic. It acknowledges a more radical expansion of life worthy of protection, but it also calls for many unpleasant compromises and adaptations. She does not discuss the possibility and consequences of saving a planet without life and without intelligence. What she shows is the human necessity to come to terms with changing conditions, technological, biological, cultural. Her future is dangerous for all living beings, but also full of potential; it is one that must continually be negotiated.

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「生命形塑」一個新星球

摘要

在她的小說《子孫星球》裡，微生物學家及科幻小說作家瓊恩史朗修絲基(Joan Slonczewski)分析了星際之間生態共存的危險與可能性。由於自然資源的濫用、人口過多、污染及疾病，人類環境變得越來越無法居住。一個新的星球，普羅卡揚，漂亮卻有毒，或許可以作為人類新的居住地，但是卻必須要先「生命形塑」，也就是說它的生態系統需要被毀滅。要不要讓普羅卡揚保持不變的決定關鍵在於智能的發現，那也暗示著不同物種之間的溝通。這本小說引出了重要的生態批評問題，在一個人類不是唯一有智能的生物的世界裡，生命中心平等的深層生態概念引發的的後果。人類須要借助科學研究，與迥然有異於人類的外星人，一些已經入侵人體的外星人，建立接觸。史朗修絲基支持女性主義科學研究的方法，這種方法強調人與自然為夥伴而非宰制關係的概念，以及科學是「主觀的、關係性的、整體性的、複雜的」這樣的理想。如此一來，與外星的、有智能的入侵者溝通成為存活的關鍵要求。

關鍵字：生態共存，相互依存，跨物種溝通，後人類，女性主義科幻小說，女性主義科學概念，賽博人