Val Plumwood succinctly argues, “To the extent that we hyper-separate ourselves from nature and reduce it conceptually in order to justify domination, we not only lose the ability to empathise and to see the non-human sphere in ethical terms, but also get a false sense of our own character and location that includes an illusory sense of autonomy” (Environmental 9). Plumwood’s concern about the conceptual human/nature divide is fundamental to transformative environmental movements, interested as they are in uncovering the core ideological justifications for environmentally destructive socio-economic and cultural formations. Surely, and simply put, deep ecology’s primary target of critique is anthropocentrism, ecofeminism’s primary target is androcentrism, and ecosocialism’s is global capitalism. But in each case the question of humanity’s location in nonhuman nature is centrally motivating. Deep ecology, generally understood, “rejects the dualistic view of humans and nature as separate and different” (Pepper, Modern 17). Ecofeminism uses feminist analyses of the unequal distribution of power that is sanctioned in the dualistic gender paradigm likewise to scrutinize the Western human/nonhuman split. And drawing on Karl Marx’s historical materialism, ecosocialism stresses the “‘metabolic interaction’ between
humans and the earth,” that “‘man lives on nature’ and that in this dependent relationship ‘nature is his body, with which he must remain in continuous interchange if he is not to die’” (Foster, Clark, and York 123). A discussion of these movements, then, entails a look at the environmentalist maxim that humans are part of nature, a decidedly seditious claim given the reign of socioeconomic and cultural attitudes predicated upon notions of humanity’s exemption from nonhuman nature.

Despite popular understandings of science fiction as a technophilic literature celebrating human achievement above all else, the genre, when environmental, can inform this discussion quite well and, as in the case of Frank Herbert’s *Dune* (1965), make the discussion more complex. Read collectively, Olaf Stapledon’s *Last and First Men* (1931) and George R. Stewart’s *Earth Abides* (1949) make the challenging case that despite human technological and intellectual capacities, we are still part of nature. These books perform their (proto)environmentalist work by affirming our embeddedness in nonhuman nature and identifying several of the key tributaries that supply what Plumwood coined the “Illusion of Disembeddedness,” including transcendental religious conviction and modern technological and economic trends, as well as the various symbolisms and infrastructures that grow out of and also inform this conviction and these trends. In both works a catastrophic event leads to the near extinction of humanity and a subsequent reflection on the reality of our embeddedness in nature and the problems inherent in whatever enables us to act outside of this reality. Stapledon’s book identifies at its outset two ideological loci of social fantasies of disembeddedness, religious and technological. It then traces these fantasies’ paths toward environmental and social disaster, which, because we do not do well as a species afterward, illuminate our susceptibilities to ecological change, confirming our connection to nonhuman nature and exposing the dangers of ideological mystifications that disclaim this connection. *Earth Abides*, however, begins with disaster. Unlike with *Last and First Men* we do not witness human recklessness lead to tragedy, nor is the tragedy—a plague—undeniably one of folly, though it is aided by airplane travel and presumed by many in the book to be an accident or intentional act of biological warfare. Instead we read about a newly primitive group of survivors who can no longer rely for their survival on infrastructures and symbolic conventions that previously allowed them to forget that they are fixed within nonhuman nature.

This difference between the narrative movement of *Last and First Men* and *Earth Abides* is one of subgenre: Stapledon’s book is far-future history and Stewart’s is postapocalyptic. And indeed, with the key (proto)envi-
ronmentalist features of both books being a spotlighting of some of the Illusion of Disembeddedness’s constitutive forces and of the fundamental embeddedness of humanity in nonhuman nature, their subgeneric differences are nominal—at least in the reading performed here. But they are worth at least this brief rehearsal, if only because the book with which this chapter concludes, *Dune*, departs from the specific extrapolative and estranging strategies of the others to favor a more historico-political narrative that begins neither with the ideological follies of modern humanity (*Last and First Men*) nor with the moment of the end of such a humanity (*Earth Abides*) but instead with a humanity not yet fully tricked, so to speak, out of practicing its more ecocentric being. *Dune*’s Fremen live their embeddedness as best as they can given their circumstances, and as we witness their coerced shift into power politics we come to appreciate a more complex and complicated understanding of the part-of-nature thinking that *Last and First Men*, *Earth Abides*, and transformative environmentalism uphold. It is to this part-of-nature thinking that I now turn.

The science of ecology, a subfield of biology that studies the relationships between living organisms and their environment, esteems scrupulous experimentation, quantitative reasoning, “rigorous logic in deducing conclusions, and an ever-critical attitude to both evidence and logic” (Westoby 166). As Mark Westoby argues, ecology, like all sciences, remains outside the realm of values, operating with the scientific understanding that “it is illogical to deduce ‘ought’ from ‘is,’ the normative from the substantive” (166). But in its radical mode—which since the 1960s has unfolded into a number of movements working “to break down the dualism that isolates [humans] from the rest of nature” (Worster 333)—ecology reflects on human projects and their impacts on Earth’s biological and physical systems as well as overtly implicating certain values for instigating the most environmentally destructive of these projects. To better indicate its goal to define and make real more conscious and responsible material and psychological relationships with nonhuman nature, I am calling this radical ecology transformative environmentalism. 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.

As David W. Orr notes, “To see things in their wholeness,” to possess this knowledge and the ability to ask “‘What then?’” about these gov-
erning worldviews, “is politically threatening” (85, 88). “Real ecological literacy,” he writes, “is radicalizing in that it forces us to reckon with the roots of our ailments, not just with their symptoms” (88). Orr’s interest in his book *Ecological Literacy* is in developing pedagogies for the age of ecology and its food, water, energy, and climate crises, pedagogies that would provoke deep challenges to dominant, domineering ways of being. His project to disengage our inclinations toward disciplinary specialization, our confidence in traditional education, and most importantly for my focus in this chapter our clear acceptance of “disharmony between people and between people and the land” grows out of a culturally critical brand of ecology that became very conscious of its rebellious, radicalizing tendencies in the 1960s (88).

Recognizing the science of ecology’s potential to activate normative modes of critical engagement, ecologist Paul B. Sears famously deemed the discipline subversive in his 1964 essay “Ecology—A Subversive Subject,” both acknowledging the cultural need for its “continuing critique of man’s operations within the ecosystem” and pointing out its threat to “the assumptions and practices accepted by modern societies” (12). Similarly, while introducing his influential 1969 co-edited essay collection *The Subversive Science* Paul Shepard declares, “The ideological status of ecology is that of a resistance movement” (9). About some of ecology’s key figures he writes,

[they] challenge the public or private right to pollute the environment, to systematically destroy predatory animals, to spread chemical pesticides indiscriminately, to meddle chemically with food and water, to appropriate without hindrance space and surface for technological and military ends; they oppose the uninhibited growth of human populations, some forms of “aid” to “underdeveloped” peoples, the needless addition of radioactivity to the landscape, the extinction of species of plants and animals, the domestication of all wild places, large-scale manipulation of the atmosphere or the sea, and most other purely engineering solutions to problems of and intrusions into the organic world. (9)

Decades have passed since Sears and Shepard articulated the latent social critique present within ecological science. However, as demonstrated in ecocritic Glen A. Love’s more recent Sears- and Shepard-like assertion, the life sciences continue to serve key roles in our thinking about what is wrong with the way modern societies relate to nonhuman nature, why it is wrong, and how we might fix it. Love writes, “The social implica-
tions of biological thinking and research offer one of the great intellectual engagements of our time, sufficient to draw the attention and interest of all who are concerned with the place of humankind on the planet” (64). Here is an important caveat: the ecocritical literary scholar Dana Phillips observes that while today “Ecology sparks debates about environmental issues,” ecologists themselves are accountable to objective scientific standards and are thus “less available and less pliable as spokespersons for the environmental movement” (45, 50). Ecological science produces research such as “Detection of Density-Dependent Growth at Two Spatial Scales in Marble Trout (Salmo Marmoratus) Populations” (Vincenzi et al.) and “Insect Diversity and Trophic Structure Differ on Native and Non-Indigenous Congeneric Rushes in Coastal Salt Marshes” (Harvey, Britton, and Minchinton). The social, political, economic, and ethical concerns about which Shepard writes in the above passage, and the “place of humankind” about which Love writes, are not the provinces of this ecology. While the authors of these scientific papers might express environmentalist sentiments outside their research, their research itself, as with most scientific research, does not constitute the socioeconomic or cultural criticism that environmentalist interpreters of the research might underscore.

But for Shepard, who writes at the historical moment of environmentalism’s popular emergence, figures such as Aldo Leopold and Rachel Carson exemplify “the subversive science,” the mode of ecological study that does engage directly with anthropogenic influences on nonhuman nature and then also draws a line from substantive scientific findings to normative cultural judgments. With her work specifically, not only did Carson destabilize widespread social and economic assumptions of her time—writing against a cultural paradigm that considered female thought, especially in the male-dominated sciences, to be inferior to male intellect, as well as calling for tough regulations on the insecticide industry and for eliminating several of that industry’s staple products—she also threatened the very idea of human being that the modern world’s most coveted attitudes resolutely protect. Implicitly invoking Charles Darwin’s groundbreaking scientific thesis, which against Victorian conceptualizations thrust humanity into nonhuman nature, Carson asserts in Silent Spring, “Man, however much he may like to pretend the contrary, is part of nature” (188, emphasis added). Later, in her final speech Carson similarly declared the controversial Darwinian position that “man is affected by the same environmental influences that control the lives of all the many thousands of other species to which he is related by evolutionary ties” (Carson, “The Pollution” 245).1
As Al Gore notes, Carson worked “against the grain of an orthodoxy rooted in the earliest days of the scientific revolution: that man (and of course this meant the male of our species) was properly the center and the master of all things” (xvi–xvii). The dominant worldview against which Carson wrote—and to which ecology, as understood by Sears, Shepard, and Orr is set in contrast, thus becoming subversive—holds, among additional contentions, that “People are fundamentally different from all other creatures on earth, over which they have dominion” (Catton and Dunlap 17). Gore locates the origin of this human exemptionalism in the scientific revolution, and the historian Lynn White, Jr. notoriously censured the Judeo-Christian theology of human dominion. But the preeminence of the domination mentality in modern culture suggests a more multifaceted heritage. The ideological tributaries that feed Plumwood’s Illusion of Disembeddedness are indeed numerous. In addition to its origins in Baconian science and Biblical doctrine, the modern denial of human ecological embeddedness and the associated belief in humanity’s right to exploit nonhuman nature is also buttressed by notions about the limitless possibilities of human enterprise in a world of perceived abundance, especially as codified in North America by the continent’s European settlers, whose experience of the land’s bounty contrasted sharply with their experience of Old World scarcity. The apparent differences between the intellectual capabilities of humans and animals also support human exemptionalism, as does the degree to which technology has permitted modern humanity’s flight from and subjugation of nature. Nourished by some combination of the abovementioned influencing factors, the dominant Western worldview asserts that humans exist apart from and superior to everything else on Earth, and that we can disavow our embeddedness even in the face of what the life sciences have taught us. To declare the inseverable integration and regulation of the human species within and by a nonhuman world of physical and biological processes and cycles is to participate in what has become a minority tradition of thinking that fights an uphill battle against rigid majority traditions pronouncing and living out an apart-from-nature mentality.

Given the fervor with which human exemptionalism has been supported in both secular and religious culture, to assert humanity’s full embeddedness in and dependence on nonhuman nature is to subvert conceptions of the world that are foundational to the prevailing theological, social, cultural, political, and economic constellation. When transformative movements announce that humanity is part of nature, they do so to question ways of being that refuse to take ecological principles into con-
sideration. Biodiversity in an ecosystem helps maintain ecosystemic health against normal environmental stressors such as fire, flood, and drought. To say that we are part of nature is a first step in positing ways of living with this nature that do not threaten biodiversity and undercut the ability of ecosystems to stay vital in the face of stress. To say that we are part of nature is to challenge especially the capitalist mode of economic production, whose extractive activities hustle along normal environmental change far more quickly than one would find such change to happen absent industrial processes, barring of course major tectonic or meteoric episodes. For a species to achieve tectonic or meteoric weight is for that species—or more accurately, for those of the species who are driving the severe change—to behave as if it is not part of nature. To say that we are part of nature, in the end, is to respond to socioeconomic and cultural forms in which nonanthropogenic ecological processes no longer structure the possibilities of human life.

Part-of-nature thinking has indeed been ill used to back objectionable ideological agendas. But in the transformative environmental movements discussed throughout this study, part-of-nature thinking serves to check modes of being that, in their ignorance or denial of humanity’s material grounding, threaten the processes and cycles necessary for nonhuman and human life. Even when deep ecology’s part-of-nature thinking takes on a tone of spiritual kinship, it does so to root spirituality and kinship in the material world, as immanent instead of transcendent. Writing in the book *Deep Ecology and World Religions*, David Landis Barnhill and Roger S. Gottlieb note,

> When a deep ecologist makes the *metaphysical* or *psychological* claim that to be human is to be part of nature, he is opposing . . . anthropocentrism and individualism. That is, the anthropocentric view that human beings are (because of intelligence, technology, science, political life, language, the soul, etc.) categorically different from their surroundings; or the individualist view that sees people essentially as individuals, who form relationships with other beings but are not constituted by those relationships. Thus, for deep ecology our kinship with nature penetrates deeply into the essences of who we are. If as individuals and communities, we fail to realize and celebrate this fact, we will be neither truly happy nor truly sane. (7)

More strictly materialist, ecosocialism theorizes that “a large part of the answer as to why contemporary society refuses to recognize the full human
dependence on nature undoubtedly has to do with the expansionist logic of a capitalist system that makes the accumulation of wealth in the form of capital the supreme end of society” (Foster, Ecology 9). Ecosocialism prioritizes the “full human dependence on nature” in its response to capital’s restructuring of nonhuman life for the purposes of production and human consumption, which has resulted in marked ecological and social stress. Finally, while ecofeminism has one of its many roots in deep ecological conceptions of human embeddedness and one in more materialist, historical conceptions, as chapter 3 will show, the movement as a whole regards the conceptual human/nature dualism as widely problematic and of a piece with similarly problematic gender assumptions.

The two examples of (proto)environmentalist science fiction I am about to discuss—Last and First Men and Earth Abides—make humanity’s embeddedness in nonhuman nature explicitly visible. I choose them for this section of chapter 1, because they reflect the interest in the nature of humankind that characterizes some of the earliest works in the subgenre. For this reason they represent the subgenre’s anticipation of specifically environmentalist questions and assertions about human place that only later would prompt the birth of modern environmentalism in the 1960s. It is little wonder that many science fiction works of the late nineteenth and early to mid-twentieth century display an interest in humanity’s place in nonhuman nature. Darwin’s 1859 The Origin of Species and 1871 The Descent of Man forced upon nineteenth-century Victorian culture a view of humanity’s relationship to nonhuman nature that radically countered conventional wisdom. In Victorian Science Fiction in the UK Darko Suvin analyzes Victorian science fiction as reflecting an emerging crisis of confidence in Victorian values, and Victorian scholar Herbert Sussman argues that in this analysis Suvin neglects to reveal why antihegemonic writers turned to science fiction instead of secular sermon or literary realism. Putting Suvin in conversation with Sussman, film scholar Barbara Creed writes,

There was a crisis of confidence, and this arose in response to the way in which evolutionary theory—and its consequences, such as secularization and new ways of perceiving time—challenged Victorian beliefs and values. Of the science fiction texts published in the latter part of the nineteenth century, a significant number drew on Darwin’s theory of evolution, particularly in the period after 1870. (43–44)
Creed upholds Suvin’s position—that science fiction did grow out of anti-hegemonic attitudes—while also answering Sussman’s call for a historical justification for the authorial choice of science fiction as the literary mode for the expression of these attitudes. The crisis of confidence in Victorian values grew largely out of what Darwin’s science revealed about nature and the human species.

Thinking about the implications of what Darwin was teaching the Western world became a central focus for some of science fiction’s early writers. These writers found in Darwin’s thinking a starting point for a range of critical commentary regarding the contemporary illusion about humanity’s place outside nonhuman nature, as well as the consequences of experimental efforts to make this illusion real. In A Crystal Age (1887), for example, naturalist William Henry Hudson imagines the end of much of humanity as the outcome of scientific attempts to control nature: “Thus did they thirst [for knowledge], and drink again, and were crazed; being inflamed with the desire to learn the secrets of nature, hesitating not to dip their hands in blood, seeking in the living tissues of animals for the hidden springs of life. For in their madness they hoped by knowledge to gain absolute dominion over nature” (79). The reference here to vivisection as a way for scientists to learn the mysteries of life and therefore to harness these mysteries in the interest of transcending nature as its managers leads us also to H. G. Wells’s The Island of Dr. Moreau (1896). A student and admirer of the Darwinian biologist T. H. Huxley, Wells comprehended evolutionary biology and used it to think about the brand of experimental science that in this new Darwinian light could be implicated in breaking fundamental biological principles. If “As a part of nature, man was an animal—a being constituted of material structures and processes”—a finding that historian Hamilton Cravens argues is “The most important concept Darwin put forward”—then attempting to command these structures and processes might have unforeseeable costs, costs that The Island of Dr. Moreau vividly renders (xi).

Olaf Stapledon, as Suvin notes, is of these originators of a science fiction that has ideological and formal affinities with Darwinism (Victorian 407). In his Last and First Men a member of a civilization existing two billion years in the future narrates a history of the rise and fall of each evolutionary stage of humanity, from the First Men, through the telepathic Fifth Men and the Ninth Men of Neptune, and ultimately to the Eighteenth Men, doomed to be the Last Men when a nearby supernova threatens to destroy their planet. The civilization of the First Men, modern Homo sapiens, causes severe social crisis with its exhaustion of coal, which is brought about by an exuberant religious devotion to coal-intensive flying machines
in the global World State. As the narrator notes while recounting the State’s discovery that coal has run out, “The sane policy would have been to abolish the huge expense of power on ritual flying, which used more of the community’s resources than the whole of productive industry” (70). But the First Men are unwilling to question their rituals despite worldwide raggedness and starvation created by “a world engaged, devotedly and even heroically, on squandering its resources in vast aeronautical displays” (72). When those in authority do suggest a reduction in religious flying, war breaks out and the ensuing diminished population is left to scrape a living from whatever fertile land is left.

Later in the chronicle of the First Men’s fall a new Patagonian civilization moves in a direction just as unsustainable. Had they sacrificed developing an energy-intensive culture similar to that of the recently destroyed World State and instead pursued a less profligate way of life based on wind and water power, which the narrator of Stapledon’s tale admits they could have done, the Patagonians “might well have achieved something like Utopia” (86). But instead this civilization opts to acquire atomic energy. Even with the possibilities of using such a “limitless source of energy” in relatively harmless ways, the Patagonians use it both as a tool for excavating from Earth materials previously made inaccessible by the World State’s exhaustive mining, and as a weapon for policing the working class (89). Proletariat anger leads to the seizing of a power unit and ultimately to global atomic destruction, ending the reign of modern humanity.

Supported by religious dogma and an econocentric techno-scientific ability, respectively, the World State and the Patagonian civilization practice high-consumption ways of life, which motivate widespread ecological disaster and social unrest. *Last and First Men’s* critical commentary is clear, offering one of science fiction’s earliest contributions to a culturally attentive environmentalism that was still years away from gaining traction in other modes of cultural production and public discourse. As a future history of modern humanity, the book didactically attends to the exploitive madness of the so-called rational species.

The novel’s most subversive observation, though, comes in its commentary, more subtly voiced than its look at overconsumption, about the place of humans on Earth. After the Patagonians’ atomic ruin, much like every other nonpolar species “the human organism had not yet succeeded in adapting itself” to the newly toxic atmosphere (92). Except for fish, some plants, and a few species of mammals and birds, every other living thing on the planet is severely affected, including humans. “[F]org[ing] ahead” despite the obstacles of this harsh, postdisaster environment, the
nonhuman life that does reemerge is represented as persistent and determined to carry on, as healthy and strong (92). But the global environmental change to which other plants and animals acclimate is one that the First Men cannot tolerate, even though they caused it. Like the other fragile species, *Homo sapiens* cannot adapt to drastic ecological change—that is, unless the species becomes something else entirely, a “new species” that after ten million years emerges in *Last and First Men* as the “Second Men,” no longer human as we know it (100). Stapledon makes the case for the validity of human embeddedness stronger by employing Darwinian biology in his narrative of natural selection and its implications for humanity. As the First Men, we are of the weaker animals despite our advanced capabilities. Our susceptibility to ecological change lays bare our undeniable and ineradicable embeddedness in the material world. Our imagined position outside of nonhuman nature—our “illusory sense of autonomy,” to borrow again from Plumwood—feeds and is fed by flawed ideological commitments. The existence of these flawed commitments against clear evidence of our embeddedness further challenges the legitimacy of exemptionalist reasoning based in a Cartesian sense of human intellectual superiority, a reasoning that historically broke away from pre-Cartesian conceptions of the human subject as existing not “inside the cranium” but instead “in a continuum with the rest of the biosphere” (Borlik 44).

Stewart’s effort in *Earth Abides* to underline humanity as part of nature is not unlike Stapledon’s, and it also exposes some of the specific cultural locations where the Illusion of Disembeddedness resides. A tale of plague and the near extinction of humanity, the novel uses a large-scale disaster to emphasize our embeddedness in nonhuman nature and to highlight the ideological trends that make this embeddedness dangerously invisible. In the book a “super-measles” plague eliminates much of the world’s human population, forcing survivors to realign themselves materially, socially, and symbolically with natural systems previously hidden beneath modern convenience and modern symbolism (13). The novel’s main character is Isherwood Williams (Ish), a survivor of the plague and former graduate student whose thesis, “The Ecology of the Black Creek Area,” explores “the relationships, past and present, of men and plants and animals” in a region near San Francisco (4–5). For a student of ecology, a world without humans as the dominant species provides an interesting opportunity for research:

Even though the curtain had been rung down on man, here was the opening of the greatest of all dramas for a student such as he. During
thousands of years man had impressed himself upon the world. Now man was gone, certainly for a while, perhaps forever. Even if some survivors were left, they would be a long time in again obtaining supremacy. What would happen to the world and its creatures? That he was left to see! (24–25)

While *Earth Abides* is also about Ish’s project to navigate his existential predicament and, as critic David G. Byrd notes, “to keep the light of civilization burning,” its most important characteristics as a foundational work of environmental science fiction are its affirmation that humans are indeed part of natural processes and cycles and its interrogation of a modern society that is built upon epistemological and ontological foundations that declare otherwise (par. 5). The apocalyptic and estranging end of technology and human dominance—the end of the postnatural—coupled with the concomitant estranging return of unmediated nonhuman nature instigates enormous shifts in the characters’ perspectives and life ways. Ish’s experiences and reflections on these new and necessarily more ecocentric ways of thinking and being force our “reckon[ing] with the roots of our ailments,” as Orr puts it, by opening up a subversive critique of our own modern social and symbolic practices that the post-plague environment of *Earth Abides* renders absurd.

Although published twenty years after *Earth Abides*, wildlife biologist Paul L. Errington’s entry in Shepard and McKinley’s *The Subversive Science* helps set up contexts for reading Stewart’s book from the perspective of a normative ecology. In “Of Man and the Lower Animals” Errington calls attention to the similarity between human populations and nonhuman animal populations, arguing against any notion that humans are “exempt from natural laws or well on the way toward becoming so” (180). He writes, “If twentieth-century society really values the things that it proclaims essential—peace, human dignity, intellectual activity, a reasonable degree of freedom and security, and a reasonable standard of living—it cannot afford to ignore the natural laws by which life continues to be bound” (180). As with many of the essays in Shepard and McKinley’s book, Errington’s focuses on overpopulation, specifically highlighting the trend of bobwhite quail and muskrats to develop “social evils” as their populations skyrocket (188). For Errington these animal communities are not simply metaphors for human communities. Instead, they provide a mirror image of human society, and to turn away from the reflection is to deny valuable cultural lessons.
In *Earth Abides*, speculating on the fate of humanity given the biological law “that the number of individuals in a species never remains constant, but always rises and falls,” Stewart’s Universal Narrator concludes,

> there is little reason to think that [man] can in the long run escape the fate of other creatures, and if there is a biological law of flux and reflux, his situation is now a highly perilous one. During ten thousand years his numbers have been on the upgrade in spite of wars, pestilences, and famines. This increase in population has become more and more rapid. Biologically, man has for too long a time been rolling an uninterrupted run of sevens. (8)\(^5\)

This passage anticipates Errington’s thesis by linking “man” to “other creatures” in a specific observation about overpopulation. But its subversive character comes above all from the linking itself, which challenges theology and modern secular humanist philosophy alike, opening room for urgent deliberation. The Universal Narrator likens humans to Captain Maclear’s rat of Christmas Island, the victim of “some new disease” that, “Because of their crowding and also probably because of the softened condition of the individuals, . . . proved universally susceptible, and soon were dying by thousands” (10). Later, Ish’s own reflections on ant and rat populations inform his fear for the fate of an already diminished humanity: “‘When anything gets too numerous it’s likely to get hit by some plague—I mean—’ (Something had suddenly exploded in his mind at the word.) He coughed to cover up his hesitation, and then went on, without making a point of it. ‘Yes, some plague is likely to hit them’” (114). Ish’s hesitation is his, and the reader’s, moment of realization: we are in the world as much as anything else.

*Earth Abides* thus affirms human embeddedness. But lest we let this affirmation press us to contemplate (natural) overpopulation and (natural) pandemic disease as the (natural) looming fate of humanity, it is important to read the apocalyptic scenario as the narrative’s estrangement strategy, its effort to remove from modern humans the elements that reinforce our sense of disembeddedness and thus to draw our attention to the ubiquity and influence of these elements in our actual world. The global catastrophe in *Earth Abides* highlights what these things are (e.g., the grocery store, the water faucet, Abrahamic and national holidays) and therefore enables their interrogation. Stewart’s book is not necessarily about the challenges of reconciling growth rates in population with much smaller growth rates
in food supply. Nor is it about what disease might do to an overpopulated and underprepared human society. Surely these concerns figure into the novel, especially early on. But later, as the small group of survivors tries to establish some functional community in the absence of modernity, the novel turns our attention to what it is in this modernity that pulls us away physically and ideologically from nonhuman nature and thus feeds our imaginary sense of separation from it.

The story of Ish’s emerging Californian community is largely an exploration of how modern humans lived prior to the super-measles outbreak, when complex technologies and institutions mediated individual and social relationships with nonhuman nature. The community’s disconnection from this nature is confirmed when one character asks, “Where did all this water come from anyway?” about the San Francisco water supply, prompting the narrator to reflect, “It was curious. Here they had been for twenty-one years merely using water that continued to flow, and yet they had never given any real consideration to where the water came from. It had been a gift from the past, as free as air, like the cans of beans and bottles of catsup that could be had just by walking into a store and taking them from the shelves” (171). Modern convenience has instigated a kind of psychosocial end of nature in which the faucet and grocery store have cancelled out both the imperative to know the biosphere and to ask “What then?” about our technological implements.

The specialized knowledge required to maintain modern infrastructure dies out with the plague in Earth Abides, and with its death comes the slow decay of that infrastructure. Ish’s community eventually adapts to life without electricity, plumbing, and the like, situating itself firmly within the ecological dictates of which its members were once unaware. With this adaptation comes also a cultural change and another set of questions: do modern language and symbols have the same power as modern technological infrastructure to lead humans toward outward and inward denials of our ecological embeddedness? If human material life is physically shaped by the same laws that shape all species populations, then what about our symbolic life—the very thing that many exemptionalists, following Descartes, say make us not part of nature? The arguments made in Stewart’s book on these points anticipate recent theories linking place and discourse. As ecocompositionists Sidney I. Dobrin and Christian R. Weisser note, for example, “While discourse does indeed shape our human conceptions of the world around us, discourse itself arises from a biosphere that sustains life. That is, while discourse ‘creates’ the world in the human mind, the biospheric physical environment is the origin of life (and consequently, the
human mind) itself” (12). So language—and by extension, all symbolic activity—both forms and is informed by nonhuman nature. The apocalyptic end of modernity in Earth Abides again works to underline the sources of our disconnection.

Given the reemerging primacy of wildness in Earth Abides, certain human symbolic constructs must disappear, especially those driven by what ultimately seem to be arbitrary aesthetic and emotional judgments. Dogs will win “Best-of-Breed” for physically being able to survive, not for their “stance, and shape of head, and markings” (27). Indigenous flora once called “weeds” and beaten back with a host of chemical technologies will outcompete “the pampered nurslings of man” (43). Automobiles will no longer be “the pride and the symbol of civilization” as entropic processes make them and their roads unusable (107). These things and more will take on different meanings as their previous meanings pass away with the disappearance of modernity.

In addition to these shifts in meaning, which are anticipated by the novel’s Universal Narrator and are not specific to the story of Ish’s community of survivors, the cultural adjustments of this community that do happen in the narrative also reflect a new, heightened sense of embeddedness. In her discussion of ritual, environmental philosopher Dolores LaChapelle notes, “Most native societies around the world . . . had an intimate, conscious relationship with their place,” a relationship out of which their symbolisms grew (247). Ish’s new native community regains this relationship as wilderness returns as the governing force. With the modern dating system deemed illogical for their current situation, Ish’s community starts over with a new dating system that better reflects the conditions of their newly primitive world. As in Christian mythology, the birth of a baby marks Year One in their society; however, the parallels end there. The group understands its dependence on the land and its fundamental obedience to natural processes, thus its symbolic tendencies develop away from the human/nature dualism that Lynn White, Jr. finds in much Christian theology. Instead, one year becomes “Year of the Fires,” another becomes “Year of the Bulls,” another becomes “Year of the Lions,” and still another becomes “Year of the Earthquake” (129, 132, 134, 143). In these cases and in several others the emerging society names its social history for events in natural history, explicitly recognizing the connection between human and nonhuman.

This recognition also appears in the community’s holidays. As LaChapelle comments, “all traditional cultures, even our own long-ago Western European cultural ancestors, had seasonal festivals and rituals. The
true origin of most of our modern major holidays dates back to these seasonal festivals” (248). Ish’s society abandons patriotic holidays such as the Fourth of July but continues those holidays with roots in seasonal cycles: “Curiously,” the narrator writes, “or perhaps rather it was natural enough, the old folk-holidays survived better than those established by law” (295). So April Fool’s Day and Halloween, as celebrations of the vernal equinox and autumnal cross-quarter day, respectively, are carried on. Continued also is the celebration of winter’s cross-quarter day, Groundhog Day, modified to Ground-Squirrel Day in an area with no groundhogs. And the “great holiday” for the group is what was “Christmas and New Years of the Old Times”: the winter solstice (295). On this day, when for those in the northern hemisphere the sun is the farthest south, Ish’s community gets together to name the passing year and begin anew.

In a 1968 collection of anthropology papers, Richard B. Lee and Irven DeVore conjecture that if humanity does meet an apocalyptic end, “interplanetary archeologists of the future will classify our planet as one in which a very long and stable period of small-scale hunting and gathering was followed by an apparently instantaneous efflorescence of technology and society leading rapidly to extinction. ‘Stratigraphically,’ the origin of agriculture and thermonuclear destruction will appear as essentially simultaneous” (3). Though not a story of nuclear catastrophe, or one of total human extinction, Earth Abides does much to stage Lee and DeVore’s science-fictional speculation. The extended period of cultural stability referenced by Lee and DeVore is one made possible by premodern societies that did not possess the physical and symbolical tools that for us enable and reinforce the Illusion of Disembeddedness. Ish’s new San Francisco represents this stability reemerging after what deep ecologist George Sessions calls human culture’s “anthropocentric detour,” the ten thousand years out of two hundred thousand that humanity has strayed from its traditionally sustainable course, inventing monocultural agriculture, anti-ecological religions, growth-centered economies, and other constructs that require and encourage a human/nature disconnection (“Ecocentrism” 156). Stewart’s book puts humanity back on track, so to speak. In its conclusion the narrator says, “In the times of civilization men had really felt themselves as the masters of creation. Everything had been good or bad in relation to man. So you killed rattlesnakes. But now nature had become so overwhelming that any attempt at its control was merely outside anyone’s circle of thought. You lived as part of it, not as its dominating power” (281). For Ish the apocalypse necessitates a revised understanding of the
human species; for us, its representation in Stewart’s book strategically brings to light the concepts and practices that demand such revision.

_Last and First Men_ and _Earth Abides_ confirm our inescapable embeddedness, and an environmentalist reading of these books leads us to identify the truth of this embeddedness as perhaps the silver bullet with which the pathological Illusion of Disembeddedness will be killed. _Dune_, however, steps in at the very moment of environmentalism’s birth in the West and says, “Not so fast.” If we actualize it in any sort of ecologically conscious individual or cultural practice, part-of-nature thinking will place us squarely in the crosshairs of the industrial modernity about whose mechanisms of Illusion we have become critical. While all of these books direct us toward contemplating the technological and symbolic instruments that reinforce our sense of separation from nonhuman nature, it is only _Dune_ that encourages us to think further about how economically driven, imperialist modern ideology cannot easily be subverted by an appeal to human embeddedness. Part-of-nature thinking loses, or at least alone it cannot win, because (1) the Illusion of Disembeddedness is too deeply entangled within the ideological fabric of dominant institutions, to the point of being indistinguishable from them; (2) these institutional forms stigmatize and discourage embedded practice using effective classist and racist fantasy frames; and/or (3) these institutions appropriate and perpetuate a weak or feigned ecological embeddedness to contain subversion and then continue to forward their sociopolitical and cultural agendas. _Dune_ even goes so far as to question whether embedded practice, or living deliberately as part of nature, is possible given both the difficulty of finding today the “nature” of which we are a part and of negotiating the imposed burdens we face in the shadow of a spatially and psychologically imperializing political economy.

The overwhelming presence and necessity of the Illusion of Disembeddedness in and for dominant ideology and the construction of reactionary xenophobic attitudes toward more outwardly part-of-nature social and cultural forms go hand-in-hand. In Herbert’s novel this means that by their very natures the Imperium, the CHOAM Company, the Great Houses, and the Bene Gesserit—all of which have an interest in the spoils of _Dune_’s central setting, in the spice melange of the planet Arrakis—cannot _not_ maintain a mystified, disconnected relationship to the material world that they want to exploit. They must for their very existence erect a cultural
framework that keeps at a safe distance the planet’s willfully and success-
fully ennatured indigenous people, the Fremen (Dune 22). The Fremen
possess a “superb knowledge of their environment” and “a kind of earth-
wisdom” that allows them to survive in the dry climate and among the
carnivorous sandworms of Arrakis (O’Reilly 42). Their “stillsuits,” as
Noel Gough observes, “emphasize appropriate and environmentally sen-
sitive technology rather than high-tech gadgetry for its own sake” (“Play-
ing” 409). Explaining these suits, Liet-Kynes, Arrakis’s planetary ecologist,
states, “It’s basically a micro-sandwich—a high-efficiency filter and heat-
exchange system. . . . The skin-contact layer’s porous. Perspiration passes
through it, having cooled the body . . . near-normal evaporation process.
The next two layers . . . include heat exchange filaments and salt precipita-
tors. Salt’s reclaimed” (109). Stillsuits process urine and feces, reclaiming
most of the body’s water for its Fremen wearer to drink again, all with
the energy provided by body movement. “‘With a Fremen suit in good
working order,’” Kynes insists, “‘you won’t lose more than a thimbleful of
moisture a day’” (109).

In the same way that the new wilderness reshapes the symbolic cus-
toms of Ish’s community in Earth Abides, Arrakis’s ecology also shapes
the customs of the Fremen. In one tense scene, for example, the Fremen
leader Stilgar spits on the table of Leto Atreides, the duke whose regime
has recently moved to Arrakis from the water-rich planet Caladan and has
been appointed as the desert planet’s administrative body:

The Fremen stared at the Duke, then slowly pulled aside his veil, reveal-
ing a thin nose and full-lipped mouth in a glistening black beard. Deliber-
ately he bent over the end of the table, spat on its polished surface.

As the men around the table started to surge to their feet, Idaho’s
voice boomed across the room: “Hold!” Into the sudden charged still-
ness, Idaho said: “We thank you, Stilgar, for the gift of your body’s
moisture. We accept it in the spirit with which it is given.” And Idaho
spat on the table in front of the Duke. (92)

Duncan Idaho, one of the Duke’s men, must then remind the Duke
of the value of water, and thus of saliva, on Arrakis: “‘Remember how
precious water is here, Sire. That was a token of respect’” (92). Indeed,
just as the Fremen veneration of saliva finds its origin in Arrakis’s thirst-
inspiring environment, the Atreides’s disgust finds its origin in Caladan’s
thirst-quenching environment. Water is not in short supply on Caladan,
so bodily fluids take on a different meaning there than on Arrakis, where
one finds a whole new reverence for spit and tears. This scene suggests that nonhuman nature is part of human culture always and through and through, Arrakian or Caladanian. But more than demonstrating that the Atreides regime has a distinctive cultural understanding of water that displays their embeddedness in nonhuman nature, this scene is of a piece with Dune’s thorough historico-political examination of power’s strategic collision with whatever threatens it. The Atreides’s respectful acceptance of Fremen custom is an insincere nod to an “indigenous realism,” as American Indian Studies scholar Daniel R. Wildcat names it, that must ultimately be contained or eradicated if the material exploitation of Arrakis is to continue.

The reality of humanity’s embeddedness in nonhuman nature disrupts the ideology of those who see this nature through a distorting economic lens, or, in the case of Dune, through the promise of the power that the spice melange brings to those who control its harvesting and distribution. One strategy to contain or eradicate lived, practiced embeddedness and prevent its influence on modern culture is for those in power to belittle its practitioners. The Fremen are “marked down on no census of the Imperial Regate”; the Imperium does not recognize their existence (5). The Emperor describes the Fremen as “barbarians whose dearest dream is to live outside the ordered security of the faufreluches,” “the rigid rule of class distinction enforced by the Imperium” (78, 501). Duke Leto Atreides’s son and heir, Paul, takes an early interest in Arrakis’s distinctive ecology and in the Fremen as the planet’s indigenous culture, but the ideological apparatuses of the power structure prevent him from forming a consciousness so divergent from the classist and racist form that consciousness must take if power over people and their places is to be maintained. Before the Atreides leave Caladan for Arrakis, one of Paul’s teachers, Thufir Hawat, perpetuates contempt for the Fremen: “There’s little to tell them from the folk of the graben and sink. They all wear those great flowing robes. And they stink to heaven in any closed space. It’s from those suits they wear—that reclaim the body’s own water” (29). By insisting that “A place is only a place. . . And Arrakis is just another place,” Hawat symbolically erases the Fremen from the land, which as “just another place” is reduced to the chance address of an exploitable resource, a location void of any meaningful human culture or intrinsic ecological value.

While Hawat instills in Paul the ideological posture necessary for a future colonial leader, the Reverend Mother of the Bene Gesserit—a religious order that has its own political motives in championing the young
Duke’s rise to power—makes Paul very aware of Arrakis’s native culture and ecology in order to make him a good ruler who can feign embeddedness while exploiting the Fremen. It is thus with the Bene Gesserit that another one of power’s defensive moves against the threat of part-of-nature thinking and being is mobilized. The Reverend Mother tells Paul, “a good ruler has to learn his world’s language, . . . the language of the rocks and growing things, the language you don’t just hear with your ears” (30). As Susan Stratton notes, Paul “solve[s] the mysteries of Arrakis ecology and learn[s] to fit into the corresponding culture of its indigenous people,” though he does so not to become a careful inhabitant of the planet but instead to “accomplish his goal, which is to reclaim the planet for the Atreides” after the rival House Harkonnen wrests power from Paul’s father—and to do so using an army of Fremen (“The Messiah” 307).

Before the arrival of the Atreides regime and the ensuing political power struggle that makes up *Dune*’s narrative, the Fremen are involved in a project that complicates even further the environmentalist utility of part-of-nature thinking: the terraforming of Arrakis. The issue that this project raises is not about whether humans, with our abilities to manipulate nonhuman nature almost in its entirety, really are a fundamentally ennatured species, but instead whether we can live as part of nature given modern historical circumstances that compel the management of this nature in the name of social, scientific, technological, and/or economic development. To put this issue in the form of a question, What would living as part of nature look like in today’s world? Read as environmental science fiction, *Dune* asks this question. To understand the novel’s answer we must grapple with its image of the Fremen as at once consciously living their embeddedness and consciously manipulating the nature within which they are embedded. This seemingly problematical image ultimately proves to be a good starting point for reflecting on contemporary part-of-nature thinking and being in productive ways. But ahead of exploring this image, we must examine what can only be our assumptions about what Fremen culture looked like before the initiation of their terraforming effort, and in the course of this examination complicate in several ways the “nature” of which the life sciences and transformative environmentalism insist that humans are a part.

We never witness the Fremen prior to Arrakis’s subsumption into the Imperium. Outside of reading about their ancient technologies and customs, about the stillsuits and rituals that they continue to use and practice during the time frame of the novel, we never witness the “first” Arrakian
Fremen. However, these first Fremen seem to have once been good ecological citizens living as part of the desert planet upon which they settled as religious outcasts; their stillsuit technology and water-saving customs suggest as much, as do their methods for avoiding confrontation with Arrakis’s dominant fauna, the sandworms. But this presumption about the ecocentrism of the first Fremen faces an obstacle: if technology and custom mediated their relationship with nonhuman nature, making their life on the arid, storm- and sandworm-ridden planet at least bearable, then might we say that they lived some version of the Illusion of Disembeddedness, that they didn’t really live as part of nature? I am not prepared to answer this question in the affirmative, because clearly the technologies and customs of the first Fremen emerged out of their lived experience in nonhuman nature and were not applied toward manipulating this nature in a way that threatened its fitness. Still suits and large-scale suburban water-distribution infrastructures are not equivalent technologies; revering saliva and revering the incorporeal supranatural are not equivalent customs. Still suits and water-saving and water-revering traditions are human artifacts, indeed, but this detail does not preclude them from constituting a part-of-nature, ecological integrity-preserving way of life. On the other hand, as Earth Abides demonstrates, urban plumbing and Abrahamic religious tradition can contribute to the Illusion of Disembeddedness, which does have environmental consequences.

So the first Fremen lived their embeddedness, maintaining a culture that trod lightly upon the world. But to complicate things more, the idea that the first Fremen lived as part of nature entails an examination of what this nature is in the first place. Until now the focus of this chapter has been largely on the “part of” component of part-of-nature thinking and being; as the life sciences, transformative environmentalism, Last and First Men, and Earth Abides stress, we are not apart from the other-than-human world. For the first Fremen the nature of Arrakis is desiccation, desert, sand, sandstorms, sandworms—in short, all of the interrelated ecosystemic elements from which Fremen technology and custom emerge. This arid, sandworm-populated Arrakis is the nonhuman nature to which the first Fremen migrated and within which they lived their embeddedness for millennia. But as we later find out in the Dune series, Arrakis is not in any sort of primordial form. It was transformed into desert by the sandworms, which are themselves not native to the planet, having been introduced in their larval phase “from some other place,” as Paul’s heir Leto II says in Children of Dune (1981) (32). As such, this “second” Arrakis acts as a metaphor for an Earth that today is not in any sort of first form.
When we talk about “nature,” in other words, we cannot mean “some
ingthing that is single, independent, and lasting” or “a balanced order of
self-reproduction whose homeostasis is disturbed, nudged off course, by
unbalanced human interventions” (Morton 20; Žižek, In Defense 442).
With this second Arrakis, Herbert prefigures by decades the recent trend
in thinking about “ecology without nature” by implicitly defining nature
not as a “thing” or a “balanced order,” but instead as the interdependent
processes of biological and physical phenomena that constitute and com-
prise all life forms and make their existence possible, processes that can no
longer be said to carry on fully outside a history of human influence. Read
in the light of this conception of nature first as active process rather than
a static entity out there, Rachel Carson’s declaration that “Man, how-
ever much he may like to pretend the contrary, is part of nature” loses the
romantic hues about which ecocritic Timothy Morton and philosopher
Slavoj Žižek are so critical. And if we are not apart from this active, other-
than-human nature, nor are we apart from the humanized nature that has
emerged since humans began to abandon hunting and gathering ten thou-
sand years ago in the Neolithic Revolution. Something we learn by think-
ing about the second, postnatural Arrakis of Dune, then, is that regardless
of our individual or social ecocentric commitments we cannot live more
consciously as part of a prelapsarian Earth, because such an Earth does
not exist. Right now, in the modern world, we live as part of a Ciceronian
“second” nature, which at once consists of pollination, decomposition,
and nutrient cycling and agriculture and plumbing.11

Given that most of our food today originates in patented industrial
monocultures and most of our irrigation and drinking water originates
in depleted underground aquifers and dammed rivers, I would be remiss
not to acknowledge again the variations of scale within the technologies
that give rise to this second nature. If we cannot return to a first nature,
can we—perhaps in an effort to safeguard Earth’s still-functioning life-
support systems—return to living as ecocentric first Fremen, so to speak,
whose technologies are not of a scale that brings about drastic alterations
in fit ecosystems? Environmental science fiction has ecotopian visions of
such a humanity, as the next chapter will demonstrate. But before Ernest
Callenbach and Marge Piercy developed compasses for more consciously
part-of-nature ways of life in Ecotopia and Woman on the Edge of Time,
respectively, Dune underscored the enormous historical challenges of
realizing such a way of life in the face of scientific and political moder-
nity. The first, ecologically literate Fremen become “second” Fremen at
the moment when they are influenced by an externally imposed, mod-
ern scientific vision of terraforming Arrakis into a water-rich planet. When living, Liet-Kynes’s father, Pardot—the First Imperial Planetologist of Arrakis—used the Fremen as “the tools with which he intended to remake the planet,” as the means to realize his mental picture of ecological “order” (478, 477). The resulting second, managerial Fremen engage willingly in a large-scale manipulation of planetary ecology that in no way safeguards the current Arrakian ecosystem. In fact, the sandworms face certain extinction in the face of the planned planetary alterations, for their biology is such that they cannot tolerate contact with large volumes of water.

But in a sympathetic, more historically responsive reading of this project, we can say that while it is still haunted by Pardot Kynes’s human-centered “Specter of Terra (Terror)Forming,” the Fremen’s managerial ecology is less a manifestation of an Enlightenment will-to-dominate nature and more a way of setting up an intentional, ecologically aware culture whose millennia-old respect for and knowledge of ecosystemic processes work alongside their political needs as an oppressed people (Yanarella 225). As descendants of a nomadic religious sect that has a long history of being driven from planet to planet, the Fremen have a compelling motivation for creating a more hospitable landscape on the planet they are forced to inhabit. We might also notice that the Fremen terraforming effort involves three to five centuries of collecting water and educating generations of future Fremen about the ecological system being created: “‘We change [Arrakis] . . . slowly but with certainty . . . to make it fit for human life,’” Stilgar says, “‘Our generation will not see it, nor our children nor our children’s children nor the grandchildren of their children . . . but it will come’” (283).

Are these second Fremen living as part of nature? They have maintained the ecological literacy, technologies, and customs of their preterraforming years, and they have a profound sense of intergenerational responsibility. Or does their entrenchment also in the history of the Dune universe and their desire to do the best they can with what they (are forced to) have negate any judgment that they are living their ecological embeddedness? Again, Herbert complicates part-of-nature thinking, this time by making us aware that opportunities for living consciously as embedded ecological citizens, for asking “What then?” about our actions, are limited by the realities of the human history and the human institutions we inherit. The goal for transformative environmentalism, of course, is to change these institutions so that ecological integrity does not have to be sacrificed in the name of economy, culture, politics, justice, and so
on. With all of its complicating factors, *Dune’s* most important lesson is that such transformation will not happen with a simple jolt of scientific truth administered to a modern humanity that has gotten over nonhuman nature, and more and more has gotten over science, if it does not support the hegemonic economic and cultural trajectory. It is rather the jolt of economic and political expediency that always seems to win out in the modern world, and *Dune* is fully aware of this, too.

We never get to see the planned Fremen project come to fruition in the course of the novel and therefore to make the difficult ethical judgment about whether the Fremen’s use of managerial science in the name of their own social justice was worth the ultimate sacrifice of the sandworms. Perhaps we are freed from making such a judgment, because in the place of a very deliberate planetary engineering project is slammed down a promise of quick political gains necessarily emptied of any ecologically responsive content. Paul Atreides plays into the legend of the messiah who will lead the Fremen to paradise, a legend that was instilled long ago in the Fremen culture by the Bene Gesserit’s Missionaria Protectiva, “the arm of the Bene Gesserit order charged with sowing infectious superstitions on primitive worlds, thus opening those regions to exploitation by the Bene Gesserit” (507). Paul promises the Fremen a more rapid path toward their terraforming goals—one not tied to the geological time constraints of the original effort—if they take up arms against the Atreides’s enemies. As Paul’s mother, an Atreides and a Bene Gesserit, reflects, “Gathering water, planting the dunes, changing their world slowly but surely—these are no longer enough. . . . The little raids, the certain raids—these are no longer enough now that Paul and I have trained them. They feel their power. They want to fight” (388).

Leonard M. Scigaj observes of *Dune Messiah* (1975), the second book in the *Dune* series, that the Fremen Farok’s “only personal motive for enlisting in the war . . . is to realize his fantasy of immersing himself in a real sea” (342). The reason Farok believes he will see Arrakian seas in his lifetime, as opposed to expecting the change to come in three to five centuries, is Paul’s rousing speech in *Dune*: “‘What’s our goal?’ Paul asked. ‘To unseat Rabban, the Harkonnen beast, and remake our world into a place where we may raise our families in happiness amidst an abundance of water’” (414). That Paul convinces the living Fremen—“we” rather than “our future generations”—that they will raise their families in such a paradise demonstrates the danger of modernity’s drive toward expediency, and indeed, the lure of expediency is another key complicating factor when thinking about modern humans as part of nature. Paul Atreides
pulls the Fremen from their deliberate ways as a culture fighting political oppression in a way compatible with their long-established, consciously part-of-nature ways of life. Paul’s war does not free the Fremen from colonial subjugation and immediately lift their everyday toil. Instead, it denies them the total independence that the terraforming plan would have permitted and forces them further into the hands of the ruling class. In *Dune Messiah*, Farok admits in retrospect that Fremen participation in the war was fueled by a desire for “‘experiences, adventure, wealth,’” and indeed the seas (58). And as Paul observes in that book, the Fremen had “become a civilization of . . . people who solved all problems with power . . . and more power . . . and still more power” (225). Paul’s revolution acts as a social trap for the Fremen, in which “players,” in this case the Fremen, “are lured into behavior that eventually undermines the health and stability of the system” (Orr 5). The second Fremen become the “third,” and the second nature of Arrakis is subsumed into a political scheme that ultimately drives away the sandworms and undermines both the Fremen’s sovereignty and their ecological intelligence.

*Dune* offers a complicating theorization about part-of-nature thinking and being. Rather than displaying assertions of human embeddedness as too narrow or romantic to matter in our complex contemporary moment, though, this discourse instead prompts a deeper investigation of what such embeddedness means in a world where we cannot easily put away modernity and then find a definitively natural place to settle and live more consciously as part of nature. Perhaps to acknowledge and live today our ecological embeddedness is to acknowledge and live *Dune*’s implicit, more sobering lesson: we are a part of the bee and the GMO crop, the water cycle and the faucet, the forest and the lumber, the ocean and the oil. The priority for what might be qualified as “traditional” part-of-nature thinking is to advocate for the bee over the crop and the ocean over the oil—in short, for the preservation of nonhuman nature over the proliferation of technologies that use this nature toward purely anthropo- and econocentric ends. *Dune* asserts that we cannot live this priority in the modern world without major shifts in our values and practices, at all levels of society.

As Žižek argues, “One should . . . become aware not only of the limitation of the ideology of progress, but also of the limitation of the . . . notion of the revolution as applying the emergency brake on the runaway train of progress” (*In Defense* 442). Read for their environmentalist contributions,
Last and First Men and Earth Abides make us aware of the limitations of a progress that requires our illusory separation from nonhuman nature. And Dune teaches us that the brake cannot simply be pulled. But Herbert's message is not to give in hopelessly to the driving forces of social and economic modernity; for, when the Fremen do exactly this, it undermines their ecological and political existence as Arrakian Fremen. Dune shows us that there is a “third” nature on the horizon—not a prehistorical “domain of balanced reproduction,” not a regrowth of once wild places or an artifactual re-creation of natural processes, but finally an ecodystopian world unable to support human and nonhuman flourishing (Žižek, In Defense 442).12