Sense of Place and Sense of Planet

The Environmental Imagination of the Global

Ursula K. Heise
Sense of Place and Sense of Planet
This page intentionally left blank
Sense of Place and Sense of Planet

The Environmental Imagination of the Global

Ursula K. Heise

OXFORD UNIVERSITY PRESS
2008
PART II

Planet at Risk
This page intentionally left blank
Academic concepts, at times, take on a life of their own in figures of speech, everyday habits, or market commodities, while their intellectual merit and implications are still being discussed among the experts. Many of the terms associated with postmodern culture, such as “deconstruction” and “hyper-reality,” trickled down in this way. But when German sociologist Ulrich Beck coined the term “risk society” in the mid-1980s as an alternative to the notion of “postmodern” social structures, he could not have anticipated that the idea of a society reconfigured by pervasive ecological and technological risk scenarios would one day translate into the commodified cuteness that characterizes certain sectors of the child and youth entertainment industry. Yet precisely this kind of translation underlies a whole series of recent toy figures marketed by UNKL, a division of the design company big-giant. Founded by Derek Welch and Jason Bacon in 2000, UNKL designs toys and apparel for a hip and urban youth culture. One of their series of toy figures (and related T-shirts) is called HazMaPo, most likely an abbreviation of “Hazardous Materials Police,” and consists of about a dozen different vinyl figures in various kinds of gas masks and protection suits. Offered in a variety of colors from translucent white, pastel blue, and green to neon red, orange, and black, these figures combine the ominous look of gas masks, breathing tubes, oxygen tanks, helmets, and full-body suits with the quaint charm of robot tin toys and the neotenic cuteness of Japanese toys such as Hello Kitty, Badtz-Maru, the innumerable Pokémon characters or the endurably popular Tamagotchi (fig. 4.1). Welch and Bacon explain on their website:

In creating the HazMaPo figures, the concept was to take two things representing opposite points of view and combine them together forming something both familiar and fresh. We took a friendly, simplified figure and juxtaposed it with the ominous implications of hazmat suits

The disconcerting idea of an adorable toy figure with little pink and white hearts on her hazmat suit and oxygen tank, in one HazMaPo version, may at first sight seem to derive from nothing more than the slightly cynical imagination of two artists turned youth culture marketeers. Yet an entirely mainstream German toy manufacturer such as Playmobil also now includes a “HAZMAT Crew” among its toy figurine sets, outfitted with green protective suits, helmets, rubber boots, gloves, shop vac, and a barrel of toxic material lovingly detailed down to the yellow warning label with skull and bones on the side (fig. 4.2). As opposed to UNKL’s, Playmobil’s website betrays no sense of any incongruence in offering such a scenario to children from the age of four. And perhaps it should not, given that toy figures and vehicles even for young children have long included police cars, ambulances, and fire trucks. Yet the fact that toxic cleanup crews have now become as routine a part of children’s playworlds as fire trucks foregrounds that the contaminated environment Rachel Carson decried at the inception of the environmental movement in the 1960s is now fully integrated into the ordinariness of everyday life. Some awareness of technological and ecological as well as other risk scenarios, these toys indicate, from carcinogens in food to toxic spills and global warming
has, consciously or unconsciously, become an inescapable component of daily routines.

Increasingly, such risk awareness has also come to reshape the imagination of the global in its environmentalist as well as other dimensions. To some extent, one could argue that translocal risk perceptions reveal the dark side of the cosmopolitanism I outlined in chapter 1, in that an awareness of ecological and cultural connectedness implies a knowledge of the kinds of risk that are generated by such connectivity: the introduction of nonnative organisms into local ecosystems, for example, the impact of global markets on local natural resources or farming practices, pollution of oceans, acid rain, radioactive fallout, or global warming. But to leave it at that would be to ignore the ways risk perceptions, and a particular understanding of the relationship of certain risk scenarios to modern societies, have galvanized the environmentalist movement from its beginnings and continue to do so, in various forms, to this day. Risk has also become an important theoretical lens with which to envision the emergence of new social movements and structures, foregrounding cosmopolitan forms of awareness and inhabitation on the basis of shared risk. This is the gist of much of the environmental justice movement’s work (which admittedly tends not to frame its objectives in terms of risk, for reasons I will discuss shortly) as well as of Ulrich Beck’s “Cosmopolitan Manifesto,” which predicts the rise of new kinds of transnational communities and politics from the “world risk society.” Considerations of risk and of local and global forms of belonging, therefore, are imbricated in each other in complex ways that...
cannot be summed up in any simple dichotomy of utopian versus dystopia
v visions.

But while the concept of a contemporary “risk society” has gained
currency in the academic circles of Europe, North America, and beyond,
Beck’s work has often been received in a rather superficial way in liter-
ary and cultural studies, where it tends to be invoked without much at-
tention to its details or internal tensions. The relation of Beck’s theory to
other analyses of risk perceptions and of the connections between risk
and modernization are hardly ever mentioned, and indeed the entire field
of risk theory, an important interdisciplinary area in the social sciences,
is for the most part unknown to literary and cultural scholars, includ-
ing, most importantly for my purposes, to many ecocritics. In the first
section of this chapter, I will therefore briefly survey studies of risk per-
ceptions, as one of the most important areas of risk analysis over the last
four decades, and the major theoretical frameworks on which they are
based. Even though such studies gained importance in part because of
the public’s increased awareness of ecological and technological risk sce-
narios since the 1960s, they have been received warily by environmen-
talists, who since the 1980s have objected to both the general usage of
the term “risk” and specific dimensions of risk theory. Such objections, I
will argue, were based in part on misunderstandings of the theory and in
part on resistance to early antienvironmentalist biases in risk perception
studies that have since been questioned and reversed in the field itself.
Investigations of risk perceptions, therefore, have become an extremely
important resource for the cultural study of contemporary societies’ rela-
tion to the natural environment. Section 2 elaborates on such concerns
that are shared between risk theory and literary study by highlighting
the ways perceptions of ecological and technological risk scenarios are
shaped by and filtered through narrative templates that manifest them-
selves in both visual and verbal artifacts. Apocalyptic narrative, with
its portrayal of an entire planet on the brink of ecological collapse and
human populations threatened in their very survival, has been one of the
most influential forms of risk communication in the modern environmen-
tal movement, especially since it has often implicitly or explicitly relied
on pastoral as the template for alternative scenarios. Both apocalypse
and pastoral have been controversially debated among ecocritics; while
many consider both genres at best ambivalent tools in the current state
of environmental discourse, they nevertheless feel uncomfortable with
what they perceive to be the impact of risk discourse on these rhetorical
templates, especially since risk analyses, which can easily accommodate
apocalyptic and “toxic discourses,” are more difficult to compatibilize with
lingering pastoral impulses. As I showed in chapter 1, such pastoral resi-
dues manifest themselves variously in longings for a return to premodern
ways of life, “detoxified” bodies, and holistic, small-scale communities. To
explore more generally what kinds of narrative risk analysis has relied on and how they relate to environmentalist story templates, section 3 turns to theoretical approaches that address the relationship of contemporary hazards to processes of modernization and technosocial innovation, including Beck’s hypothesis of an emergent “risk society.” Such theories partly diverge from and partly dovetail with the environmental justice movement in their conception of the connection between risk scenarios and the transformation of basic social structures, including modes of spatial belonging and deterritorialization. This particular concern is elaborated further in section 4, which explores the impact of technological and ecological risk scenarios on ways of inhabiting local, national, and global spaces and systems. As risk scenarios, especially those that transcend the local, form part of the complex processes of deterritorialization that I analyzed in chapter 1, they both disrupt existing ties to place and create alternative networks of cultural practices at various scales and across national and regional borders, in a process that transforms some of the trivialities of everyday life as much as some of the large-scale workings of international politics. Beck’s “Cosmopolitan Manifesto” articulates the possibility of new, transnational communities arising from shared risk experiences. But Beck’s somewhat simplistic understanding of the relationship between shared risk and shared cultural assumptions needs to be tempered by the more complex accounts of power differentials and cultural conflict even in the face of shared political struggles in the writings of environmental justice advocates and political scientists. Both the risk society and the environmental justice models, I will suggest, stand to benefit from the more nuanced analyses of crosscultural literacy in cultural scholars’ approaches to cosmopolitanism that I discussed in chapter 1. Understanding global risks as shared environmental realities that are nevertheless shaped by and filtered through a range of different cultural frameworks, including local forms of inhabitation, forms part of the environmentally oriented cosmopolitanism I outlined in that chapter.

Chapters 5 and 6 will tie these theoretical considerations back into the analysis of literary texts; chapter 5 focuses on two American novels that prominently feature incidents of local chemical exposure, Don DeLillo’s White Noise and Richard Powers’s Gain, while chapter 6 examines two German novels, Christa Wolf’s Störfall: Nachrichten eines Tages (Accident: A day’s news) and Gabriele Wohmann’s Der Flötenton (The sound of the flute), which revolve around the international risk scenario that unfolded after the nuclear reactor explosion at Chernobyl, Ukraine, in 1986. All of these texts reflect on the way individuals and communities renegotiate the relationship between local, national and international networks of culture and economics in light of their exposure to risk, at the same time that they explore what narrative shape such a reconfigured relationship might take.
1. Theories of Risk Perception: Science, Culture, Narrative

Seen from an anthropological perspective, human cultures have engaged with risk scenarios of widely varying kinds throughout their history. But more formal studies of risk have only emerged more recently. The study of medical and economic risks reaches back at least to the eighteenth century, while investigations of technological hazards and natural disasters began in the early twentieth century (Golding 25). Analyses of technological and ecological risk scenarios emerged as a separate area of study in the social sciences in the late 1960s and early 1970s. In 1969, a seminal article by the engineer Chauncey Starr that set out to measure social benefits and technological risks in relation to each other opened up the problem of risk assessment to systematic research, at a time when the public had become increasingly aware of and concerned about chemical, nuclear, and other environmental dangers. In the following decades, risk theory developed in an interdisciplinary matrix involving mainly cognitive psychology, sociology, and anthropology; especially from the 1990s onward, political scientists and economists have also become increasingly interested in the field. Over time, a range of different theories have evolved in the field that focus on somewhat different objects of study and base themselves on divergent methodological assumptions. The most empirically oriented part of the field, which is also the one that has to date generated the greatest bulk of research, focuses on the ways risks are perceived and evaluated by different population segments, and attempts to identify the sociological, psychological, or other factors that might explain these risk assessments. Some of the basic theoretical paradigms that have been proposed in this part of the field will be discussed in this section, while section 3 will focus on theories that address the underlying causes of technological risk, their relation to modernization processes, and their impact on social structures.

In the late 1970s, risk analysis was dominated by the so-called psychometric paradigm. Empirical studies, often carried out by cognitive psychologists, sought to determine how the public perceives a wide range of different types of risks and what reasoning leads to these assessments. Psychometric studies usually assume that the reasons for particular risk assessments combine certain characteristics of the risks themselves with individuals’ cognitive behavior, and therefore explore such assessments in terms of theories of heuristics and cognitive biases, that is, decision-making rules and selective information processing. Different groups of individuals, it emerged, use different cognitive models in assessing risks. One of the most salient differences that psychometric research highlighted was the one between expert and lay perceptions. Experts such as scientists, doctors, statisticians, or engineers often tend to evaluate and prioritize risks quite differently from the way the general public does. Statistical
considerations, usually the probability of a particular adverse event multiplied by the magnitude of its consequences, tend to shape expert opinions, while the public’s view quite often defies such numerical calculation. The risks associated with nuclear power plants provide an obvious example: based on the very limited number of actual accidents and deaths nuclear plants have so far caused, experts tend to rate their risks as relatively low, while nonexperts, regardless of the low statistics, assess them as much more hazardous than, say, coal mines or highways, which cause a much larger number of fatalities annually.

Psychometrically oriented research has discovered a number of variables that shape such divergences, not only between experts and the general public but also between different segments of the public itself. Regardless of the magnitude of the risk involved, voluntarily selected risks tend to be assessed as less hazardous than those that are involuntarily imposed, for example, leading some people to worry about secondhand smoke even as they underestimate the health effects of bad nutrition. The protagonist of Art Spiegelman’s graphic novel *In the Shadow of No Towers*, a chain-smoker, humorously foregrounds this discrepancy when he fulminates against what he believes to be the authorities’ cover-up of dangerous air pollution in lower Manhattan in the aftermath of the attack on the World Trade Center: “I’m not even sure I’ll live long enough for cigarettes to kill me,” he sums up his dual risk perception with characteristic self-irony (3). Similarly, dangers that are imperceptible to the average person tend to appear greater than those that are directly observable; new risks appear greater than old ones and unfamiliar ones more hazardous than well-known ones; risks that entail delayed effects tend to be perceived as greater than those whose effects manifest themselves immediately; risks with controllable or nonfatal consequences are perceived as smaller than those that entail uncontrollable or fatal ones. The geographical scope of a potential hazard also affects perceptions of its magnitude, with local ones appearing less risky than regional or global ones, as do the benefits that are thought to accrue from incurring a particular risk scenario. At times, these kinds of variables in risk perception do not operate in isolation but correlate with each other in individuals’ perceptions through an underlying evaluative perspective that statisticians uncover by means of the technique called “principal component analysis.” One of these factors is “dread,” an almost intuitive fear of some risks that may be less dangerous than other, nondreaded ones: nuclear technology and radioactivity as well as cancer, for example, tend to evoke such dread, while flu epidemics, heart disease, or diabetes do not. Some of these distinctions may strike an outside observer as more rational than others; it seems reasonable, for example, to rate a risk with potentially fatal consequences higher than one with nonfatal ones, whereas assessing risks differently in terms of their perceptibility or imperceptibility, or their immediate or delayed consequences, may seem understandable but illogical. However one rates the validity of such
variables that shape risk perceptions, the fact is that they point to complex
evaluative models that go far beyond any simple algorithmic calculation
of probability and magnitude (Fischhoff et al., Acceptable Risk, chaps. 4–7;
Fischhoff, Slovic, and Lichtenstein, “Lay Foibles and Expert Fables”; Slovic,
“Perception of Risk”).

Differences of gender and race turned out to be other dimensions affect-
ing risk assessments, with women often rating risks as greater and more
threatening than men (Spigner, Hawkins, and Loren; Steger and Witte;
Stern, Dietz, and Kalof). In a large study carried out by James Flynn et al.
in 1994, nonwhite respondents tended to express greater concern about a
variety of risks than white ones, and risk assessments were greater among
those with lower incomes and education levels. When the results of this
survey were analyzed according to four groups, white females, nonwhite
females, white males, and nonwhite males, however, it turned out that it
was white males who rated risks far lower than the other groups; closer
analysis revealed that it was only about 30 percent of the white males that
skewed the results through much lower risk assessments, while the rest
corresponded roughly to the other groups. Paul Slovic summarizes the
questions and directions these results point toward:

Why do a substantial percentage of white males see the world as so
much less risky than everyone else sees it? … Perhaps white males see
less risk in the world because they create, manage, control and benefit
from many of the major technologies and activities. Perhaps women
and non-white men see the world as more dangerous because in many
ways they are more vulnerable, because they benefit less from many
of its technologies and institutions, and because they have less power
and control over what happens in their communities and their lives.
Although the survey conducted by Flynn et al was not designed to test
these alternative explanations, the race and gender differences in per-
ceptions and attitudes point toward the role of power, status, alienation,
trust, perceived government responsiveness and other sociopolitical
factors in determining perception and acceptance of risk. (“Trust” 402)

As these comments already indicate, and as psychometric research has
more broadly documented, some risk perceptions have less to do with the
public’s view of the risk in and of itself than with trust in the institutions in
charge of managing it. Sociologist Allan Mazur’s detailed study of the Love
Canal crisis has shown, for example, that the neighborhood residents’ per-
ception of their own endangerment by the toxic waste deposit under the
local school was exacerbated by their growing sense that they were being
left in the lurch by the New York state health commissioner, which led
them shrewdly to enlist the help of the media instead (67–113, 162–93).
Trust, in turn, in some cases depends on whether the public perceives the
authorities as sharing its salient values (Cvetkovich and Winter 288–89).4

As Brian Wynne has argued, it is also inflected by the risk bearers’ sense
of their sometimes inevitable dependency on the social institutions that manage risk, which by their way of defining and managing it force risk bearers to identify themselves in relation to the knowledge embodied by these institutions ("Sheep" 54–60). Risk perceptions, therefore, cannot be analyzed in isolation from the social and institutional structures that situate individuals, and through which dangers are communicated and administered.

In the late 1970s, psychometrically oriented research assumed on the one hand that lay risk perceptions respond to certain qualitative properties of the risks themselves, and on the other hand that expert assessments, with what was believed to be their clearer grasp of the scenarios, established the accurate and objective scale of a particular risk. Lay perceptions that diverged from this view, it was thought, needed to be explained in social scientific terms and ultimately corrected. In the course of the 1980s, however, these and other assumptions behind the psychometric paradigm came increasingly into question with the rise of "cultural theory" (not to be confused with the meaning of this phrase in the context of cultural studies). Pioneered by anthropologist Mary Douglas and sociologist Aaron Wildavsky’s highly controversial book *Risk and Culture: An Essay on the Selection of Technological and Environmental Dangers* (1982), cultural theory in its initial phase built on Douglas’s earlier work on taboo in premodern societies. Douglas and Wildavsky started from the observation that any community, whether modern or premodern, is affected by a wide range of risks, but only some of these are selected for conscious awareness and given particular social and cultural significance. The cognitive models of individuals are far less important in explaining this awareness and significance, according to Douglas and Wildavsky, than the question what a particular risk perception accomplishes for the values and ultimately the perpetuation of the social structure that shapes it. From this theoretical perspective, individuals do not make risk assessments on a case-by-case basis; rather, their risk assessments can be predicted in broad outline in terms of their association with certain types of social structures (Douglas and Wildavsky; Wildavsky and Dake).

At first glance, this mode of theorizing may appear more familiar and persuasive to scholars in literary and cultural studies than the highly empirical and statistical procedures of the psychometric paradigm. After all, the attempt to explain individual risk perceptions in terms of their function for the self-perpetuation of certain social structures—in other words, in terms of what in literary studies would probably be called their "political implications"—seems to rely on a theoretical gesture that is quite common in studies of culture over the last three decades, in that it exposes risk perceptions as, more or less, forms of ideology. Yet Douglas and Wildavsky are not strict social constructivists where risk is concerned, nor does their concluding analysis in *Risk and Culture* resemble anything one would be tempted to call "politically correct." Douglas, in this book as well
as in her later publications on risk, portrays risks as undoubtedly real, but sees their selection and meaning as culturally conditioned (see Lupton 39). This selection is shaped by social structures that are defined through a “group” variable (that is, the degree to which individuals are bound into a social entity) and a “grid” variable (that is, the way these social bonds are structured by means of particular categories such as hierarchy, gender, kinship, and so on). While this basic grid-group framework can be used to analyze a wide variety of social forms of organization, its particular relevance for Douglas and Wildavsky’s argument lies in the way it can predict the shape risk perceptions are likely to take, specifying, for example, what kinds of individuals are most likely to see the greatest risk in economic crises, in international relations and conflicts, or in technological scenarios, respectively.

For someone trained in literary and cultural studies, which have in recent decades stressed the way cultural dispositions and worldviews are shaped by social categories such as race, ethnicity, class, gender, nationality, and religious affiliation, the idea that “the perceiver [of risk] is not an individual, but an institution or organization that is driven by organizational imperatives to select risks for management attention or to suppress them from view” (Rayner 86) has a great deal of intuitive plausibility. In very crude form, a similar basic assumption seems to underlie a novel such as Michael Crichton’s notorious State of Fear, which aims to expose global warming as a scam with a shrewd mix of action-thriller plotting and references to scientific literature. In the chapter that gives the novel its title, Crichton’s spokesperson, a professor specializing in the “ecology of thought,” proposes to the protagonist Peter Evans that risk scenarios, including fear of climate change, are systematically generated and maintained by what he calls the “PLM,” the “politico-legal-media complex”:

“Western nations are fabulously safe. Yet people do not feel they are, because of the PLM. And the PLM is powerful and stable, precisely because it unites so many institutions of society. Politicians need fears to control the population. Lawyers need dangers to litigate, and make money. The media need scare stories to capture an audience. Together, these three estates are so compelling that they can go about their business even if the scare is totally groundless.” (456)

Environmental risk perceptions, in this perspective, are just one in a series of socially generated fears designed to keep the population in check, and lawyers and journalists in business:

“For fifty years, Western nations had maintained their citizens in a state of perpetual fear. Fear of the other side. Fear of nuclear war. The Communist menace. The Iron Curtain. The Evil Empire. And within the Communist countries, the same in reverse. Fear of us. Then, suddenly,
in the fall of 1989, it was all finished....The fall of the Berlin Wall created a vacuum of fear....Something had to fill it.

Evans frowned. “You’re saying that environmental crises took the place of the Cold War?”

“That is what the evidence shows....The point is, although the specific cause of our fear may change, we are never without the fear itself. Fear pervades society in all its aspects. Perpetually.” (454–55)

Lest one be tempted to dismiss this claim as nothing but right-wing propaganda—though that is undoubtedly the way it is used in this novel—it may be well to remember that left-wing writer and filmmaker Michael Moore makes a very similar argument toward the end of his documentary Fahrenheit 9/11, when he suggests that fear of terrorism is largely the fabrication of a right-wing government in conjunction with certain class and religious interests, intended to keep the more disenfranchised segments of the U.S. population in check. Whatever political coloration this idea takes, in other words, the assumption in both cases is that some of the risk scenarios that have dominated public debate in the United States over the last few decades are shaped by well-defined institutional interests and social organizations.

One might expect that Douglas and Wildavsky’s “cultural” approach to risk would translate into a more sophisticated and detailed investigation than Crichton’s or Moore’s of how particular social institutions generate or contribute to risk perceptions, as well as how they intermesh with more individual preferences and biases. While some such research has been undertaken—some of it more strongly influenced by Foucault than by Douglas and Wildavsky, however, as I will explain shortly—most cultural theorists have developed the paradigm in a quite different manner. They have analyzed how certain types of grid-group formations tend to generate worldviews that can be characterized broadly as, for example, “fatalism,” “hierarchy,” “individualism,” “egalitarianism,” or “technological enthusiasm,” which in turn tend to be accompanied by specific patterns of risk perception. This type of research had to grapple with methodological difficulties such as the question of how to operationalize the grid-group schema into empirically testable research hypotheses, how to theorize the coexistence and interaction of these different structures at various scales of social organization, and how to account for individuals’ varying engagements with different kinds of social structures (Rayner 96–98, 104–6; Lupton 51–57). Nevertheles, it clearly emerged that such basic worldviews or dispositions do play a role in shaping the risk perceptions of individuals. But while Douglas and Wildavsky, in their own study, had much to say about the way environmental organizations inflect the risk perceptions of certain parts of the U.S. population, detailed analyses of the functioning of other institutions—schools, universities, political parties, professional organizations, churches, clubs and asso-
ciations, or particular media—have remained far fewer in number than more general surveys of the public.

The use of such survey data in cultural-theoretical research facilitated integration of some of its findings into psychometric research, which has not adopted cultural-theoretical assumptions wholesale, but has nevertheless worked to incorporate a wide variety of cultural factors into its analyses. Psychometric analyses have taken over from cultural theorists the insight that worldviews, understood broadly as “general social, cultural and political attitudes” inflect perceptions of risk, and that they seem to do so more for some risk scenarios than others (Slovic, “Trust” 402). One study, for example, showed that attitudes toward nuclear power were particularly strongly correlated to such general worldviews (Peters and Slovic). The same study, as well as a series of others, also demonstrated the important role of positive and negative affect in people’s judgments of risk; according to these studies, mental representations of particular phenomena or events are associated with varying degrees of affect, and individuals refer consciously or unconsciously to such emotional tags when they make judgments or decisions, using what some researchers call an “affect heuristic” (Finucane et al., Peters and Slovic). Recent psychometric research, then, by integrating variables such as worldviews, cultural biases, and affect into its basic models, has moved far beyond its original framework of the 1970s.

Another dimension of risk research that at times tends to blur the distinction between psychometric and cultural approaches involves the social mechanisms and institutions whereby risk perceptions are generated, altered, and disseminated. The mass media, schools, universities, and churches play an obvious role in this process, but also less formal networks of family, friends, private organizations, internet chat groups, and so forth. In the mid-1980s, Roger Kasperson et al. proposed the concept of the “social amplification of risk” to describe the mediating processes and institutions that shape the social experience of risk, which they later expanded to encompass both “social amplification” and “social attenuation” of risk (Flynn et al., Risk, Media and Stigma; Kasperson, “The Social Amplification of Risk: Progress”; Kaspertson et al., “Introduction” 35–39; Kasperson et al., “The Social Amplification of Risk”). This concept has remained extremely important to the field today, and to the extent that most individuals only find out about the risks that immediately concern them through one or another social network or institution, it points to an important dimension of knowledge about risk. But obviously, studies of how risk perceptions are socially transmitted must also take into account the institutional interests that shape these mediation processes, and thereby the broader questions about the role played by social entities and organizations that cultural theory tends to focus on. While some basic differences between the psychometric and cultural approaches persist, then, the distinctions between
them are no longer as clear-cut as they were in the early stages of cultural theory in the 1980s.

Consideration of risk perceptions as they are generated and shaped by institutions also links the psychometric and cultural paradigms to a third approach that crucially relies on Michel Foucault’s concept of “governmentality.” Following the lines of argument established by Foucault’s research on sexuality, madness, criminality, and discipline, theorists especially in Britain and Australia investigate how governments, insurance companies, and other social institutions establish categories of people at risk that ultimately serve purposes of social surveillance and control (see Castel; Ewald, “Insurance and Risk” and “Two Infinities”; O’Malley). Risk insurance practices that arose in the nineteenth century provide a rich field of historical investigation in this respect, but Foucaultian researchers also take an interest in how less formal but nevertheless pervasive categories operate. Deborah Lupton, for example, has studied how contemporary societies envision pregnant women and young children as categories of people particularly at risk, and what formal and informal regimes of advice and constraint follow from this perception (88–90).7

Some recent work on risk perception has questioned the validity especially of the psychometric and the cultural-theory paradigms. Swedish psychologist Lennart Sjöberg has pointed out that the kinds of factors these paradigms tend to investigate in surveys often only explain a small part of the variance in the responses (“Risk Perception Models”). In his own research on the European public’s attitudes toward genetically modified foods, he found that perceived “interference with nature” as well as New Age beliefs and moral persuasions exerted a greater influence on risk assessments than novelty or dread, factors typically associated with the psychometric approach, or the worldviews dominant in cultural theory. In view of such variables that are not adequately accounted for in the existing models, Sjöberg calls for the development of new paradigms to explain existing risk perceptions (“Principles” S49–S51).

Research on risk perceptions, therefore, is constantly evolving, even as the theoretical frameworks by means of which it should be organized continue to be debated. As even my brief survey here shows, these discussions take place at an intersection of science, society, and culture that defines “risk” as a concept that encompasses far more than its technical or actuarial definitions to include complex cognitive, affective, social, and cultural processes without which it cannot be conceived, defined, or investigated. In the debates over how risk should be theoretically understood, empirically studied, and politically managed, questions over the “objective” or “socially constructed” nature of risks have persistently surfaced, as have questions about their social mediation (“amplification” and “attenuation”). Like other research areas at the intersection of science and culture, risk analysis is marked by conflicts between realist and various

NARRATIVE IN THE WORLD RISK SOCIETY 131
kinds of constructivist approaches that cut across the different theoretical paradigms. As I have shown, risk analysis moved from the predominately realist assumptions of the psychometric paradigm in the 1970s to increasingly nuanced analyses of the social and cultural frameworks that shape nonexpert risk assessments, in a process that ended up undermining neat distinctions between expert and lay perceptions. As risk theorists attempted to model the different kinds of rationalities that go into such assessments, the question was no longer only which risk perceptions might be the most rational or realistic but also what criteria should be used to gauge degrees of rationality or realism.

Raising this question has led some theorists to a more radical perspective that emphasizes the difficulty of positing any unequivocal boundary between objective and subjective judgments about risk. In this view, the assessments of experts are not exempt from bias, specific interests, and underlying value structures, and the concept of “objective risk” really makes no sense. Any debate about risk includes participants who have widely varying values and priorities, and their definitions of risk as well as their assessments of what constitutes acceptability or the magnitude of a particular risk will depend on these values; being an expert or non-expert is only one variable in this priority structure. Any decision about risks is therefore at bottom political. This argument comes in several different versions, with some theorists willing to accept some distinction between different degrees of objectivity (if not between absolute objectivity and subjectivity), while others dismiss the notion of objectivity completely and associate their rejection with a more general constructivist critique of science as a privileged mode of knowledge (Otway; Wynne, “Institutional Mythologies”).

Needless to say, these controversies are far from mere academic quibbles. Risk assessment is a large applied field in industry and government today, and sometimes comes loaded with political charges. Controversies in these areas are often deeply embedded in conflicts over cultural values and the question of who has the right to make decisions over how technologies are implemented—conflicts that lie at the heart of many environmental struggles around the globe. These struggles have carried over into the academic investigation of risk perceptions, especially since such conflicts are often experienced as confrontations between local knowledge and abstract scientific or administrative expertise, between traditional and modern or global ways of life, and between the different ways risk scenarios are understood and managed in these frameworks. The question of environmentalist perspectives, therefore, has been a crucial dimension of debates over risk in political terms since the 1960s, and in theoretical terms since the 1980s.

Struggles around environmentalist perceptions of present and future dangers began to reshape the political scene in the 1960s and continued throughout the 1970s and 1980s, including Rachel Carson’s warnings re-
garding pesticide overuse, Paul Ehrlich’s cautions about rapid demographic growth, the Meadows’s projections of resource shortages, confrontations over nuclear technology, and incidents involving industrial accidents and spillages around the world: for example, the mercury poisoning discovered in Minamata, Japan, in 1956 that caused investigation and litigation until the early 1970s and gave rise to the eloquent writings of Michiko Ishimure; the dioxin release at the disaster in Seveso, Italy, in 1976; the Love Canal crisis of 1978–80; the Three Mile Island incident in 1979; the chemical explosion in Bhopal, India, in 1984; the dioxin scare that led to the evacuation of Times Beach, Missouri, in 1985; and the nuclear explosion in Chernobyl in 1986, to name only a few of the most prominent crises. In this context, as risk analysis gradually transmuted from a fairly specialized area of research and professional practice into a prominent object of public awareness and debate, some environmentalists resisted adopting usage of the term “risk” instead of alternative concepts such as “danger,” “hazard,” or “threat.” As political science professor Langdon Winner, for example, argued at the time, even using the term “risk” implied ceding territory to the enemy:

Employing this word to talk about any situation declares our willingness to compare expected gain with possible harm. We generally do not define a practice as a risk unless there is an anticipated advantage somehow associated with that practice. In contrast, this disposition to weigh and compare is not invoked by concepts that might be employed as alternatives to “risk”—“danger,” “peril,” “hazard,” and “threat.” Such terms do not presuppose that the source of possible injury is also a source of benefits. From the outset, then, those who might wish to propose limits upon any particular industrial or technological application are placed at a disadvantage by selecting “risk” as the focus of their concerns. (149)

From this perspective, Winner argues categorically that “the risk debate is one that certain kinds of social interests can expect to lose by the very act of entering” (148). He is certainly right in highlighting the way a change of terminology such as the one from “hazard” to “risk” can alter the terms of social debate and problem solving. Yet Winner overstates the difference between these particular terms. As Douglas and Lupton have both pointed out, the term “risk” today is associated with overwhelmingly negative connotations for most people in most contexts (Douglas, Risk and Blame 24; Lupton 8). At the same time, Winner understates the practical complications that attach to the terms he proposes as alternatives. “Fortunately, many issues talked about as risks can be legitimately described in other ways….A toxic waste disposal site placed in your neighborhood need not be defined as a risk; it might appropriately be defined as a problem of toxic waste,” Winner argues (151). True enough—but choosing this seemingly more straightforward terminology does not exempt environmental activ-
ists, decision-makers, or the public from complex and often comparative calculations of which dangers are the most urgent to prevent or remediate, how public funds should be allocated to prevent or clean up a variety of different hazards, or how the interests of different institutions and population groups should be negotiated in the process. In other words, finding a solution to “a problem of toxic waste” will inevitably involve many of the considerations—from statistical calculation to institutional interests, cultural predispositions, affective heuristics, worldviews, and so on—that risk theory has investigated.

A somewhat different but related objection came from environmentalists who understood risk analysis essentially as the setting of “acceptable” levels of certain risks, a procedure that in their view obscured the cost in human health and lives as well as in environmental quality that such acceptability might entail. Physician Joseph Regna, for example, insisting on the “unacceptability of acceptable risk,” argued that “the ‘no’ option—no victims, having zero discharges—never enters the hermetically sealed world of risk assessment” (14). Many other environmentalists have similarly advocated what has come to be called the “precautionary principle,” according to which actions whose consequences in the future cannot be determined with scientific certainty should be eschewed in the interest of preventing the emergence of new risk scenarios. “Here is one possible benchmark: if a chemical is not safe for a six-week-old [human] embryo, it is not safe and should not be allowed into the environment.” Sandra Steingraber argues in her study of environmental carcinogens (278). This argument makes sense especially in the case of environmental toxins, where specific substances can often be replaced by alternative, less toxic ones, and where industry has often used risk assessment to obscure the dangers that derive from the use of a particular chemical. In other cases, however, the precautionary principle is clearly more difficult to apply. The disposal of existing nuclear waste, for example, affords no “no-option,” and advocacy for the discontinuation of nuclear energy has to weigh competing risks associated with the increased burning of fossil fuels. While Regna, Steingraber, and many other critics of the chemical industry in particular may therefore be right in insisting on the application of the precautionary principle wherever possible, this principle cannot generally be extended to all ecological and technological risk scenarios.

“Risk assessment” in the narrow sense in which Regna uses the term—that is, the statistical setting of acceptability levels for chemical substances—is at any rate not identical with risk analysis and theory. Steingraber, who explicitly rejects “risk assessment” (284), nevertheless deploys the vocabulary of “risk factors” and “risk perceptions” throughout her study, in the broader sense of clinical analyses of factors that contribute to disease, and cultural investigations of certain discourses about risk. Academic work in risk analysis, at any rate, is not so much concerned with establishing acceptable levels of safety and risk in various contexts as with
examining precisely why and how limits of safety and risk are established in particular social, cultural, historical, and political contexts—including both the rhetoric of “acceptable risk” and that of “zero risk.”

Winner, Regna, and other environmentalists, therefore, took a somewhat reductive view of risk analysis, even considering that they published their critiques in the 1980s, when the field was still in its early stages of development. Nonetheless, they sensed correctly that some of these earlier forms of risk analysis suffered from an in-built anti-environmentalist bias. The psychometric approach, one could argue, manifested such a bias indirectly in its initial tendency to privilege expert rationality over other kinds of cultural logic, without acknowledging that expert opinions might be based on cultural assumptions of their own. Since environmentalist risk assessments often relied on dimensions that were hard to quantify—the sanctity of nature, long-term futures, uncertain consequences—and experts often tended to rate quantifiable risks lower than environmentalists, an imbalance ensued that was only corrected when the psychometric approach increasingly integrated social and cultural factors into its analyses in the 1980s and 1990s. But anti-environmentalist bias is much more obvious in Douglas and Wildavsky’s early formulation of cultural theory in *Risk and Culture*. While they started out by using the relatively complex grid-group model of social analysis to characterize different social formations and the worldviews that typically accompany them, they applied their own framework to the United States by postulating a simple dichotomy between social hierarchy and the market at the “center” of American society and egalitarian movements at the “border,” which according to their argument generated most technological and ecological risk perceptions. To make things worse, they denigrated environmentalist risk perceptions as “sectarian” while failing to apply any critical analysis to the risk perceptions of corporations or governmental institutions.

Environmentalists were no doubt justified in rejecting an approach that so simplistically and summarily dismissed their perspective. Yet in taking Douglas and Wildavsky’s early formulation to be representative of risk analysis as a whole, they overlooked not only alternative theoretical approaches but also the ways Douglas and Wildavsky’s theory itself contradicts the logic of some of their anti-environmentalist conclusions, and the ways this theory might in fact be useful for an environmental perspective. Social scientists such as Dorothy Nelkin were quick to point out that Douglas and Wildavsky’s analysis of the “egalitarian” bent of the environmentalist movement ignored the broad spectrum of organizations environmentalism had come to encompass by the 1980s, many of which functioned exactly like other highly hierarchical political or corporate organizations (Nelkin). Subsequent cultural theorists have argued that Douglas and Wildavsky’s misguided judgment of environmentalism does not logically invalidate their basic suggestion that in order to understand risk perceptions, we need to examine sociocultural institutions, their
value systems, and their modes of operation rather than just individuals’ views. This basic assumption logically leads to a critical examination of corporate, governmental, and generally antienvironmentalist risk assessments just as much as of environmentalist ones, as the theory insists on “the inherently cultural nature of any group or community’s perceptions and judgments about risk” (Lupton 57). For this reason, Douglas and Wildavsky’s antienvironmentalist bias is often seen as clashing with the implications of the theory itself by later cultural theorists, whose work tends to be far more balanced. The core of cultural theory, in other words, is not logically related to and indeed contradicts the antienvironmentalist uses to which Douglas and Wildavsky initially put it.

Almost a quarter century later, the suspicion that risk theory might be inherently antienvironmentalist may itself seem dated, given both the maturation and diversity in the field and the widespread use of risk concepts in public debates. Yet my point is not merely that debates about risks are here to stay but that an acquaintance with the theoretical assumptions and empirical findings in the field are useful and indeed indispensable for environmentalist thinking generally and ecocritical analysis in particular. If environmentalism as a form of social activism aspires to change people’s perceptions of the natural world and the threats that emanate from certain activities both for human health and the sustained functioning of ecosystems, it is crucial to understand why and how individuals and communities arrive at such risk judgments. If these assessments are often based on a multiplicity of factors outside of factual information, as risk analysis has shown, environmentalists need to take these factors into account in their own thinking rather than assume that better information will in and of itself lead to a more environmentally oriented perspective. Ecocritics, who have made it their principal task to investigate the cultural practices and artifacts that evolve out of particular conceptions of the relationship between nature and human societies, have a vested interest in the findings of risk theory as an essential part of such conceptions. Not only is risk theorists’ exploration of the ways cultural worldviews and institutions shape risk perceptions fundamental background knowledge for anyone interested in the forms that environmental art and writing have taken at different historical moments and in various cultural communities, but inversely, literary critics’ detailed analyses of cultural practices stand to enrich and expand the body of data that an interdisciplinary risk theory can build on.

2. Risk and Narrative

If the field of technological and ecological risk analysis put its major emphasis on scientific and statistical assessments in the 1970s, it has increasingly come to investigate cultural contexts, dispositions, institutions, and
processes in its attempts to account for both the complexities of risk perceptions and the relationship between risk and modernization. This approach to risk as constituted from within specific sociocultural fields links risk analysis to social studies of science on the one hand and to the concerns of cultural and literary studies on the other. But while the work of Sheila Jasanoff, Brian Wynne, and other scholars has successfully established bridges between social studies of science and risk theory, the interface between risk analysis and literary and cultural studies has so far been less frequently addressed. Risk theorists have paid relatively little attention to the role that particular metaphors, narrative patterns, or visual representations might play in the formation of risk judgments. If Lennart Sjöberg is right in arguing that “interference with nature” acts as a powerful explanatory variable in public perceptions of gene technology, for example, the question immediately arises what exactly “nature” means for the individuals who invoke this term, and to what extent it might be shaped by the narrative template of the Frankenstein story (in both its book and film versions). As historian Jon Turney has argued in *Frankenstein’s Footsteps*, this seminal story exerts a powerful influence on current discourses about genetic engineering. In general, literary and cultural scholars have produced a vast amount of research on the ways basic concepts such as nature, landscape, self and other, and the functioning of the human body in health and illness have been popularly envisioned by means of particular metaphors and stories in different cultures and at different historical moments. It stands to reason that such conceptualizations, which tend to be far more available to the general public than scientific information, play an important role in the selection and evaluation of risks.

Along similar lines, a culturally inflected study of risk perceptions stands to gain from closer attention to the way certain visual images come to function as shorthands for particular dangers and crises. Television viewers have become well familiarized with images of so-called charismatic megafauna—panda bears, mountain gorillas, or whales, for example—that synecdochically evoke the beauty and value of entire ecosystems such as tropical forests or oceans at risk. The oil-covered seabird, as Andrew Ross has pointed out, has come to function as a general icon of environmental crisis (chap. 3, esp. 166, 171–72). Novelist Ron Sukenick foregrounds the power but also the danger of such visual shorthands in his *Mosaic Man*, a novel that ends around the time of the first Gulf War, during which two of the protagonists watch coverage of the war on TV:

Also we see that the Iraqis are releasing oil into the Red Sea, creating an ecological disaster dwarfing the Alaska oil spill. Once again pictures of oil mucked critters dying their slow deaths. Painted in oil, art brute. Totalling our totems. Why is it that it’s the exceptional animal that isn’t beautiful, especially among the wild ones? SCREEN OFF.
Later it turns out that that image of the doomed cormorant trying to escape a pool of oil, played over and over again, is from stock footage. So that even the imagery of truth is deceptive. And what about the images we aren’t shown? (252–53)

Sukenick here alludes to the way visual synecdoches can make risk perceptions portable, easy to transfer from one specific context to another, but also to the way they can occlude an understanding of a particular risk scenario as it is being interpreted in terms of images derived from another one. Such issues of representation, to the extent that they are raised by mass media and likely to affect public opinion, deserve to be studied in greater detail.

More situation-specific images sometimes derive from the shaping influence of narrative traditions. In a detailed and very perceptive study, Ferreira, Boholm, and Löfstedt examine the images that accompanied television coverage of toxic leakage from a tunnel construction project in southern Sweden, emphasizing how these image sequences deliberately created the sense of a pristine agricultural landscape polluted by the spill (285–96). In particular, they foreground how images of milk that had to be poured out because of the contamination conveyed symbolic meanings of innocence and purity that were being undermined by the presence of the toxins. Curiously, however, these authors never once mention the genre of pastoral, which is precisely what gives these images a large part of their communicative power: it is because Western cultures have long traditions of looking upon the countryside as a peaceful, nature-bound, and harmonious counterweight to the corruptions of urban life that evocations of poisoned meadows and milk so powerfully convey a sense of disaster. Narrative genres, as this example suggests, provide important cultural tools for organizing information about risks into intelligible and meaningful stories. But to the extent that such genre templates have a cultural power that can make them override alternative stories that fit less well into existing narrative patterns, they can also shape, filter, and rearrange such information in ways that are not always politically or ecologically benign. Narrative analysis should therefore play an important role in examining the ways risk perceptions are generated by and manifest themselves through various forms of representation, from documentaries and journalism to fiction and poetry.

The study of narrative and metaphorical mediations of risk also contributes to an understanding of important parts of environmentalist discourse itself as a form of risk communication that raises similar questions. To what extent does environmentalist rhetoric translate new technological and ecological risk scenarios into already existing narrative templates, and how does this affect their evaluation? To what extent are existing templates altered or new ones formulated? Lawrence Buell has addressed some of these issues in his analysis of a type of environmental rhetoric.
that he labels “toxic discourse,” defined as “expressed anxiety arising from perceived threat of environmental hazard due to chemical modification by human agency” (Writing 31). According to Buell, this kind of discourse about a specific kind of risk, chemical contamination, surfaces in the bourgeois and mostly white, middle-class environmentalist movement as well as in the environmental justice movement, which tends to focus on the poor, minorities, and urban populations. Buell diagnoses four major rhetorical components in toxic discourse: a rhetoric of disrupted pastoral that he describes eloquently as a “mythography of betrayed Edens” (Writing 37), often accompanied by an individual’s awakening consciousness to the way a pristine environment (or one retrospectively perceived as such) has been contaminated; totalizing images of an entirely polluted world that leaves no escape from the toxins; the moral passion of the weak and politically repressed against those perceived to be strong and politically powerful that is mobilized through a “David vs. Goliath” scenario; and gothic elements that surface in descriptions of deformed bodies and polluted landscapes, especially Virgilian descents to the “underworld” of pollution victims (Writing 43–44). As Buell traces some elements of this rhetoric back to nineteenth-century writings about urban blight and others to more remote literary sources, he makes it clear that even the dimensions of toxic discourse that strike one as most realistic have in fact emerged from long traditions of cultural risk representation. But his purpose is not so much to relativize environmental rhetoric by foregrounding its “social constructedness” as to show that it is precisely through these traditions that some stories acquire the power to represent risk in terms that we understand as realistic. The question how such rhetorical traditions filter and shape information about risk so as to postulate certain causal sequences, to make some scenarios plausible and others less so, to make some appear more threatening than others, and to outline likely future courses of events is clearly crucial for both risk theorists and ecocritics.

Buell’s analysis of toxic discourse points the way toward a broader analysis of the rhetoric of environmental and technological risk. Implicitly or explicitly, accounts of risk tend to invoke different genre models, for example the detective story—in the evaluation of clues and eyewitness accounts, and in the discovery and exposure of the criminal; pastoral—in the portrayal of rural, unspoiled landscapes violated by the advent of technology; the gothic—in the evocation of hellish landscapes or grotesquely deformed bodies as a consequence of pollution; the Bildungsroman—in the victim’s gradually deepening realization of the danger to which she or he is exposed; tragedy—through the fateful occurrence of events that individuals are only partially able to control; and epic—in the attempt to grasp the planetary implications of some risks. Along with the selection of such templates that make risk scenarios intelligible to the reader or viewer in a particular way, narrators have to make choices about which individuals or institutions are cast as protagonists or antagonists in technological
controversies, about where and how to conclude their stories, and about how to characterize their own relationship to their story material (for example, as eyewitness, victim, scientific expert, or journalist).

Buell’s study of toxic discourse as a particular form of environmentalist rhetoric also alludes to the question of how risk narratives construct the relationship between particular places and the planet at large. Fear of chemical contamination at a specific site, in many of the writings he analyzes, is linked to a sometimes paranoid vision of an entire world infested by poisons that no human being can escape or protect herself against. He traces this totalizing toxic consciousness back to its most obvious source, Rachel Carson’s *Silent Spring*, and beyond that to George Perkins Marsh’s *Man and Nature* (1864) and the writings of European colonial officials in the seventeenth and eighteenth centuries who had the chance to observe threatened island ecosystems firsthand (*Writing* 39). This vision of global pollution, Buell notes, ends up functioning as a countermodel to the better-known environmentalist conception of the planet as a holistic, Gaian-style system of harmonies and balances:

> Toxic discourse calls for a way of imagining physical environments that fuses social constructivist with environmental restorationist perspectives… [T]he nature that toxic discourse recognizes as the physical environment humans inhabit is not a holistic spiritual or biotic economy but a network or networks within which, on the one hand, humans are biotically imbricated (like it or not), and within which, on the other hand, first nature has been greatly modified (like it or not) by *techne*. (*Writing* 45)

This fascinating observation seems to suggest that the kind of environmentalist rhetoric Buell here analyzes has turned its back on the fundamentally pastoral vision of ecology I discussed in chapter 1, a vision that understands ecological systems as harmonious and balanced networks and that sees nature as self-regenerating if left on its own. Yet I am less confident than Buell that the longing for a return to precisely such a naturally balanced world does not inform many of these descriptions of exploited, deformed, and polluted landscapes and bodies as an imaginary countermodel. Calls for “risk-free” environments, undisturbed communities and neighborhoods, pure and “detoxified” bodies, and in some cases, premodern ways of life, in tandem with calls for grassroots democracy, self-sufficiency, and respect for indigenous forms of knowledge that are often articulated in this context seem to spell out a pastoral countermodel to the toxic world. Viewed from this angle, the vision of a terminally polluted planet appears less as an alternative to Lovelockean holism than as a subgenre of apocalyptic narrative, which has played an important role in modern environmentalism from the 1960s onward.
Apocalyptic narrative, by definition, addresses the fate of the world as a whole: it is a particular form of imagining the global. As it was deployed by environmentalist writers in the 1960s and 1970s, it paints dire pictures of a world on the brink of destruction as a means of calling for social and political reforms that might avert such ruination. Unlike biblical apocalypse, in other words, it assumes that the End of the World can in fact be prevented (Garrard, *Ecocriticism* 99), and the destructive intensity of its scenarios is not so much an attempt at accurate prediction as an indicator of the urgency of its call for social change (Killingsworth and Palmer 41). Apocalyptic narrative, in this secular sense, can appropriately be understood as a form of risk perception. Yet to the extent that such narrative, even in its secular version, articulates quite clear-cut distinctions between good and evil, desirable and undesirable futures, it indeed relies on a different mode of projecting the future than theories of risk, which tend to emphasize persistent uncertainties, unintended consequences, and necessary trade-offs. To put it somewhat differently, environmental apocalypses include an ideal socioecological countermodel—often a pastoral one—that discourses about risk typically lack (although Beck’s rather idiosyncratic version of risk theory does contain a utopian element that I will discuss shortly).

Since environmental apocalyptic discourse was often dismissed when its predictions did not come true (although, as environmentalists are quick to point out, one reason that they did not come true may well be precisely the fact that these end-of-the-world stories kindled public awareness and galvanized political action) and the rhetoric of risk has become more widespread in public debate, ecocritics have assessed its current relevance in rather divergent terms. Michael Killingsworth and Jacqueline Palmer, in their analysis of “millennial ecology,” have traced the genre from 1960s scenarios of nuclear annihilation, pollution, overpopulation, and mass starvation forward to the 1980s, when they see it as reemerging in journalistic as well as scientific warnings about the greenhouse effect. Environmentalist writers at that moment, they argue, were aware that some of the specific predictions of earlier end-of-the-world scenarios had not come true and had thereby put the credibility of environmentalist prognoses in question. They therefore revived the genre with greater caution, and eschewed forecasting anything more than broad trends; nevertheless, global warming has led to a revival and continuation of the genre in their view. Frederick Buell, by contrast, has argued in his tellingly entitled study *From Apocalypse to Way of Life* that the millennial expectation of future crises that prevailed in environmentalist thought and writing in the 1960s and 1970s has given way to the cultural integration of crisis and risk into the experience of the present from the 1980s onward. People no longer fear environmental disasters in the future so much as they “dwell in crisis,” as he puts it: that is, they live with an awareness that certain limits in
the exploitation of nature have already been exceeded, that past warnings were not heeded, and that slowly evolving risk scenarios surround them on a daily basis.

Frederick Buell is clearly ambivalent about this shift. On the one hand, he recognizes that a steady drumbeat of gloom-and-doom rhetoric is liable to discourage and alienate individuals more than it incites them to action. On the other hand, he is obviously worried that too much normalization of crisis might lead to an implicit acquiescence to the environmental status quo. Instead of such a “domestication within crisis,” he calls for “a way of dwelling actively within rather than accommodating oneself to environmental crisis” (205, 206). What exactly this means in practical terms is not really clear in his account, and he himself notes that precisely the novels that describe the contemporary “dwelling in crisis” without unduly apocalyptic or utopian overtones offer no way out of crisis (322). But his diagnosis of the demise of environmental apocalypse is nevertheless perceptive in its analytical insight. It contrasts with Killingsworth and Palmer’s persuasion that apocalypse is alive and well as an environmental genre, and more importantly, it suggests that apocalyptic scenarios differ from risk scenarios in the way they construe the relation between present, future, and crisis. In the apocalyptic perspective, utter destruction lies ahead but can be averted and replaced by an alternative future society; in the risk perspective, crises are already underway all around, and while their consequences can be mitigated, a future without their impact has become impossible to envision.

It is worth emphasizing that this difference does not amount to any fundamental dichotomy. Apocalyptic scenarios are and remain a particular narrativization of risk perceptions, and analyses of risk certainly sometimes include panoramas of large-scale upheaval or disaster: some forecasts of the consequences of current global warming trends are a case in point. The more important difference, I would argue, lies in the way many (though not all) environmental apocalypses continue to hold up, implicitly or explicitly, ideals of naturally self-regenerating ecosystems and holistic communities in harmony with their surroundings as a countermodel to the visions of exploitation and devastation they describe, while perspectives grounded in risk analysis tend to outline more or less desirable consequences and futures of certain courses of action, but by definition none that are completely exempt from risk. In a certain sense, the futures that risk analysis tends to project correspond to typically high modernist patterns of narrative in literary analysis in their (implicit or explicit) emphasis on indeterminacy, uncertainty, and the possibility of a variety of different outcomes. This emphasis, however, does not imply that risk theorists necessarily remain noncommittal with regard to specific programs of risk management and mitigation. On the contrary, it is precisely theorists who understand the complexity and uncertainty of risk scenarios as an inherent dimension of modern societies and their
technologies whose agendas in the end turn out to be conceptually closest to those of environmentalists.

3. Risk, Complexity, and Modernization

Studies of risk perceptions only rarely invoke the broader sociological and historical theories that focus on the relationship of certain types of risks and risk perceptions to processes of modernization and globalization; conversely, these broader theories tend not to incorporate empirical research on risk perceptions, so that the two fields of inquiry have remained somewhat disjointed. One of the studies that has exerted influence in both arenas, however, is Charles Perrow’s seminal analysis of “system accidents.” In his by now classic study Normal Accidents: Living with High-Risk Technologies (1984), Perrow investigates a variety of contemporary technological systems, from dams and mines to marine and air traffic, space exploration, weapons systems, and biotechnology. The most serious risks, Perrow argues, stem from technological systems with such a degree of complexity that even experts cannot understand all the connections and feedback loops they contain, and therefore cannot predict some of their most dangerous failures. System accidents occur when several different and sometimes minor failures in independent but coupled subsystems interact in such a way as to produce failures in the system as a whole. This interaction produces risks that could not have been anticipated by an analysis of the system’s normal functioning or of individual subsystem failures. Perrow emphasizes that

if interactive complexity and tight coupling—system characteristics—inevitably will produce an accident, I believe we are justified in calling it a normal accident, or a system accident. The odd term normal accident is meant to signal that, given the system characteristics, multiple and unexpected interactions of failures are inevitable. This is an expression of an integral characteristic of the system, not a statement of frequency. (Normal Accidents 5)

Improved designs or better operator training, therefore, will not lead to increased safety, because the complexity of the technology itself will always defeat them.

System complexity and coupling lead from small, unimportant failures—“the banality and triviality behind most catastrophes” (Normal Accidents 9)—to large-scale disasters and characterize, according to Perrow, several technologies that were only introduced in the course of the twentieth century but now pose the greatest and most unpredictable hazards for contemporary society. In part, this is because complex systems
are designed in such a way that the banal beginnings of a major accident are often not immediately observable. “In complex industrial, space, and military systems, the normal accident generally (not always) means that the interactions are not only unexpected, but are incomprehensible for some critical period of time. In part this is because in these human-machine systems the interactions literally cannot be seen” (Normal Accidents 9).

Nuclear energy is such a complex and tightly coupled technology prone to system accidents, as Perrow demonstrates in a detailed analysis of the Three Mile Island accident that is, like most of his other case studies, as suspenseful and surprising as many a novel. Complexity and tight coupling are also the factors that generally make nuclear power plants and weapons, in Perrow’s view, unacceptable in terms of their risk; marine transport and biotechnology acceptable, with major investments in reducing their risks; and other technologies including chemical plants, air traffic, mining, fossil fuel plants, highways and automobiles acceptable, with relatively minor improvements (Normal Accidents 304–5).

Perrow is aware that this evaluation puts him at odds with the usual perspective of risk assessors: “Current risk assessment theory suggests that what I worry about most (nuclear power and weapons) has done almost no harm to people, while what I would leave to minor corrections (such as fossil fuel plants, auto safety, and mining) has done a great deal of harm” (Normal Accidents 305). But it is precisely his focus on the structure and functioning of technological systems, he argues, rather than on the consequences of their past performance, that allows a more realistic assessment of their future potential for harm. From this perspective, he concludes, the dimension of “dread” that psychometric investigators of risk perceptions in the 1970s had discovered with respect to certain technologies, and that had seemed to them to derive merely from the public’s ignorance and emotionality, actually turns out to have some foundation in reality, since many of the technologies with a “dread risk” factor also rely on interactively complex and tightly coupled systems. In this respect, Perrow points out, his classification meshes more closely with public perceptions of risk than with technical assessments by governmental, corporate, and academic experts (Normal Accidents 327–28).

If Perrow here suggests a different lens for the psychometric study of certain kinds of public risk perceptions, his analysis also implies a different approach to the historicity of risk. While theorists with an anthropological approach, including Douglas and Wildavsky, tend to focus more on the mechanisms by means of which cultures select risks for attention than on the nature of the risks themselves, Perrow proposes that with industrialization and, even more markedly, with the technological innovations of the twentieth century, new kinds of risk scenarios have come into being. Qualitatively different kinds of risks, in other words, arise as a consequence of economic and technological modernization processes that cannot simply be equated with risks from, say, the plague, warfare, or natural
disasters in earlier times. The central question for Perrow, therefore, is the development of technological risk scenarios and only secondarily their social construction and perception.

A somewhat broader but related analysis about why risk has become so all-encompassing in contemporary culture emerges from the work of the historian of technology Thomas Hughes. What has transformed modern society, and American society in particular, Hughes argues, is not so much the invention of individual technological principles and devices—such as electricity, the telephone, or the automobile—as the creation of large-scale and extremely complex techno-economic systems by means of which these devices are produced, distributed, and managed. For Hughes, the invention and implementation of these complex technological and organizational networks is the unique contribution of the United States to modern culture. The technological hardware is only one part of such networks, which also include transportation, communications, and information systems, as well as people and institutions with all their organizational, legal, social, and economic structures. Though Hughes does not explicitly frame his argument through theories of risk, he refers to Perrow to argue that these large-scale systems in which technologies are embedded have become so complex that they can no longer be easily understood or controlled, and therefore give rise to risks whose origins and outcomes are extremely difficult to trace and manage (443–72). As chapter 5 will show, this idea forms the narrative nucleus of Richard Powers’s novel Gain, which portrays in great detail the growth of a chemical corporation as a complex system that ends up distributing toxic products around the globe.

British sociologist Anthony Giddens, whose concept of “disembedding” I discussed in chapter 1, analyzes risk even more broadly in the context of the social transformations that characterize modernization processes. By creating institutions, networks of exchange and expertise that reach far beyond the local, Giddens argues, disembedding mechanisms generate security for vast areas and populations, for example through steady and safe supplies of food, water, and electricity, shared legal conventions, and insurance practices. But they also generate new kinds of risks with sometimes global reach:

All disembedding mechanisms take things out of the hands of any specific individuals or groups; and the more such mechanisms are of global scope, the more this tends to be so. Despite the high levels of security which globalised mechanisms can provide, the other side of the coin is that novel risks come into being: resources or services are no longer under local control and therefore cannot be locally refocused to meet unexpected contingencies, and there is a risk that the mechanism as a whole can falter, thus affecting everyone who characteristically makes use of it. Thus someone who has oil-fired central heating and no fireplaces is particularly vulnerable to changes in the price of oil. In circumstances such as the “oil crisis” of 1973, produced as a result of the
actions of the OPEC cartel, all consumers of petroleum products are affected. (Consequences 126–27)

The fact that the disembedding mechanisms characteristic of modernization create networks of both safety and risk also affects the social trust that in Giddens’s theory is fundamental for the functioning of modern societies. Trust in the continuous proper functioning of invisible networks of law, expertise, and exchange is the fuel on which the large-scale social systems of modern societies run. Risk scenarios, exceptionally serious or far-reaching ones in particular, put this foundation of trust to the test, since modern networks of information and communication also give rise to widespread awareness of a host of different risks, as well as of the limits of expertise in dealing with them. In addition, modern societies typically do not offer their members easy ways of converting such limits of knowledge or management ability into the certainties of magical or religious conviction (Consequences 125). The change in both the kind of risk scenarios that disembedding mechanisms create and the type of risk awareness they give rise to, therefore, leads Giddens to refer to late modernity as a “risk culture” (Modernity and Self-Identity 3).

Giddens’s writings on risk and trust are clearly influenced by the work of Ulrich Beck, who links the concept of risk even more resolutely to broader theorizations of modernization and globalization. Like Giddens and Scott Lash, Beck postulates that modern societies have entered a phase of “reflexive modernization” in which modernizing processes transform not traditional social structures, but those created by earlier waves of modernization. According to Beck, the hazards that are characteristic of this new era can be defined by two criteria: they are themselves the effects of modernizing processes, thereby reflexively confronting modern societies with the results of their own modernization; and some of these risks, such as global warming and the thinning of the ozone layer, are for the first time truly planetary in scope. In his most famous, far-reaching, and speculative claim of the mid-1980s, Beck proposed that risks such as these will lead to a new stage in the evolution of modernity—not to a “postmodern” but instead to a “risk society.” While social distinctions and conflicts at an earlier stage of modernity were centrally articulated around the production and distribution of wealth, Beck argues, “in advanced modernity, the social production of wealth is systematically associated with the social production of risks. Accordingly, the distribution problems and conflicts of the scarcity society are superseded by the problems and conflicts that originate in the production, definition and distribution of techno-scientifically generated risks” (Risikogesellschaft 25). Such new risks reach across existing stratifications to create a new kind of social structure. “Poverty is hierarchical, smog is democratic,” Beck sums up his argument in one of the most frequently quoted aphorisms from Risikogesellschaft (48).
What he means by this is that the technological development of modern society has reached a stage where it has become unable to protect itself against the unintended “side effects” of its own technologies, which, formerly latent and invisible, are now emerging into full public view. Even as the socially privileged attempt to export such side effects to the less empowered, in the end they cannot prevent these effects from returning to harm them. Ecological crisis, in Beck’s view, is a case in point, as it ends up undermining the means by which any population sustains itself—including those who might have originally profited from ecological exploitation (Risikogesellschaft 48–50). Excessive pesticide provides an easy example, in Beck’s perspective, as it is exported to countries with lax environmental regulations that in turn export their pesticide-contaminated harvests back to the countries who meant to avoid just these chemicals, in a global cycle he calls the “boomerang effect.” Of course, buying organic produce may offer a temporary release from this cycle for the affluent; but when soil, air, and drinking water are polluted, even the socially privileged are increasingly impacted by risks that affect the foundations of life. And if some risks are deliberately moved across national borders, others travel around the globe without anyone’s conscious intention: even the remote lakes of Canada turn acidic, and the forests of northernmost Scandinavia die from acid rain. An atomic bomb is, in Beck’s view, the clearest example of a risk that makes no distinction at all between rich and poor; the ecological crisis, according to him, works in a more gradual and delayed fashion, but ultimately has a similar effect (Risikogesellschaft 50).

All this does not imply that Beck denies the increased risk exposure that material disadvantage entails at the present moment. He frequently emphasizes, in what may seem like a contradiction to his quip about the “democracy of smog,” that “there is a systematic ‘force of attraction’ between extreme poverty and extreme risks” (Risikogesellschaft 55). This is because he does not see the risk society as a fully established social pattern, but as an emergent one that at the moment overlaps with the structures of the modernist scarcity society. His point, in other words, is not that the increased number and scope of modern risk scenarios have already overridden existing social inequalities, nor that they will lead to an egalitarian society, but that they will eventually lead to a rearticulation of inequalities on a different basis. “One thing is clear. Endemic uncertainty is what will mark the lifeworld and the basic existence of most people—including the apparently affluent middle classes—in the years that lie ahead” (World Risk Society 12). In this context, he highlights the ambivalence of what he calls the “individualization” of life stories, that is, the idea that the course of people’s lives is becoming increasingly less predictable in terms of their social origins; while this individualization (which, he emphasizes, is identical neither with “individuation” nor with “individualism”) may have emancipatory implications in some respects, “the expression ‘pre-
carious freedoms’ denotes a basic ambivalence between the cultural script of individual self-fulfilment and the new political economy of uncertainty and risk. All too swiftly, the ‘elective,’ ‘reflexive’ or ‘do-it-yourself’ biography can become the breakdown biography” (World Risk Society 12). This nuance is worth bearing in mind: rather than arguing that people from different social strata will be equally affected by particular risks (though that may be the case in some contexts) or that current social structures will give way to a determinate new social architecture, Beck’s main point is precisely the unpredictability of current risk scenarios, and as a consequence, the idea that social status will not in the future function as a reliable indicator of risk exposure. As I will argue in chapter 5, it is possible to read Don DeLillo’s novel White Noise as a fictional engagement with precisely the realization that risk scenarios are becoming unmoored from conventional class distinctions.

While Beck’s book gained enormous popularity in western Europe in the late 1980s and in the United States throughout the 1990s, it also came under attack for a variety of reasons, including its conceptualization of modern “reflexivity” and its neglect of risk taking as a positively valued and sometimes pleasurable experience. Most importantly, sociologists have pointed out that little empirical evidence exists to support Beck’s claim that social categorizations are indeed in the process of being rearticulated around issues of risk. But even some of his critics admit that the interest of Beck’s argument may be polemical rather than descriptive: it is not really necessary to accept wholesale his theory of a fundamental social shift to see the force of his argument that risk is becoming one important area of sociocultural concern and conflict.15

For an environmental perspective, Beck’s theory presents curiously ambivalent challenges. On the one hand, Beck radicalizes environmentalist claims about technological and ecological risk by turning them into a set of ineluctable global conditions and making them the very principles on the basis of which societies around the globe will have to reconfigure themselves. Lawrence Buell has highlighted this dimension of Beck’s work by labeling him “the Rachel Carson of contemporary social theory” (Future 5). But in a sense, Beck’s is an even more extreme vision of the impact of ecological crisis on social structure than many of the scenarios proposed by the apocalyptically minded environmentalists of the 1960s and early 1970s, in that it predicts the advent of a new kind of society that cannot really be averted. Even if one takes this claim somewhat less than literally, as I mentioned, the concept of a world risk society bolsters environmentalist claims about the increasing social importance of technological and ecological risk scenarios. Beck’s criticism of the role scientists have sometimes played in ignoring or covering up such dangers, as well as his diagnosis of the general failure of established social and political mechanisms to deal with some of the new risks, concurs with environmentalist views.
On the other hand, Beck’s most fundamental claim, that modern social structures shaped by conflicts over the distribution of wealth will be replaced by stratifications originating in differential vulnerability to risk, does run counter to the perspectives that have been formulated around the concept of “environmental justice.” In the view of environmental justice advocates, technological and ecological risk scenarios superimpose themselves on and help to reinforce existing structures of social inequality, in that the world’s poor and racial or ethnic minorities tend to be disproportionately exposed to risk, as well as, in quite a few cases, women. The status of the disenfranchised in the international economy—their places of residence and types of work—the argument runs, typically exposes them to hazards from which the more affluent mainstream has better means of sheltering itself. From the location of dangerous industries and toxic waste disposals all the way to the quality of building materials and foodstuffs they have access to, the poor and underprivileged receive a greater portion of the risks and a smaller share of the benefits than the more privileged social strata. Indeed, as Guha and Martínez-Alier have emphasized in their studies of environmentalist movements in India and Latin America, poor and indigenous communities often confront the risk of seeing their own, sustainable ways of exploiting local ecosystems displaced by the unsustainable practices of large corporations that sometimes operate with government support (6–11). Beck’s aphorism “Poverty is hierarchical, smog is democratic” is anathema from this perspective. And even if a particular threat presented itself similarly to two socially different populations, their means of mitigating its impact would still set them apart: Bangladesh and the Netherlands may, by virtue of their topographical characteristics, be exposed to similar hazards from rising sea levels, but their socioeconomic means of countering this threat differ significantly.

One might be tempted to diffuse this difference by pointing precisely to some of the passages I quoted earlier in which Beck highlights the attraction between poverty and risk. But doing so would obscure what is, in my view, a genuine and deep-seated difference of social vision between the two approaches. Environmental justice advocates tend to see the current global ecological crisis in its manifold manifestations as a logical consequence and exacerbation of a socioeconomic organization based on capitalism, and of an approach to knowledge shaped by the rationalism of the Enlightenment: only a genuine social revolution against these existing structures, in their perspective, will remove the underlying causes for the destruction of the natural environment. Beck, by contrast, sees in the same ecological crisis a sign of the disintegration of the capitalist class society and of modernist approaches to knowledge. Far from intensifying existing social inequalities, global risk scenarios will gradually undermine them. In this view, the revolution is already underway, though in a very different fashion than the one usually envisioned in socialist politics.
This contradiction seems to me difficult to resolve if we take Beck’s claims *au pied de la lettre*: while the diagnosis of the status quo overlaps in the two approaches, the underlying social analyses differ significantly. If one takes Beck’s analysis somewhat less literally as highlighting the important role that risk scenarios have begun to play in social conflicts, however, the tension diminishes. Indeed, one could argue that the rise of the environmental justice movement is itself evidence of just this role. And when one considers just how the transition to something like a “risk society” might actually occur, the struggles carried out by the environmental justice movement may well turn out to be one crucial part of such a shift. Risk theorists who currently study global environmental hazards, at any rate, address issues of environmental justice as a crucial part of their investigation, and have begun to develop the concept of “vulnerability,” defined broadly as “‘differential susceptibility to loss from a given insult’” as a hinge term in their analyses (Kasperson et al., “Introduction” 24). By the same token, Beck’s own cosmopolitan vision of new social communities arising from transnational risk scenarios, to which I will turn next, has a great deal of affinity with the increasing internationalism of the environmental justice movement.

4. Risk, Globalization, and the Cosmopolitan Imaginary

The theories of the relation between risk and modernity proposed by Perrow, Hughes, Giddens, and Beck, among others, foreground how experiences of risk are imbricated in far-flung ecological, technological, economic, and social systems that operate across a variety of scales from the local to the planetary. Beck’s concept of the “world risk society,” indeed, represents one of the most important recent ways of imagining the global from an environmentalist perspective. Lawrence Buell has gone so far as to envision Beck as the latter-day counterpart of James Lovelock, in that Beck turns Lovelock’s theory of Planet Earth as a self-sustaining, harmoniously balanced feedback system upside down into a theory of a world thrown permanently off-balance by the unintended and uncontrollable consequences of technological development (*Future* 90). Considering the lasting influence of the Gaia hypothesis on environmentalist thought and culture, one would expect such an inversion of global vision to have similar reverberations in the realm of the local and the everyday.

Indeed, in what for a cultural critic may well be one of the most intriguing facets of his theory, Beck examines the awareness of pervasive risk in its impact on modes of everyday reasoning. Some contemporary risk scenarios, unlike those of earlier ages, he claims, challenge conventional modes of perception and experience through their “mediatedness” or “second-handness” (or what other risk theorists would call “social amplification and attenuation”). Most individuals, even many scientists and
engineers, cannot identify and analyze such scenarios on their own, in a process he calls “expropriation of the senses”: given the complexity and specificity of contemporary technological hazards, only highly specialized experts can examine them, while the majority of scientists are as non-expert as laypersons. In Beck’s view, the fact that knowledge about risks comes in such highly mediated form to the overwhelming majority of individuals leads gradually to a transformation in the logic that structures everyday experience:

In order to perceive risks as risks and to make them a reference point for one’s own thought and action, one has to believe in fundamentally invisible causal connections between conditions that are often substantively, temporally and geographically far removed from each other, as well as in more or less speculative projections…. But that means: the invisible, more than that: that which as a matter of principle cannot be perceived, that which is only theoretically connected and calculated becomes… an unproblematic component of personal thought, perception, experience. The “experiential logic” of everyday thought is, so to speak, turned upside down. One no longer only induces general judgments from one’s own experiences, but instead general knowledge that is not based on any experience becomes the determining center of one’s own. Chemical formulae and reactions, invisible toxins, biological circuits and causal chains must dominate vision and thought to lead to active fighting against risks. In this sense, risk awareness is not based on “second-hand experience,” but on “second-hand non-experience.” Even more pointedly: ultimately no one can know of risks if knowing means having consciously experienced them. (Risikogesellschaft 96)

As opposed to, say, epidemics of contagious diseases, with which human societies have been familiar for millennia, modernization and globalization create risk scenarios with no known precedents in Beck’s analysis. No one can forecast with certainty, for example, what the cumulative health effects might be of dozens of different toxic substances in our daily surroundings, each one at a level officially considered acceptable, but never assessed in combination. Neither is it easy, even for experts, to predict the long-term consequences of large-scale risk scenarios such as climate change or loss of biodiversity. Yet all of us, Beck points out, have come to live with a daily awareness and indeed expectation that these types of risks form part of our ordinary environment; toys of the kind I described at the beginning of this chapter, representing people in protective suits and gas masks that have come to form part of children’s normal inventory of toys, indicate one of the earliest stages of initiation into daily life in the risk society.17

Obviously, this logic of “secondhand experience” and “secondhand nonexperience” can also be expected fundamentally to transform modes of spatial belonging and inhabitation. Indeed, the change in experiential logic that Beck describes, in which insights and incidents from other places
and facets of expert knowledge come to reshape everyday reasoning, can be understood as one form of deterritorialization as I discussed it in chapter 1. Deterritorialization, as I pointed out, involves the detachment of cultural practices from their anchoring in place and their reconfiguration in relation to other places as well as other scales of spatial experience. Some of this transformation brings about alienation, social uprooting, economic displacement, cultural unease, or psychological discomfort, but some of it may also entail welcome new forms of connectivity, new choices, and a general broadening of existential horizons. Risk scenarios, especially those that do not originate locally but at the national, regional, or global scale, contribute to deterritorialization processes as they prompt individuals and communities to reconfigure their practices of inhabitation in relation to these larger sociospatial scales.

Such reconfigurations come in a wide variety of changes and adjustments that have been examined across vast portions of the social scientific literature on environmental impacts. Most obviously, risk perceptions can either intensify or break individuals’ and communities’ bonds to a local place. In the first case, the desire to protect an area from danger may deepen residents’ affective attachments to it, or victims of a local hazard may pull together to eliminate it or defend themselves against its consequences by a variety of means (including, of course, the well known tendency of early environmentalism toward NIMBYism that sought to ward off risks from one’s own backyard without close attention to the risk scenarios this displacement might generate in other communities). Conversely, the perception of danger can break inhabitants’ bonds with a place and prompt them to move away, or stigmatize a site to such a degree that its material as well as aesthetic and cultural value decreases. More indirectly, risk perceptions affect ways of inhabiting, using, or enjoying a place through transformations of daily habits or social customs. Local inhabitation is sometimes consciously and sometimes unconsciously, sometimes subtly and sometimes manifestly shaped by risk perceptions relating to a variety of concerns, including food sources or ways of cultivating land that are chosen with pressures from ecological depletion or market demands in mind; patterns of mobility that are shaped by perceptions of what people and places are dangerous or safe; distinctions that are drawn between activities and products that are “clean” or “dirty,” “pure” or “polluted”; and processes and institutions of governance and surveillance that are designed to prevent or manage particular dangers.

Some of these adaptations to risk are short-lived responses to a temporary threat, as when food scares involving bovine spongiform encephalopathy in Britain or avian flu in Germany over the last decade prompted people to change their diets or seek out different food providers, or when news about severe acute respiratory syndrome in 2003 led tens of thousands of travelers to cancel travel plans to East Asia and Canada. Others involve more permanent changes in ways of life, such as the switch from
trawling to more sustainable kinds of fishing in some parts of the world due to fears of fish stock depletion, or changes in building, heating, or waste disposal practices in view of risks from resource exhaustion or contamination. One would expect the more permanent changes to be associated with more deep-seated cultural transformations; yet temporary crises and disasters of the kind I mentioned earlier, even if they are quickly resolved, sometimes propitiate more long-lasting conceptual and cultural changes, as I will show in more detail in chapter 6.

A similar multivectoral causality characterizes local and translocal risk scenarios in their impact on forms of inhabitation. Strictly local hazards can at times resonate culturally and politically far beyond their limited geographical domain, according to the logic of “secondhand experience,” as in the case of Love Canal, which led to community activism against toxic waste disposals in many other regions of the United States and beyond. Regional and global risk scenarios fall into at least two distinct categories that involve local perception and experience in quite different ways. In Turner et al.’s useful distinction, systemic risks such as climate change or the depletion of the ozone layer arise from systems that are global in scale, so that if they undergo change anywhere, the system as a whole is affected. Cumulative risks, by contrast, derive from the planet-wide summation of local changes that end up affecting large portions or even the totality of a global environmental phenomenon or resource. Cumulative risks result either from their global distribution, as in the case of groundwater depletion or biodiversity loss, or from the magnitude of their impact on a global resource, for example in the case of agricultural soil depletion or deforestation. Systemic risks can result from human activities that are not themselves global, while cumulative risks do tend to derive from very widespread processes (“Two Types” 15–16). For the purposes of my discussion here, this distinction matters because cumulative global risk scenarios tend to be perceptible at the local scale in a way that systemic ones are not, or only with a far longer delay. As a consequence, the perceptual, cognitive, and ultimately cultural mechanisms by means of which such systemic risks are addressed can be expected to differ substantially from those pertaining to cumulative ones.

It might seem intuitively plausible that in the case of cumulative risks, locally perceptible signals of environmental change—shortages of water, erosion of arable soil—would make it easier to conceive of regional and global risks that result from the multiplication of such changes. A form of inhabitation attuned to local changes in nature, in other words, might seem to offer an obvious gateway to the understanding of larger-scale risk scenarios—and that is indeed, as I showed in chapter 1, the basis for many environmentalist calls for a return to the local. Yet even in the case of cumulative risks, cultural awareness does not always follow such a direct trajectory. Tim Gallagher, in the description of his long quest for the extinct ivory-billed woodpecker that finally led to the rediscovery of one
specimen in 2004, provides an interesting example of local awareness actually blocking the perception of more large-scale risk. Gallagher mentions his repeated visits to old-growth cypress forests resembling those of the southern United States in the nineteenth century, the preferred habitat of the ivory-bill, and dwells on his feelings of mourning and loss over the massive logging that eliminated most of this landscape. One of his sources, an elderly man from Louisiana, remembers asking loggers about the almost inconceivable magnitude of this forest destruction in his youth:

When Greg was young, he talked to every old logger he could find and asked them about the old days there. Many times they would say, “You should have seen it when the big trees were here.” And he would get frustrated and ask them, “Why did you cut them down if you liked them so much?” The answer was complicated. Most of the loggers were isolated, with no connection to any other group. Times were hard, the money was good, and there were thousands and thousands of trees. How could it ever end?

The loggers seemed to have no idea that dozens, if not hundreds, of other crews were out there cutting away. Many came from other states—Mississippi, Arkansas, Texas—to take part in the harvest. And the logging continued right up till the end of the 1920s. “They were surprised when there were no more trees to cut,” said Greg. “So that was that.” (138)

This account is an intriguing example of a case in which detailed local knowledge apparently not only failed to lead to any awareness of the cumulative regional risk scenario but in fact prevented such awareness in the absence of more mediated information about the larger context. Beck’s claim about the crucial importance of highly mediated information for the understanding of modern risk scenarios here confirms itself in a somewhat unexpected way; in this case, it is not so much that mediated information provides knowledge that cannot be obtained on the evidence of the senses as that it establishes the connection between perfectly perceptible evidence and the more elusive ecological systems to which it points.

The texts I will analyze in chapters 5 and 6 negotiate this question of how an awareness of risks at different scales of the local, regional, and global transforms ordinary modes of language, narrative, and thought through their novelistic scenarios. DeLillo’s protagonist Jack Gladney provides an example of an individual confronting a perceptible local risk scenario with imperceptible consequences for his health and life expectancy. Powers’s Laura Bodey encounters a less tangible local risk that ramifies into a global one in ways that are not quite captured by the distinction between systemic and cumulative risks, as the pesticide that perhaps caused her cancer turns out to be produced by a multinational chemical corporation with branches around the globe. The protagonists of Wolf’s and
Wohmann’s novels, situated in post-Chernobyl East and West Germany, experience the more subtle forms of deterritorialization that a large-scale regional disaster imposes on them. All of these novels are concerned with distinctively modern risk scenarios (though they have not always been interpreted in this way) and explore how cultural practices of inhabitation are transformed through risk scenarios that link the local in various ways to risks and institutions encompassing large regions or the planet as a whole. In the process, they also experiment with the different ways such risk experiences might be translated into narrative form and arrive, as I will show, at quite different conclusions.

The distinction between systemic and cumulative risks not only raises the question what purchase local experience has on global ecological systems but also how such a distinction relates to social networks based on risk. Many of the nonfictional texts on individuals and places exposed to ecological and technological threats, as well as quite a few of the fictional ones, centrally rely on the assumption that the experience of risk is detrimental to social cohesion; at the same time, risk in these texts sometimes brings about a collective social impulse that leads to political action as well as to a more deeply experienced local community. As Lawrence Buell has pointed out, environmental justice discourse in particular tends both to presuppose the existence of tightly knit historical communities with long traditions, and to fashion communities that seem to have coherence only in the face of risk, such as the residents of a certain ZIP code (Writing 41). Especially in the last two decades, the environmental justice movement has also increasingly attempted to forge international alliances between communities at risk, in the hope of creating global coalitions that might be able to resist the power of multinational corporations and, in some cases, institutions of international governance such as the World Bank or the International Monetary Fund.

From a different political perspective, the assumption that risk-sharing can generate new forms of community and political agency has led Beck to postulate the rise of what he calls a new kind of cosmopolitanism:

Risk-sharing or a "socialization of risk”...can...become a powerful basis for community, one which has both territorial and non-territorial aspects....Post-national communities could thus be constructed and reconstructed as communities of risk. Cultural definitions of appropriate types or degrees of risk define the community, in effect, as those who share the relevant assumptions. “Risk-sharing” further involves the taking of responsibility, which again implies conventions and boundaries around a “risk community” that shares the burden. And in our high-tech world, many risk communities are potentially political communities in a new sense—because they have to live with the risks that others take. There is a basic power structure within world risk society, dividing those who produce and profit from risks and the many who are afflicted with the same risks. (World Risk Society 16)
This argument is not in essence so different from some claims of the environmental justice movement, except that Beck is less interested in the idea of already existing communities and their confrontation with risk than in the possibility of emergent communities and political agents that he envisions as explicitly transnational. In his perspective, such risk collectives hold the promise of transcending NIMBYist tendencies, not just through temporary action coalitions but also by becoming the building blocks of a new cosmopolitan culture, quite different from the official institutions of cosmopolitan democracy on which political scientist David Held and others have based their theories of global citizenship. This risk-based cultural solidarity, which Beck takes to be more important than bureaucratic processes and institutions, ultimately harkens back to Marx and Engels’s vision of an international working class:

Without a politically strong cosmopolitan consciousness, and without corresponding institutions of global civil society and public opinion, cosmopolitan democracy remains, for all the institutional fantasy, no more than a necessary utopia. The decisive question is whether and how a consciousness of cosmopolitan solidarity can develop. The Communist Manifesto was published a hundred and fifty years ago. Today, at the beginning of a new millennium, it is time for a Cosmopolitan Manifesto. The Communist Manifesto was about class conflict. The Cosmopolitan Manifesto is about transnational-national conflict and dialogue which has to be opened up and organized. …The key idea for a Cosmopolitan Manifesto is that there is a new dialectic of global and local questions which do not fit into national politics. (World Risk Society 14–15)

In his writings during the 1990s, Beck saw these questions taking shape in what he called a global “subpolitics” that unfolds both above and below the scale of the nation-state, involving actors such as nongovernmental organizations and a variety of institutions and citizens’ initiatives whose role he perceives as increasingly important in the coming world risk society. In his more recent work, the idea that interdependencies arising from risks related to ecology, economy, and terrorism enforce the shaping of a cosmopolitan political order moves center stage; rather than “subpolitics,” global risks in this perspective reconfigure mainstream politics itself. Der kosmopolitische Blick (The cosmopolitan perspective; 2004) explores the consequences of this shift both for politics and for sociological methodology.

As my main concern here is with the cultural articulations of cosmopolitanism, I cannot delve deeply into the political models that such an approach to cosmopolitanism might generate. Yet Australian political scientist Robyn Eckersley, in an original and lucid account, has explored in far greater detail than Beck what political structures an ecological democracy that thinks beyond national boundaries might aim to build, and her approach is at least worth mentioning here. Eckersley’s concept of “transnationally oriented green states” (202) situates itself in between
two models of transnational democracy: Jürgen Habermas’s model of supranational communities and institutions modeled on the nation-state, whose democratic structures rely on the “communitarian” principle of belongingness or membership, and David Held’s model of global democratic structures based on the “cosmopolitan” principle of affectedness, according to which individuals should not be ruled by norms to which they have not given their consent (Eckersley 173). Eckersley pursues a model that remain[s] mindful of the insights of communitarians while also moving practically toward the ideals of cosmopolitans. Without knowledge of and attachment to particular persons or particular places and species, it is hard to understand how one might be moved to defend the interests of persons, places, and species in general. Local social and ecological attachments provide the basis for sympathetic solidarity with others; they are ontologically prior to any ethical and political struggle for universal environmental justice. Most environmental activists intuitively understand this and work from the premise of our unavoidable social and ecological embeddedness in particular places and communities. Yet it is impossible to arrest the growing gap between those who generate ecological problems and those who suffer the consequences, along with the increasing dis-embeddedness brought about by the processes of economic globalization, without developing sympathetic solidarity with environmental victims wherever they may be located. The transnationally oriented green state takes the next step and offers practical democratic procedures for ecological citizenship within and beyond the state. (190)

In her exploration of what political procedures and structures might enable such a transition from an ethic of proximity to an eco-cosmopolitan ethic (in the vocabulary I suggested in chapter 1), Eckersley proposes that instead of projecting comprehensive transnational political institutions and structures, it is quite possible and feasible to transnationalize democracy in piecemeal, experimental, consensual, and domain-relative ways. Such an approach would enable the practical negotiation of principles in response to particular transnational problems, rather than a priori. Formal democratic space-time coordinates would still need to come into play for the proper enactment of legal norms and for the substantive enjoyment of ecological citizenship rights in transboundary environmental domains, but these coordinates would not necessarily be the same for all domains. . . . Such a project would thus entail building upon, qualifying, and supplementing (rather than replacing) the principle of belongingness with the principle of affectedness. (192–93)

Eckersley here provides a general outline, filled in with more detail elsewhere in her discussion, of how transnational risk scenarios (as well as
other ecological conflicts) might become the points of departure for new forms of democracy.

Beck’s vision of an international risk-based solidarity, by comparison, hovers on the border between the descriptive and the normative, between a realistic account of current political conflicts and the projection of an ideal development that is itself based on more than a little utopian thinking. Yet to the extent that one is willing to concede the usefulness of utopian models, this tendency may be less problematic than Beck’s simplistic assumptions about the relationship between risk and culture. From much of the risk-theoretical work that I have surveyed in this chapter, Beck takes the important insight that the experience of risk only takes on meaning within particular cultural contexts and assumptions. But from this general insight he seems to infer that shared risk automatically implies enough cultural commonality to serve as the basis for new kinds of communities. The experiences of environmental justice advocates who have actually tried to forge such alliances, however, tell a more complex story that highlights “barriers such as differences in language, culture, education, class, and access to resources” (Kiefer and Benjamin 233). Risk communities in the developing world, as Kiefer and Benjamin show, often retain vivid memories of colonialism and neocolonialism and therefore sometimes react with wariness or suspicion to the overtures of environmental groups in the developed world. At the same time, differences in basic cultural habits such as how to advance a conversation, what kinds of knowledge to rely on, or how to act politically exacerbate the difficulties in creating effective action coalitions, let alone more long-lasting transnational communities of risk (234–35). Shared risk, in other words, remains only a first stepping-stone, so long as it is not accompanied by a more comprehensive cultural literacy that allows the members of one community to grasp what sociocultural significance the risk scenario has for the members of another.21

Beck’s vision of a cosmopolitan consciousness and an alternative global culture that might arise from the politics of shared risk, then, needs to be complemented by the more acute sense of sociocultural differences that emerge in stark relief from the fieldwork of environmental justice activists. Yet it is also true that the environmental justice movement has often focused primarily on the urgencies of political action, mobilization, and coalition-building, with no in-depth attention to the shaping influence of different cultural frameworks of understanding. While the movement has sometimes drawn on the insights of feminist, postcolonial, and critical race theory, it has done so mostly by reconfirming central assumptions of these bodies of theory rather than showing how the context of communities exposed to ecological, economic, and technological endangerment might transform some of these foundations. As environmental justice scholar T. V. Reed has argued, “the environmental justice movement, as currently constituted, has often worked with a rather thin sense of culture and has not utilized cultural workers as much as it might” (153).
Rather than a sophisticated theoretical framework for approaching questions of crosscultural understanding and misunderstanding in an ecological context, the accounts of environmental justice fieldwork offer a rich inventory on which such a theory needs to draw in order to elaborate Beck’s approach to the relationship of risk and the emergence of cosmopolitan forms of solidarity. By contrast, the attempts of anthropologists, sociologists, philosophers, and literary critics to reenvision cosmopolitanism as an effort at crosscultural literacy, which I discussed in chapter 1, do offer such a more nuanced account. These recuperations of cosmopolitanism consciously situate themselves in the unequal political and economic playing fields created by various types of globalization, though they do not, for the most part, concern themselves either with the nonhuman world or the global environmental risk scenarios I have been chiefly concerned with here. As I proposed earlier, an environmentally inflected cosmopolitanism needs to combine sustained familiarity and fluency in more than one culture with a systemic understanding of global ecology that goes beyond environmentalist clichés regarding universal connectedness and the pastoral understanding of ecology that informed earlier kinds of modern environmentalist thinking. The merit of environmental justice activism along with Beck’s more sweeping vision of new forms of solidarity emerging out of global risk scenarios is their analysis of how such an eco-cosmopolitanism might link experiences of local endangerment to a sense of planet that encompasses both human and nonhuman worlds.
NOTES

Introduction

1. Romance languages have the advantage of two terms to describe what is covered by “globalization” in English. In French, for example, the term “mondialisation” originally covered the same semantic territory as “globalization” in English, but has in some contexts taken on more specific political, social, and cultural connotations since “globalisation” has emerged as a competing concept mostly focused on economic processes. In English, “globalization” has also taken on a more and more centrally economic meaning, but unfortunately no comparable term has emerged to foreground other processes of global connection. In my analysis, “globalization” therefore refers to such processes in their entirety, rather than just to the economic component, however fundamental one assumes its role to be.

2. Among those who see global ecological policies in particular as part of the North’s hegemonic strategies are Vandana Shiva (“Greening the Global Reach”) and Larry Lohmann (“Resisting Green Globalism”). For a different assessment of the role of the West in globalization processes that is not specifically focused on ecology, see Tomlinson (89–97). On the question of globalism and cultural homogenization, see Appadurai, Hannerz (Transnational Connections 102–11 and “Scenarios for Peripheral Cultures”), and Lull (147–64).

Chapter 1

1. The ellipsis is Le Guin’s.

2. In the 1987 introduction to the story, Le Guin does not mention Lovelock’s Gaia hypothesis explicitly but does refer to “Deo, Demeter, the grain-mother, and her daughter/self Kore the Maiden called Persephone” as ancient mythological paradigms for envisioning humans’ relationship to the plant world (83).

3. See McLuhan (71) and Lovelock’s preface to Gaia (x, xiv).

4. For a detailed analysis of how the satellite view of Earth constituted the planet as a new kind of scientific object through the hegemony of vision, see Sachs’s Satellitenblick (esp. 15–34). A particularly strident critique of the Blue Planet image is that of Yaakov Jerome Garb, who points out that it privileges
vision over the direct experience of the other senses and associates it with patriarchal consciousness, monotheism, and pornography. This sweeping critique seems to me misguided, insofar as it dissociates the image from its specific sociohistorical context and casts it instead as the incarnation of social and philosophical tendencies that have prevailed for centuries. But Garb asks pointedly toward the end of his essay, “Isn’t the fantasy that we can somehow contain the Earth within our imagination, bind it with a single metaphor, the most mistaken presumption of all? What would it be to live with multiple images of the Earth—fragmented, partial, and local representations that must always be less than the Earth we try to capture through them?” (278). As I will show at the end of this chapter and later, the most interesting contemporary artworks and technological tools attempt to combine images of the whole planet with such more partial representations.

5. Some of the popular scientific publications involving Gaia are listed in Serafin (135); Merchant provides a detailed list of events, conferences and products associated with Gaia in the 1980s and 1990s (5). It is worth noting that the Gaia hypothesis did not lead Lovelock himself to a stance that would qualify as “environmentalist” today, since he believed that the overall functioning of the planet could only be marginally affected by human activity—a view he subsequently found himself forced to qualify.

6. For detailed analyses of this rhetoric, see Garrard (Ecocriticism 85–107); L. Buell (Environmental Imagination 280–308); Killingsworth and Palmer; and F. Buell (177–208). I discuss apocalyptic narrative as a particular articulation of risk perceptions in chapter 4.

7. Shell and IG Farben also figured prominently in Pynchon’s vision of corporate conspiracy in Gravity’s Rainbow, published only two years before The Monkey Wrench Gang.

8. For a more detailed summary of the debates about the notion of human and/or economic development that surround these terms, see Hayden (121–51).

9. This tradition is far from obsolete today: for an analysis and critique, see Evans.

10. For more detailed readings, see Berthold-Bond’s analysis of Leopold’s sketch (23–24) and L. Buell’s reading of Snyder’s poem (Environmental Imagination 166–67).

11. See Williams, “Yellowstone,” and Westling.

12. For Marx’s reversal of his original analysis of the decline of pastoral, see his 1986 essay “Pastoralism in America.” Raymond Williams’s The Country and the City provides a similarly magisterial analysis for British literature. For recent ecocritical work on pastoral, see Bate: L. Buell (Environmental Imagination 31–52); Garrard (“Radical Pastoral?” and Ecocriticism 33–58); Gifford (Pastoral and “Gary Snyder and Post-Pastoral”); Love (65–88); and Scheese.

13. In spite of the postulation of such transcendent ties to place in quite a few environmental justice writings, however, their international dimension provides an important point of departure for developing more transnational forms of environmental and ecocritical thought, a point to which I will return in chapter 4. For a more detailed discussion of materialism and spirituality in environmentalist thought, see Plumwood, chap. 10.

14. For a detailed analysis of the image of the environmentally responsible Native American, see Krech. The celebration of premodern cultures also appears in other regional varieties of environmentalist thinking. Indian envi-
ronmentalist Vandana Shiva claims that traditional cultures of her country had an intuitive grasp of the ecological situatedness of their own place and its “connection to the universe….In most sustainable traditional cultures, the great and the small have been linked so that limits, restraints, responsibilities are always transparent and cannot be externalized. The great exists in the small and hence every act has not only global but cosmic implications. To tread gently on the earth becomes the natural way to be” (154).

15. On the relationship of Native American and other indigenous peoples to local places, see also Feld and Basso; Basso.

16. This opposition to modernity as a general sociopolitical structure is also clearly articulated by some environmentalist thinkers who draw on more leftist traditions of thought. British philosopher Mick Smith argues that “radical environmentalism is engaged in a fundamental critique of modernism; its alternative culture challenges modern life to its very core” (164–65). Yet in Smith’s thought, “place” is quite deliberately used as an ambiguous concept that sometimes refers to actual localities (as in his discussion of the British antiroads movement) and sometimes to a more general reliance on the concrete rather than on abstract categories.

17. For a detailed analysis of the role of the body in twentieth-century philosophies of place, see Casey (202–42).

18. For the connections between European phenomenology and American environmentalism, see also Zimmerman, chap. 3; Brown and Toadvine; Abram; and Westling.

19. In fairness to Hardin, it should be added that he does acknowledge the existence of some truly global problems: the greenhouse effect, in his view, qualifies as such (Filters against Folly 145–69).

20. Haines’s approach to what a sense of place might imply, at any rate, is interestingly varied. In some of his essays and poems he does celebrate a fairly straightforward, solitary, sensory, and self-sufficient immersion into a specific natural locale as an ideal: “To really know the place, I had to live there, build there, become intimate with it and know it for a long time” (11). But in other instances, he expresses unease with just this kind of intensely local inhabitation, and with an overly geographical conception of “place”: “As a writer I have sometimes been uncomfortable with a purely local idea of place, as if I were attempting to wear a suit of clothes a size too small….I have wondered if we were not attempting to live in a world of continents and vaster entities with minds and senses conditioned by life in the village….I mean….that perhaps one reason for the difficulty we encounter when we speak about community and place is that our concepts of them are outmoded, and have been for a long time” (38–39). Both essays in which these statements appear date from the 1970s (1979 and 1975, respectively).

21. Thomas how articulated some of the essential points of his argument in Bringing the Biosphere Back Home in his earlier essay “Toward a Cosmopolitan Bioregionalism.” In the latter, the concept of cosmopolitanism is used loosely, without reference to the body of the theories I build on later in this chapter.

22. I would argue that a similar problem besets Patrick Murphy’s much more thoughtful and nuanced attempt to formulate an approach to transnational community in his essay “Grounding Anotherness and Answerability in Allonational Ecoliterature Formations.” Murphy sees the nation-state as problematic for environmentalist thought and argues for scales of identification and activism both below and above the nation. But ultimately, he sees
transnational formations still as founded on and identified through their ties to the local and the ethic of proximity: “These larger than nation and transnational formations, like the smaller than nation ones, maintain territorial identifications that generate loyalty to specific, concrete locations that are defined by a sense of shared threats and shared interests” (424). Fair enough: these are transnational formations that remain in their essence local; but surely, a “sense of shared threats and shared interests” is not necessarily defined by shared territorial location (especially not in the case of international nongovernmental organizations, to which Murphy refers as an example).

23. A renewed interest in the local and the experience of place characterize a variety of disciplines in the 1980s and 1990s, from literary and cultural studies (particularly in American studies) to anthropology, geography, and philosophy. Giving an adequate summary introduction to the vast amount of literature in these fields is beyond the scope of this chapter. Essays, monographs, and anthologies that convey a sense of this focus include Seamon and Mugerauer; Soja (Postmodern Geographies and Thirdspace); Franklin and Steiner; Bird et al.; Keith and Pile; Duncan and Ley; Hirsch and O’Hanlon; Ching and Creed; Harvey (Justice); Lovell; and Blair. For critiques of the way notions of the local have been deployed in literary and cultural studies, see Simpson (Academic Postmodern, chap. 5; Situatedness), as well as Robbins’s arguments on behalf of cosmopolitanism and internationalism in “Comparative Cosmopolitanisms” and Feeling Global, to which I will return.


25. Leach himself participates in this tradition by deploring contemporary American placelessness throughout his book, from a cultural rather than an environmentalist viewpoint.

26. While Deleuze and Guattari’s use of the concept does start out from a geographical basis in Anti-Oedipus (see 145–46), it becomes highly metaphorical in Thousand Plateaus (see 167–92 on the deterritorialization of the face). Due to the diffuseness and metaphoricity of the term in their work, it is less useful for the analysis I am proposing here than sociological and anthropological perspectives.

27. Lash and Urry emphasize the enormous importance of long-distance travel by car, train, or plane for modern societies, which they see as a much more centrally modern phenomenon than the oft-quoted movements of the Baudelairean flâneur through the metropolis (252). What they claim is quintessentially modern about such travel is not only its dependence on new technologies but also, and more decisively, the organizational innovations and cultural reconceptualizations that make these technologies accessible to large numbers of people and make them accept increased mobility as safe and desirable (253–54). Lash and Urry’s analysis of these contexts leads them to claim that “the paradigmatic modern experience is that of rapid mobility often across long distances” (253).

28. Cosmopolitanism is, obviously, not the only concept around which theories of identity and subjecthood in a global context have crystallized. Especially in American studies, competing terms such as “critical internationalism,” “transnationalism,” and “diaspora” have proliferated. Quite a few theoretical explorations of these terms overlap at least partially with the achievements, ambiguities, and shortfalls of theories of cosmopolitanism I
outline here and, given more time and space, would deserve to be discussed in parallel. I have focused on cosmopolitanism in particular because much of the work on this term is less tied to the specific disciplinary issues and configurations of American studies. I explore the relation between ecocriticism and some of the competing concepts, including transnationalism and diaspora, in “Ecocriticism and the Transnational Turn in American Studies.”

In a comparatist context, Gayatri Spivak has proposed the notion of “planetarity” as an alternative to “globalization” and as a mode of identification that does not define itself in opposition to an Other. In *Death of a Discipline*, Spivak proposes that “if we imagine ourselves as planetary subjects rather than global agents, planetary creatures rather than global entities, alterity remains underived from us; it is not our dialectical negation, it contains us as much as it flings us away…. We must persistently educate ourselves into this peculiar mindset” (73). In a later essay, she elaborates (quoting her own earlier work): “I recommended planetarity because ‘planet-thought opens up to embrace an inexhaustible taxonomy of such names including but not identical with animism as well as the spectral white mythology of post-rational science.’ By ‘planet-thought’ I meant a mind-set that thought that we lived on, specifically, a planet. I continue to think that to be human is to be intended toward exteriority. And, if we can get to planet-feeling, the outside or other is indefinite…. If we planet-think, planet-feel, our ‘other’—everything in the unbounded universe—cannot be the self-consolidating other, an other that is a neat and commensurate opposite of the self…. You see how very different it is from a sense of being the custodians of our very own planet, for god or for nature, although I have no objection to such a sense of accountability, where our own home is our other, as in self and world. But that is not the planetarity I was talking about. Planetarity, then, is not quite a dimension, because it cannot authorize itself over against a self-consolidating other. In that mind-set, there is no choosing between cultures” (“World Systems” 107–8). This kind of awareness sounds to a certain degree like that of the alien forest in Le Guin’s “Vaster Than Empires and More Slow.” To the extent that Spivak seems to include both other cultures and the nonhuman world in her conception of planetarity, it points in a theoretical direction of potential interest for ecocriticism. Yet theories surrounding the notion of cosmopolitanism have given far more detailed accounts of the processes involved in negotiating contemporary differences of nation, race, and culture than a planetarity that Spivak believes “is perhaps best imagined from the precapitalist cultures of the planet” (“World Systems” 101). Wai Chee Dimock, in elaborating the notion of planetarity, goes even further in seeking out a “deep time” dimension that she imagines on the scale of thousands of years as a way of overcoming the limitations inherent in current, nation-based forms of awareness (esp. chap. 6). One can readily agree with Dimock that if we think back to a time thousands of years ago, current differences of nationality lose their relevance; but what purchase such a vision might have on a present that is structured by differences of culture and nation unlikely to disappear anytime soon remains unclear in Dimock’s account.

29. See also Posnock on the question of cosmopolitanism’s historical associations with egalitarianism (803–4).

30. Some of the blandest conceptualizations of cosmopolitanism result from attempts to link these varied orientations without any explicit acknowledgment of the different theoretical and political agendas they entail. See, for example, Pollock et al.’s “Cosmopolitanisms,” which claims that “Cosmopol-

NOTES TO PAGES 57–58 215
tanim may…be a project whose conceptual content and pragmatic character are not only as yet unspecified but also must always escape positive and definitive specification, precisely because specifying cosmopolitanism positively and definitely is an uncosmopolitan thing to do” (577), but also “that we already are and have always been cosmopolitan, though we may not always have known it…. Cosmopolitanism is infinite ways of being” (588). See the critique of Pollock et al. in Skrbis et al. (118).

31. Nussbaum and Cohen’s anthology For Love of Country contains both Nussbaum’s essay and the varied responses to it. For an evaluation and critique of this debate, see Robbins (Feeling Global, chap. 8).

32. I am grateful to Catherine Diamond and Haruo Shirane for discussing perceptions of nature in Chinese and Japanese culture with me.

33. Environmentalists sometimes prefer the phrase “more-than-human world” to more conventional ones such as “nonhuman environment” because it de-emphasizes the boundaries between human and nonhuman parts of the lifeworld. This term has become especially popular subsequent to the 1996 publication of David Abram’s Spell of the Sensuous, which relies on a particular interpretation of Merleau-Ponty’s brand of phenomenology.

34. I return to the question of what political structures this might entail in chapter 4.

35. Aihwa Ong makes a similar point when she compares different approaches to globalization: “Instead of embracing the totalizing view of globalization as economic rationality bereft of human agency, other social analysts have turned toward studying ‘the local.’…This view is informed by a top-down model whereby the global is macro-political economic and the local is situated, culturally creative, and resistant. But a model that analytically defines the global as political economic and the local as cultural does not quite capture the horizontal and relational nature of the contemporary economic, social and cultural processes that stream across spaces” (Flexible Citizenship 4).

36. See the discussions in Worster (340–87); Phillips (42–82); and Garrard (Ecocriticism 56–58).

37. In December 2005, the New York Times reported on attempts by Russian officials to conceal the location of important oil fields by means of doctored maps, even though these installations can easily be identified on Google Earth (Kramer).

Chapter 2

1. UN (xix, 5, 11). The U.S. Census Bureau, which uses different forecasting procedures from the UN, similarly predicts a world population of nine billion for 2042 (“World Population Information”).

2. On the divergent population developments in different regions, see Haub. Cultural concerns over the consequences of shrinking populations in some industrialized societies were expressed after the UN’s World Population Prospects: The 1996 Revision in Crossette; Eberstadt, “Population Implosion” and “World Population Implosion”; Laing; and Wattenberg. For critiques of these views, see Gelbard and Haub, and the responses to Wattenberg’s article, New York Times Magazine, 14 December 1997, 20–24.

3. I am grateful to Suki Hoagland for discussing this change with me.

4. See Laing (38) for a brief summary of U.S. concerns over population growth prior to the 1960s.
5. I am grateful to Deborah White for pointing me to this episode.

6. It would have been impossible for me to trace many of these texts without Brian Stableford’s excellent survey article (“Overpopulation”).

7. Carrying capacity is a more elusive term than appears at first sight: for an excellent discussion, see Cohen (pt. 4, 159–364). In recent years, the concept of a population’s “ecological footprint” has replaced that of “carrying capacity” in many contexts.

8. Aldiss’s Earthworks is an interesting exception from this rule, in that it focuses in part on the toxic agricultural hinterlands of big cities.


10. Quoted in isolation, this passage also appears tinged by racism in its juxtaposition of the affluent Western family and the poverty-stricken Eastern masses, as well as by Ehrlich’s distinction between “our” problems and those of India, which excludes an Indian reader from the circle of those whom the author is addressing. Yet I would defend Ehrlich against such an accusation, given his persistent emphasis in many books that population growth, due to the West’s disproportionate use of world resources, is as much a problem of the First as of the Third World: this is precisely the core of much of his argument, which he deliberately addresses to a mainly Western audience.

11. For a comparison of Disch’s 334 with 1984, see Swirski (170).

12. For two studies of the individual in mass society that were influential in the 1960s, see David Riesman’s The Lonely Crowd (originally published in 1950; republished, slightly abridged, in 1961 and 1969, due to its extreme popularity) and Herbert Marcuse’s One-Dimensional Man (1964). Riesman’s claim that in advanced societies, “increasingly, other people are the problem, not the material environment” (18), is spelled out in overpopulation novels in a more literal sense than he intended.

13. “In this particular context, I thought of dos Passos [sic]. I went home, and I re-read Midcentury, not because it’s a very good book, or even the best of his many novels, but because it’s the one in which I think his technique of documentary association is most highly evolved” (“Genesis” 36).

14. See Goldman for an analysis of Brunner’s protagonists from a moral rather than a narratological perspective.

15. This remark prefigures a very similar one uttered by one of the characters in Don DeLillo’s White Noise (see chapter 5 here): “For most people there are only two places in the world. Where they live and their TV set” (66).

16. On the notion of the cyborg, see Donna Haraway’s “Cyborg Manifesto” and Chris Hables Gray’s anthology of essays; for an analysis of how computer users understand the relationship between their virtual-and real-life stories, see Sherry Turkle’s Life on the Screen.

17. The anthology No Room for Man: Population and the Future through Science Fiction, published in 1979 (Clem, Greenberg, and Olander) consists in large part of reprints of earlier short stories.

18. As early as 1947, Teilhard saw computers as part of this network of the future: see his essay “Une interprétation plausible de l’Histoire Humaine: La formation de la ‘Noosphère.’”

19. See Amery’s Das Geheimnis der Krypta for a much more sophisticated narrative confrontation with the question of overpopulation and genocide.
I have examined Brin’s strategies and shortcomings in Earth in more detail in “Netzphantasien: Science Fiction zwischen Öko-Angst und Informationsutopie” (253–59).

The following interpretation of Cage’s mesostics is based on Perloff’s reading of this technique in her article on Roaratorio, “Music for Words Perhaps.”

Chapter 3

1. I am quoting from the easily accessible translation of Du miel aux cendres by John and Doreen Weightman.

2. Some reviewers and critics read Through the Arc of the Rainforest as a straightforward antiglobalization story. Patrick Murphy, for example, interprets it as “a comic, cautionary tale about the destruction of many communities, and, by extension, virtually any community, by multinational capitalism’s ubiquitous commodification of objects, peoples, practices, and beliefs” (Farther Afield 187). For a similar reading, see Sze. As I will show, such readings oversimplify the complexities of Yamashita’s plot and narrative technique.

3. Rachel Lee’s reading of the novel (106–38) remains unpersuasive because she strains to account for the novel purely within the framework of Asian American literature, never so much as mentioning the much more fundamental strategies that situate Yamashita’s text in the tradition of twentieth-century Latin American narrative.

4. All translations from Cien años de soledad are mine.

5. Brian Conniff comments on the gypsies as representatives of global space and knowledge vis-à-vis Macondo (167–79). In almost all other respects, the reading of the novel’s space I offer here diverges substantially from the one proposed by Conniff.

6. “All he knew was that Tania Aparecida was far away. It made very little difference how far. Batista’s jealous imagination could follow Tania Aparecida to the next room or to the moon” (173).

7. The speaking parrot who is revealed, in the epilogue to Macunaima, to be the one who conveyed the protagonist’s story to the narrator has a humorous equivalent in the parrot accompanying the triple-breasted French ornithologist Michelle Mabelle (herself perhaps another parodic reincarnation of Andrade’s one-breasted Amazon Cl); this bird, instead of telling stories, eats camembert and sings the Marseillaise.

8. Tweep, the three-armed American businessman, may well be Yamashita’s version of the Peruvian businessman Venceslau Pietro Pietra, against whom Macunaima struggles throughout most of Andrade’s novel: Pietra is also described as a mythological figure, the giant Piaiman, Eater of Men, whose cannibalism provides an apt foil for Tweep’s corporate imperialism.

9. “Um dos meus intereses foi desrespeitar lendariamente a geografia e a fauna e flora geográficas. Assim desregionalizava o mais possível a criação ao mesmo tempo que conseguia o mérito de conceber literariamente o Brasil como entidade homogênea—um concerto étnico e geográfico” (“One of my interests was to disregard geography and geographically specific fauna and flora completely. So I deregionalized nature as much as possible, at the same time that I succeeded in conceiving of Brazil literarily as a homogeneous entity—an ethnic and geographic concerto”); Mário de Andrade, quoted in Haroldo de Campos (78–79; my translation). See also Suárez and Tomlins (98).
But even in Andrade, this project is in some ways a paradoxical one: since in his portrait one of Brazil’s most striking features is the endless transformability of the real, the character of Brazil ends up being no specific character at all—hence the novel’s subtitle The Hero without Any Character. In an unpublished preface to his novel, Andrade himself comments on this lack of character: “O que me interessou por Macunaíma foi inquestionavelmente a preocupação em que vivo de trabalhar e descobrir o mais que possa a entidade nacional dos brasileiros. Ora depois de perceber muito verifiquei que certa: o brasileiro não tem caráter. . .(O brasileiro não tem caráter porque não possui nem civilização própria nem consciência tradicional. Os franceses têm caráter e assim os jorubas e os mexicanos. . .) Brasileiro não” (“What interested me about Macunaíma was unquestionably my concern to work out and discover as much as I could about the national essence of Brazilians. Now after struggling a lot, I found out something that seems certain to me: the Brazilian has no character. . .[The Brazilian has no character because he possesses neither a civilization of his own nor a historical consciousness. The French have character, and so do the Yoruba and the Mexicans. . .]. Not the Brazilian”; quoted in Campos 75; my translation).

Just as Macunaíma’s supernatural voyages lead him into Brazilian history as well as geography—he encounters indigenous artifacts and historical figures from the colonial period as well as the landscape of his present—Chicolândia is as much a simulation of history as it is of geographical and cultural difference.

Rody shares my sense of the narrator as a global presence when she argues that Yamashita aims “to engage us in a global community of concern. And how better to do this than with a narrator whose winning personality is unhampered by markers of national or ethnic identity? Yamashita and her hero Kazumasa Ishimaru may have evident ethnic origins, but the ball appears origin-free, and its bouncy conduct of the plot around the globe manages to transform an ethnic perspective into a credibly global historical witness. Yamashita’s ball, then, is a performance of objectivity that retains the trace of its historical origins” (638).

I have explored the temporal structure of Through the Arc of the Rainforest in more detail in my essay “Die Zeitlichkeit des Risikos im amerikanischen Roman der Postmoderne” (The temporality of risk in the postmodern American novel).

Chapter 4

By tracing the academic analysis of ecological and technological risk back to Starr (especially his essay “Social Benefit versus Technological Risk”), I follow the accounts presented in Löfstedt and Frewer (3), and Lupton (chaps. 1–2); Löfstedt and Frewer also outline a different trajectory according to which the roots of this type of risk theory can be traced back to the Chicago School of geography and the attempt to explain human engagements with natural disasters such as periodic floods (3).

In economics, risk analysis has a far longer history than the one outlined here within the broader framework of decision theory. Most of the researchers who have shaped the field of technological and ecological risk analysis since the 1970s, however, do not tend to situate their work explicitly in relation to this theoretical framework, but in relation to the paradigms I focus on here.
3. Many of the basic factors that affect risk perception according to the psychometric model have been criticized, refined, or reformulated over time. For example, the distinction between voluntary and involuntary risks, as Charles Perrow has pointed out, is not always neat: driving one's car to work may seem more voluntary than inhaling secondhand smoke; yet if no alternative transportation is readily available, it may in fact be no more subject to one's own choice than, say, risks of injury at one's workplace (Normal Accidents 312–13).

4. Social trust is a crucial issue both for the analysis of risk perceptions and, much more generally, of modern societies. For a theory of social trust that not only analyzes its functioning in risk management as an exemplary case but defines it theoretically as a form of risk judgment, see Earle and Cvetkovich, Social Trust: Toward a Cosmopolitan Society. Earle and Cvetkovich are interested in how social trust can work to establish social relations across groups in a way that they refer to as “cosmopolitan,” without specifically tying their reflections to theories of cosmopolitanism as a transnational mode of awareness.

5. Rayner (“Cultural Theory”) provides a discussion of such objections and shows how cultural theory counters them.

6. For a critique and modification of some of the basic assumptions and concepts in Kaspersion’s framework, see Murdock et al.

7. On the question of pregnant women’s regimentation, see also Lin Nelson’s interesting suggestion that workplace rules intended to protect women, and especially pregnant women, from hazards can sometimes function in such a way as to shift the blame for the danger from the source of the risk itself to women’s biological vulnerability (178). A fourth paradigm of research besides the psychometric model, cultural theory, and governmentality has developed from German sociologist Niklas Luhmann’s brand of systems theory. As Luhmann’s theory analyzes social phenomena on the basis of very different assumptions and by means of an entirely different vocabulary from most Anglo-Saxon sociology, it has not made a major impact on studies of risk outside Germany. For a sense of this type of risk theory, see Luhmann; and Japp (Soziologische Risikotheorie and Risiko).

8. Ingar Palmlund has suggested that risk controversies might be studied as a form of “social drama” with the vocabulary of theatrical characters, plots and conventions. While this approach is quite suggestive in some ways, Palmlund bases her analytic vocabulary mainly on Greek tragedy, without attention to other dramatic templates, especially the varying perspectives and divergent stories about an unfolding conflict that tend to take center stage in modern drama. Her account, therefore, remains ultimately very schematic and overly simple (“Social Drama and Risk Evaluation”). Other social scientists have deployed literary templates in a less systematic way. Sociologist Allan Mazur subtitled his detailed study of the Love Canal case The Rashomon Effect at Love Canal to indicate that the multiple different stories about the crisis told by different participants remain as contradictory and indeterminate as the competing stories in Akira Kurosawa’s paradigmatically modernist film. Yet toward the end of his analysis, Mazur sums the crisis up as a “tragedy in the classic sense” (212), apparently with no awareness that a tragic narrative structure is hard to reconcile with the open-ended indeterminacy of Rashomon. For a more detailed narrative analysis of Mazur’s and other accounts of Love Canal, see Heise, “Risk and Narrative at Love Canal.”
9. On the whale as a synecdoche for the oceans, see L. Buell (Writing 196–223).
10. I will return to this question of the domestication of crisis in the context of the everyday lives of Wolf’s and Wohmann’s post-Chernobyl protagonists in chapter 6.
11. For a more recent discussion of nuclear technology, see also Perrow’s The Next Catastrophe (chap. 5), and Feder for his admission that climate change may make nuclear power once again acceptable.
12. When Perrow claims that nuclear arms have done little harm to humans, he is of course referring to harm from accidents, not from their intentional usage as weapons.
13. See Beck, Giddens, and Lash for the somewhat different concepts of reflexive modernization each of these three theorists proposes.
14. All translations from Beck’s Risikogesellschaft are mine.
15. For a well-articulated critique of this kind, see Goldblatt (chap. 5).
16. More detailed analyses of vulnerability can be found in Ezcurra et al.; Kasperson et al., “Vulnerability”; and Liverman.
17. It is tempting to relate Ulrich Beck’s concept of “secondhand nonexperience” to Baudrillard’s notion of the hyperreal, the copy without an original. But the context and import of the two concepts is ultimately different: Beck’s argument is not so much about imitation as about anticipation, and his aim is to explore the ways new types of risk overturn the modes of common-sense reasoning, rather than to suggest the broader skepticism vis-à-vis the authenticity of contemporary culture that Baudrillard proposes.
18. The notion of “stigma” was proposed by Flynn, Slovic, and Kunreuther to characterize such adverse effects of risk perceptions. In the same volume, however, Vern Walker warns that stigma, far from being a neutral term, usually suggests an irrational or objectively unfounded social process by means of which people, places, or objects are singled out for opprobrium. Introducing this term into risk theory, he warns, might well surreptitiously reintroduce old biases against lay perceptions that the field overcame in the 1980s and 1990s (354–57). Most likely for this reason, the term has not found wide usage in the field.
19. Eckersley principally explores Habermas’s Die postnationale Konstellation and Held’s Democracy and the Global Order. As is obvious from this juxtaposition, Eckersley works with a somewhat different definition of cosmopolitanism than the cultural theories I have mostly relied on in my discussion.
20. In view of the argument I made in chapter 1, I would want to qualify Eckersley’s insistence on the ontological priority of the local, which she here seems to equate with the specific—even as she also mentions solidarities with people or species that do not of necessity have to be local. But the more important point is Eckersley’s own admission that an ethic of proximity will not suffice.
21. For empirical studies of cross-cultural risk perceptions, see Renn and Rohrmann.

Chapter 5

1. Like many other authors and critics, Buell also perpetuates the amalgamation of chemical with nuclear risk by including among his exemplary texts
Terry Tempest Williams’s *Refuge*, which deals with cancer perhaps caused by nuclear testing in the American West.

2. See Mark Osteen’s introduction to the Viking critical edition of *White Noise* (vii), which also contains materials documenting the novel’s parallels with the Bhopal accident (153–62).

3. See, for example, Michael Valdez Moses’s Heideggerian interpretation of the scene in “Lust Removed from Nature.”

4. For discussions of spectacle, simulation, and the role of media in shaping reality in *White Noise*, see Duvall; Lentricchia; Reeve and Kerridge; Kerridge. A different interpretation is proposed by Paul Maltby, who argues that a Romantic sense of transcendence does emerge in some crucial scenes of the novel, so that the postmodern scene of the simulacrum does ultimately lead to some experience of authenticity (“Romantic Metaphysic”).

5. Interestingly, this remark occurs in a book review of Richard Powers’s *Gain*, which I will discuss later. In *Gain*, unlike *White Noise*, Scott contends, chemical risk is not symbolic (41). But simply rephrasing “ambient dread” as “environmental dread” in Scott’s claim would restore full materiality to the toxic event.

6. In highlighting the importance of the risk concept for *White Noise*, it may also be worth remembering that DeLillo’s earlier novel *The Names* (1982) features a political risk analyst as its protagonist.

7. The term *riskscape* is Susan Cutter’s, as quoted in Deitering (200).

8. I have explored the temporal perspective that arises from this focus on the risk society in *White Noise* in “Die Zeitlichkeit des Risikos.”

9. Bianca Theisen, for example, accounts for DeLillo’s narrative strategy by arguing that it is aimed at “the paradoxical enterprise...of dissolving plot by means of plot” (132; my translation).

10. Reeve and Kerridge argue similarly that “for all the satirical pressure it applies to so many aspects of the contemporary world, *White Noise* recognises that the positions from which any such overview can proceed are themselves continually at risk of undermining” (305).

11. The juxtaposition of two storylines, which also features in Powers’s other novels, has been widely commented on by his reviewers: see Kirn (103), Quinn (22), and Scott (40). For a perceptive discussion of how the relation between the two strands of plot in *Gain* differs from that in earlier texts due to the absence of a mediating figure, see Harris’s essay on the role of the reader (esp. 98–99).

12. These two similarities are noted by A. O. Scott (who otherwise dismisses *White Noise*’s engagement with chemically induced illness) as well as Michiko Kakutani.

13. Powers was no doubt thinking of Atrazine, an herbicide whose possible carcinogenic and endocrine-disrupting effects have long been the subject of controversy.

14. This inversion is discussed by Jeffrey Williams in his review of *Gain* (para. 9) as well as by Bruce Bawer (11).

15. This play on words is also discussed in Scott (38).

16. Williams notes the absence of a “utopian prospect” and describes Powers’s political program as “modest,” but praises him for avoiding “rote political judgment” (“Issue” paras. 13, 16, 14). Buell also points to the “never-had-a-chance quixoticism of the resistance effort” in the novel (*Writing* 290 n. 5) but argues that corporate hegemony can at least be questioned through
an examination of its impacts in the realm of the local and the individual body (56).

17. My interpretation of Don differs from Tom LeClair’s, who claims that the novel rejects Don’s “paranoid style” (35). That Don is cast as a much more positive figure than LeClair recognizes is also indicated by the fact that Powers puts into his mouth one of the most crucial insights in the novel: that human activities have subdued the Earth to the point where it can bear no more (353). See Powers’s own comment on this scene in his interview with Jeffrey Williams: “This insight, on the part of a character who shouldn’t have been able to reach it, is for me the emotional core of the book.”

18. The echoes of Dos Passos’s and Joyce’s techniques are mentioned briefly in Williams (“Issue” para. 9), and those of Dos Passos also in Buell (Writing 55).

19. Scott notes that Powers’s “chronicle of Clare, Inc.…[is] less the company’s history than its life story” (38).

Chapter 6

1. My brief summary here is indebted to Medvedev, Gale and Hauser, and Back to Chernobyl, as well as the more technical accounts in Mould and Vargo.

2. The initial estimate, and the one still given in most accounts of the accident, is 135,000 evacuees. Mould indicates that this figure was later revised down (103).

3. Surveys and analyses of these texts can be found in Kononenko, Onyshek-kyych, and Weiss. Rudloff reviews some of the German literature on the subject but does not mention Gabriele Wohmann’s work.

4. The contributions to spectrum, the scientists’ correspondence with Wolf, and the debates were collected in a book entitled Verblendung: Disput über einen Störfall (Blinding: Dispute about an accident), which was later combined with the novel itself in one volume.

5. Page references following quotations from Störfall in English are keyed to Schwarzbaumer and Takvorian’s translation.

6. Brandes analyzes Wolf’s puns on “Wolke” by arguing that “Wolke” as an ideal concept is the almost dreamlike symbol of “die weiße Wolke der Poe-sie,” derived from Brecht’s ‘Erinnerung an Marie A.’ The cloud here represents the utopian, ethereal realm of pure poetry which floats in a sphere so far removed from this day’s reality that it must now be relegated to the archives of sentimentality” (108). See also Saalmann (242–43).

7. As several critics have noted, it is also one of Wolf’s many references to her own earlier work. In her novel Der geteilte Himmel (The divided sky, 1963), the capitalized “NEWS” was that of Yuri Gagarin as the first human in outer space, presented as a symbol of utopian hope for the association of socialism and technological progress. By using the same device in reference to Chernobyl, Wolf signals the end of this hope (Brandes 107; Fox 472; Magenau 344; Nalewski 274; Winnard 72).

8. See Brandes’s discussion of these reviews (111).

9. Here as elsewhere in the discussion of Störfall, when two parenthetical page references are combined, the first one refers to the German edition and the second to Schwarzbaumer and Takvorian’s translation.

10. Karin Eysel, commenting on this list, argues that “Gender roles—namely the traditional assignment of daily concerns to women and scientific
ones to men—have resulted in a split between everyday practices and science; this split lies at the heart of Wolf’s critique” (290). Andrew Winnard similarly considers this list as evidence of a clear split between women and men, the domestic and the scientific in the novel (79); see also West (260). None of them mentions that the immediately following reference to the narrator’s own disregard for such everyday concerns calls precisely this split in question.

11. Andrew Winnard points out that the choice of a Japanese radio to convey the news of nuclear disaster may well be intended as a reminder of the nuclear attacks on Hiroshima and Nagasaki, a hypothesis that is supported by other allusions to Hiroshima and Japan in the text (Winnard 76–77).

12. Schwarzbauer and Takvorian omit the German adverb “fast” in their translation.

13. Page references are keyed to the second German edition; all translations of Der Flötenton are mine, as no English translation of the novel is currently available.

14. See the analysis of fear in Fritsch.

15. Wohmann develops the specifically feminist issues of Emily’s career problems and environmental engagement further in her short story “Die weibliche Komponente” (The female element), whose protagonist resembles Emily Asper in many ways. This short story was published in a collection entitled Ein russischer Sommer (A Russian summer), which includes several other short stories that revolve around Chernobyl.

Conclusion

1. Previous climate reversals in the Earth’s history were neither caused by human activity nor did they impact a human population that by the middle of this century is likely to number nine billion.

2. I am grateful to Patrick D. Murphy for pointing me to this novel.

3. I would like to thank Martin Puchner for discussing the theatrical aspects of Gore’s film with me.


Boulding, Kenneth E. “The Economics of the Coming Spaceship Earth.” In Environmental Quality in a Growing Economy: Essays from the Sixth RFF Forum,


Dirlik, Arif. “Place-Based Imagination: Globalism and the Politics of Place.” In Prazniak and Dirlik, 15–51.


Evans, Mei Mei. “‘Nature’ and Environmental Justice.” In Adamson, Evans, and Stein, 181–93.


Excurra, Exequiel, Alfonso Valiente-Banuet, Oscar Flores-Villela, and Ella Vázquez-Domínguez. “Vulnerability to Global Environmental Change in Natural Ecosystems and Rural Areas: A Question of Latitude?” In Kasp...


Liverman, Diana M. “Vulnerability to Global Environmental Change.” In Kasperson and Kasperson, 201–16.


Moses, Michael Valdez. “Lust Removed from Nature.” In Lentricchia, 63–86.


Palmlund, Ingar. “Social Drama and Risk Evaluation.” In Krimsy and Golding, 197–212.


Robbins, Bruce. “Comparative Cosmopolitanisms.” In Cheah and Robbins, 246–64.


Abbey, Edward, 26, 29–30, 42
Abram, David, 213n18, 216n33
Acker, Kathy, 176
Adams, Douglas, 3
Albrow, Martin, 4
Aldiss, Brian, 26, 71–72, 217n8
Alexander, Donald, 45
allegory, 10, 20–21, 24–27, 50, 63–67, 71, 83, 85, 90, 109, 111, 114, 176, 208
Amazon, 11, 91–115, 210
Amery, Carl, 80, 217n19
Anderson, Benedict, 5, 57
Andrade, Mário de, 105, 108–11, 218n19, 219n10, 219n11
Antonetta, Susanne, 160
apocalyptic narrative, 26, 69, 80–84, 122, 140–42, 178, 206–09
Appadurai, Arjun, 4, 46, 51, 211n2
Appiah, Anthony, 6, 57
Augé, Marc, 52
Austin, Mary, 42

Bacon, Jason, 119, 201
Bahn, Paul G., 33
Balla, Giacomo, 95
Ballard, J. G., 71–72, 85
Basso, Keith, 213n15
Basu, Amrita, 7
Bate, Jonathan, 212n12
Baudrillard, Jean, 101, 163, 221n17
Bauman, Zygmunt, 33, 35–36
Baumgarten, Lothar, 11, 92–99, 102, 109, 114, 210
Bawer, Bruce, 222n14
Benjamin, Medea, 158
Berg, Peter, 29
Berger, Peter, 49
Berry, Wendell, 29, 31–32, 37, 48–49
Berthold-Bond, Daniel, 212n10
Beuys, Joseph, 92
Bhabha, Homi, 6, 57–58
Biehl, Janet, 47
Bierce, Ambrose, 173
bioregionalism, 10, 29, 34, 43–45
Bird, Jon, 214n23
Blair, Sara, 214n23
Blish, James, 71–72
Blue Planet image, 4, 10–11, 21, 22–23, 25, 28, 37, 39, 65, 66, 67, 177, 206; critiques of, 23–24, 211n4; and utopia, 25
Boholm, Åsa, 138
Bonpland, Aimé Jacques Goujaud, 96
Botkin, Daniel, 63
Boulding, Kenneth, 24
Bramwell, Anna, 47
Brandes, Ute, 182, 185, 223nn6–8
Brecht, Bertholt, 184, 223n6
Brennan, Timothy, 6, 58
Index

Brin, David, 11, 64, 70, 80–85, 88–90, 102, 174, 177, 207–09, 218n20
Brown, Charles S., 213n18
Brown, Lester, 25, 71
Brunner, John, 11, 26, 68–72, 76–81, 88–90, 174, 177, 209, 217n14
Buell, Frederick, 27, 141–42, 199, 201, 212n6
Buell, Lawrence, 27, 42, 45, 138–41, 148, 150, 155, 161, 163, 166, 171, 212n6, 212n10, 212n12, 220n9, 221n1, 222n16, 223n18
Burgess, Anthony, 71–72
Burroughs, William, 26, 75, 161, 176

Cage, John, 11, 70, 81, 86–90, 177, 209, 218n21
Caldwell, Gail, 172
Calvino, Italo, 72
Campus, Michael, 72
Canclini, Néstor García, 4, 52
capitalism, 4, 24, 26–27, 45–46, 50, 51, 102, 149, 172, 176, 218n2; and environmental policy, 4
Caplan, Karen, 58
Carroll, Joseph, 42
Carson, Rachel, 26, 103, 120, 132, 140, 148, 160
Casey, Edward S., 213n17
Castel, R., 131
Cather, Willa, 42
Certeau, Michel de, 188, 218n9
Chang, Chris, 93
Cheah, Pheng, 6, 57
Chernobyl, 13, 123, 133, 154, 178–94, 199–203, 223n7, 224n15. See also nuclear risk
Ching, Barbara, 214n23
Chivers, C. J., 201
Clem, Ralph S., 217n17
Clifford, James, 4–6, 57
climate change, 81, 128, 151, 153, 202–09, 221n11, 224n1. See also global warming
Cody, Iron Eyes, 33
Cohen, Joel, 80, 216n31, 217n7
Colborn, Theo, 160
collage, 10–11, 71, 76–77, 79, 81, 90, 175
colonialism, 3, 4, 24, 58, 69, 93, 96, 140, 158, 182, 190, 219n11
Conniff, Brian, 218n5
Conrad, Joseph, 182, 190
corporations, multinational, 13, 26–27, 52, 100, 101, 102, 107, 145, 149, 154, 155, 170–74, 176, 210
cosmopolitanism, 6–7, 13, 21, 51–62, 65, 70, 76–79, 92, 114, 121, 123, 150, 155–59, 177, 210, 213n21, 214n23, 214–15n28–30, 220n4, 221n19; banal cosmopolitanism, 53; and class, 58; and colonialism, 58; eco-cosmopolitanism, 10–12, 59–63, 67, 85, 90, 99, 157, 201, 208, 210
Creed, Gerald W., 214n23
Crichton, Michael, 128–29, 206
Cronon, William, 30
Crossnette, Barbara, 216n2
Cutter, Susan, 222n7
Cvetkovich, George, 126

Dake, Karl, 127
Dasmann, Raymond, 29
database aesthetic, 67
deitiering, Cynthia, 222n7
Del Rey, Lester, 71
deLeuze, Gilles, 51, 214n26
DeLillo, Don, 12, 123, 148, 154, 161–69, 173, 176, 192, 210, 217n15, 222n6, 222n9
Diamond, Jared, 33
diaspora, 5–6, 50–51, 57, 214–15n28
Dietz, Thomas, 126
digital imaging/models. See computers/computing
Dimock, Wai Chee, 215n28
Dirlik, Arif, 6–8, 58
Disch, Thomas, 72, 217n11
Döblin, Alfred, 77, 174
Dos Passos, John, 77, 174, 217n13, 223n18
Google Earth, 11, 67, 209, 216n37
Gorbachev, Mikhail, 178–79
Gore, Albert, 209, 224n3
Gray, Chris Hables, 217n6
Greenberg, Martin Harry, 217n17
Guattari, Felix, 51, 214n26
Gubaryev, Vladimir, 180
Guha, Ramachandra, 30, 59–60, 149
Habermas, Jürgen, 156, 221n19
Haines, John, 38, 213n20
Hamilton, Joan, 28
Hannerz, Ulf, 6, 57, 211n2
Haraway, Donna, 217n16
Hardin, Garrett, 25, 37, 71, 213n19
Harris, Charles B., 222n11
Harrison, Harry, 71–72, 75, 85
Harvey, David, 4, 46–47, 51, 214n23
Hass, Robert, 28, 56
Haub, Carl, 216n2
Hauser, Thomas, 223n1
Hawkins, Wesley, 126
Hayden, Patrick, 6, 57, 59, 212n8
Haynes, Todd, 160
Hebel, Franz, 182
Heidegger, Martin, 35, 222n3
Held, David, 6, 57, 156, 221n19
Herbert, Lewis (Murray Bookchin), 160
Hersey, John, 72, 85
Hirsch, Eric, 214n23
Hughes, Thomas, 145, 150, 173
Humboldt, Friedrich Wilhelm Heinrich Alexander von, 96
Huxley, Aldous, 75
hybridity and hybridization, 5–6, 50–51, 57, 104
imperialism, 5, 7, 102
Inglehart, Ronald, 59
inhabitation, 10–12, 21, 33, 35, 43–44, 61, 65, 70, 79, 81, 121, 123, 151–54, 177, 194, 201, 206–07, 210, 213n20; re-inhabitation, 29, 50
Internet. See computers/computing
Ishimure, Michiko, 133
Jameson, Fredric, 7–8, 50, 75
Japp, Klaus Peter, 220n7
Jasanoff, Sheila, 7, 24, 28–29, 137
Jonas, Hans, 33, 35
Joyce, James, 96, 174, 223n18
Kakutani, Michiko, 172, 222n12
Kalof, Linda, 126
Kant, Immanuel, 57
Kasperson, Roger, 130, 150, 221n16
Kaufmann, Eva, 182
Keith, Michael, 214n23
Kern, Robert, 42
Kerouac, Jack, 49
Kerridge, Richard, 222n4, 222n10
Kiefer, Chris, 158
Killingsworth, Michael, 26, 141–42, 212n6, 217n9
Kirn, Walter, 172, 222n11
Klima, John, 65–67, 90, 209
Knight, Norman L., 71–72
Kononenko, Natalie, 223n3
Kornbluth, Cyril, 26, 71
Kramer, Andrew E., 216n37
Krech, Shepard, 33, 212n14
Kunreuther, Howard C., 221n18
Kurosawa, Akira, 220n8
Laing, Jonathan R., 216n2, 216n4
land erotic, 10, 29
land ethic, 10, 29, 35–36
Lash, Scott, 52, 146, 214n27, 221n13
Laumer, Keith, 71
Le Guin, Ursula K., 17–18, 20, 29, 65, 211n1–2, 215n28
Leach, William, 49, 214n25
LeClair, Tom, 223n17
Lee, Rachel, 218n3
Lefebvre, Henri, 45–46
Lentricchia, Frank, 222n4
Leopold, Aldo, 29, 35–36, 212n10
Lévi-Strauss, Claude, 93, 96–97
Ley, Eryl V., 214n23
Lichtenstein, Sarah, 126
Liverman, Diana M., 221n16
localism/local, the, 214n23; critiques of, 6, 7, 45–48, 211n20, 214n23; and critique of modernity, 34–36; in environmentalism, 8–9, 29–44, 221n20; and the global, 37–41, 102–15, 123, 151–59, 174–77, 181, 188–191, 194–98, 200–01, 208, 210, 216n35; the glocal 51–52; in identity politics,
5, 45, 50; and modernization, 51–55, 145; and resistance to globalization, 6–7, 221n16; and situated knowledge, 5, 28, 37, 40–41, 43–44, 53–56, 213n20; the translocal, 121, 153. See also place
Löfstedt, Ragnar E., 138, 219n11
Lohmann, Larry, 211n2
Lopez, Barry, 42
Loren, Wendy, 126
Love Canal, 126, 133, 153, 160, 220n8
Love, Glen, 42, 212n12
Lovell, Nadia, 214n23
Lovelock, James, 19, 22–27, 63, 112, 140, 150, 211n2–3, 212n5. See also Gaia hypothesis
Luhmann, Niklas, 220n7
Lull, James, 211n2
Lupton, Deborah, 129, 131, 133, 136, 219n1
Magenau, Jörg, 182, 185, 223n7
Maltby, Paul, 222n4
Malthus, Thomas, 71, 74, 79, 84
Manovich, Lev, 67
Marcuse, Herbert, 217n12
Marsh, George Perkins, 49, 140
Martello, Marybeth Long, 7
Martínez-Alier, Juan, 149
Marvell, Andrew, 18–19
Marx, Karl, 32, 45, 57, 156
Marx, Leo, 30, 212n12
Massey, Doreen, 46
Mazur, Allan, 126, 220n8
McGrew, Anthony, 6, 57
McHale, Brian, 169
McKibben, Bill, 80
McLuhan, Marshall, 22, 63, 87
McMullin, Robert, 77
Mecio, Mary, 201
Meadows, Dennis, 25, 80, 132
Meadows, Donella, 22, 25, 80, 132
Medvedev, Grigori 223n1
Mendes, Chico, 91, 100
Merchant, Carolyn, 212n5
Merleau-Ponty, Maurice, 35, 216n33
Meyrowitz, Joshua, 54
Mignolo, Walter, 6, 57–58
migration, 5–6, 31, 40–41, 44, 51, 55–58, 70
Mirsadji, Ali, 7
mobility, 5–6, 19, 31, 33, 40–41, 44, 48–51, 55–58, 70, 111, 112, 152; and modernization/globalization, 52–53, 214n27; in the U.S., 9, 31, 48–49
modernization, 4, 12, 32, 36, 51–54, 94, 122–24, 137, 143–46, 151, 221n3; postmodernization, 51
Monet, Claude, 94, 96
Moore, Michael, 129
Moses, Michael Valdez, 222n3
Mould, R. E., 223n1–2
Mugerauer, Robert, 214n23
Muir, John, 24, 42
Murphy, Patrick D., 61, 213–14n22, 218n2, 224n2
Musil, Robert, 77
Myrdal, Mary, 201
Nabhan, Gary, 61
Nadler, Maggie, 72
Naess, Arne, 31, 34–35, 40
Nalewski, Horst, 185, 223n7
nation/nationalism, and environmentalism, 8–9, 37, 43–44, 47, 60, 156–57; and identity, 4–7, 42, 45, 57–58, 61–62; critiques of, 5, 30, 34, 37, 56–57, 213–14n22; as "imagined community," 5, 57; and resistance to globalization, 6–7; and postnationalism, 45, 155; and transnationalism, 6, 12, 43–44, 50–51, 57;
Nelkin, Dorothy, 135
Nelson, Lin, 220n7
networks, 18, 20, 35, 40, 50, 51, 54, 55, 56, 61, 65, 67, 70, 71, 81, 82, 90, 100, 101, 102, 123, 130, 140, 145, 146, 155, 174, 175, 176, 177, 188, 191, 197, 200, 201, 210, 217n18; technological networks as metaphor for ecological networks, 65, 77, 90, 209

Index 247
Niven, Larry, 72
nomadism, 5, 9, 31, 33, 48–51, 57
noosphere, 83
nuclear energy and technology, 56, 60, 125, 130, 133–34, 144, 182–84, 192, 202–03, 221n11
nuclear risk, 20, 26, 53, 123–24, 128, 133, 141, 178–79, 183, 190–93, 200–01, 205, 221n12, 221n1. See also Chernobyl
Nussbaum, Martha, 6, 57–58, 216n31
O’Hanlon, Michael, 214n23
Olander, Joseph D., 217n17
O’Malley, P., 131
Ong, Athwa, 6, 57, 216n35
Onyshkevych, Larissa M. L. Zaleska, 223n3
Orellana, Francisco, 96
Orwell, George, 75
Osteen, Mark, 222n2
Otway, Harry, 132
Packard, Vance, 49
Palmer, Jacqueline, 26, 141–42, 212n6, 217n9
Palmlund, Ingar, 220n8
paranoia. See global connectedness
pastoral, 30, 64, 105, 122, 138–41, 159, 171, 185, 190, 212n12
Peña, Devon, 32
Perloff, Marjorie, 218n21
Perrow, Charles, 143–45, 150, 202, 220n3, 221n11–12
Peters, Ellen M., 130
phenomenology, 35–37, 213n18, 216n13
Phillips, Dana, 64, 216n35
Pierson, George W., 49
Pile, Steve, 214n23
Pinheiro, Wilson, 91
place, and autonomy, 30, 32, 48; and body, 29, 30; and community, 29, 32, 36, 47, 48, 76, 152, 155–56, 181, 213n20; cultural construction of, 45, 46; definitions of, 45; and identity, 32, 39, 42–44, 45, 57; and Native American cultures, 29, 32–33; nonplaces, 52; and scale, 34, 37, 47, 59, 61, 123, 209; and sedentarism/migration/mobility, 5–6, 31, 32, 40, 48–49, 51, 52–53, 152, 194, 201; and overcrowding, 75–76, 90; and phenomenology, 35; and progressive politics, 47–48; and the rural, 29; and sense perception, 30, 39, 40–41, 62, 194–95; social production of, 45–46; and spirituality, 39, 41, 45; in U.S. culture, 44–49; and wilderness, 30; virtual, 11, 67, 78–79, 83, 87–88, 90, 209, 217n15, 217n16
planetarity, 215n28
Playmobil, 120–21
Plumwood, Val, 212n13
Pohl, Frederik, 26, 71, 180
Pollock, Sheldon, 215–16n30
population growth, 11, 26, 66–76, 79–90, 141, 205, 208, 216n1, 217n10, 217n12, 217n19
Posnock, Ross, 215n29
Pournelle, Jerry E., 72
Prazniak, Roxann, 6
precautionary principle, 134
psychometric paradigm. See risk theory
Pynchon, Thomas, 26, 75, 161, 176, 212n7
Quinn, Paul, 222n11
radiation and radioactivity, 121, 125, 160, 164, 178–85, 190–94, 201–02
Rayner, Steve, 128–29, 220n5
Rechtien, Renate, 188
Reed, T. V., 31, 158
Reeve, N. H., 222n4, 222n10
Regna, Joseph, 134–35
Rey, William H., 182
Riesman, David, 217n12
risk, 11–13, 22, 31, 172–73, 186, 191–92, 202, 208–09, 220n8, 221n17, 222n6; and benefits, 125; and class, 146–47, 148–50, 165–66, 170; and complex sys-
tems, 143–45, 161, 173–74; and community, 13, 152, 155–56; and dread, 125, 131, 144; and gender, 126, 128, 220n7; and insurance, 131, 145, 165; and race, 126, 128; and social amplification, 130, 220n6; and system accidents, 143–44; systemic vs. cumulative, 153, 155; and trust, 126, 146, 220n4; voluntary vs. involuntary risk, 125, 166–67, 220n3

risk analysis. See risk

risk assessment, 11–12, 121–27, 131–36, 144, 161, 166–69, 177, 183, 189–90, 206, 220n3–4

risk perceptions. See risk assessment


risk theory, 11, 13, 122, 124, 134–37, 141, 144, 161, 164, 169, 219nn1–2, 220n7, 221n18; and cultural theory, 127–30; and governmentality, 131; and the psychometric paradigm, 124–27, 130–32, 135, 144, 220n3, 220n7

Robbins, Bruce, 6, 57–58, 214n23, 216n31

Roberts, Keith, 71

Robertson, Roland, 51

Robinson, Kim Stanley, 80–81, 207, 209

Rody, Caroline, 112, 219n12

Ross, Andrew, 137, 161

Royce, Josiah, 49

Rudd, Robert L., 160

Saalmann, Dieter, 223n6

Sachs, Wolfgang, 24, 211n4

Sale, Kirkpatrick, 31, 34–35, 40, 46–47

Sanders, Scott Russell, 31–32, 38, 48–49

Sarmiento, Domingo Faustino, 49

Sauer, Rob, 72

satire, 3, 161, 167–69, 176, 177, 206, 222n10

Scheese, Don, 212n12

Schneider, Stephen, 205


science fiction, 3, 17–19, 26, 71–85, 113, 128, 180, 206–08

Scott, A. O., 163, 222n5, 222nn11–12, 222n15, 223n19

Seamon, David, 214n23

secondhand nonexperience (Beck), 150–51, 153, 168, 200, 206n17

Serafin, Rafal, 212n5

Shepard, Paul, 29

Shiva, Vandana, 60, 62, 211n2, 212–13n14

Silko, Leslie Marmon, 33

Silverberg, Robert, 72, 75, 85, 206

Simpson, David, 214n23

Sjöberg, Lennart, 131, 137

Sklar, Leslie, 4

Skrbis, Zlatko, 58, 214n30

Slovic, Paul, 126, 130, 221n18

Smith, Mick, 213n16

Smith, Neil, 46

Smith, Roberta, 93, 97–98

Snyder, Gary, 29–30, 38, 42–44, 48, 72, 212n10, 212n12

Soderbergh, Steven, 160

Soja, Edward W., 214n23

Solnit, Rebecca, 214n24

Spaceship Earth, 20, 24–25, 63. See also Fuller, Buckminster

Spiegelman, Art, 125

Spignier, Clarence, 126

Spinrad, Norman, 77, 206

Spivak, Gayatri Chakravorty, 24, 215n28

Stableford, Brian, 217n6

Starr, Chauncey, 124, 219n1

Staudenmaier, Peter, 47

Steger, Mary Ann E., 126

Steiner, Michael, 49, 214n23

Steingraber, Sandra, 134, 160

Sterling, Bruce, 206

Stern, Paul C., 126

Index 249
Stone, Christopher D., 61
Suárez, José I., 218n9
Sukenick, Ron, 137–38
Swirski, Peter, 217n11
Sze, Julie, 32, 218n2
Teilhard de Chardin, Pierre, 83, 217n18
Tepper, Sheri S., 80
Theisen, Bianca, 222n9
“Think globally, act locally,” 20, 38, 39, 85
Thomashow, Mitchell, 39–41, 44, 49, 55, 62, 213n21
Thoreau, Henry David, 41–42, 48
Toadvine, Ted, 213n18
Tocqueville, Alexis de, 48
Tomlins, Jack E., 218n9
Tomlinson, Charles, 49
Tomlinson, John, 6, 33, 52–53, 57.
211n2
Tuan, Yi-Fu, 36–37
Tung, Lee, 71
Turkle, Sherry, 217n16
Turner, B. L., II, 153
Turner, George, 80, 207–08
Turney, Jon, 137
Twohy, David, 206
Urry, John, 52, 214n27
Utopianism, 8, 20–21, 25–28, 38, 43, 50, 70, 81–89, 102, 104, 209, 222n16, 223n7; dystopianism, 50, 70, 75–76, 89
Vargo, George J., 223n1
Vonnegut, Kurt, 71–72
Voznesenskaya, Julia, 180
Walker, Vern, 221n18
Wallenstein, Immanuel, 4
Wark, McKenzie, 62
Wattenberg, Ben J., 216n2
Weaver, Frederick, 7
Weightman, Doreen, 218n1
Weightman, John, 218n1
Weiss, Sydna Stern, 182, 223n3
Welch, Derek, 119, 201
West, Russell, 185, 224n10
Westling, Louise, 30, 212n11, 213n18
Wildavsky, Aaron, 127–29, 135–36, 144
Wildier, Thornton, 49
Williams, Jeffrey, 172–73, 222n14, 222–23n16–18
Williams, Raymond, 212n12
Williams, Terry Tempest, 30, 42, 212n11, 221n1
Winnard, Andrew, 223n7, 224n10–11
Winner, Langdon, 133, 135
Winter, Patricia L., 126
Witte, Stephanie L., 126
Wohmann, Gabriele, 13, 123, 154, 181, 191–200, 210, 221n10, 223n3, 224n15
Woolf, Virginia, 77, 191
Worster, Donald, 216n36
Wynne, Brian, 126, 132, 137
Zabytko, Irene, 180
Zaillian, Stephen, 160
Zimmerman, Michael E., 213n18