Second Edition

Environmental Sociology

From Analysis to Action

edited by

Leslie King and Deborah McCarthy

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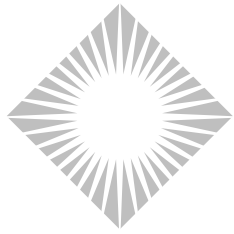

Edited by Leslie King
and Deborah McCarthy

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Preface

We both strongly believe that humans have come to a turning point in terms of our destruction of ecological resources and endangerment of human health. A daily look at the major newspapers points, without fail, to worsening environmental problems (and sometimes, but not often enough, a hopeful solution). Humans created these problems and we have the power to resolve them. Naturally, the longer we wait, the more devastating the problems will become; and the more we ignore the sociological dimensions of environmental decline the more our proposed solutions will fail.

Out of our concern for and dedication to bringing about a more sustainable future, we have both worked hard to develop environmental sociology courses that not only educate students about environmental issues but also show them their potential role as facilitators of well-informed change. This reader results in large part from our commitment to the idea that sociology can be a starting point for social change and we have sought to include in it work that reflects our vision.

We actively looked for readings that interest, motivate, and make sense to an undergraduate audience. Choosing which selections to include has been exciting and thought provoking but not without a few dilemmas. We do not include works published before about 1990. That choice sprang from our observation that undergraduate students tend to be more interested in current work. In addition, several other good edited volumes and readers include the "classics," so we did not see a need to reinvent the wheel. One of our most difficult decisions was to leave out many "big name" researchers who have profoundly influenced the field. Some of this work represents a dialogue with a long and intertwined body of thought and research. Understanding such a dialogue would require reading the lineage of research leading up to it. In addition, much of the

theoretical work in environmental sociology (as in most of our subdisciplines) engages important, but very specialized, issues.

As a way of providing students with a beginning understanding of this lineage, our introductory chapter presents a brief overview of the field with extensive footnotes for students wishing to explore specific theoretical perspectives in greater depth. This introductory chapter is balanced by the works in the reader itself—recent articles and book chapters that illustrate a wide variety of ways that sociologists might address environmental questions.

We also wanted this reader to be accessible to a maximum number of instructors, whether or not they are specialists in environmental sociology. Most sociologists and social scientists we know speak the language of inequalities, political economy, and social constructionism; we tend not to be as fluent in the biological and mechanical details of energy production, watershed management, or climate change. Thus we organized our reader not by environmental issue but by sociological perspective. The reader frames the issues in terms of sociological concepts (e.g., race, political economy, social movements) and seeks to show students how sociologists might go about examining environment-related issues. We do want to emphasize, though, that in developing the reader's conceptual blocks, we were careful to cover a broad range of topics—from coal mining to lead poisoning to food production.

Ultimately, we think the most important feature of the reader is not the topics we chose or how we decided to organize the different pieces into categories, rather, it is that woven throughout the collection in the choice of material is the connection between power and environmental decision making. All of the pieces address either systems of power relations (e.g., the relations between the globalization of Western culture and the impact of the automobile infrastructure on lower-income countries) or individual levels of power (e.g., empowering consumers to buy "green"). We believe that good environmental decision making must incorporate sociological perspectives and we hope that increasing numbers of activists, policy makers, and academics will benefit from these frameworks.

Changes to the Second Edition

In this second edition we have tried to stay true to our original goal: to provide a set of readings, organized by sociological category, that will engage undergraduate students in the subdiscipline and assist instructors new to the field. As with the selections for the first edition, we chose fairly recent work for the new additions—the earliest publication date is 2002. We have added a new section on social constructionism and, reluctantly, deleted the section on work. We have expanded the section "Science, Risk, and Health" to mirror the interest in that field. We have also added a piece on climate change and some new selections for the "Thinking about Change" section.

Acknowledgments

Thanks are still in order for those who helped with our first edition: Brian Romer, our first-edition editor, and our fantasic student assistant Elisabeth Gish. We wish to thank our current editor at Rowman & Littlefield, Alan McClare, for his patience and encouragement. For their excellent work on this second edition, we also thank Ella Hartenian, Olivia Ryan, Kia Jenkins, and Meredith Trevino. Thanks also to Krista Harper, Daniel Faber, Angela Halfacer, Tracy Burkett, and several anonymous reviewers for comments and suggestions on various parts of the text and thanks to Terri Boddorff for assistance on obtaining permissions to use our excerpts.

Introduction

Environmental Problems Require Social Solutions

Deborah McCarthy and Leslie King

What Is Environmental Sociology?

What is environmental sociology? The short answer involves exploring two ideas: sociology and environment. Sociology is, above all else, a way of viewing and understanding the social world. It allows us to better understand social organization, inequalities, and all sorts of human interaction. Sociology is a multifaceted discipline that theorists and practitioners use in diverse ways and, along with many others (e.g., Feagin and Vera 2001), we think it has the potential to help us create a more just world. *Environment*, like *sociology*, can be an elusive term. Is the environment somewhere outside, "in nature," untouched by humans? Or are humans part of the environment? Does it include places where you live and work and what you eat and breathe? Or is it more remote: the rolling valleys of the Blue Ridge Mountains, the pristine waters of Lake Tahoe, the lush rainforests of Brazil?

For environmental sociologists the answer is that the "environment" encompasses the most remote regions of the earth as well as all the bits and pieces of our daily lives—from the cleaners we use to wash our carpets to the air we breathe on our way to work each day. We sociologists assume, first and foremost, that humans are part of the environment and that the environment and society can only be fully understood in relation to each other. We build on

this understanding to point to fissures that are developing in the relationship between humans and nature. These are problems that humans both have contributed to and are feverishly attempting to solve. Our lack of understanding about the human/nature relationship has led to some of our worst environmental problems—climate change, ozone depletion, and so on—and has limited our ability to solve those problems.

In fact, some of our attempts to solve environmental problems have actually made them worse. The Green Revolution is an example. The goal of the Green Revolution was to increase world food yields through the transfer of Western agricultural techniques, knowledge, and equipment to lower-income countries. This shift in agricultural methods massively reorganized agricultural production on a global scale. Although the global rates of food production increased, the revolution, with its focus on export crop production, for-profit rather than sustainable agriculture, mechanization, and heavy pesticide and fertilizer use, contributed to the destabilization of social, political, and ecological systems in many regions of the world (Dowie 2001: 106–140). For example, farmers must now engage in a money economy in order to pay for pesticides and herbicides and, as a result, many small-scale, less affluent farmers have lost their land (Bell 1998). What is more, as Peter Rosset and colleagues (2000) point out, an increase in food production does not necessarily lead to a decrease in hunger. In their words, "narrowly focusing on increasing production—as the Green Revolution does—cannot alleviate hunger because it fails to alter the tightly concentrated distribution of economic power, especially access to land and purchasing power. . . . In a nutshell—if the poor don't have the money to buy food, increased production is not going to help them." With a better understanding of how humans and nature interact and a willingness to learn from past mistakes and misunderstandings, we can prevent such problems from occurring again and build a more socially and environmentally sustainable future. This collection of readings represents a broad sample of work by many writers and researchers who are attempting to do just that.

Environmental Problems Are Social Problems

Sociologists, by focusing their research on questions of inequality, culture, power and politics, the relationship between government and economy, and other societal issues, bring a perspective to environmental problem-solving that is quite different from that of most natural and physical scientists. Take the following examples: the catastrophe in Bhopal, India, in 1984; the 1989 *Exxon Valdez* oil spill in Alaska; the devastating impact of the 2005 hurricane Katrina on communities in Louisiana and Mississippi; the massive contamination of the Love Canal community in Niagara Falls, New York, in the late 1970s; the ongoing air pollution problems in the United States; and global climate change. Why are

those not uniquely "natural science" issues? The answer is that these "disasters" are not out of our control; they are not "accidents" as we sometimes hear them referred to in the news media. In each of these cases (briefly summarized below), and many other cases too numerous to mention, it was social organization—a series of identifiable managerial steps, collection of beliefs, set of regulations, or other social structures—that led to the environmental problems.

- BHOPAL, INDIA: In 1984, the Union Carbide pesticide plant in Bhopal leaked forty tons of lethal methyl isocyanate (MIC) into the low-income communities of Bhopal. Varying estimates indicate that between 3,000 and 16,000 people died immediately and at least 500,000 more were permanently injured. This was far from a mere "technological accident." As many social science and journalistic studies attest, the mismanagement of the Bhopal plant almost guaranteed a disaster. In short, Union Carbide, in an attempt to cut costs, took advantage of a repressed and desperate workforce to construct and manage the plant in an unsafe manner. Twenty-five years later the site, which was turned over to the state government in 1998, still has not been cleaned up. Though over 20,000 people continue to live in slums in close proximity to the site and though community members experience a host of illnesses (including gastrointestinal, gynecological, neurological, immunological, and respiratory ailments; cancers; and birth defects) the degree of contamination to soil and water has never been adequately tested.[1]
- *EXXON VALDEZ*: The story of the *Exxon Valdez* disaster along Alaska's shoreline is also, sadly, the story of a preventable "accident." Exxon, as well as other members of the oil industry, waged a successful public relations campaign to convince Congress that requiring tankers to utilize double hulls would be too expensive and therefore dangerous to the industry's profits. Exxon also spent the 1960s and 1970s working to delay and avoid Alaska's attempts to raise taxes on tankers entering the Prince William Sound that didn't comply with the state's regulations. The groundwork for the largest-ever crude oil disaster in U.S. history had been successfully laid; in 1989 the *Exxon Valdez* tanker got stuck on Bligh Reef and spewed over 38,000 tons of oil into the Prince William Sound (BBC News World Edition 2002), contaminating approximately 1,200 miles of coastline and a national forest, four national wildlife refuges, three national parks, five state parks, four state critical habitat areas, and a state game sanctuary. In just one example of the impact of the spill on wildlife, it killed an estimated 3,500–5,500 sea otters and 300,000–675,000 birds (Vicini 2008; Greenpeace 1999). The spill also nearly devastated the local fishing and seafood packaging industries (not to mention the serious impact on the national insurance industry).[2]

Despite the widespread ecological and economic damage caused by the spill, Exxon Mobil utilized the legal system to successfully fight payment of punitive damages. A federal jury originally ordered Exxon Mobil to pay 5 billion dollars in damages. Later a federal judge reduced this to 4.5 billion, and an appeals court then reduced it further to 2.5 billion. Finally in 2008, the U.S. Supreme Court reduced the 2.5 billion in damages to 507.5 million (Vicini 2008).

- HURRICANE KATRINA: Hurricane Katrina hit the Gulf Coast of Louisiana and Mississippi on August 29, 2005. With a storm surge of 20 to 32 feet, Katrina did enormous damage; over 1,800 people were killed, and between 700,000 and 1.2 million people were displaced (Gabe, Falk, and McCarty 2005; Picou and Marshall 2007). New Orleans was devastated as its levees were breeched and the city flooded. While hurricanes are typically considered "natural disasters," Katrina's extreme consequences must be considered the result of social and political failures. Prior to Katrina, it was known that New Orleans was at risk for flooding in the event of a powerful storm. According to author Jenni Bergal (2007: 4), "Numerous studies before Katrina cautioned that storm protection plans weren't moving fast enough, that the levees might not hold in a strong hurricane, that the U.S. Army Corps of Engineers had used outdated data in its engineering plans to build the levees and floodwalls and that the wetlands buffering the area from storms were disappearing." Coastal land that protected New Orleans had been lost due to human activities including settlement, the building of canals to promote shipping, and the digging of channels for oil and gas pipelines (Hiles 2007). The levee system that provided additional protection was vulnerable due, among other things, to design errors; and the emergency response that should have assisted residents in the aftermath of the storm proved grossly inadequate (McQuaid 2007).

The *Exxon Valdez* and Bhopal events and Hurricane Katrina represent crises that occurred in a flash and left immediately visible human and ecological tragedies in their wakes. Environmental disasters also occur in slow motion and inflict damages that are harder to detect but no less severe. This is the kind of disaster that occurred at Love Canal in Niagara, New York, and it is the kind of disaster that we all are watching as air pollution and climate warming continue to worsen. Like Bhopal and *Exxon Valdez*, these "slow motion" environmental problems also have their roots in human decision-making and social structure.

- LOVE CANAL: In the case of Love Canal, tragedy was created by corporate and governmental decisions that were based on maximizing profits rather than social welfare. The first chapters of the Love Canal horror

were written by a powerful corporation that attempted to reduce costs by selling its contaminated land to a local government for use as housing and then, when serious problems were discovered years later, acted to deny liability and subvert the regulatory functioning of local and federal government. In 1953, Love Canal, which had operated as a chemical waste dump since the 1920s, was covered and sold by the Hooker Chemical Company to the city of Niagara for one dollar. Subsequently, homes and a school were built at the site. By the 1970s, the residents began noticing the frightening consequences of living on a former toxic waste dump, including: the emergence of corroding waste-disposal drums in residents' backyards after a heavy rain; the death of foliage, birds, and pets; the appearance of strange chemical smells that were often concentrated in residents' basements; the appearance of burns and rashes on children's hands and faces; and the increased rate of miscarriages, birth defects, cancers, and central nervous system disorders. In 1980, after much resistance on the part of local government and even the Environmental Protection Agency, massive activism on the part of community members led to a $15 million federal fund that was used to evacuate almost 900 families in the contaminated area.[3]

- AIR POLLUTION: The ongoing danger presented by a host of air pollution problems in the United States has roots in many social processes, one being the inability of governmental policies and laws to regulate industry amidst the rise of neoliberal style economics, with its emphasis on deregulation and corporate rights, and the increasing monetary and political power of corporations. The 1970 Clean Air Act (and its 1977 and 1990 amendments), sets standards for air pollution levels, regulates emissions from stationary sources, approves state implementation plans for achieving federal standards, and sets emissions standards for motor vehicles (Rosenbaum 2002). While air quality has improved since 1970, this behemoth-size package of regulations has failed to address many of our known air pollution problems. For example, two kinds of air pollution—ground-level ozone and fine particulates, which are both created by cars and trucks—continue to persist at dangerous levels in the United States. Ground-level ozone, a component of smog, exacerbates many respiratory problems including asthma. Health standards for ozone are exceeded at 95 percent of monitoring sites in the United States. Fine particulates also continue to pose serious health problems and are estimated to kill twice as many people as automobile accidents each year (REHN 2001).
- GLOBAL CLIMATE CHANGE: The Intergovernmental Panel on Climate Change (IPCC) and most scientists believe that the warming of our global climate is unequivocal and is evident from documented increases in average air and ocean temperatures, widespread melting of snow and ice, and

a rising average sea level (IPCC 2007a). Climate warming is caused primarily by the increasing amounts of greenhouse gases released into the atmosphere, produced in large part by the burning of fossil fuels. The most recent IPCC report confirms that most of the observed climate change has been and is projected to be due to human-caused and not natural emissions of greenhouse gases (IPCC 2007b). Greenhouse gases trap heat, and are predicted to warm the earth by .2 degrees Celsius (.36 degrees Fahrenheit) per decade over the next two decades. Even if greenhouse gases were held constant at year 2000 levels, a further warming of .1 degree Celsius (.18 degrees Fahrenheit) per decade is expected. Significant warming has already occurred with eleven of the past twelve years being the warmest on record since 1850. Some of the expected ramifications of climate change include increased mortality, malnutrition and other health problems, and economic loss, due to increased flooding, increased drought, extremely dangerous temperature increases in some regions of the world, and increased severe weather (IPCC 2001; 2007a; EPA 2004). Climate warming continues to worsen, in part, because of national and international political practices and regulatory structures that place the interests of corporations over the interests of citizens. For instance, though the United States produces approximately one-third of all global carbon dioxide emissions, and though polls show repeatedly that the majority of the U.S. public supports a global climate treaty (Sussman 2001; Cushman 1997), in 2001 President George W. Bush nevertheless rejected the Kyoto Climate Treaty.[4] In addition, national governmental policies and many international treaties, such as NAFTA, exacerbate the release of fossil fuels into the atmosphere by subsidizing road construction, rather than public transportation, and by encouraging long-distance trade in which businesses produce goods in one place only to transport them across the globe for consumption in another. Under this "business as usual" scenario, it is predicted that global releases of greenhouse emissions will actually increase by 25–90 percent between the years 2000 and 2030 (IPCC 2000).

Some sociologists follow the crumb trail of social facts left behind by Love Canal, climate change, and other ecological stories, in order to envision for the future a more just and sustainable environment. Why should we assume that human ingenuity begins and ends with the invention of a deadly, yet extraordinarily powerful pesticide, such as Bhopal's methyl isocyanate? We have put our minds together to invent automobiles (which contribute to sprawl, asthma, and greenhouse gas production), polyvinyl chlorides (which are carcinogenic), and nuclear energy (which has led to the nuclear waste problem). Can we not put the same creative optimism and energy into preventing global climate change, regulating polyvinyl chlorides and other carcinogens, and developing safe forms of renewable energy?

The answer is, "Yes, but . . . ." On the one hand, the twentieth century brought us the passage of several environment-related laws,[5] as well as the explosion of environmental activism and legislation that marked the 1970s as the "environmental decade" in the United States. This one decade alone, for example, is witness to the successful passage of the 1970 National Environmental Policy Act (NEPA), the 1970 Clean Air Act, the 1972 Water Pollution Control Act (Clean Water Act), the 1976 Toxic Substances Control Act, and the 1977 Surface Mining Control and Reclamation Act, to name a few.[6] There is little doubt that ecological problems would be much worse absent these environmental laws and the current system of regulation. On the other hand, it is increasingly apparent, as noted earlier, that many of our environmental problems have worsened and several new environmental problems have appeared since the "environmental decade."[7] For example, industries across the United States continue to pump billions of pounds of toxic chemicals into our air, land, and water each year. In terms of releases to the air and water, in just one year, U.S. facilities released 70 million pounds of carcinogens, 96 million pounds of chemicals linked to developmental problems (i.e., birth defects and learning disabilities), 38 million pounds of chemicals linked to reproductive disorders, 1.5 million pounds of respiratory toxicants, and 826 million pounds of suspected neurological toxicants (U.S. PIRG 2007). For just a few more examples of the different types of environmental problems that we continue to face, witness that: U.S. agriculture now applies over 1 billion pounds of pesticides to crops each year (Montague 2006) leading to a host of problems including the fact that 80 percent of U.S. urban streams exceed pesticide safety limits for aquatic life (Gilliom et al. 2006); in the United States a woman's lifetime risk of breast cancer has nearly tripled during the past four decades and a recent compilation of over 350 studies suggests that much of this increase is due to environmental factors (Evans 2006); and people are routinely put in danger in their own homes by ingesting household dust laced with the toxic chemicals (Wu et al. 2007).

A good deal of our failure to successfully address these problems can be linked to a lack of understanding of what seemingly separate issues—like the Bhopal industrial leak and global climate change—have in common. The linkages among environmental abuse, poverty, inequality, racism, lack of democracy, and the increasing concentration of power within corporations form a complex social nexus that allows environmental degradation to continue and that prevents meaningful policy from being enacted. In almost all parts of the world, environmental laws have been poorly enforced, and when they are enforced, it is usually after the damage has already been done. In other words they focus on controlling pollutants/toxins after they have been released rather than preventing them from posing a threat.[8]

Environmental sociologists contend that environmental problems are inextricably linked to societal issues (such as inequality, democracy, and economics). Endocrine disrupting hormones, bioengineered foods, ocean dumping,

deforestation, asthma, and so on, are each interwoven with economics, politics, culture, television, religious worldviews, advertising, philosophy, and a whole complex tapestry of societal institutions, beliefs, and practices. Environmental sociology teaches us that a pesticide, such as Bhopal's methyl isocyanate, is not inherently "bad." Rather, the social organization of the pesticide industry is problematic. Blaming methyl isocyanate for the death toll in Bhopal's factory leak is like cursing the chair after you stub your toe on it. Humans invent pesticides, and humans decide how to manage those chemicals once they have been produced. Who decides whether to ban or regulate a toxin? How do we decide this? Do some citizens have more say than others? How do the press, corporate advertising, and other forms of media shape our understanding of a dangerous chemical or pollutant? These are just a whisper of the chorus of questions sociologists are asking about environmental problems and their solutions.

While science and technology can help us to invent "safer" pesticides, they cannot tell us what is safe. Is it safe enough that a new pesticide causes 1 in 100,000 of those exposed to develop a form of cancer? What about 1 in 1,000,000? What do you do when the scientific studies contradict each other? Who decides which ones represent the "facts," and how do they decide? Or, finally, as a colleague commented, "We scientists might be able to tell you how much of a toxic chemical you can dump in the ocean without killing all the fish; but the important question—and one that the natural sciences can't answer—is 'Why are we dumping that chemical in the first place?'"

Sociology can also help us see that environmental concerns are not merely about individuals. Some people disregard environment-related problems, explaining that "life itself is a risky business and the issue is ultimately about choice and free will." Along this line, the argument is that just as we choose to engage in any number of risky activities (like downhill skiing without a helmet or eating deep-fried Twinkies), we also choose to risk the increased cancer rates that are associated with dry-cleaning solvents in order to have crisp, well-hung suits and dress shirts. A sociologist, however, would begin by pointing out that not everyone is involved in that choice and not every community experiences the same level of exposure to that toxin. As Steingraber (chapter 18) argues, the person who lives downstream from a solvent factory may not be the same person who chooses the convenience (and the risk) of dry-cleaned clothing.[9]

A Brief History of Environmental Sociology

In this section, we provide a broad and, by necessity, partial, overview of the emerging subdiscipline of environmental sociology. Let's start at the beginning: Auguste Comte first coined the term *sociology* in 1838. However, it wasn't until the late 1960s and the 1970s (the environmental decade) that a significant number of sociologists began studying the impacts of natural processes on humans

and its reverse—the social practices that organize our development and use of the products and technologies that impact ecological *and* human communities. Certainly many people in the early part of the twentieth century were interested in a wide range of environmental issues—from the conservation of vast expanses of wilderness to the improvement of urban spaces (see Taylor 1997). So why the long wait for an environment-focused sociology?

Part of the answer lies in the efforts of sociologists to establish the discipline of sociology as separate from other areas of study, especially the natural sciences (Hannigan 1995). Sociology provides an important counterpoint to the natural sciences by showing how social interaction, institutions, and beliefs shape human behavior—not just genetics, physiology, and the natural environment. In addition, the sociological perspective has been a crucial tool for dismantling attempts to use the natural sciences to justify ethnocentrism, racism, sexism, and homophobism. Sociologists have traditionally been reluctant, therefore, to venture outside the study of how various social processes (e.g., politics, culture, and economy) interact to look at human/nature interactions.[10] Writing about this trend in the discipline, Riley Dunlap and William Catton argued in the 1970s that sociologists should claim the study of the environment and not leave the "natural" world to natural and physical scientists (Catton and Dunlap 1978; Dunlap 1997). Catton and Dunlap thought environmental sociology ought to examine how humans alter their environments and also how they are affected by their environments. They developed a "new ecological paradigm," which represented an initial attempt to explore society-environment relations.

During the first decade of environmental sociology, researchers focused primarily on the same issues that the emerging environmental movement highlighted, including air and water pollution, solid and hazardous waste dumping, litter, urban decay, the preservation of wild areas and wildlife, and fossil fuel dependence. These problems were easy to measure and see: think of polluted rivers catching on fire, visible and smelly urban smog, ocean-dumping of solid and hazardous wastes, and the appearance of refuse along the side of the road. Most early sociological studies focused on people's attitudes toward problems and the impacts of those problems on demographic trends (for instance trends in health and mortality).[11]

As public and academic awareness of environmental issues has intensified, so has our understanding of the complexity of environmental problems. Potential and currently existing hazards that are socially, politically, and technologically complex, difficult to detect, potentially catastrophic, sometimes long-range in impact, and attributable to multiple causes (e.g., environmental racism, acid rain, rainforest destruction, ozone depletion, loss of biodiversity, technological accidents, and climate change)[12] began to attract the attention of the nascent environmental sociology community in the 1980s.[13] Environmental sociologists of the late twentieth and early twenty-first

centuries are studying a broad range of issues—from environmental racism[14] to strip mining[15] to lead poisoning.[16]

Social scientists have developed a number of specialist lenses to explore the increasingly complex relationships between environments and societies. Allan Schnaiberg (1980), for example, developed the concept of the "treadmill of production," which emphasized the tendency of capitalist production to constantly seek to expand. According to Schnaiberg and his colleagues, this emphasis on growth leads to increased resource consumption as well as the increased generation of wastes and pollutants (both from the by-products of production and from consumption). Thus, according to this perspective, capitalist production, by its very nature, is at odds with efforts to clean up or improve the environment.

James O'Connor, a key figure in the development of the ecosocialist perspective, also argues that environmental devastation and resource exhaustion are inevitable consequences of capitalist accumulation.[17] Other conceptualizations of the relationship between capitalism and the environment can be found in the work of Marxist-oriented scholars such as Juan Martinez-Alier (1997), Paul Burkett (1998), Daniel Faber (1993, 2008), John Bellamy Foster (2002), Barbara Rose Johnston (2003), Joel Kovel (2003), Ariel Salleh (1995), and many others.[18] For instance, Daniel Faber (1993) traces environmental destruction in Central America first to Spanish colonialism and, more recently, American imperialism. Faber documents the restructuring, in recent decades, of Central America's agricultural system into export-based and pesticide-reliant crop production at the expense of the health of Central America's people and land. The environmental devastation became especially profound in Nicaragua during the Nicaraguan revolution as the U.S.-backed Contras waged war not only on the Sandinista revolutionaries but also on nature itself. The Sandinistas had brought about significant environmental improvements during the early years of the revolution, and so parks and environmental projects became targets for the Contras.

Social ecologists, like ecosocialists, also draw on critiques of capitalism to direct attention to the intersection of ecodestruction with issues of class, race, and gender. Social ecologists, among them Murray Bookchin, believe that environmental destruction and human oppression are ultimately rooted in social hierarchy and that capitalist accumulation processes represent only one problematic manifestation of this hierarchy. Social ecologists, therefore, critique capitalist accumulation indirectly by way of their explicit critiques of hierarchy, including all types of state-, national- and international-level governance. The only viable solution, according to social ecologists, is the creation of a decentralized society in which citizens engage in direct democracy at the local and city levels and where production and industrial processes would be tailored to the resources of specific regions (Bookchin 1990).

A number of scholars are less critical of existing social and economic structures. Arthur P. Mol and others (e.g., Mol 1997; Spaargarten and Mol 1992) have

contributed to the development of a theoretical perspective known as ecological modernization, which calls our attention to the ways in which environmental degradation may be reduced or even reversed within our current system of institutions. Theorists working within this framework reject the notion that there is a fundamental opposition between the environment and the capitalist system of production and consumption. They believe that our institutions are capable of transforming themselves through the use of increasingly sophisticated technologies and that production processes in the future will have fewer negative environmental consequences. Maurie Cohen (2006) has recently argued that the inability of the U.S. environmental movement to embrace the principles of ecological modernization and its overreliance on litigation to produce change has deprived the United States of some of the sustainability successes witnessed in northern European countries, especially in regards to energy efficiency and the development of clean production technologies.

Yet another important set of theoretical perspectives to emerge in the realm of environmental sociology addresses the intersections of science and risk analysis. Ulrich Beck (1999), for example, has written that people in modern times feel increasingly at risk, due in large part to environmental degradation. Beck developed the concept of the *risk society*, which Michael Bell describes as "a society in which the central political conflicts are not class struggles over the distribution of money and resources but instead non-class-based struggles over the distribution of technological risk" (Bell 1998: 193). According to Beck (1999: 72), we are now at "a phase of development in modern society in which the social, political, ecological and individual risks created by the momentum of innovation increasingly elude the control and protective institutions of industrial society." Unlike authors such as Mol, who see science and technology as potentially improving environmental conditions, Beck examines how risks, and especially the social stresses associated with our perceptions of risks, are fostering a deterioration in our quality of life. In Beck's words the risk society concept "describes a stage of modernity in which the hazards produced in the growth of industrial society become predominant" (74).

The study of risks and health are necessarily interconnected, and many environmental sociologists focus their research on the health consequences of environmental risks and other types of degradation. In one recent study, Kari Marie Norgaard (2007) documents how, in a rural region of Northern California, controversy arose over the U.S. Forest Service's proposed use of herbicides on spotted knapweed. The Karuk Tribe and other community members, who perceived that they would suffer disproportionate health risks, successfully fought the Forest Service's plans for herbicide application. Norgaard shows that the question of who faces risks from modern technology, as well as perceptions about the existence of risks, is influenced by sociological factors such as gender, race, and power. In the case study by Norgaard, conflict arose partly because citizens had been left

out of policy deliberations over how to deal with the weed problem. Phil Brown and his colleagues (see, e.g., Brown and Mikkelsen 1990) document and promote the idea of "popular epidemiology"—a process whereby nonscientist citizens become active producers and users of scientific data. Brown and Mikkelson's book, *No Safe Place* describes how residents of Woburn, Massachusetts, identified and sought remediation for a cancer cluster caused by toxic chemicals in the water supply of certain parts of the town. Popular epidemiology requires more than the involvement of citizens in epidemiological decision making. In the words of Brown and Mikkelsen, it "goes further in emphasizing social structural factors as part of the causative chain of disease and in involving social movements, in utilizing political and judicial remedies, and in challenging basic assumptions of traditional epidemiology, risk assessment, and public health regulation" (1990: 126).

Theoretical perspectives such as the treadmill of production, ecosocialism, social ecology, ecological modernization, the risk society and popular epidemiology have been developed specifically to help us better understand the human/environment nexus. Many researchers, including those summarized above, also draw on more traditional sociological perspectives to study environment-related issues. For example, working within the tradition of sociological research that has long been interested in the creation and perpetuation of inequalities, some recent work applies theories of gender, race, and class to environmental injustices. The study of environmental justice is a major recent development that derives from a combination of social scientists' long-standing interest in inequalities and social movement activism that has sought to remedy environmental inequities. Another theoretical mainstay of sociology, the political economy perspective, is being used to examine the environmental implications of different types of relationships between business and politics. For example, in one recent cross-national examination of water pollution levels in fifty poor countries, researchers found that water pollution levels are higher in countries that carry larger international debt, experience more stringent structural requirements, and whose economies depend more heavily on industrial exports. They also found that poor countries that have a higher presence of international nongovernmental organizations experience lower water pollution levels (Shandra et al. 2008).

Finally, some authors (e.g., Greider and Garkovich 1994; Hannigan 1995; Burningham and Cooper 1999; Scarce 2000; Yearley 1992) use a social constructionist framework to examine environment-related questions. Social constructionism emphasizes the process through which concepts and beliefs about the world are formed (and reformed) and through which meanings are attached to things and events. Environmental sociologists often draw a distinction between the "realists," who prefer not to question "the material truth of environmental problems" (Bell 1998: 3), and the "constructionists," who emphasize the creation

of meaning—including the meaning of "environment" and "environmental problems"—as a social process (see Bell 1998; Lidskog 2001). However, it is important to note that, as Burningham and Cooper (1999) argue, all sociology is, to some extent, constructionist. Thus, the distinction between "realists" and "constructionists" might better be explained as the difference in the extent to which the authors *emphasize* the process through which meanings are created. Some recent studies within this field include: research on the construction of pigeons as "problem animals" in New York City (Colin 2008); a case study on how two coastal communities in the sea islands of South Carolina, one comprised mostly of African American residents and one mostly of white residents, perceive recent urbanization and growth in their town (Johnson and Floyd 2006); and a theoretical exploration of how the human role in the ecosystem becomes ambiguous when we view nature, in this case oceans, as objects of consumption and beauty rather than as environments within which to live and work (King 2005).

A Look at What's Included in the Reader

The roots of environmental sociology run deep and wide for such a relatively new field of study. The terrain of environmental sociology at the dawn of this new century could perhaps best be described as a collage rather than a cohesive structure of theory and research. This collage reflects the increasingly complex and global nature of our environmental challenges. Our intent in creating this reader is to provide a buffet of issues and perspectives on environmental sociology so that you can sample a wide variety of pieces. Later, when you know what you like, go to the library for seconds!

As mentioned above, often the theories used by sociologists and other social researchers to study environment-related topics build upon the same theories sociologists use to study most anything else. The pieces presented in our reader reflect that theoretical lineage. We include three works that use a political economy perspective, examining how, for example, corporations gain government support for various initiatives or whether concepts such as sustainable development might better be termed "sustainable capitalism." For instance, John Bellamy Foster asks whether the excesses of capitalism (with its attendant overconsumption, overuse of resources, unequal distribution of both wealth and environmental destruction, and often environmentally damaging production techniques) can be rendered more environmentally accountable (chapter 1).[19] Julia Fox examines the coal industry's control over both the elected government officials and regulatory agencies in West Virginia and the consequent problems with water contamination, deforestation, and other forms of environmental degradation (chapter 2). Allan Schnaiburg and Kenneth Alan Gould (chapter 3) argue that there is a fundamental conflict between capitalism's need for constant expansion and the protection of the environment.

Other authors examine the relationship between social inequality and environmental degradation—an issue central to many recent sociological studies of the environment. These studies ask questions regarding how capitalism, racism, sexism, and so forth, foster environmental injustices or inequalities. Robert Bullard and Glenn Johnson (chapter 4) provide a chronology of the key policy successes and challenges of environmental justice activists and supporters over several decades of struggle. The piece by Lois Bryson, Kathleen McPhillips, and Kathryn Robinson (chapter 5) examines the gender and class dimensions of Australian lead pollution policies and public health projects. Finally, David Pellow (chapter 6), describes how race and class inequalities play out in the recycling industry in Chicago.

The third section of the reader includes two pieces that use a social constructionist framework to examine the how people's understanding of nature and environment are produced. J. Sanford Rikoon (chapter 7) analyzes how different groups may have more or less power to impose their own understandings of nature. In our society, corporations have the power to influence how we think about the world, and Susan Davis (chapter 8) explores a corporation's purposeful construction of nature and "nature experiences" in a theme park. In the fourth section—on corporate responsibility—the excerpt by Thomas Beamish (chapter 9) uses organizational theories to illuminate an ongoing "accident" within a large corporation, while the piece by Gerald Markowitz and David Rosner (chapter 10) provides a historical perspective on corporations and environmental health.

The process of globalization has profound implications for local and global environments as well as for social movement activists working to improve environmental quality. Daniel Faber (chapter 11) explains how environmental inequalities have deepened as a result of globalization. Peter Freund and George Martin examine the spread of automobile culture and infrastructure across the globe and its impacts on lower-income nations (chapter 12)

Researchers are increasingly studying how media and popular culture both reflect and shape our understanding of the human/nature relationship. Robin Andersen (chapter 13) examines how corporate advertising uses images of pristine nature to sell products that ultimately contribute to the destruction of many of those environments. Anne Marie Todd (chapter 14) argues that in some instances television has the potential to raise awareness of environmental degradation while entertaining us and even making us laugh.

A large number of studies in environmental sociology focus on science, health, and/or risk. The piece by Connie Ozawa (chapter 15) examines how science has been used by various kinds of stakeholders in a wide range of environmental conflicts. Nelta Edwards (chapter 16) illuminates the limits of traditional scientific methods for determining health risks and creating meaningful policy. Sherry Cable, Thomas Shriver, and Tamara Mix (chapter 17)

examine how workers' claims of environment-related illness are contested by their employers and other powerful actors. In chapter 18, Sandra Steingraber provides a very personal account of her experience with cancer and discusses the role of scientific knowledge as it relates to human health.

A growing body of literature examines environmental movements that seek to effect various types of environment-related change. Dorceta Taylor (chapter 19) provides a historical overview of the relationships of people of color, women, and middle- and working-class whites to various environment-related movements in the United States. Mik Moore (chapter 20), discusses how the traditional Native American philosophy acted as a crucial symbolic resource for both the Native communities and the environmental organizations that were struggling against the construction of a dam in California. Kari Marie Norgaard (chapter 21), in a case study on global warming perceptions in Norway, examines what prevents some people from engaging in environmental change activities.

As students become aware of environmental and social inequalities and injustices many naturally want to use their sociological knowledge to change things. Some find it frustrating that while sociology reveals many grave societal problems, it does not tell them what to do about those problems. Indeed, there is no one, grand, sociological recipe for change. To some extent, just learning more about specific issues is the beginning of change. We have to know about and understand issues like the overproduction of organochlorines in order to even think about doing something about that problem. We believe that in almost every sociological study, one can find implied ideas—or "mini-recipes"—for how to work toward solving some of the dilemmas illuminated by environmental sociologists. However, sometimes it is valuable to have specific and explicit examples of how change might occur. The concluding section of this reader, therefore, features pieces that provide good examples of these "mini-recipes"—some put into practice, some at the proposal stage.

The chapter by Michael Maniates (chapter 22) emphasizes the limits of individualism and argues that we need to come together as citizens, rather than act as individual consumers, to seek important structural changes. The piece by Juliet Schor (chapter 23), however, focuses on the types of changes we *can* each make as individual consumers (with a focus on the garment industry). The excerpt from Michael Pollan's popular book *The Omnivore's Dilemma* (chapter 24) provides an example of how one farmer is working to create a new model for producing and distributing food, and the article by Rebecca Clausen (chapter 25) explains how Cuba transformed its system of food production and distribution in a way that made it much more environmentally sustainable. Finally, Myron Glazer and Penina Glazer (chapter 26) delineate the factors that allow people to commence and remain engaged in social change work.

A Final Word

There are two main reasons we wanted to edit this book. First, we know that people are increasingly interested in ecological change. Environmental interest and support is especially evident in academic institutions and new courses and programs relevant to environmental studies appear each year.[20] Universities and colleges not only offer environmental courses, but are becoming more active as positive models of environmental change. According to a 2001 study by the National Wildlife Federation, 20 percent of U.S. campuses currently recycle up to 40 percent of their waste and 5 percent currently recycle 70–100 percent of their waste. This trend is growing as 49 percent of institutions surveyed report that they have programs in place to encourage increased recycling (McIntosh et al. 2001).[21] Both of us, and many of our students, are a part of this ongoing dialogue and activity on our own campuses. We see this book as another way we can contribute to the work we find so important.

Our second reason for doing this book is that we hope to attract more sociologists (both instructors and students) to the subdiscipline. We have spent many hours on our own and, later, in collaboration with each other, to design environmental sociology courses that reflect our values and teaching philosophies. We believe that this is a tremendously important field of research. As sociologists continue to learn about the interconnectedness of our ecological problems with other social problems (e.g., toxic waste and racism) it becomes ever more clear that our ecological health is dependent on our understanding of broader social issues (e.g., democracy, inequality, economics, mass media, etc.) and vice versa. The degree to which we progress in one area (or regress) will echo into every other area of social thought and change. Environmental problems involve power relations; they derive from cultural and institutional practices and they are unequally distributed among populations. Environmental problems require social solutions.

Notes

1. For more detailed accounts of the Bhopal disaster, see Faber (2008: 188–189); Sengupta (2008); Dinham and Sarangi (2002); Jasanoff (1995); Dembo, Morehouse, and Wykle (1990); Weir (1987); and Everest (1986).

2. For a brief summary of the *Exxon Valdez* disaster and the social conditions leading up to it, see Karliner (1997: 180–182).

3. For an in-depth description of the Love Canal disaster, see Gibbs and Levine (1982); for a brief description of the Love Canal disaster, see Gibbs (1995: 64–67).

4. The 1997 treaty sets binding emission targets for industrialized nations and encourages developing nations to join in voluntary emissions reductions. In the case of the United States, it would mean the reduction of greenhouse emissions to seven percent below 1990 levels by the year 2010 (Rosenbaum 2002).

5. Some laws include the 1938 Food, Drug, and Cosmetic Act; the 1947 Federal Insecticide, Fungicide, and Rodenticide Act; and the 1965 Solid Waste Disposal Act. For

a complete list of environmental laws up to 1990, see the Environmental Protection Agency website (www.epa.gov).

6. For a complete list of environmental laws up to 1990, see the Environmental Protection Agency website (www.epa.gov). Also, for a comprehensive history of environmental legislation in the United States, see Rosenbaum (2002) and Rothman (1998).

7. The Worldwatch Institute produces several yearly publications that document key environmental trends, including *State of the World* and *Vital Signs.* This introduction draws generally from three Worldwatch yearly publications, including: Worldwatch Institute (2004); Gardner, Bright, and Starke (2003); and Abramovitz (2003).

8. See in this reader the excerpt by Steingraber (chapter 18) that demonstrates this point.

9. See the following piece in this reader for a discussion of dry-cleaning solvents: Steingraber (chapter 18).

10. It is important to note that sociological thought has always, to some degree, included the consideration of ecological factors. For example, some scholars at the Institute for Social Research in Frankfort worked on environment-related issues, such as the question of domination of nature, in the mid-twentieth century—see Merchant (1999) for a review. Brief summaries of the history of sociological thought on nature and environment can also be found in Hannigan (1995) and Buttel and Humphrey (2002: 35–36).

11. Sample titles of articles from sociological journals during this time include: "Support for Resource Conservation: A Prediction Model" (Honnold and Nelson 1979); "The Costs of Air Quality Deterioration and Benefits of Air Pollution Control: Estimates of Mortality Costs for Two Pollutants in 40 U.S. Metropolitan Areas" (Liu 1979); "The Public Value for Air Pollution Control: A Needed Change of Emphasis in Opinion Studies" (Dillman and Christenson 1975); and "The Impact of Political Orientation on Environmental Attitudes and Actions" (Dunlap 1975).

12. Sample titles of articles from sociological journals during the 1980s include: "The Social Ecology of Soil Erosion in a Colombian Farming System" (Ashby 1985); "Manufacturing Danger: Fear and Pollution in Industrial Society" (Kaprow 1985); "Cultural Aspects of Environmental Problems: Individualism and Chemical Contamination of Groundwater" (Fitchen 1987); "Blacks and the Environment" (Bullard and Wright 1987); and "Exxon Minerals in Wisconsin: New Patterns of Rural Environmental Conflict" (Gedicks 1988).

13. For a summary of the history of environmental sociology and the change in focus of environmental studies over time, see Dunlap, Michelson, and Stalker (2002).

14. For examples in this reader, see Bullard and Johnson (chapter 4).

15. For an example in this reader, see Fox (chapter 2).

16. For an example in this reader, see Bryson, McPhillips, and Robinson (chapter 5).

17. For an early overview of this body of theory, see O'Connor (1988: 11–38). For a collection of O'Connor's work, see the 1998 book *Natural Causes: Essays in Ecological Marxism.* The ecosocialist perspective, as well as other perspectives relating to the political/economy of environmental problems, continues to be explored and revised in the pages of the interdisciplinary journal *Capitalism, Nature, Socialism.*

18. A great variety of perspectives converse and conflict within the broad field of Marxist-related environmental sociology, including, but not limited to, the voices of social ecologists, ecosocialists, ecofeminists, and Marxist ecologists.

19. With a few notable exceptions (e.g., Spaargarten and Mol 1992), sociologists have strong reservations about the long-term sustainability of capitalism.

20. A quick search on the Yahoo Environmental Studies Directory reveals a list of 71 environmental studies programs and departments across the globe. The editors work at Smith College and the College of Charleston (both of which have environmental studies programs); since neither college made it to this already lengthy list, we can only assume that this is an underestimation of the numbers of academic programs (not to mention courses) available to students interested in these issues.

21. Over 250 colleges/universities worldwide have signed the Talloires Declaration in support of ten principles for environmental sustainability (calling for raised environmental awareness, active engagement in environmental research, teaching, policy formation, and literacy). The Talloires Declaration specifically urges academic institutions to set an environmental example in their day-to-day campus operations. You can view this declaration at www.ulsf.org/about/tallosig.html. Also see recent books on green campuses (Creighton 1998; Barlett and Chase 2004).

References

Abramovitz, Janet N. (Worldwatch Institute). 2003. *Vital Signs 2003: The Trends That Are Shaping Our Future.* New York: W.W. Norton.

Ashby, Jacqueline A. 1985. "The Social Ecology of Soil Erosion in a Colombian Farming System." *Rural Sociology* 50 (3) (Fall): 377–396.

Barlett, Peggy F., and Geoffrey W. Chase (eds.). 2004. *Sustainability on Campus: Stories and Strategies for Change.* Cambridge, MA: The MIT Press.

BBC News World Edition. 2002. "Comparing the Worst Oil Spills." November 19, 2001. news.bbc.co.uk/2/hi/europe/2491317 (retrieved December 30, 2003).

Beck, Ulrich. 1999. *World Risk Society.* Malden, MA: Polity Press.

Bell, Michael M. 1998. *An Invitation to Environmental Sociology.* Thousand Oaks, CA: Pine Forge Press.

Bergal, Jenni. 2007. "The Storm." Pp. 1–6 in Jenni Bergal, Sara Shipley Hiles, Frank Koughan, John McQuaid, Jim Morris, Katy Reckdahl, and Curtis Wilkie, *City Adrift: New Orleans before and after Katrina.* Baton Rouge: Louisiana State University Press.

Bookchin, Murray. 1990. *Remaking Society: Pathways to a Green Future.* Boston: South End Press.

Brown, Phil, and Edwin J. Mikkelsen. 1990. *No Safe Place: Toxic Waste, Leukemia, and Community Action.* Berkeley: University of California Press.

Bullard, Robert D. 1993. "Chapter 1, Anatomy of Environmental Racism and the Environmental Justice Movement." Pp. 15–39 in Robert Bullard (ed.), *Confronting Environmental Racism: Voices from the Grassroots.* Boston: South End Press.

Bullard, Robert D., and Beverly Hendrix Wright. 1987. "Blacks and the Environment." *Humboldt Journal of Social Relations* 14 (1–2) (Fall–Summer): 165–184.

Burkett, Paul. 1998. "Analysis of Capitalist Environmental Crisis." *Nature, Society, and Thought* 11(1): 17–51.

Burningham, Kate, and Geoff Cooper. 1999. "Being Constructive: Social Constructionism and the Environment." *Sociology* 33 (2): 297–316.

Buttel, Frederick H., and Craig R. Humphrey. 2002. "Sociological Theory and the Natural Environment." Pp. 32–69 in Riley E. Dunlap and William Michelson (eds.), *Handbook of Environmental Sociology.* Westport, CT: Greenwood Press.

Buttel, Frederick H., and William L. Flinn. 1974. "The Structure of Support for the Environmental Movement, 1968–1970." *Rural Sociology* 39 (1) (Spring): 56–69.

Catton, William R., and Riley E. Dunlap. 1978. "Environmental Sociology: A New Paradigm." *The American Sociologist* 13: 41–49.

Cohen, Maurie J. 2006. "Ecological Modernization and Its Discontents: The American Environmental Movement's Resistance to an Innovation-Driven Future." *Futures* 38: 528–547.

Colin, Jerolmack. 2008. "How Pigeons Became Rats: The Cultural-Spatial Logic of Problem Animals." *Social Problems* 55 (1): 72–94.

Creighton, Sarah Hammond. 1998. *Greening the Ivory Tower: Improving the Environmental Track Record of Universities, Colleges, and Other Institutions.* Cambridge, MA: The MIT Press.

Cushman, John. 1997. "Polls Show Public Support for Treaty." *New York Times*, November 11, 1997.

Dembo, David, Ward Morehouse, and Lucinda Wykle. 1990. *Abuse of Power: Social Performance of Multinational Corporations: The Case of Union Carbide.* New York: New Horizons Press.

Dillman, Don A., and James A. Christenson. 1975. "The Public Value for Air Pollution Control: A Needed Change of Emphasis in Opinion Studies." *The Cornell Journal of Social Relations* 10 (1) (Spring): 73–95.

Dinham, Barbara, and Satinath Sarangi. 2002. "The Bhopal Gas Tragedy 1984 to ? The Evasion of Corporate Responsibility." *Environment and Urbanization* 14 (1): 89–99.

Dowie, Mark. 2001. "Chapter 6: Food." Pp. 106–140 in *American Foundations: An Investigative History*. Cambridge, MA: MIT Press.

Dunlap, Riley E. 1997. "The Evolution of Environmental Sociology: A Brief History of the American Experience." Pp. 21–39 in Michael Redclift and Graham Woodgate (eds.), *The International Handbook of Environmental Sociology.* Northampton, MA: Edward Elgar.

———. 1975. "The Impact of Political Orientation on Environmental Attitudes and Actions." *Environment and Behavior* 7 (4): 428–454.

Dunlap, Riley E., William Michelson, and Glenn Stalker. 2002. "Environmental Sociology: An Introduction," Pp. 1–32 in Riley E. Dunlap and William Michelson (eds.), *Handbook of Environmental Sociology.* Westport, CT: Greenwood Press.

EPA (Environmental Protection Agency). 2004. "Climate." Environmental Protection Agency website. yosemite.epa.gov.oar/globalwarming.nsf/content/climate/html (retrieved January 1, 2004).

Evans, Nancy (ed.). 2006. *State of the Evidence: What Is the Connection between the Environment and Breast Cancer?* San Francisco, CA: Breast Cancer Fund. www.breastcancerfund.org/site/.

Everest, Larry. 1986. *Behind the Poison Cloud: Union Carbide's Bhopal Massacre.* Chicago: Banner Press.

Faber, Daniel. 2008. *Capitalizing on Environmental Injustice: The Polluter Industrial Complex in the Age of Globalization.* New York: Rowman & Littlefield.

———. 1993. *Environment under Fire: Imperialism and the Ecological Crisis in Central America.* New York: Monthly Review Press.

Feagin, Joe, and Hernán Vera. 2001. *Liberation Sociology.* Boulder, CO: Westview Press.

Fitchen, Janet M. 1987. "Cultural Aspects of Environmental Problems: Individualism and Chemical Contamination of Groundwater." *Science, Technology, and Human Values* 12 (2): 1–12.

Foster, John Bellamy. 2002. *Ecology against Capitalism.* New York: Monthly Review Press.

Gabe, Thomas, Gene Falk, Maggie McCarty, et al. 2005. *Hurricane Katrina: Social-Demographic Characteristics of Impacted Areas.* Washington, DC: Congressional Research Service, Library of Congress.

Gardner, Gary T., Chris Bright, and Linda Starke (Worldwatch Institute). 2003. *State of the World 2003.* New York: W.W. Norton.

Gedicks, Al. 1988. "Exxon Minerals in Wisconsin: New Patterns of Rural Environmental Conflict." *Wisconsin Sociologist* 25 (2–3): 88–103.

Gibbs, Lois Marie. 1995. *Dying from Dioxin: A Citizen's Guide to Reclaiming Our Health and Rebuilding Democracy.* Boston: South End Press.

Gibbs, Lois Marie, and Murray Levine.1982. *Love Canal: My Story.* Albany: State University of New York Press.

Gilliom, Robert J., Jack E. Barbash, Charles G. Grawford, Dixie A. Hamilton, Jeffrey D. Martin, Naomi Nakagaki, Lisa Howell, Jonathan C. Scott, Paul E. Stackelberg, Gail P. Thelin, and David M. Wolock. 2006. "Pesticides in the Nation's Streams and Groundwater, 1992–2001." A Report by the National Water-Quality Assessment Program of the U.S. Geological Survey. Reston, VA: U.S. Geological Survey.

Greenpeace. 1999. "Remembering the *Exxon Valdez*." www.greenpeaceusa.org/features/exxontext.htm (retrieved December 30, 2003).

Greider, Thomas, and Lorraine Garkovich. 1994. "Landscapes: The Social Construction of Nature and the Environment." *Rural Sociology* 59(1): 1–24.

Hannigan, John. 1995. *Environmental Sociology: A Social Constructionist Perspective.* New York: Routledge.

Harr, Jonathon. 1995. *A Civil Action.* New York: Random House.

Hiles, Sara Shipley. 2007. "The Environment." Pp. 7–19 in Jenni Bergal, Sara Shipley Hiles, Frank Koughan, John McQuaid, Jim Morris, Katy Reckdahl, and Curtis Wilkie, *City Adrift: New Orleans before and after Katrina.* Baton Rouge: Louisiana State University Press.

Honnold, Julie A., and Lynn D. Nelson. 1979. "Support for Resource Conservation: A Prediction Model." *Social Problems* 27 (2): 220–234.

IPCC (Intergovernmental Panel on Climate Change). 2007a. *Climate Change 2007: Synthesis Report, Summary for Policy Makers.* www.ipcc.ch/ (retrieved July 16, 2008).

———. 2007b. *Climate Change 2007: The Physical Science Basis, Summary for Policy Makers.* www.ipcc.ch/ (retrieved July 16, 2008).

———. 2001. *Climate Change 2001: Synthesis Report.* www.grida.no/climate/ipcc_vol4/english (retrieved December 31, 2003).

———. 2000. *Special Report on Emissions Scenarios.* www.ipcc.ch/ (retrieved July 16, 2008).

Jasanoff, Sheila (ed.). 1995. *Learning from Disaster: Risk Management after Bhopal.* Philadelphia: University of Pennsylvania Press.

Johnson, Cassandra Y., and Myron F. Floyd. 2006. "A Tale of Two Towns: Black and White Municipalities Respond to Urban Growth in the South Carolina Lowcountry." *Human Ecology Review* 13 (1): 23–38.

Johnston, Barbara Rose. 2003. "Political Ecology of Water: An Introduction." *Capitalism, Nature, Socialism* 14 (Fall): 73–90.

Kaprow, Miriam Lee. 1985. "Manufacturing Danger: Fear and Pollution in Industrial Society." *American Anthropologist* 87 (2): 342–356.

Karliner, Joshua. 1997. *The Corporate Planet: Ecology and the Politics in the Age of Globalization.* San Francisco: Sierra Club Books.

King, Tanya J. 2005. "Crisis of Meanings: Divergent Experiences and Perceptions of the Marine Environment in Victoria, Australia." *The Australian Journal of Anthropology* 16 (3): 350–365.

Kovel, Joel. 2003. "Racism and Ecology." *Socialism and Democracy* 17(1) (Winter–Spring): 99–107.

Kroll-Smith, Steve, Valerie Gunter, and Shirley Laska. 2000. "Theoretical Stances and Environmental Debates: Reconciling the Physical and the Symbolic." *The American Sociologist* 31: 44–61.

Lidskog, Rolf. 2001. "The Re-Naturalization of Society? Environmental Challenges for Sociology." *Current Sociology* 49 (1): 113–136.

Liu, Ben-Chieh. 1979. "The Costs of Air Quality Deterioration and Benefits of Air Pollution Control: Estimates of Mortality Costs for Two Pollutants in 40 U.S. Metropolitan Areas." *The American Journal of Economics and Sociology* 38 (2): 187–195.

Martinez-Alier, Juan. 1997. "Environmental Justice (Local and Global)." *Capitalism, Nature, Socialism* 8 (1) (Spring): 91–107.

McIntosh, Mary, Kathleen Cacciola, Steven Clermont, and Julian Keniry. 2001. *State of the Campus Environment: A National Report Card on Environmental Performance and Sustainability in Higher Education.* National Wildlife Federation (survey conducted by Princeton Survey Research Associates).

McQuaid, John. 2007. "The Levees." Pp. 20–41 in Jenni Bergal, Sara Shipley Hiles, Frank Koughan, John McQuaid, Jim Morris, Katy Reckdahl, and Curtis Wilkie, *City Adrift: New Orleans before and after Katrina.* Baton Rouge: Louisiana State University Press.

Merchant, Carolyn (ed.). 1999. *Key Concepts in Critical Theory: Ecology.* Amherst, NY: Humanity Books.

Mol, Arthur P. 1997. "Ecological Modernization: Industrial Transformations and Environmental Reform." Pp. 138–149 in Michael Redclift and Graham Woodgate (eds.), *The International Handbook of Environmental Sociology*. Northampton, MA: Edward Elgar.

Montague, Peter. 2006. "Business as Usual, Part 1." *Rachel's Democracy and Health News.* April 16, #868.

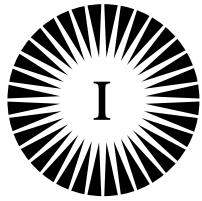
Norgaard, Kari Marie. 2007. "The Politics of Invasive Weed Management: Gender, Race, and Risk Perception in Rural California." *Rural Sociology* 72 (3): 450–477.

O'Connor, James. 1998. *Natural Causes: Essays in Ecological Marxism.* New York: Guilford Press.

———. 1988. "Capitalism, Nature, Socialism: A Theoretical Introduction." *Capitalism, Nature, Socialism* 1 (Fall): 11–38.

Picou, J. Steven, and Brent Marshall. 2007. "Katrina as Paradigm Shift: Reflections on Disaster Research in the Twenty-First Century." Pp. 1–20 in David Brunsma, David

Overfelt, and J. Steven Picou (eds.), *The Sociology of Katrina: Perspectives on a Modern Catastrophe*. New York: Rowman & Littlefield.
REHN (*Rachel's Environment and Health News*). 2001. "Environmental Trends, Part 2." November 22, 2001(can be found in the on-line archive at Rachel.org) (retrieved December 31, 2003).
Rosenbaum, Walter A. 2002. *Environmental Politics and Policy.* Washington, DC: CQ Press.
Rosset, Peter, Joseph Collins, and Frances Moore Lappe. 2000. "Lessons from the Green Revolution." *Tikkun Magazine*, March 1.
Rothman, Hal K. 1998. *The Greening of a Nation? Environmentalism in the United States since 1945.* New York: Harcourt Brace College Publishers.
Salleh, Ariel. 1995. "Women, Labor, Capital: Living the Deepest Contradiction." *Capitalism, Nature, Socialism* (March): 21–39.
Scarce, Rik. 2000. *Fishy Business: Salmon, Biology, and the Social Construction of Nature.* Philadelphia: Temple University Press.
Schnaiberg, Allan. 1980. *The Environment: From Surplus to Scarcity.* New York: Oxford University Press.
Sengupta, Somini. 2008. "Decades Later, Toxic Sludge Torments Bhopal." *New York Times*, July 7, 2008. www.nytimes.com/2008/07/07/world/asia/07bhopal.
Shabecoff, Phillip. 1993. *A Fierce Green Fire: The American Environmental Movement.* New York: Hill and Wang.
Shandra, John, Eran Shor, and Bruce London. 2008. "Debt, Structural Adjustment, and Organic Water Pollution." *Organization & Environment* 21 (1): 38–55.
Simon, David R. 2000. "Corporate Environmental Crimes and Social Inequality." *American Behavioral Scientist* 43 (4): 633–645.
Spaargarten, Gert, and Arthur P. Mol. 1992. "Sociology, Environment, and Modernity: Ecological Modernization as a Theory of Social Change." *Society and Natural Resources* 54 (4): 323–444
Sussman, Dalia. 2001. "Global Warming Trend: Six in 10 Say U.S. Should Join Kyoto Treaty." ABC News.com. April 17, 2001. abcnews.go.com/sections/DailyNews.
Taylor, Dorceta E. 1997. "American Environmentalism: The Role of Race, Class and Gender in Shaping Activism 1820–1995." *Race, Gender & Class* 5 (1):16–62.
U.S. PIRG. 2007. *Toxic Pollution and Health Analysis of Toxic Chemicals Released in Communities across the United States: Executive Summary.* U.S. PIRG Report. www.uspirg.org/home/reports/report-archives/healthy-communities/.
Vicini, James. 2008. "*Exxon Valdez* $2.5 Billion Oil Spill Being Overturned." Available at http://www.reuters.com/article/idUSWBT00926720080625.
Weir, David. 1987. *The Bhopal Syndrome.* San Francisco: Sierra Club Books.
Worldwatch Institute. 2004. *State of the World 2004: Progress Towards a Sustainable Society.* London: Earthscan.
Wu, Nerissa, Thomas Herrmann, Olaf Paepke, Joel Tickner, Robert Hale, Ellen Harvey, Mark La Guardia, Michael McClean, and Thomas Webster. 2007. "Human Exposure to PBDEs: Associations of PBDE Body Burdens with Food Consumption and House Dust Concentrations." *Environment, Science, and Technology* 41 (5): 1584–1589.
Yearley, Steven. 1992. *The Green Case.* London: Routledge.



PART

Political Economy

The Vulnerable Planet

John Bellamy Foster

In the first three selections, the authors examine the intersections between politics, economics, and the environment. The sociological study of politics and economics challenges our tendency to take the current systems for granted and therefore represents an important cornerstone of environmental sociology. Many of us tend to assume, for instance, that capitalist trade is "natural," that competition is the most efficient method of distributing resources, and that a free economy is the same as a free citizenry. Sociological works on politics and economics help us see that our current system of production and consumption is not an imperative. Our political/economic system takes the shape that it does precisely because human society "made" it that way.

In this first reading, John Bellamy Foster argues that as corporations have grown and made use of new scientific methods and technologies since World War II, the relationship between economy and environment has become increasingly problematic. Specifically, Foster argues that while we can invent more green technologies, our hopes for a truly sustainable economy and environment are limited under our current economic system. The key to profit is growth. Foster argues that the level of growth required by a "healthy" capitalist economy contradicts the balanced level of inputs and outputs that would be required of a healthy environment.

In the period after 1945 the world entered a new stage of planetary crisis in which human economic activities began to affect in entirely new ways the basic conditions of life on earth. This new ecological stage was connected to the rise, earlier in the century, of monopoly capitalism, an economy dominated

by large firms, and to the accompanying transformations in the relation between science and industry. Synthetic products that were not biodegradable—that could not be broken down by natural cycles—became basic elements of industrial output. Moreover, as the world economy continued to grow, the scale of human economic processes began to rival the ecological cycles of the planet, opening up as never before the possibility of planet-wide ecological disaster. Today few can doubt that the system has crossed critical thresholds of ecological sustainability, raising questions about the vulnerability of the entire planet.

The Scientific-Technical Revolution

During the heyday of the Industrial Revolution, the individual firm had only a small impact on the economy as a whole. The concentration and centralization (or growth and merger) of individual capitals altered this situation dramatically, changing forever the relation between firm and economy at both the national and international levels. Today over 60 percent of all U.S. manufacturing assets are owned by two hundred corporations. These changes in the economic character of the system, along with the growing internationalization of capital, constitute the essence of what has been called the monopoly stage of capitalism. Today monopoly capitalism is turning into what might be termed globalized monopoly capitalism, as a handful of multinational corporations rule over the production and finance of the entire world.[1]

Much of the concentration and centralization associated with the rise of monopoly capitalism was made possible by changes at the level of production. The most significant of these was the incorporation of scientific research and scientific management into the industrial process. "Science," according to the modern theorist of labor and technology Harry Braverman,

> is the last—and after labor the most important—social property to be turned into an adjunct of capital. . . . The contrast between science as a generalized social property incidental to production and science as capitalist property at the very center of production is the contrast between the Industrial Revolution, which occupied the last half of the eighteenth and the first third of the nineteenth centuries, and the scientific-technical revolution, which began in the last decades of the nineteenth century and is still going on.[2]

Although science played a large role in the early years of the Industrial Revolution, the relationship between science and industry remained indirect and diffuse. This changed in the period of the scientific-technical revolution, primarily as the result of advances in five fields: steel, coal-petroleum, chemicals, electricity, and the internal combustion engine. Germany played a leading

role in these changes. As one industrial historian has noted, "It was Germany which showed the rest of the world how to make critical raw materials out of a sandbox and a pile of coal. . . . IG [Farben] changed chemistry from pure research and commercial pill-rolling into a mammoth industry affecting every phase of civilization."[3]

In the United States, corporate research laboratories arose more or less in tandem with monopoly capitalism. The first research laboratory systematically organized for invention was set up by Thomas Edison in 1876. By the turn of the century, large corporations such as Eastman Kodak, B. F. Goodrich, General Electric, Bell Telephone, Westinghouse, and General Motors had each established scientific research organizations (or acquired previously independent laboratories). By 1920, there were around 300 such corporate laboratories and by 1940 some 2,200.[4] These scientific laboratories provided a whole range of synthetic products, based on the development of new molecular arrangements, out of the essentially limitless number of those theoretically possible. This resulted in new forms of matter, many of which were created with commercial purposes in mind—from a new way of coloring fabric to a new way of killing bacteria. Unfortunately, this progress in physics and chemistry was not accompanied by an equally rapid expansion in the knowledge of how such substances might affect the environment.[5]

It is crucial to emphasize that what drove this revolution in science and technology was not simply the accumulation of scientific knowledge but the "transformation of science itself into capital."[6] This transformation was aimed at extending both the division of labor and the division of nature, and in the process both were transformed. Applied directly to the worker, this took the form of the scientific management of the labor process, the main purpose of which was to remove control over the job from the laborer and give it to management. In other words, scientific management altered labor's relation to the production process as the laborer was systematically reduced to the status of an instrument of production.

The principles of scientific management were most clearly enunciated in the early twentieth century by Frederick Winslow Taylor. Taylor was concerned with devising the theoretical tools for smashing worker resistance on the shop floor. The approach that he devised and advocated in such works as *Principles of Scientific Management,* published in 1911, centered on three principles, summarized by Braverman as: (1) the "dissociation of the labor process from the skills of the workers," (2) the "separation of conception from execution," and (3) the "use of this monopoly of knowledge to control each step of the labor process and its mode of execution."[7] In other words, complex, highly skilled labor was to be reduced to its simplest, most interchangeable—and hence cost-efficient—parts. The end result was the growing commodification of human labor and the destruction of human productive and cultural diversity.

As labor became more homogeneous, so did much of nature, which underwent a similar process of degradation. For example, as science was increasingly applied to the management of forests by profit-making businesses, the natural complexity of forest habitats was replaced by the artificial simplicity of industrial tree plantations. The goal of the scientific forester, as one authority has explained, is to simplify the forest by channeling

> the maximum amount of nutrients, water, and solar energy into the next cut of timber. He cleans up the diversity of age and size classes that are less efficient to cut, skid, process, and sell. He eliminates slow-growing and unsalable trees, underbrush, and any animals that might harm his crop. He replaces natural disorder with neat rows of carefully spaced, genetically uniform plantings of fast growing Douglas-firs. He thins and fertilizes to maximize growth. He applies herbicides and insecticides and suppresses fires to protect this crop against the ravages of nature that must be fought and defeated.

The result is a loss of biological and genetic diversity (the destruction of species and of the genetic varieties within species): industrial tree plantations are biological and genetic deserts when compared to the rich complexity of natural forests. The streams that flow through these plantations contain few fish. The variety of plants, animals, insects, and fungi is minimized. The floor of an old-growth forest is a lush carpet of vegetation; the floor of a tree plantation is almost barren by comparison. The trees themselves, which are viewed as mere commodities (i.e., so many board feet of standing timber), are "genetically improved" to allow for a lower rotation time and hence for profit maximization. Natural diversity is destroyed in the same proportion as profits are promoted.[8]

Such efficiency in the division of nature and human labor is accompanied, paradoxically, by the incorporation of useless inputs into the business process. Thus one of the primary tendencies of monopoly capitalism is "the interpenetration of the production and sales efforts," as advertising costs, superficial product changes, unnecessary packaging, and the costs of marketing in general became increasingly incorporated into the production costs of a commodity.[9]

The Synthetic Age

"We know that *something* went wrong in the country after World War II," Barry Commoner wrote of the United States in his bestseller *The Closing Circle* (1971), "for most of our serious pollution problems either began in the postwar years or have greatly worsened since then." That something, Commoner suggested, was "the sweeping transformation of productive technology since World War II . . . productive technologies with intense impacts on the environment have displaced

less destructive ones. The environmental crisis is the inevitable result of this counterecological pattern of growth." Increased throughput of energy and materials creates enormous problems associated with the depletion of resources and the treatment and disposal of wastes. But these problems have been magnified many times over by the replacement of the products of nature with synthetics. This "technological displacement" of nature can be seen in the substitution of artificial fertilizers for organic fertilizers; the development of pesticides to replace biological forms of insect control; the use of synthetics and plastics instead of materials occurring in nature, such as cotton, wool, wood, and iron; and the replacement of soap by detergents with high phosphate content.[10]

What transpired in the post–World War II period was thus a qualitative transformation in the level of human destructiveness. Some of history's most harmful pollutants were only introduced in the 1940s and 1950s. Photochemical smog made its debut in Los Angeles in 1943. DDT first began to be used on a large scale in 1944. Nuclear fallout dates from 1945. Detergents began to displace soaps in 1946. Plastics became a major waste disposal problem only after World War II. Nuclear power and human-generated radioactive elements were a product of war industry and became industrial products in the 1950s.

During what might be termed the golden age of the postwar period (1946–1970), the physical output of food, clothing, fabrics, major household appliances, certain basic metals, and building materials (such as steel, copper, and brick) only grew at the rate of population increase, so that per capita production remained the same. For example, the per capita availability of food, whether measured in calories or protein intake, remained essentially unaltered in the U.S. over this period. Further, physical output in certain key areas actually declined over the period: cotton fibers, wool, soap, lumber, and work animal horsepower. Yet some (mainly synthetic) kinds of production increased dramatically.

While the production of basic needs—food, clothing, housing—has kept pace with the growth of population, the types of goods produced to meet these needs have changed dramatically. New technologies have replaced older ones. Synthetic detergents have replaced soap powder; synthetic fabrics have replaced clothing made out of natural fibers (such as cotton and wool); aluminum, plastics, and concrete have displaced steel and lumber; truck freight has displaced railroad freight; high-powered automobile engines have displaced the low-powered engines of the 1920s and 1930s; synthetic fertilizer has in effect displaced land in agricultural production; herbicides have displaced the cultivator; insecticides have displaced earlier forms of insect control.

It is therefore the *pattern* of economic growth rather than growth (or population) itself that is the chief reason for the rapid acceleration of the ecological crisis in the postwar period. In a 1972 study of the environmental impact of six pollutants (detergent phosphates, fertilizer nitrogen, nitrogen oxides, beer bottles, tetraethyl lead, and synthetic pesticides), Commoner pioneered in the

introduction of the formula Environmental Impact = Population – Affluence – Technology (I = P – A – T) to assess the relative impact of the different environmental factors. He showed that P (Population) accounted for only 12 to 20 percent of the total changes in I (Impact) for these pollutants. In the case of nitrogen oxides and tetraethyl lead (both from automobile sources) around 40 percent of the changes in I were attributable to A (Affluence, defined by Commoner as economic goods/population); while in all cases other than automobile-based pollutants, A accounted for no more than 5 percent of the changes in I. T (Technology, defined as pollution/economic good) meanwhile accounted for 40 to 90 percent of all changes in I. The heightened environmental crisis of the 1970s, Commoner argued, was therefore attributable to a considerable degree to "counterecological" systems of production introduced in the postwar period.[11]

A major element in this counterecological trend has been the growth of the automobile complex. "In terms of high energy consumption, accident rates, contribution to pollution, and displacement of urban amenities," Bradford Snell stated in a famous report to a U.S. Senate committee, "motor vehicle travel is possibly the most inefficient method of transportation devised by modern man." Nevertheless, the central determinant of U.S. national transportation policy during most of the twentieth century has been a corporate strategy geared to the high profits associated with automobilization. Lavish federal funding for highways has been coupled with declining government subsidies for public transport. Moreover, at least some of the enormous present-day dependence of the United States on cars, which today account for 90 percent of all travel, can be traced to the deliberate dismantling of the nation's earlier mass transportation system. From the 1930s to the 1950s, General Motors (GM), the nation's top automobile manufacturer, operating in conjunction with Standard Oil and Firestone Tire, systematically bought up many of the nation's electric streetcar lines, converting them to buses. The number of streetcar lines dropped from 40,000 in 1936 to 5,000 in 1955. Meanwhile, GM used its monopolistic control of bus production and of the Greyhound Corporation, on the one hand, and its monopoly in the production of locomotives, on the other, to ensure the growing displacement of bus and rail traffic by private automobiles in intercity ground transport—essentially undercutting itself in intercity mass transit in order to make higher profits off increased automobile traffic. More than any other country, the United States has thus come to rely almost exclusively on cars and trucks for the ground transport of its people and goods, with disastrous consequences for the environment. *In the United States in 1988, the people/motor vehicle ratio was 1.3:1, the lowest in the world!*[12]

No less central as a counterecological force is the petrochemical industry, which creates a huge variety of synthetic products from a few starting materials, primarily petroleum and natural gas. Synthetic fibers, detergents, pesticides, and plastics are all products of the petrochemical industry, as are most toxic wastes. Today there are around 70,000 chemical preparations in use. About

400 of these have been found in the human organism, and most have never been tested for their toxic effects.[13]

The ecological impact of petrochemical production can be better understood if we take into account the way in which this industry has positioned itself in relation to both agriculture and manufacturing. On the one hand, the petrochemical industry markets agricultural chemicals. On the other hand, it produces the synthetic products that compete with farm output. Thus the giant corporations have at one and the same time molded the nation's farms into a "convenient market" and a "weakened competitor." Farming has been transformed from its ancient form, connected to ecological cycles, into a qualitatively new form of commercial enterprise known as "agribusiness."[14]

As Richard Lewontin, one of the world's leading geneticists, who teaches in the Harvard School of Public Health, and Jean-Pierre Berlan, director of research at the French National Institute of Agronomic Research, have explained, there is an "increasing differentiation between *farming* and *agriculture*. Farming is producing wheat; agriculture is turning phosphates into bread." Although its products are essential for our survival, farming itself now accounts for only about 10 percent of the average value added of agricultural products. Of the remaining 90 percent, 40 percent is accounted for by farm inputs (such as seeds, fertilizers, pesticides, and machinery) and 50 percent is added *after* the product leaves the farm, primarily in the form of marketing and distribution costs. The result is that a small number of large corporations, which monopolize the sale of farm inputs and the marketing and distribution of farm products, control the conditions of production in farming and reap the bulk of agricultural profits, even though farming itself is "spread over a large number of petty producers."[15]

At the heart of the Green Revolution carried out by agribusiness in the twentieth century has been the commodification of seed production. Biotechnology has produced hybrid corn and other seed varieties that are widely touted as producing superior high-yield crops. Some scientists, however, believe that the use of the hybrid method, rather than the direct selection of high-yielding varieties from each generation and the propagation of seeds from those plants, was motivated primarily by considerations of profitability. The reason is that the use of hybrid corn seeds makes farmers purchase new seeds each year, because to pursue the traditional farming method (selecting the best plants for seeds for the following year) would in the case of hybrids result in a sharp reduction in productivity (since hybrids do not breed true and their progeny will not produce the same yields). Hybrid corn, Berlan and Lewontin write, "the flagship of the successful innovations of twentieth century agricultural research," thus "expanded the sphere of commodity production by creating a new and extraordinarily profitable commodity."[16]

Perhaps even more important, in order to cultivate these new crop varieties (which are generally less suited than earlier varieties to naturally occurring

ecological conditions), large quantities of inorganic fertilizers, herbicides, and pesticides are needed, along with mechanization. The new varieties, according to ecologists Yrjö Haila and Richard Levins, are bred to perform well only if accompanied by a whole technical package. Crops such as hybrid corn therefore become the entry point for an entire model of agribusiness, one that transforms traditional farmers into economic dependents of the major agribusiness corporations.

The Four Laws of Ecology and Economic Production

In order to understand the ecological impact of these trends, it is useful to look at what Barry Commoner and others have referred to as the four informal laws of ecology: (1) everything is connected to everything else, (2) everything must go somewhere, (3) nature knows best, and (4) nothing comes from nothing. The first of these informal laws, *everything is connected to everything else,* indicates how ecosystems are complex and interconnected. This complexity and interconnectedness, Haila and Levins write, "is not like that of the individual organism whose various organs have evolved and have been selected on the criterion of their contribution to the survival and fecundity of the whole." Nature is far more complex and variable and considerably more resilient than the metaphor of the evolution of an individual organism suggests. An ecosystem can lose species and undergo significant transformations without collapsing. Yet the interconnectedness of nature also means that ecological systems can experience sudden, startling catastrophes if placed under extreme stress. "The system," Commoner writes, "is stabilized by its dynamic self-compensating properties; these same properties, if overstressed, can lead to a dramatic collapse." Further, "the ecological system is an amplifier, so that a small perturbation in one place may have large, distant, long-delayed effects elsewhere."[17]

The second law of ecology, *everything must go somewhere*, restates a basic law of thermodynamics: in nature there is no final waste, matter and energy are preserved, and the waste produced in one ecological process is recycled in another. For instance, a downed tree or log in an old-growth forest is a source of life for numerous species and an essential part of the ecosystem. Likewise, animals excrete carbon dioxide to the air and organic compounds to the soil, which help to sustain plants upon which animals will feed.

Nature knows best, the third informal law of ecology, Commoner writes, "holds that any major man-made change in a natural system is likely to be *detrimental to that system*." During 5 billion years of evolution, living things developed an array of substances and reactions that together constitute the living biosphere. The modern petrochemical industry, however, suddenly created thousands of new substances that did not exist in nature. Based on the same basic patterns of carbon chemistry as natural compounds, these new substances enter readily into existing biochemical processes. But they do so in ways that are frequently destruc-

tive to life, leading to mutations, cancer, and many different forms of death and disease. "The absence of a particular substance from nature," Commoner writes, "is often a sign that it is incompatible with the chemistry of life."[18]

Nothing comes from nothing, the fourth informal law of ecology, expresses the fact that the exploitation of nature always carries an ecological cost. From a strict ecological standpoint, human beings are consumers more than they are producers. The second law of thermodynamics tells us that in the very process of using energy, human beings "use up" (but do not destroy) energy, in the sense that they transform it into forms that are no longer available for work. In the case of an automobile, for example, the high-grade chemical energy stored in the gasoline that fuels the car is available for useful work while the lower grade thermal energy in the automobile exhaust is not. In any transformation of energy, some of it is always degraded in this way. The ecological costs of production are therefore significant.[19]

Viewed against the backdrop offered by these four informal laws, the dominant pattern of capitalist development is clearly *counter*ecological. Indeed, much of what characterizes capitalism as an ecohistorical system can be reduced to the following counterecological tendencies of the system: (1) the only lasting connection between things is the cash nexus; (2) it doesn't matter where something goes as long as it doesn't reenter the circuit of capital; (3) the self-regulating market knows best; and (4) nature's bounty is a free gift to the property owner.

The first of these counterecological tendencies, *the only lasting connection between things is the cash nexus,* expresses the fact that under capitalism all social relations between people and all the relationships of humans to nature are reduced to mere money relations. The disconnection of natural processes from each other and their extreme simplification is an inherent tendency of capitalist development. As Donald Worster explains,

> Despite many variations in time and place, the capitalistic agroecosystem shows one clear tendency over the span of modern history: a movement toward the radical simplification of the natural ecological order in the number of species found in an area and the intricacy of their interconnections. . . . In today's parlance we call this new kind of agroecosystem a *monoculture* meaning a part of nature that has been reconstituted to the point that it yields a single species, which is growing on the land only because somewhere there is a strong market demand for it.[20]

The kind of reductionism characteristic of "commercial capitalism," Indian physicist and ecologist Vandana Shiva states, "is based on specialized commodity production. Uniformity in production, and the unifunctional use of natural resources, is therefore required." For example, although it is possible to use rivers ecologically and sustainably in accordance with human needs, the giant river

valley projects associated with the construction of today's dams "work against, and not *with,* the logic of the river. These projects are based on reductionist assumptions [of uniformity, separability, and unifunctionality] which relate water use not to nature's processes but to the processes of revenue and profit generation."[21]

All of this reflects the fact that cash nexus has become the sole connection between human beings and nature. With the development of the capitalist division of nature, the elements of nature are reduced to one common denominator (or bottom line): exchange value. In this respect it does not matter whether one's product is coffee, furs, petroleum, or parrot feathers, as long as there is a market.[22]

The second ecological contradiction of the system, *it doesn't matter where something goes unless it re-enters the circuit of capital*, reflects the fact that economic production under contemporary capitalist conditions is not truly a circular system (as in nature) but a linear one, running from sources to sinks—sinks that are now overflowing. The "no deposit/no return" analogue, the great ecological economist Nicholas Georgescu-Roegen has observed, "befits the businessman's view of economic life." The pollution caused by production is treated as an "externality" that is part of the costs to the firm.[23]

In precapitalist societies, much of the waste from agricultural production was recycled in close accordance with ecological laws. In a developed capitalist society, in contrast, recycling is extremely difficult because of the degree of division of nature. For instance, cattle are removed from pasture and raised in feedlots; their natural waste, rather than fertilizing the soil, becomes a serious form of pollution. Or, to take another example, plastics, which have increasingly replaced wood, steel, and other materials, are not biodegradable. In the present-day economy, Commoner writes, "goods are converted, linearly, into waste: crops into sewage; uranium into radioactive residues; petroleum and chlorine into dioxin; fossil fuels into carbon dioxide. . . . The end of the line is always waste, an assault on the cyclical processes that sustain the ecosphere."[24]

It is not the ecological principle that *nature knows best* but rather the counterecological principle that *the self-regulating market knows best* that increasingly governs all life under capitalism. For example, food is no longer viewed chiefly as a form of nutrition but as a means of earning profits, so that nutritional value is sacrificed for bulk. Intensive applications of nitrogen fertilizer unbalance the mineral composition of the soil, which in turn affects the mineral content of the vegetables grown on it. Transport and storage requirements take precedence over food quality. And in order to market agricultural produce effectively, pesticides are sometimes used simply to protect the appearance of the produce. In the end, the quality of food is debased, birds and other species are killed, and human beings are poisoned.[25]

Nature's bounty is a free gift to the property owner, the fourth counterecological tendency of capitalism, expresses the fact that the ecological costs asso-

ciated with the appropriation of natural resources and energy are rarely factored into the economic equation. Classical liberal economics, Marx argued, saw nature as a "gratuitous" gain for capital. Nowhere in establishment economic models does one find an adequate accounting of nature's contribution. "Capitalism," as the great environmental economist K. William Kapp contended, "must be regarded as an economy of unpaid costs, 'unpaid' in so far as a substantial portion of the actual costs of production remain unaccounted for in entrepreneurial outlays; instead they are shifted to, and ultimately borne by, third persons or by the community as a whole." For example, the air pollution caused by a factory is not treated as a cost of production internal to that factory. Rather it is viewed as an external cost to be borne by nature and society.[26]

By failing to place any real value on natural wealth, capitalism maximizes the throughput of raw materials and energy because the greater this flow—from extraction through the delivery of the final product to the consumer—the greater the chance of generating profits. And by selectively focusing on minimizing labor inputs, the system promotes energy-using and capital-intensive high technologies. All of this translates into faster depletion of nonrenewable resources and more wastes dumped into the environment. For instance, since World War II, plastics have increasingly displaced leather in the production of such items as purses and shoes. To produce the same value of output, the plastics industry uses only about a quarter of the amount of labor used by leather manufacture, but it uses ten times as much capital and thirty times as much energy. The substitution of plastics for leather in the production of these items has therefore meant less demand for labor, more demand for capital and energy, and greater environmental pollution.[27]

The foregoing contradictions between ecology and the economy can all be reduced to the fact that the profit-making relation has become to a startling degree the sole connection between human beings and between human beings and nature. This means that while we can envision more sustainable forms of technology that would solve much of the environmental problem, the development and implementation of these technologies is blocked by the mode of production—by capitalism and capitalists. Large corporations make the major decisions about the technology we use, and the sole lens that they consider in arriving at their decisions is profitability. In explaining why Detroit automakers prefer to make large, gas-guzzling cars, Henry Ford II stated simply "minicars make miniprofits." The same point was made more explicitly by John Z. DeLorean, a former General Motors executive, who stated, "When we should have been planning switches to smaller, more fuel-efficient, lighter cars in the late 1960s in response to growing demand in the marketplace, GM management refused because 'we make more money on big cars.'"[28]

Underlying the general counterecological approach to production depicted here is the question of growth. An exponential growth dynamic is inherent in

capitalism, a system whereby money is exchanged for commodities, which are then exchanged for more money on an ever increasing scale. "As economists from Adam Smith and Marx through Keynes have pointed out," Robert Heilbroner has observed, "a 'stationary' capitalism is subject to a falling rate of profit as the investment opportunities of the system are used up. Hence, in the absence of an expansionary frontier, the investment drive slows down and a deflationary spiral of incomes and employment begins." What this means is that capitalism cannot exist without constantly expanding the scale of production: any interruption in this process will take the form of an economic crisis. Yet in the late twentieth century there is every reason to believe that the kind of rapid economic growth that the system has demanded in order to sustain its very existence is no longer ecologically sustainable.[29]

Notes

From Foster, John Bellamy. 1994. "The Vulnerable Planet" in *The Vulnerable Planet: A Short Economic History of the Environment*. New York: Cornerstone Books.

1. *Statistical Abstract of the United States*, 1986 (Washington, D.C.: U.S. Government Printing Office, 1986), p. 524.

2. Braverman, *Labor and Monopoly Capital*, p. 156; also Marx, *Capital*, vol. I, p. 1035.

3. Richard Sasuly, *IG Farben* (New York: Boni and Gaer, 1947), p. 19.

4. Ibid., pp. 163–66; Robert Bruce Lindsay, *The Role of Science in Civilization* (New York: Harper and Row, 1963), pp. 214–19.

5. Commoner, *Closing Circle*, pp. 128–30.

6. Braverman, *Labor and Monopoly Capital*, pp. 166–67.

7. Ibid., pp. 112–21; Frederick Winslow Taylor, *The Principles of Scientific Management* (New York: W. W. Norton, 1947).

8. Elliott A. Norse, *Ancient Forests of the Pacific Northwest* (Washington, D.C.: Island Press, 1990), pp. 152–60.

9. Paul Baran and Paul Sweezy, *Monopoly Capital* (New York: Monthly Review Press, 1966), p. 132.

10. Commoner, *Closing Circle,* pp. 138, 175.

11. Schurr, ed., *Energy, Economic Growth, and the Environment,* pp. 44–62.

12. Bradford Snell, "American Ground Transport," in U.S. Senate, Committee on the Judiciary, *Industrial Reorganization Act*, Hearings Before the Subcommittee on Antitrust and Monopoly, 93rd Congress, 2nd Session, Part 4a (Washington, D.C.: U.S. Government Printing Office, 1974), pp. A-26, A-47; Glenn Yago, "Corporate Power and Urban Transportation," in Maurice Zeitlin, *Classes, Class Conflict, and the State* (Cambridge, MA: Winthrop Publishers, 1980), pp. 296–323; Motor Vehicles Manufacturers Association of the United States, *MVMA Facts and Figures* (Detroit, MI: MVMA, 1990), p. 36.

13. Rolf Edberg and Alexi Yablokov, *Tomorrow Will Be Too Late* (Tucson: University of Arizona Press, 1991), pp. 92, 101.

14. Barry Commoner, "Preface," in Michael Perelman, *Farming for Profit in a Hungry World* (Montclair, NJ: Allanheld, Osmun & Co., 1977), p. vii.

15. R. C. Lewontin and Jean-Pierre Berlan, "Technology, Research, and the Penetration of Capital," *Monthly Review* 38, no. 3 (July–August 1986), pp. 21, 26–27.

16. Jean-Pierre Berlan and R. C. Lewontin, "The Political Economy of Hybrid Corn," *Monthly Review* 38, no. 3 (July–August 1986): 35–47; R. C. Lewontin, *Biology as Ideology* (New York: HarperCollins, 1991), pp. 54–57.

17. Commoner, *Closing Circle,* pp. 29–42; Edberg and Yablokov, *Tomorrow Will Be Too Late,* p. 89; Haila and Levins, *Humanity and Nature,* pp. 5–6. Although Commoner refers to the fourth law as "there's no such thing as a free lunch," the Russian scientist Yablokov has translated this more generally as "nothing comes from nothing."

18. Commoner, *Closing Circle,* pp. 37–41; and *Making Peace,* pp. 11–13. Commoner's third law should not be taken too literally. As Haila and Levins write, "The conception that 'nature knows best' is relativized by the contingency of evolution." Haila and Levins, *Humanity and Nature,* p. 6.

19. Ibid., pp. 14–15; Herman E. Daly and Kenneth Townsend, eds., *Valuing the Earth* (Cambridge, MA: MIT Press, 1993), pp. 69–73.

20. Donald Worster, *The Wealth of Nature* (New York: Oxford University Press, 1993), pp. 58–59.

21. Vandana Shiva, *Staying Alive* (London: Zed Books, 1989), pp. 23–24, 186.

22. Haila and Levins, *Humanity and Nature,* p. 201.

23. Nicholas Georgescu-Roegen, *The Entropy Law and the Economic Process* (Cambridge: Harvard University Press, 1971), p. 2.

24. Commoner, *Making Peace,* pp. 10–11.

25. Haila and Levins, *Humanity and Nature,* p. 160.

26. Georgescu-Roegen, *Entropy Law,* p. 2; K. William Kapp, *The Social Costs of Private Enterprise* (Cambridge, Mass.: Harvard University Press, 1971), p. 231.

27. Chandler Morse, "Environment, Economics and Socialism," *Monthly Review* 30, no. 11 (April 1979): 12; Commoner, *Making Peace,* pp. 82–83; and *The Poverty of Power* (New York: Alfred A. Knopf, 1976), p. 194.

28. Ford and DeLorean quoted in Commoner, *Making Peace,* pp. 80–81.

29. Robert Heilbroner, *An Inquiry into the Human Prospect* (New York: W. W. Norton, 1980), p. 100.

Mountaintop Removal in West Virginia

An Environmental Sacrifice Zone

Julia Fox

In the next piece, Julia Fox explores how the technologies that have made mountaintop removal possible are not only decimating the environment in West Virginia but also costing the residents jobs, as workers are being replaced by machines. The few jobs that remain provide little financial security to the workers. Though the industry generates great profit for its owners, little of this wealth goes back to the community. This essay also shows how coal companies exercise enormous control over the state (and sometimes national) government. Therefore, regulations on the industry are weak, those regulations that are in place are poorly enforced, and the destructive mining practices and exploitative labor conditions continue. Since the original publication of this piece in 1999, a number of environmental and community groups have pushed for the development of more stringent regulations on this industry. For one of several websites that provide updates on these activities, see: www.ilovemountains.org.

Historically, West Virginia is a state that has been controlled by coal interests. The natural resources of the state and the labor power of the coal miners have been exploited to achieve a high level of profit for companies

engaged in this extractive industry. Humans and nature are, in this respect, external to the logic of the coal market. As the great ecological economist K. William Kapp (1971) demonstrated, such unpaid social costs are the very essence of the capitalist economy. Coal mining communities, in particular, have been devastated by a for-profit system that has promoted the extraction of coal in order to satisfy an insatiable need for energy that is disproportionately consumed by large corporations and the well-to-do—all the while denying the wider social and environmental costs. The vested interests who gained control of the coal resources have used technological innovations to displace coal miners. As a consequence, the unemployed coal miners and members of the coal mining communities have become redundant populations. The rapid increase in the scale and intensity of coal production that is characteristic of mountaintop removal has accelerated the social and environmental devastation already characteristic of the region.

A dependent periphery within the continental U.S. economy, the West Virginian economy, and its coal industry, have long been controlled by absentee owners. As the world market increased the demand for highly-efficient, low-sulfur coal, the rate of extraction of these coal resources also increased. Today, the major external force that drives mountaintop removal is the increased demand for cheap electricity. The enormous and growing demand for energy is rooted in the specific class relations in which the flow of energy, especially fossil fuel, disproportionately supports a few concentrated economic interests. The rate of demand for electricity on the part of corporations and the wealthy greatly exceeds that of the poor and working class in the United States. Since then, the coal mining companies control the technology and the profit from these operations; technological innovations like the massive draglines, which are geared to the removal of the largest amount of coal at the least cost for the corporations, are adopted without any real consideration of the consequences for local communities or the natural habitat. The scale of the mountaintop removal projects and the introduction of these massive machines allow for more rapid resource depletion with less workers. Yet, behind this apparent increase in efficiency lie human and ecological costs that are incalculable.

These conditions have created a number of internal contradictions that have sparked an organized struggle against mountaintop removal. This case study indicates the importance of creating political alliances between workers, environmentalists, and impacted members of the coal mining communities—indeed, all sectors of the community outside the privileged economic interests—to contest these brutal social and ecological relations. Given the relative power of the coal monopolies, a central proposition of the following argument is that the traditional regulatory regime is quite limited in its capacity to deal with the external (i.e., not recognized by the market) social and ecological costs associated with this kind of development. In fact, such regulatory regimes create the

legalistic rules that permit increased ecological and social damage in the coal mining communities. Mountaintop removal must therefore be placed in the context of the logic of profit maximization. In the unending quest for a greater supply of fossil fuel, to generate higher profits, humans and nature are commodified and exploited—humans displaced, nature depleted—reflecting the alienation of humanity from the very conditions of human existence.

The Morphology of Destruction

Although mountaintop removal is a coal mining method that has been used since the 1970s, there was a precipitous increase in its use for extracting coal in the 1990s. Since the 1990s, West Virginia has been the major site for mountaintop removal. Between 1995 and 1998, the West Virginia Division of Environmental Protection has authorized 27,000 acres of new mountaintop mining. In 1997, the state granted permits for 20 new projects covering 20 square miles. The largest mine is expected to cover more than 20,000 acres. West Virginia's southern mountains contain the most efficient coal in the nation, producing 50% more energy per pound than Western coal (Purdy, 1998; Warrick, 1998). West Virginia coal has the added advantage of being the least polluting low-sulfur coal. Ironically, one of the major environmental regulations, the 1990 Clean Air Act, increased the demand for low-sulfur coal (Loeb, 1997). According to the Office of Surface Mining Reclamation and Enforcement, West Virginia had more mine repositories than any other state, with 45,458 listed repositories in 1997 (U.S. Department of the Interior, Office of Surface Mining, 1997, p. 4). West Virginia is thus being turned into an environmental sacrifice zone, subjected to horrendous environmental destruction to provide cleaner, less polluting coal for the nation.

Although strip mining removes seams of coal at the surface, mountaintop removal involves removing 500 or more feet of a mountain to gain access to the veins of coal. As Loeb (1997) points out, "an aerial inspection suggests that 15 percent of the mountain tops in the south-central part of the state and—perhaps 25 percent in some places . . . are being leveled" (p. 26) in the massive mountaintop removal strip mining operation. The coal in West Virginia's mountains is difficult to extract because it is embedded in narrow horizontal seams between the rock inside steep mountains. The extraction requires the use of dynamite. As Loeb (1997) points out, "blasts are made with the same mixture of ammonia nitrate fertilizer and fuel oil in the bomb that killed 168 people in Oklahoma City . . . but the mining explosions are 10 to 100 times stronger." After the coal is exposed by a complex process of removing topsoil, clear-cutting forests, and blasting the rock above the coal seams (the "overburden"), a massive machine, a dragline, is used to remove the rock. The dragline is a $100 million machine that is as high as a 20-story building and weighs 8 million pounds. The dragline's bucket has the capacity to hold 26 Ford Escorts and can remove 110 cubic yards

of earth with a single scoop. The savings in labor are immense. In one mountaintop removal site in Wyoming, 450 workers (including supervisors) mined 1.2 tons of coal per second—40 million tons per year—compared to 3 years earlier when 500 workers were able to produce only 33 million tons of coal from the same mine. Such surface mining, including mountaintop removal as its main means, produces 6 tons of coal per labor hour nationally, compared to 2½ tons per hour for underground miners (Berman & O'Connor, 1996, pp. 152–153).

After the coal is separated out, rock trucks, which can haul 380 tons of rock per load, dump the rock into surrounding valleys. This process, which is called a valley fill, may be composed of waste piles of rock and earth that are up to 1,000 feet wide and 500 feet deep. In the past, the valley fills were composed of low terraced steps; however, with the massive amounts of rock and earth that has been removed, these fills are now dumped over the mountains and nearby valleys (Loeb, 1997).

Mountaintop removal has been called a "muscled-up form of strip mining" (Warrick, 1998, p. A I). The removal of entire mountaintops is more ecologically damaging than strip-mining. During the initial process of mountaintop removal, forests are clear cut and the topsoil is removed. The topography and landscaping around the mountains are transformed into "moon-scape rock and dirt" (Warrick, 1998). . . .

As Tom Rodd, a West Virginia attorney who won a landmark case against the coal industry, recently pointed out, "West Virginia is the latest of the country's energy sacrifice zones, surrendered to keep power cheap. It isn't the first, and it may not be the last" (Purdy, 1998, p. 33). It is not just energy, however, that is being depleted nor simply is it energy that is being provided. Rather, West Virginia has become an environmental sacrifice zone, providing low-sulfur (i.e., low-polluting) coal at the expense of the rapid degradation of its own environment.

West Virginia Coal Mining and the Uneven Nature of Capitalist Development

The rapid growth of mountaintop removal in West Virginia must be placed in a theoretical and historical context. Although West Virginia has historically been a major site for coal mining and bloody protracted struggles between the coal companies and the coal miners, the rapid increase in this form of strip mining is due to a number of social and economic developments. The major external force that has expanded the level of production of mountaintop removal projects has been the increased demand for electricity. In the past 20 years, the U.S. demand for electricity increased 70% (Loeb, 1997). Coal as a source of fuel is now largely invisible, although production and profits are soaring. A great deal of the coal is now burned at remote mine-mouth generating plants owned by electrical utilities. The electricity is then generated at an extremely high voltage

for hundreds of miles. Innumerable protests across the United States regarding the health dangers from high-voltage electromagnetic fields have occurred (Berman & O'Connor, 1996, p. 152). West Virginia's low-sulfur coal accounted for 57% of the electricity used in the United States. The amount of coal extracted in West Virginia has increased from 131 million tons in 1986 to 174 million tons in 1996. West Virginia now ranks number one in coal production in the United States. In 1996, the value of the coal was $4.4 billion (Loeb, 1997; Warrick, 1998).

The increased external demand for cheap electricity has intensified the pace of mountaintop removal. However, West Virginia has become the major site for this type of strip mining because of two other major factors as well: (a) the supply of low-sulfur and highly efficient coal reserves and (b) the internal class relations that have created the conditions for unfettered production that allow for the scale and intensity of degradation associated with mountaintop removal.

Historically, West Virginia has been an economically peripheral state whose natural resources have been controlled by coal monopolies, linked to external capital located in urban centers such as London, New York, Philadelphia, Boston and Baltimore. In 1900, absentee landowners owned more than 90% of Mingo, Logan, and Wayne counties and 60% of Boone and McDowell Counties. By 1923, nonresidents of West Virginia owned more than half the state and controlled four fifths of its total value. West Virginia coal was described by geologists as "some of the best in the world," and the mining operations in the state could be undertaken with "relatively small capital investments" (Conley, 1960; Corbin, 1981, pp. 4–51). The coal production in West Virginia increased from 489,000 tons in 1867 to 89,384,000 tons in 1917. By 1920, West Virginia was second only to Pennsylvania as the nation's leading coal producer (Corbin, 1981, p. 5).

This historic pattern of external ownership of West Virginia's resources continues today. The coal industry owns 75% of the land in West Virginia's major coal-producing counties (Miller, 1974; Purdy, 1998). Given the relative power of the coal monopolies in West Virginia, the internal political machinery has created some of the most lax environmental and labor regulation in the United States. Although capitalism, as Marx (1967) demonstrates, is a system in which humans and nature are exploited and commodified for profit in the market, the specific historical class relations in West Virginia create an uneven nature of capitalist development in this poor state—an almost Third World pattern of development.

Based on Marx's theoretical analysis of uneven development of capitalism, James O'Connor (1991) has argued that some of the "worst human and ecological disasters as a rule occur in the Third World" and the poorest regions of the First World (p. 257). O'Connor (1991) argues that two of the effects of uneven development are resource depletion and the rapid exploitation of fossil fuels. This is well illustrated by West Virginia because the major forces that have generated the ecological crisis there are the energy monopolies that maintain

external control over the resources and technology. As the world market for cheap energy sources increases the demand for natural resources, the energy monopolies use new technologies to increase the rate of depletion, and as a consequence, the ecological devastation and social disruption is greatest in a poor state like West Virginia.

Given the disproportionate power exercised by the coal monopolies in West Virginia, the legal fetters of environmental and labor regulations have been less constraining in this state. West Virginia's historical class relations created conditions extremely favorable for mountaintop removal. The accelerated exploitation of the earth and of the workers associated with mountaintop removal is a consequence of the logic of capitalism's creative destruction. Applying Marx's critique of capitalism, Foster (1994; see also Sweezy, 1989) explains this "creative drive is the seemingly infinite ability to produce new commodities by combining materials and labor in new ways, and the destructive drive is the systematic degradation, transformation, and absorption of all the elements of existence outside of the system's own orbit" (p. 32). As a natural resource, like fossil fuel, becomes a precious commodity to be sold on the market, then humans and nature are commodified to transform this commodity into a profit, as Marx (1967) demonstrated. Because the coal companies own and control the resources and the technology, the enormous machines increase the rate of the rapid depletion of the resources and displacement of workers. In the past 10 years, the level of productivity for the average coal miner has tripled (Purdy, 1998). This is precisely the relationship that Marx (1967) described as the most effective way to increase profit rates by increasing the productivity rate of workers and therefore lowering the unit costs of labor. The result is massive social dislocation and the creation of redundant populations. Mountaintop removal employed only 4,317 workers in West Virginia in 1997. This is less than 1% of the state's entire work force. Mining employment in West Virginia has declined from 130,000 in 1950 to 22,000 in 1996 (Loeb, 1997). As a local newspaper commented, "The industry has eliminated 100,000 West Virginia jobs, replacing miners with giant machines. Nearly all profits from West Virginia coal go to out-of-state owners" ("Shear Madness," 1997). The rapid developments in technological innovations have allowed the coal companies to extract more coal with less workers. Hence, many coal miners have been relegated to the surplus army of labor as the technological innovations displace the miners. The process of mountaintop removal has created massive social dislocation as the inhabitants around the coal fields have become an expendable population that stands in the way of a voracious demand for a precious commodity that is extracted for profit in the market.

This is precisely the type of massive social dislocation that Marx (1967) described as capitalist production penetrating every sphere of social life that comes "dripping from head to foot, from every pore, with blood and dirt" (p. 760). The extreme conditions of exploitation of the natural and human environment,

the existence of large surplus populations of former workers seeking employment, and the rising levels of poverty all give West Virginia, in the age of mountaintop removal, a Dickensian character in which relations of exploitation of both human beings and the natural environment are extremely transparent despite the fact that all of this is taking place under the mantle of economic and ecological modernization.

Although the coal companies have made massive profits from the extraction of coal, the prosperity has not trickled down to the workers or the residents of West Virginia. Despite the vast natural resources, West Virginia is the second-poorest state in the United States. As the most recent census data indicate, the coal-producing states are the poorest. In West Virginia, the poverty rate was 23%, the per capita income $9,326, and the unemployment rate was 14.5% ("The Poverty of the Coal Fields Counties," 1998, p. 10).

In one of the poorest areas of West Virginia, Cabin Creek, the coal companies extracted $100 million of coal a year while the "poor children play in raw sewage" (Radmacher, 1998). Indeed, "if coal helps the local economies so much" one West Virginian journalist has asked, "Why are the southern coalfields the most impoverished part of the state?" (Radmacher, 1998, p. 4A). Because the coal companies control the natural resources, the profit from the coal production accrues to the companies at the expense of the coal miners, the members of the West Virginian communities, and the environment. As Foster (1994) points out, the "throughput (the flow of energy/material input) that supports a wealthy individual, class, or nation is obviously much greater than the throughput that supports a poor individual, class or nation" (p. 31). This can also be stated in the language of "ecological footprint" analysis, devised by ecological economists Mathis Wackemagel and William Rees (1996). The ecological footprint (the impact on the environment measured in terms of units of land needed to support the demands of a given individual, nation, etc.) is much greater for a rich individual than a poor one, for a wealthy nation as opposed to an impoverished one, for a society relying more on coal-based electricity than one relying on solar power generation (Wackemagel & Rees, 1996).

Coal companies, which are part of a much larger energy-industrial complex, control vast natural and economic resources and have the capacity to apply any technology that will intensify the rate of production, regardless of the social and environmental costs to society as a whole. The price of a cheap energy source such as coal does not include the "negative externalities" of mountaintop strip-mining. Indeed, the reduction of all such costs to externalities that do not enter into the balance sheets of corporations makes both human beings and natural externalities of the market valueless to the bottom line. Given the class relations of this production, the benefits that do accrue from this exploitation of the earth and human beings go mainly to the coal companies and the high

demand energy consumers at the expense of the miners, the West Virginia communities, and nature.

Although it is the world market for cheap energy sources that drives the demand for more coal production, the coal companies control the resources and the technology that are used to intensify this production by driving down costs to further increase demand. Mountaintop removal is a manifestation of the creative destruction that applies technological innovations to increase the rate of exploitation of labor and nature, producing more coal with less workers. As a consequence, the massive social dislocations and ecological destruction are most pronounced at the site of extraction, and although transparent in West Virginia, they are invisible to those outside of this impoverished state.

The Political Power of the Coal Companies in West Virginia

Given the historical economic and political relations of the coal companies in West Virginia, the state government constitutes little more than the internal political machinery that lubricates the production process. In this sense, corporations and the state operate in a close "partnership" typical of capitalism (Miliband, 1991, pp. 30–34)—but more closely linked than usual in the West Virginian context, where it is perhaps misleading to talk about the relative autonomy of the state. The specific historical relations in West Virginia have created the conditions for greater relative power of the coal monopolies to control the internal political machinery. The lax environmental and labor regulations in this state provided the most favorable conditions for the acceleration of the scale and intensity of the mountaintop removal form of strip mining. . . .

Not content to control the state system from afar, the coal monopolies have long exercised extensive control over the state's internal political machinery. Historically, the coal companies were able to gain control of the state legislature and dominate legislative committees. In addition, the U.S. senators from West Virginia were either coal owners or men directly associated with the coal industry (Corbin, 1981). One of the most extensive studies of the power of the coal industry in West Virginia found that every governor and president of the state senate between 1950 and 1970 worked in the coal industry (Purdy, 1998). Coal companies were free from safety regulations. Until 1904, there was not a single prosecution in West Virginia, and there were none after 1912 for safety regulations. West Virginia was noted "in the mining world for insufficiency of proper laws" (Corbin, 1981, p. 16). The state received the dubious distinction of a major violator of child labor laws. West Virginia's child labor laws had so many loopholes that the National Child Labor Committee ranked West Virginia 34th (of the then 46 states in child labor) (Corbin, 1981). . . .

West Virginia's Weak Environmental Regulatory Regime

The ability of the coal companies to translate their economic clout into other forms of power is most evident in the weak regulatory regime governing the industry. West Virginia has had some of the weakest environmental laws and most lax regulatory rules in the United States. Recently, Governor Underwood signed one of the most controversial mountaintop mining bills in April 1998. The bill made a major change in the number of acres that coal companies can fill with the debris from mountaintop removal before paying damages. The new law allows companies to increase the amount of valley fill from 250 acres to 480 acres before paying damages to impacted streams and water sheds. Although the bill increased the penalty for land and water damages marginally from $200,000 per acre to $225,000 per acre, it made an important provision that allows state officials to monitor the impact of mountaintop removal projects in an attempt to cut out the federal Environmental Protection Agency (EPA). Hence, the EPA indicated that the bill violated the agencies' responsibilities under the Clean Water Act (Kennedy, 1998). . . .

There are a number of cases in which West Virginia's environmental regulatory agencies have violated federal laws themselves. The state regulators, for example, have made exemptions to the required 100-foot buffer zone around perennial streams. State regulators have allowed permits for mountaintop removal although the coal companies have failed to submit plans for stream reclamation. In July 1998, the West Virginia Highlands Conservancy filed a lawsuit claiming that the permit process violates federal laws and that debris from the mountaintop valley fills are "burying the state's headwater's at an alarming rate."

Mining companies are required to seek special permission for projects that significantly alter the landscape of a region. The 1977 Surface Mining Control and Reclamation Act requires mining companies to restore the land to "approximate original contour" (AOC). However, exceptions are permitted if the landscape is leveled for future development (e.g., housing, schools, airport). A recent review of the permit process indicated that three quarters of the active mountaintop removal mining permits in West Virginia did not receive the required exemptions ("Operators Not Getting Required Exemptions," 1998, p. 1C). Based on a 6-month study by the U.S. OSM [Office of Surface Mining], the federal agency found that "for more than 20 years, mountaintop removal mines have been illegally permitted by the state without plans for developing the stripped land" (Ward, 1998, p. 1A). The federal report concluded that

> most of the AOC variance permits did not contain sufficient documentation to grant those variances. Few, if any, contained the required agency

approvals or the specific plan and assurances demonstrating a need for and supporting the proposed post-mining land use. Among the 11 permits that did receive AOC variances, OSM inspectors found that what the DEP accepted as constituting AOC varied widely. (Ward, 1998, p. 7A). . . .

The Limits of Regulation: Mountaintop Removal as an Egregious Example

. . . Given the tremendous economic and political power of the coal monopolies, regulation is not a sufficient means to constrain the corporations. As Tokar (1997) points out, "regulations are, in fact, highly mutable, subject as any other law to changes in the political climate" and "enforcement is often selective. . . . Officials can easily bend the rules on behalf of powerful economic interests" (p. 57). . . .

The regulation of strip mining in West Virginia is a classic example of how formal legal equity conceals the actual economic and political power of the coal interests and how this regulation became extraordinarily mutable when the coal interests exerted their power. At the outset, West Virginia's regulatory laws included many exclusions and innovative interpretations. Field inspectors, for example, were given the "local version" of the federal law (Corbin, 1981; Purdy, 1998, p. 30). A West Virginia law professor and environmental litigator, Patrick McGinley, points out that in the 1980s he challenged the illegally issued permits in West Virginia and found that "virtually everything the law required was not being done" (Purdy, 1998, p. 30).

Recently, the director of the West Virginia Division of Forestry, Bill Maxey, resigned his position because Governor Underwood tried to stifle his opposition to mountaintop removal ("Repulsed by Mining Method," 1998). Maxey argued that mountaintop removal had destroyed 250,000 acres of forest. However, he was ordered to issue a rebuttal statement and was asked to "tone down his position." His revised statement was "300,000 acres had not been disturbed" ("Repulsed by Mining Method," 1998). Maxey said, "I had to, against my will, really, say that it could be properly reforested. . . . That isn't what I really wanted to say, that's what I was told to say" ("Repulsed by Mining Method," 1998). Maxey also pointed out that he was pressured by the state DEP and the federal OSM to approve a phrase that "would justify leveling mountains." The agency proposed the phrase be included in specifications written by the Division of Forestry for voluntary reclamation of mines into woodlands. The phrase, which was included in the 1997 state surface mining regulation says, "flat or gently rolling land on a site reclaimed to hardwood is essential for the operation of mechanical harvesting equipment" ("Repulsed by Mining Method," 1998).

In addition to problems with the West Virginia's lax enforcement and local interpretations of the federal law, there were many loopholes in the 1977 federal

Surface Mining Control and Reclamation Act. When the law was written, mountaintop removal was intended to be the exception rather than the rule. However, by 1990, mountaintop removal became the dominant type of mining in West Virginia. As Warrick (1998) points out, "changes in technology and mining practices have left the OSM and states at odds on how to interpret the . . . Surface Mining Control and Reclamation Act" (p. A8). As Kathy Karpan, the director of the Office of Surface Mining, told a journalist for the Washington Post, "the law says we can have mountaintop removal but it doesn't tell you how many valley fills is too many" (Warrick, 1998, p. A8). . . .

One of the major loopholes in the mining law is the definition of the approximate original contour (AOC). West Virginia environmental regulators say they do not push mine operators to restore the land because the "legal definition of 'approximate original contour' is vague" ("Operators Not Getting Required Exemptions," 1998). John Ailes, chief of the DEP Office of Mining and Reclamation, indicated he has no idea what AOC may mean and that "nobody has ever defined it." In addition, West Virginian mountains are steeper than specified by federal laws for the restoration of mountains to their original contour. Therefore, "restoring mountains to their original dimensions would mean following the law on one hand and breaking it on another." Ben Green, a former state regulator who is currently a lobbyist for the coal industry, pointed out "you do not re-create that mountain. . . . That has never been anybody's idea or intention" ("Operators Not Getting Required Exemptions," 1998). . . .

Technological changes and the scale of mountaintop removal have created even more loopholes in the Surface Mining Control and Reclamation Act, demonstrating that such artificial regulations are helpless against the dynamic of accumulation. The president of the West Virginia Mining and Reclamation Association conceded that the "regulations were written with 20-year-old technology, and smaller blasts in mind" (Loeb, 1997, p. 29). The draglines are permitted to operate within 300 feet of houses. Although West Virginian residents filed more than 287 blast complaints in 1996, the mining explosions are within the legal limit. As one of the residents from Blair, Carlos Gore pointed out, "we're dying and they (the coal companies) are in compliance" (Forman, 1997, p. 12). . . .

The limits of the regulation of the coal industry are especially apparent in the case of the fines for the violation of state and federal laws. As Loeb (1997) points out, "an examination of violation and complaint files for all West Virginia mines shows most to be low, even for seemingly serious violations" (p. 34). The average fine is about $800. Although the maximum fine is $5,000 per incident, "nearly 80 percent of the fines recommended by inspectors are reduced by DEP assessment officers" after the mining companies protest (Loeb, 1997, p. 34).

Organized Opposition

The residents of West Virginia have mounted a major organized campaign to contest mountaintop removal. Similar to other environmental justice movements, the residents have developed an understanding of the economic and political power of the coal companies and the limits of environmental regulation. The West Virginia activists discovered that it was necessary to file lawsuits against the state and federal agencies for failing to implement mining regulations that these agencies developed. A number of environmental organizations including the Ohio Valley Coalition, the West Virginia Citizens Action Group, the West Virginia Environmental Council and the West Virginia Highlands Conservancy have filed several suits against the regulatory agencies ("Environmental Group," 1998). . . .

[However] [t]he West Virginian environmental organizations and activists have also discovered what Brian Tokar (1997) has pointed out, that "many regulatory programs simply codify the terms by which corporations are granted permits to pollute" (p. 80). The loopholes in the Surface Mining Control and Reclamation Act, the vague definitions of AOC, and the permitting process for mountaintop removal are all classic examples of how the coal companies are permitted to pollute. . . .

The relative power of the coal companies to control the internal political machinery of the state creates lax regulations that are comparable to some Third World countries. . . . If West Virginia is to cease to be an environmental sacrifice zone, more fundamental changes in social and environmental relations are needed.

Note

Fox, Julia. 1999. "Mountaintop Removal in West Virginia: An Environmental Sacrifice Zone." *Organization & Environment* 12(2): 163–183.

References

Berman, D. M., & O'Connor, J. T (1996). *Who owns the sun? People, politics, and the struggle for a solar economy.* White River Junction, VT: Chelsea Green.

Conley, R. (1960). *History of the coal industry of West Virginia.* Charleston, WV: Educational Foundation.

Corbin, D. (1981). *Life, work and rebellion in the coal fields.* Urbana: University of Illinois Press.

Environmental group, citizens intend to sue DEP. (1998, April 20). *Herald-Dispatch*, p. 9C.

Forman, L. (1997, November). West Virginians meet with new federal OSM director. *"E" Notes*, pp. 11–12.

Foster, J. B. (1994). *The vulnerable planet.* New York: Monthly Review Press.

Kapp, K. W. (1971). *The social costs of private enterprise.* New York: Schocken.

Kennedy, N. (1998, April 9). Underwood signs mountaintop removal bill. *Herald-Dispatch*, p. 2C.
Loeb, P. (1997, October 13). Shear madness. *U.S. News & World Report*, pp. 26–34.
Marx, K. (1967). *Capital* (Vol. 1). New York: Vintage.
Miliband, R. (1991). *Divided societies.* New York: Oxford University Press.
Miller, T. (1974). *Who owns West Virginia?* Huntington, WV: Herald-Dispatch.
O'Connor, J. (1991). Capitalism, uneven development and the ecological crisis. In B. Berberoglu (Ed.), *Critical perspectives in sociology* (pp. 256–264). Dubuque, Iowa: Kendall/Hunt.
Operators not getting required exemptions. (1998, August 9). *Herald-Dispatch*, p. 1C.
The poverty of coal fields counties. (1998, January/February). *Appalachian Reader*, p. 10.
Purdy, J. (1998, November/December). Rape of the Appalachians. *American Prospect*, pp. 28–33.
Radmacher, D. (1998, June 19). Coal hurts those it pretends to help. *Charleston-Gazette*, p. 4A.
Repulsed by mining method, forestry chief resigns. (1998, November 1). *Herald-Dispatch*, p. 4C.
Shear madness: Strip mine ravages. (1997, August 7). *Charleston-Gazette*, p. 9A.
Sweezy, P. M. (1989). Capitalism and the environment. *Monthly Review*, 41, 2.
Tokar, B. (1997). *Earth for sale: Reclaiming ecology in the age of corporate greenwash.* Boston: South End.
U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement. (1997, November). *Mine map repositories.* Washington, DC: Government Printing Office.
Wackemagel, M., & Rees, W. (1996). *Our ecological footprint: Reducing human impact on the earth.* Philadelphia: New Society.
Ward, K. (1998, August 16). Feds confirm mining problems. *Charleston-Gazette*, pp. 1A, 7A.
Warrick, J. (1998, August 31). Mountaintop removal shakes coal state. *Washington Post*, pp. A1, A8.

Treadmill Predispositions and Social Responses

Population, Consumption, and Technological Change

Allan Schnaiberg and
Kenneth Alan Gould

The "treadmill of production" is a concept that focuses our attention on institutions and social structure. It emphasizes that we are all part of a system that must continue to grow—to continually produce more and create consumers to consume that which is produced. This process requires ever more energy and resources and causes industrial and consumer wastes to be constantly generated. In this excerpt from their book, Environment and Society: The Enduring Conflict, *Allan Schnaiberg and Kenneth Gould describe technological changes that have allowed for the expansion of production and argue that population growth plays only a very limited role in that expansion.*

Directions of and Motives for Technological Change

. . . In its simplest form, the treadmill of production [see table 3.1] is built around the interaction of two processes. The first process is an expansion of technological capacity. . . . Associated with expanded technological capacity, especially in

TABLE 3.1. **The Logic of the Treadmill of Production**

1. Increasing accumulation of wealth, through ownership of economic organizations that successfully use ecological resources to expand production and profits.
2. Increasing movement of workers away from self-employment, into positions of employees who must rely on expanded production to gain jobs and wages.
3. Increasing allocations of the accumulated wealth to newer technologies in order to replace labor with physical capital, thereby generating more profits for wealth-holders, in order to sustain and expand their ownership in the face of growing competition from other wealth-holders.
4. Increasing activities of governments to facilitate expanded accumulation of wealth for "national development," on the one hand, and "social security," on the other.
5. The net result of these processes is an increasing necessity for ever greater ecological withdrawals and additions in order to sustain a given level of social welfare.
6. The ecological obverse of no. 5 is the increasing likelihood of an industrial society creating ecological disorganization, as economic pressures push toward greater extraction of market values from ecosystems.
7. Extending no. 6, societies become increasingly *vulnerable* to socioeconomic disorganization, as their ecological "resource base" itself becomes disorganized.

modern industrial societies, is an expanded necessity of using this capacity in order to provide economic support for the population. The population of modern societies is increasingly made up of a small number of very large productive organizations and the concomitant growth of the number of wage employees of these and other productive organizations (Granovetter 1984). Both categories are committed to the treadmill but for somewhat different reasons. Investors and managers of the large production organizations seek to survive in a globally competitive milieu . . . and need to grow in order to cumulate wealth. . . .

The second process entails the dominance of economic growth preferences, even when many decision makers know that ecosystem disorganization is a likely outcome. This projected ecosystem *disorganization* is often dismissed as merely a temporary *disruption*. . . .

The role of government is often viewed as that of policing the relationship of economic structure to ecosystem disruption (Williamson 1985). It is also seen as that of mediating many relationships between workers and investors/owners/managers of economic organizations. But neither of these ideal roles can be actualized, since governments are not impartial mediators between dominant treadmill values and alternative values (Reich 1991). For modern governments have as their constituencies both major groups of treadmill interests. For political and administrative agents of government, economic growth offers some gains for both

constituencies (investors and workers). Moreover, all government expenditures, which can be allocated to either constituency (e.g., subsidies for investors, or social welfare for employees and dependents), arise as a tax or levy on national income. Thus, growing national income, which is typically generated by speeding up the treadmill, simultaneously makes it easier to collect a given level of tax revenue and allows governments to allocate more revenue to its two constituencies.

Thus, the treadmill tends to be the dominant value of capital owners, workers, and governments alike (Granovetter 1979). . . .

Expanding Production as a Social Choice

Woven through the treadmill of production is one particular form of economic growth: the expansion of production (Reich 1991). . . .

. . . [T]his chapter examines how profits are linked to technological changes and how such technological changes are in turn tied to the expansion of production. The competitive framework . . . has been present in skeletal form since early forms of trading existed, with horseback transportation of goods. The pace of competition accelerated somewhat with more advanced means of transportation, since it permitted more firms to send their products to more distant markets. Thus, sailing ships and especially steamships permitted industrial country producers to expand their markets in other industrial and underdeveloped countries. At the same time, railroads permitted intrasocietal competition in the industrial countries. In contrast, in the underdeveloped countries, most of this transportation improvement merely facilitated the expansion of monopoly corporations. . . . Improved transportation enabled them to exploit these populations and ecosystems on a grander scale, extracting still more ecological resources from these countries (e.g., through mining and forestry especially and, later, through plantation agriculture, with the growth of refrigerated ships).

Improvements in transportation were part of a growing attentiveness to technologies in all forms of production. While "tinkering" was a widespread form of improving and adapting production technologies for several centuries, the twentieth century began to alter this social and economic process (Schnaiberg 1980: ch. 3). Many different historical processes combined to generate these substantial changes. These processes are listed in table 3.2 . . . in different forms and degrees across societies and production arenas.

These diverse historical factors helped pave a general path to expanded production, especially from the periods following World War II (though the impacts of some of these factors increased as early as the mid–nineteenth century or before, in some cases). From an ecological perspective, we should distinguish two different forms of production expansion. The first is a quantitative form: here factories and mills primarily got larger and more numerous, and withdrew *more withdrawals* and added *more additions.* In the twentieth century, however, much greater qualitative changes in production were created: in these qualitative

TABLE 3.2. **The Roots of Expanded Production**

1. The increasing portability of production, as sources of energy became more separable from their applications in production (e.g., stream power versus steam, and then diesel and electrical power).
2. The portability of instruments of finance, increasing the "circulation" speed of production and distribution, by establishing national and international banking networks.
3. Improvements in transportation, allowing for more rapid and easier movement of raw materials, sources of energy, products, workers, and distribution agents.
4. Improvements in communication, leading to a reduction in the transaction costs of producing for distant and less familiar markets, and increasing the pace of economic activity.
5. Increased availability of credit from financial institutions, and insurance from such institutions and government agencies in order to permit taking longer distance risks.
6. The rise of technological specialties (e.g., applied scientists or engineers), which would have skills at redesigning capital equipment in production.
7. The rise of financial-organizational specialties (e.g., systems analysts and industrial engineers), which permit reallocation of financial and human resources.
8. Political control over international and domestic trade, through the use of government instruments, ranging from patent and property rights to the use of "gunboats" and armies, as well as trade consuls and small business administrations.

changes, we often had *new withdrawals* or *new additions,* which were previously never extracted from or dumped into ecosystems. [. . .] When the source of power for mills changed from water to steam, we had primarily quantitative changes: they became larger, and they simply impacted on more ecosystems in the production process, as well as in the mining process (which could be farther away, with steam-powered trains to ship the coal). New types of coal were mined, with steam-powered equipment and new explosives. In addition to the quantitative effects of this transformation, some qualitative changes also occurred. New forms of air pollution arose from burning new types of coal, and perhaps some new forms of land and water pollution also occurred near factories, with fly-ash and other effluents from the use of the new coal. This early transformation of production is strongly associated with *changing energy sources.* Moreover, much of the ecological impact of this path to expanding production was associated with withdrawals of fossil fuels, which we termed depletion or resource exhaustion.

When factories changed from coal to fuel oil, and later to electricity, however, the results were often more pronounced qualitatively as a result of further

industrial processing. Some quantitative impacts of energy use and transformation occurred. Indeed, some were even seen as positive in environmental terms, such as burning clean oil versus dirty coal, which had left more visible pollutants in the form of particulates made up of fly-ash. But the availability of large supplies of portable energy (especially electricity), coupled with new scientific resources, led to "better living through chemistry" in many fields. This change led to many problems of *additions* to ecosystems, or what we have come to call "pollution," a situation that accelerated in the post-1945 period.

The modern economic system faces technologically induced problems of both withdrawals and additions (Schnaiberg 1980: chs. 2 and 3). Among industrial countries, there has been a historical withdrawal of and depletion of petroleum (on land) and some mined resources. But in recent decades in such countries, additions such as toxic wastes, threatening human health as well as animal species, have become more prominent through the rise of synthetic chemicals in production. By the late 1980s the United States alone produced 275,000 tons of industrial waste per year (OECD 1991). Included in that waste were more than 48,000 different chemicals registered with the U.S. Environmental Protection Agency (National Wildlife Federation 1991). In contrast, in the underdeveloped countries, deforestation and desertification have proceeded from quantitative shifts, including increased extraction of firewood by individuals, and massive timber cutting and some plantation agriculture by multinational companies. Between 1981 and 1990 about 40 million acres of tropical forest were destroyed (Rudel & Horowitz 1993; World Resources Institute 1992). Within both sets of societies, as well as the Eastern Bloc states, there is a wide range of both depletion and pollution, arising from intensified use of traditional power sources such as soft coal (producing toxic air pollution and acid rainfall).

Global problems of warming arise primarily from the combustion of fossil fuels (carbon dioxide) and the waste products of modern agriculture and industry (methane gas), heavily influenced by the level of national industrialization. Ozone depletion is even more skewed to the production of industrial societies, which use chlorofluorocarbons in both industrial and consumer products (e.g., refrigeration and air-conditioning). . . .

Why then does the treadmill system favor expanding production, thereby increasing ecological withdrawals and additions and the threat of ecosystem disorganization? In an earlier period, before worldwide competition was so intense, why did production expand? The usual answer relates to the growth of population: in the next section we treat this as a real but very incomplete explanation for the expansion of production. Our interpretation of the work of historians, economists, and sociologists suggests that a tension exists within industrial systems, especially but not exclusively in capitalistic ones. In the early days of the twentieth-century treadmill, the speed was slower, but the directions of modern production systems were already laid out. The process is a relatively

straightforward one. For any given producer who is successful in extracting ecosystem resources and in marketing them, a profit is generated. Some portion of the profit or "surplus" is likely to be allocated to new physical capital. This capital is then used to expand production, often thereby reducing the per unit costs of products and improving the company's competitive position and/or the size and share of the total market it supplies.

A first question can be raised: why can't a corporation's level of production simply remain static rather than expand? One answer is that some family-owned enterprises have indeed remained fairly stable and static over protracted periods. These owners typically were satisfied with their rates of return, since they didn't need or want more profits. Often, even in such firms, the next generation of owners may be larger, or seek new challenges, and thereby seek to modernize and expand their operations. (The son or daughter faces an economic organization that his or her parent had the satisfaction of *building.)* When we move beyond family-owned businesses, we encounter variants of the situation. . . .

A company that enters a public market which provides it with operating or expansionary funds must compete with other firms for such funds (Williamson 1981). This produces both . . . resistance to environmental protection regulations . . . and the need to expand profits (Williamson 1985). From these arguments, we can state that expansion of profits is more of a goal in this public marketplace, while reshaping production systems may be a more important goal in family-owned businesses. Somewhere in the middle of these two positions is the case of family-owned businesses in which the next generation is larger and thereby needs more profits to support more owners. Such owners then expand the pie, rather than just fighting each other for a fixed profit level. In other cases, inheritors of businesses have no skills or desires to continue the business, and they sell off the firm to a market actor, thereby moving the firm onto the "conveyor belt" of the treadmill of production (Granovetter 1979, 1984).

The second question posed has to be: why do owners invest more in new equipment, rather than in adding more workers (Noble 1979)? A conventional answer is that this path results in greater capital efficiency (defined as lower costs of production per unit produced), permitting more rapid expansion of profits through expansion of market size. This path differs from the model in which a social reorganization of workers permits more profits from a given level of production by increasing labor efficiency. Interestingly, most of the examples of a labor-relations path seem to arise within family businesses, where owners are also managers. They retain social relationships to their employees, rather than seeing employment as a business transaction (Williamson 1985; cf. Granovetter & Tilly 1988). In sharp contrast to both of these models, the theory of rationalization or social control suggests that owners of capital and their managers can predict and control their transactions with machinery and physical technology rather than their transactions with workers. Whether this difference in control is

always or usually actualized, the *belief* of investors and managers that these transaction costs will be predictably reduced itself creates pressures to develop new technologies to supplant more human labor. Unlike the first two models, the last model treats the employment relationship as only a transaction, peripheral to the major tasks of the production organization (Williamson 1981). It assumes enduring conflict between owners and workers, which agrees with both neoconservative and neo-Marxist views of the firm and the economy. . . .

Population and Production: The Complex Connections

It is tempting to explain the contemporary growth in production by referring to the growth of the human population in each society. At every level of analysis, however, this inference is misleading. Starting with the world as a whole, those societies with the highest rates of economic growth and the highest rates of ecological withdrawals and additions, are precisely those societies with the lowest rates of population growth in the twentieth century. Indeed, the proportion of the global population represented by these high-economic growth nations is shrinking rather rapidly. As we move from this global perspective down to a nation-state and regional level, this disjuncture between population growth and ecological withdrawals and additions becomes more evident—but also more complex. At one extreme, we cannot assume that population growth is irrelevant to both temporary ecological disruption and enduring ecological disorganization. However, the size of a population appears to be most relevant to ecological disruption where populations are closer to subsistence production rather than industrial production. In recent decades, the world has become more aware of drought, starvation, and their connection to the press of populations on limited ecosystems. Desertification in sub-Saharan Africa has been increasingly linked to the attempts of regional nomadic peoples to support larger herds of animals by grazing them in areas of marginal moisture and productivity. Here and elsewhere, this process is accelerated by the collection of firewood through cutting down younger and younger trees, which in turn makes soil more vulnerable to sandstorms and loss of topsoil, when moisture is low.

In establishing any form of environmental protection, we must attend to two features of this population-induced ecological disorganization. First, many of these local and regional ecological problems are "solved" in ways such that ecosystems pass on these pressures to all animal species: members of the population gain less nutrition, become ill and disabled, and die in much larger than usual numbers. . . .

. . . The form and scale of later industrialization created productive mechanisms in societies whose expansion vastly exceeded the stimulus of population growth itself. That is, it was the growth of industrial production systems rather than the growth of human reproduction that increased societal impacts on ecosystems. To expand production, industrial investment of capital "overcame"

local ecological limitations, largely by moving resource extraction activities farther afield to many more and to more distant ecosystems. As we noted earlier, this shift depended on the revolution in transportation technologies. Improved transportation provided ease of movement both of fuels and raw materials from distant resource areas and of the finished products to distant consumers.

To understand the limited role of population growth, we need merely to turn to the South. In the twentieth century, and especially since World War II, Southern societies have experienced the sharpest rates of population increase in part because of food stabilization and in part because of public health controls that together lowered mortality in this period. As a consequence, they have become the youngest societies and thus capable of even more population growth in the future, as the vast numbers of children become parents. While rising population has indeed led to many local shortages of arable land, fuel, and water, the major impact has been malnutrition, disease, and death. This problem has limited actual withdrawals from and additions to ecosystems, making them well below the rates of such ecological disruptions in industrial countries, some of which even have negative rates of population growth.

In a socially realistic analysis, production expansion has complicated relationships to population growth. Quite different combinations of the population's savings and consumption patterns can produce highly variable patterns of productive investment and production expansion. Thus, for example, the U.S. population consumes more of its per capita income than does Japan, which invests more of its income in Japanese industries (either directly or through government intervention). Thus, the effect of population on ecological demands will also differ in the two societies: more per capita consumer impacts exist in the United States than in Japan, but potentially more industrial impacts can and will occur in Japan in the absence of governmental and private sector environmental protection. . . . Whereas in all industrial societies, a population represents a potential market for goods and services produced by the economic sectors, with modern flows of investment and goods, markets are increasingly multinational and international, as are flows of capital. . . . This further weakens the connections among a society's population size, level of production, and withdrawals and additions within domestic ecosystems. . . .

[T]he failure of growing world production to meet basic human needs is additional powerful evidence that no clear link exists between production expansion and population growth. It indicates that the biomass quality of human actors is less significant for predicting their ecological impacts than is the socioeconomic quality of human actors. One way of demonstrating this idea is by reference to social expectations about the size of children and the linkage of family size to nutritional adequacy. In the North, over the past century individuals have grown substantially taller than their ancestors. Yet this growth of biomass actually represents a significant drain on ecosystems, requiring higher

food and raw material inputs (e.g., for clothing, bedding, and housing) and increasing human wastes per capita. Once more, it is our social values that take precedence over our biological necessities. The opposite end of this scenario is the *shrinking* size of individuals under conditions of malnutrition and starvation in the South. Contrasting these two sets of conditions (higher weight and diffused obesity in the North versus lower weight and malnutrition in the South), we find that the per capita ecological impact of individual members of the two types of societies as biological demands on ecosystems is higher in the North. Yet we decry population growth as an ecological *hazard* in the South.

A second example of the logical flaws in a crude population-based explanation of expanded production is found in our recent attention to the disappearing rainforests (Rudel & Horowitz 1993). There is often a confusion in our public rhetoric about South American rainforests, since many South American countries have high rates of population growth. But the major forces influencing the cutting of rainforests are industrial investors, who want the land for mining, cattle grazing, and plantation agriculture. First, such investors act to remove the population by killing or forcibly moving them and then they cut the rainforest trees, which they also sell for large profits (Rudel & Horowitz 1993). Some of the more socially and ecologically progressive movements in industrial societies to find alternative, sustainable uses of rainforests by preserving the tree cover may be unaware of actual efforts along these lines by indigenous leaders of local populations. These include groups of rubber-tappers and others involved in more sustainable forms of production. Some of them, like Chico Mendez, have died in the process of opposing miners, cattle ranchers, and other industrial investors (Gore 1992). . . . [H]owever, these groups face serious pressures from industrial and other economic elites, who look to industrial societies for models and money to expand high-technology production, with all its attendant ecological risks.

In summary, from a local and global ecological perspective, population growth represents a clear and present danger. Contrary to some analysts, we see little social or ecological advantages to a growing population in most societies. At the same time, however, the historical record is clear: it is not population growth that has created the national and global environmental disruption we confront today. Rather . . . it is the expansion of profits or surplus that has led to an enormous expansion of production in the past century, especially in the last half-century. With the modern potential for global diffusion of money, physical production equipment (technology) and information, goods and services, to both producers and consumers, the role of population growth in expanding production becomes attenuated. Instead, the generation of surplus and the allocation of this capital influence production expansion. Both domestically and internationally, not only are production decisions controlled disproportionately by a small number of decision makers, but also consumption capacity is increasingly being allocated to a smaller share of the world's consumers (Galbraith 1992; Reich 1991).

Note

Schnaiberg, Allan, and Kenneth Alan Gould. 1994. "Treadmill Predispositions and Social Responses: Population, Consumption, and Technological Change." In *Environment and Society: The Enduring Conflict.* New York: St. Martin's.

Selected References

Galbraith, John Kenneth
1992 *The Culture of Contentment.* New York: Houghton Mifflin.
Gore, Senator Al
1992 *Earth in the Balance: Ecology and the Human Spirit.* Boston: Houghton Mifflin.
Granovetter, Mark
1979 "The idea of 'advancement' in theories of social evolution and development." *American Journal of Sociology* 85 (3): 489–515.
1984 "Small is bountiful: Labor markets and establishment size." *American Sociological Review* 49 (June): 323–334.
1985 "Economic action and social structure: The problem of embeddedness." *American Journal of Sociology* 91 (3): 481–510.
Granovetter, Mark, & Charles Tilly
1988 "Inequality and labor processes." Pp. 175–221 in Neil Smelser, editor, *Handbook of Sociology.* Newbury Park, CA: Sage Publications.
National Wildlife Federation
1991 *The Earth Care Annual.* Washington, DC: National Wildlife Federation.
Noble, David F.
1979 *America by Design: Science, Technology, and the Rise of Corporate Capital.* New York: Alfred A. Knopf.
Organization of Economic Cooperation (OECD)
1991 *Environmental Indicators.* Paris: OECD.
Reich, Robert B.
1991 *The Wealth of Nations: Preparing Ourselves for 21st Century Capitalism.* New York: Alfred A. Knopf.
Rudel, Thomas K., & B. Horowitz
1993 *Tropical Deforestation: Small Farmers and Land Clearing in the Ecuadorian Amazon.* New York: Columbia University Press.
Schnaiberg, Allan
1980 *The Environment: From Surplus to Scarcity.* New York: Oxford University Press.
1992 "The recycling shell game: Multinational economic organization vs. political ineffectuality." Working paper WP-92-16, Center for Urban Affairs & Policy Research, Northwestern University, Spring.
Schnaiberg, Allan, N. Watts, & K. Zimmermann, editors
1986 *Distributional Conflicts in Environmental-Resource Policy.* Aldershot, England: Gower Publishing.
Williamson, Oliver
1981 "The economics of organization: The transaction cost approach." *American Journal of Sociology* 87 (November): 548–577.
1985 *The Economic Institutions of Capitalism.* New York: Free Press.
World Resources Institute
1992 *The Environmental Almanac.* Washington, DC: World Resources Institute.

PART

Environmental Justice: Race, Class, and Gender

Environmental Justice

Grassroots Activism and Its Impact on Public Policy Decision Making

Robert D. Bullard and Glenn S. Johnson

The following pieces explore how race, class, and gender intersect with environmental issues. In this first selection Robert Bullard, a leading researcher and activist in the environmental justice movement, and his colleague Glenn Johnson document how people of color and low-income communities have faced a greater incidence of exposure to environmental hazards than other communities. Bullard and Johnson further show how, since the 1980s, grassroots activists have responded to this injustice by coordinating a nationwide effort to change governmental and corporate practices that endanger the health of people of color and low-income communities. These activists have experienced a wide range of successes, from resisting unwanted land uses at the local level to changing federal regulations at the national level. In 1991 activists across the country gathered for the First National People of Color Environmental Leadership Summit in Washington, D.C., and developed the seventeen "Principles of Environmental Justice." You can read these principles and see updated documentation on environmental injustices by visiting www.ucc.org/justice/environmental-justice.

Despite significant improvements in environmental protection over the past several decades, millions of Americans continue to live in unsafe and unhealthy physical environments. Many economically impoverished

communities and their inhabitants are exposed to greater health hazards in their homes, on the jobs, and in their neighborhoods when compared to their more affluent counterparts (Bryant & Mohai, 1992; Bullard, 1994a). . . .

From New York to Los Angeles, grassroots community resistance has emerged in response to practices, policies, and conditions that residents have judged to be unjust, unfair, and illegal. Some of these conditions include (1) unequal enforcement of environmental, civil rights, and public health laws; (2) differential exposure of some populations to harmful chemicals, pesticides, and other toxins in the home, school, neighborhood, and workplace; (3) faulty assumptions in calculating, assessing, and managing risks; (4) discriminatory zoning and land use practices; and (5) exclusionary practices that prevent some individuals and groups from participation in decision making or limit the extent of their participation (Bullard, 1993b; C. Lee, 1992). . . .

Communities under Siege

. . . Elevated public health risks have been found in some populations even when social class is held constant. For example, race has been found to be independent of class in the distribution of air pollution, contaminated fish consumption, location of municipal landfills and incinerators, abandoned toxic waste dumps, cleanup of Superfund sites, and lead poisoning in children (Agency for Toxic Substances and Disease Registry, 1988; Bryant & Mohai, 1992; Commission for Racial Justice, 1987; Goldman & Fatten, 1994; Lavelle & Coyle, 1992; Pirkle et al., 1994; Stretesky & Hogan, 1998; West et al., 1990).

. . . Figures reported in the July 1994 *Journal of the American Medical Association* in the Third National Health and Nutrition Examination Survey (NHANES III) revealed that 1.7 million children (8.9% of children aged 1–5) are lead-poisoned, defined as having blood lead levels equal to or above 10 micrograms per deciliter. The NHANES III data found African American children to be lead-poisoned at more than twice the rate of White children at every income level (Pirkle et al., 1994). Over 28.4% of all low-income African American children were lead-poisoned, compared to 9.8% of low-income White children. During the time period between 1976 and 1991, the decrease in blood lead levels for African American and Mexican American children lagged far behind that of White children.

In 1992 in California, a coalition of environmental, social justice, and civil libertarian groups joined forces to challenge the way the state carried out its screening of poor children for blood lead levels. The Natural Resources Defense Council, the National Association for the Advancement of Colored People Legal Defense and Education Fund, the American Civil Liberties Union, and the Legal Aid Society of Alameda County, California, won an out-of-court settlement worth $15 million to $20 million for a blood lead-testing program. The

lawsuit, *Matthews v. Coye,* involved the failure of the state of California to conduct federally mandated testing for lead on some 557,000 poor children who receive Medicaid (B. L. Lee, 1992). This historic agreement triggered similar lawsuits and actions in several other states that failed to live up to the federal mandates.

Federal, state, and local policies and practices have contributed to residential segmentation and unhealthy living conditions in poor, working-class, and people-of-color communities (Bullard & Johnson, 1997). Several recent California cases bring this point to light (B. L. Lee, 1995). Disparate highway siting and mitigation plans were challenged by community residents, churches, and the NAACP Legal Defense and Education Fund in *Clean Air Alternative Coalition v. United States Department of Transportation* (N.D. Cal. C-93-O721-VRW), involving the reconstruction of the earthquake-damaged Cypress Freeway in West Oakland. The plaintiffs wanted the downed Cypress Freeway (which split their community in half) rebuilt farther away. Although the plaintiffs were not able to get their plan implemented, they did change the course of the freeway in their out-of-court settlement.

The NAACP Legal Defense and Education Fund filed an administrative complaint, *Mothers of East Los Angeles, El Sereno Neighborhood Action Committee, El Sereno Organizing Committee, et al. v. California Transportation Commission, et al.* (before the U.S. Department of Transportation and U.S. Housing and Urban Development), challenging the construction of the 4.5-mile extension of the Long Beach Freeway in East Los Angeles through El Sereno, Pasadena, and South Pasadena. The plaintiffs argued that the state agencies' proposed mitigation measures to address noise, air, and visual pollution discriminated against the mostly Latino El Sereno community. For example, all of the planned freeway in Pasadena and 80% in South Pasadena will be below ground level. On the other hand, most of the freeway in El Sereno will be above ground. White areas were favored over the mostly Latino El Sereno in allocation of covered freeway, historic preservation measures, and accommodation to local schools (Bullard & Johnson, 1997; B. L. Lee, 1995).

Los Angeles residents and the NAACP Legal Defense and Education Fund have also challenged the inequitable funding and operation of bus transportation used primarily by low-income and people-of-color residents. A class action lawsuit was filed on behalf of 350,000 low-income, people-of-color bus riders represented by the Labor/Community Strategy Center, the Bus Riders Union, Southern Christian Leadership Conference, Korean Immigrant Workers Advocates, and individual bus riders. In *Labor/Community Strategy Center v. Los Angeles Metropolitan Transportation Authority* (Cal. CV 94-5936 *TJH* Mcx), the plaintiffs argued that the Los Angeles Metropolitan Transit Authority (MTA) used federal funds to pursue a policy of raising costs to bus riders (who are mostly poor and people of color) and reducing quality of service in order to fund rail and other projects in predominately White suburban areas (Mann, 1996).

In the end, the Labor/Community Strategy Center and its allies successfully challenged transit racism in Los Angeles. The group was able to win major fare and bus pass concessions from the Los Angeles MTA. It also forced the Los Angeles MTA to spend $89 million on 278 new clean-compressed natural gas buses. . . .

Relocation from "Mount Dioxin"

Margaret Williams, a 73-year-old retired Pensacola, Florida, schoolteacher, led a 5-year campaign to get her community relocated from the environmental and health hazards posed by the nation's third largest Superfund site. The Escambia Wood Treating site was dubbed "Mount Dioxin" because of the 60-foot-high mound of contaminated soil dug up from the neighborhood. The L-shaped mound holds 255,000 cubic yards of soil contaminated with dioxin, one of the most dangerous compounds ever made (Olinger, 1996). Williams led Citizens Against Toxic Exposure (CATE), a neighborhood organization formed to get relocation, into battle with EPA officials, who first proposed to move only the 66 households most affected by the site (U.S. EPA, 1996). After prodding from CATE, EPA then added 35 more households, for a total cost of $7.54 million.

The original government plan called for some 257 households, including an apartment complex, to be left out. CATE refused to accept any relocation plan unless everyone was moved. The partial relocation was tantamount to partial justice. CATE took its campaign on the road to EPA's NEJAC and was successful in getting NEJAC's Waste Subcommittee to hold a Superfund relocation roundtable in Pensacola. At this meeting, CATE' s total neighborhood relocation plan won the backing of more than 100 grassroots organizations. EPA nominated the Escambia Wood Treating Superfund site as the country's first pilot program to help the agency develop a nationally consistent relocation policy that would consider not only toxic levels but welfare issues such as property values, quality of life, health, and safety.

On October 3, 1996, EPA officials agreed to move all 358 households from the site at an estimated cost of $18 million. EPA officials deemed the mass relocation as "cost efficient" after city planners decided to redevelop the area for light industry rather than clean the site to residential standards (Escobedo, 1996; Washington Post, 1996). This decision marked the first time that an African American community had been relocated under EPA's Superfund program and was hailed as a landmark victory for environmental justice (Escobedo, 1996).

From Dumping in Dixie to Corporate Welfare

The southern United States has become a "sacrifice zone" for the rest of the nation's toxic waste (Schueler, 1992, p. 45). A colonial mentality exists in Dixie through which local government and big business take advantage of people who

are both politically and economically powerless. The region is stuck with a unique legacy: the legacy of slavery, Jim Crow, and White resistance to equal justice for all. This legacy has also affected race relations and the region's ecology.

The South is characterized by "look-the-other-way environmental policies and giveaway tax breaks" and as a place where "political bosses encourage outsiders to buy the region's human and natural resources at bargain prices" (Schueler, 1992, pp. 46–47). Lax enforcement of environmental regulations has left the region's air, water, and land the most industry-befouled in the United States.

Toxic waste discharge and industrial pollution are correlated with poorer economic conditions. In 1992, the Institute for Southern Studies' "Green Index" ranked Louisiana 49th out of 50 states in overall environmental quality. Louisiana is not a rich state by any measure. It ranks 45th in the nation in spending on elementary and secondary education, for example.

Ascension Parish typifies the toxic "sacrifice zone" model. In two parish towns of Geismar and St. Gabriel, 18 petrochemical plants are crammed into a 9.5-square-mile area. In Geismar, Borden Chemicals has released harmful chemicals into the environment that are health hazardous to the local residents, including ethylene dichloride, vinyl chloride monomer, hydrogen chloride, and hydrochloric acid (Barlett & Steele, 1998, p. 72).

Borden Chemicals has a long track record of contaminating the air, land, and water in Geismar. In March 1997, the company paid a fine of $3.5 million—the single largest in Louisiana history—for storing hazardous waste, sludges, and solid wastes illegally; failing to install containment systems; burning hazardous waste without a permit; neglecting to report the release of hazardous chemicals into the air; contaminating groundwater beneath the plant site (thereby threatening an aquifer that provides drinking water for residents of Louisiana and Texas); and shipping toxic waste laced with mercury to South Africa without notifying the EPA, as required by law (Barlett & Steele, 1998).

Louisiana could actually improve its general welfare by enacting and enforcing regulations to protect the environment (Templet, 1995). However, Louisiana citizens subsidize corporate welfare with their health and the environment (Barlett & Steele, 1998). A growing body of evidence shows that environmental regulations do not kill jobs. On the contrary, the data indicate that "states with lower pollution levels and better environmental policies generally have more jobs, better socioeconomic conditions and are more attractive to new business" (Templet, 1995, p. 37). Nevertheless, some states subsidize polluting industries in the return for a few jobs (Barlett & Steele, 1998). States argue that tax breaks help create jobs. However, the few jobs that are created come at a high cost to Louisiana taxpayers and the environment.

Nowhere is the polluter-welfare scenario more prevalent than in Louisiana. Corporations routinely pollute the air, ground, and drinking water while being

subsidized by tax breaks from the state. The state is a leader in doling out corporate welfare to polluters (see table 4.1). In the 1990s, the state wiped off the books $3.1 billion in property taxes owed by polluting companies. The state's top five worst polluters received $111 million over the past decade (Barlett & Steele, 1998). A breakdown of the chemical releases and tax breaks includes

- Cytec Industries (24.1 million pounds of releases/$19 million tax breaks)
- IMC-Agrico Co. (12.8 million pounds/$15 million)
- Rubicon, Inc. (8.4 million pounds/$20 million)
- Monsanto Co. (7.7 million pounds/$45 million)
- Angus Chemical Co. (6.3 million pounds/$12 million)

TABLE 4.1. **Corporate Welfare in Louisiana**

The biggest recipients: Companies ranked by total industrial-property tax abatements, 1988–97

Company	*Jobs Created*	*Total Taxes Abated*
1. Exxon Corp.	305	$213,000,000
2. Shell Chemical/Refining	167	$140,000,000
3. International Paper	172	$103,000,000
4. Dow Chemical Co.	9	$96,000,000
5. Union Carbide	140	$53,000,000
6. Boise Cascade Corp.	74	$53,000,000
7. Georgia Pacific	200	$46,000,000
8. Willamette Industries	384	$45,000,000
9. Procter & Gamble	14	$44,000,000
10. Westlake Petrochemical	150	$43,000,000

The costliest jobs: Companies ranked by net cost of each new job (abatements divided by jobs created)

Company	*Jobs Created*	*Cost per Job*
1. Mobil Oil Corp.	1	$29,100,000
2. Dow Chemical Co.	9	$10,700,000
3. Olin Corp.	5	$6,300,000
4. BP Exploration	8	$4,000,000
5. Procter & Gamble	14	$3,100,000
6. Murphy Oil USA	10	$1,600,000
7. Star Enterprise	9	$1,500,000
8. Cytec	13	$1,500,000
9. Montell USA	31	$1,200,000
10. Uniroyal Chemical Co.	22	$900,000

Not only is subsidizing polluters bad business, but it does not make environmental sense. For example, nearly three-fourths of Louisiana's population—more than 3 million people—get their drinking water from underground aquifers. Dozens of the aquifers are threatened by contamination from polluting industries (O'Byrne & Schleifstein, 1991). The Lower Mississippi River Industrial Corridor has over 125 companies that manufacture a range of products, including fertilizers, gasoline, paints, and plastics. This corridor has been dubbed "Cancer Alley" by environmentalists and local residents (Beasley, 1990a, 1990b; Bullard, 1994a; Motavalli, 1998).

Winning in Court: The Case of *CANT v. LES*

Executive Order 12898[1] was put to the test in rural northwest Louisiana in 1989. Beginning that year, the Nuclear Regulatory Commission (NRC) had under review a proposal from Louisiana Energy Services (LES) to build the nation's first privately owned uranium enrichment plant. A national search was undertaken by LES to find the "best" site for a plant that would produce 17% of the nation's enriched uranium. LES supposedly used an objective scientific method in designing its site selection process.

The southern United States, Louisiana, and Claiborne Parish ended up being the dubious "winners" of the site selection process. Residents from Homer and the nearby communities of Forest Grove and Center Springs—two communities closest to the proposed site—disagreed with the site selection process and outcome. They organized themselves into a group called Citizens Against Nuclear Trash (CANT), which charged LES and the NRC staff with practicing environmental racism. CANT hired the Sierra Club Legal Defense Fund (which later changed its name to Earthjustice Legal Defense Fund) and sued LES.

The lawsuit dragged on for more than 8 years. On May 1, 1997, a three-judge panel of the NRC's Atomic Safety and Licensing Board issued a final initial decision on the case. The judges concluded that "racial bias played a role in the selection process" (Nuclear Regulatory Commission, 1997). A story in the *London Sunday Times* proclaimed the environmental justice victory by declaring "Louisiana Blacks Win Nuclear War" (1997). The precedent-setting federal court ruling came 2 years after President Clinton signed Executive Order 12898. The judges, in a 38-page written decision, also chastised the NRC staff for not addressing the provision called for under Executive Order 12898. The court decision was upheld on appeal on April 4, 1998.

A clear racial pattern emerged during the so-called national search and multistage screening and selection process (Bullard, 1995). For example, . . . African Americans comprise about 13% of the U.S. population, 20% of the southern states' population, 31 % of Louisiana's population, 35% of Louisiana's northern parishes, and 46% of Claiborne Parish. This progressive narrowing of

the site selection process to areas of increasingly high poverty and African American representation is also evident from an evaluation of the actual sites that were considered in the "intermediate" and "fine" screening stages of the site selection process. . . . [T]he aggregate average percentage of Black population for a one-mile radius around all of the 78 sites examined (in 16 parishes) is 28.35%. When LES completed its initial site cuts and reduced the list to 37 sites within nine parishes, the aggregate percentage of Black population rose to 36.78%. When LES then further limited its focus to six sites in Claiborne Parish, the aggregate average percentage Black population rose again, to 64.74%. The final site selected, the LeSage site, has 97.10% Black population within a one-mile radius.

The LES plant was proposed to be built on Parish Road 39 between two African American communities—just one-quarter mile from Center Springs (founded in 1910) and one and one-quarter mile from Forest Grove (founded in the 1860s just after slavery). The proposed site is in a Louisiana parish that has per capita earnings of only $5,800 per year (just 45% of the national average of almost $12,800) and where over 58% of the African American population is below the poverty line. The two African American communities were rendered "invisible," since they were not even mentioned in the NRC's draft environmental impact statement (Nuclear Regulatory Commission, 1997).

Only after intense public comments did the NRC staff attempt to address environmental justice and disproportionate-impact implications, as required under the NEPA and called for under Executive Order 12898. For example, NEPA requires that the government consider the environmental impacts and weigh the costs and benefits of any proposed action. These include health and environmental effects, the risk of accidental but foreseeable adverse health and environmental effects, and socioeconomic impacts.

The NRC staff devoted less than a page to addressing environmental justice concerns of the proposed uranium enrichment plant in its final environmental impact statement (FEIS). Overall, the FEIS and Environmental Report (ER) are inadequate in the following respects: (1) they inaccurately assess the costs and benefits of the proposed plant, (2) they fail to consider the inequitable distribution of costs and benefits of the proposed plant to the White and African American population, and (3) they fail to consider the fact that the siting of the plant in a community of color follows a national pattern in which institutionally biased decision making leads to the siting of hazardous facilities in communities of color and results in the inequitable distribution of costs and benefits to those communities.

Among the distributive costs not analyzed in relationship to Forest Grove and Center Springs include the disproportionate burden of health and safety, diminished property values, fire and accidents, noise, traffic, radioactive dust in the air and water, and dislocation by closure of a road that connects the two

communities. Overall, the CANT legal victory points to the utility of combining environmental and civil rights laws and the requirement of governmental agencies to consider Executive Order 12898 in their assessments.

In addition to the remarkable victory over LES, a company that had the backing of powerful U.S. and European nuclear energy companies, CANT members and their allies won much more. They empowered themselves and embarked on a path of political empowerment and self-determination. During the long battle, CANT member Roy Mardris was elected to the Claiborne Parish Jury (i.e., county commission), and CANT member Almeter Willis was elected to the Claiborne Parish School Board. The town of Homer, the nearest incorporated town to Forest Grove and Center Springs, elected its first African American mayor, and the Homer town council now has two African American members. In fall 1998, LES sold the land on which the proposed uranium enrichment plant would have been located. The land is going back into timber production, for which it was used before LES bought it.

Winning on the Ground: *St. James Citizens v. Shintech*

Battle lines were drawn in Louisiana in 1991 in another national environmental justice test case. The community is Convent and the company is Shintech. The Japanese-owned Shintech, Inc., applied for a Title V air permit to build a $800 million polyvinyl chloride (PVC) plant in Convent, Louisiana, a community that is over 70% African American; over 40% of the Convent residents fall below the poverty line. The community already has a dozen polluting plants and yet has a 60% unemployment rate. The plants are so close to residents' homes, they could walk to work. The Black community is lured into accepting the industries with the promise of jobs, but in reality, the jobs are not there for local residents.

The Shintech case raised similar environmental racism concerns as those found in the failed LES siting proposal. The EPA is bound by Executive Order 12898 to ensure that "no segment of the population, regardless of race, color, national origin, or income, as a result of EPA's policies, programs, and activities, suffer disproportionately from adverse health or environmental effects, and all people live in clean and sustainable communities." The Louisiana Department of Environmental Quality is also bound by federal laws (e.g., Title VI of the Civil Rights Act of 1964) to administer and implement its programs, mandates, and policies in a nondiscriminatory way.

Any environmental justice analysis of the Shintech proposal will need to examine the issues of disproportionate and adverse impact on low-income and minority populations near the proposed PVC plant. Clearly, it is African Americans and low-income residents in Convent who live closest to existing and proposed industrial plants and who will be disproportionately impacted by industrial pollution (Wright, 1998). African Americans comprise 34% of the

state's total population. The Shintech plant was planned for the St. James Parish, which ranks third in the state for toxic releases and transfers. Over 83% of St. James Parish's 4,526 residents are African American. Over 17.7 million pounds of releases were reported in the 1996 *Toxic Release Inventory* (*TRI*). The Shintech plant would add over 600,000 pounds of air pollutants annually. Permitting the Shintech plant in Convent would add significantly to the toxic burden borne by residents, who are mostly low-income and African American.

After 6 months of intense organizing and legal maneuvering, residents of tiny Convent and their allies convinced EPA administrator Carol M. Browner to place the permit on hold. A feature article in *USA Today* bore the headline "EPA Puts Plant on Hold in Racism Case" (Hoversten, 1997). A year later, the Environmental Justice Coalition forced Shintech to scrap its plans to build the PVC plant in the mostly African American community. The decision came in September 1998 and was hailed around the country as a major victory against environmental racism. The driving force behind this victory was the relentless pressure and laser-like focus of the local Convent community.

Radioactive Colonialism and Native Lands

There is a direct correlation between exploitation of land and exploitation of people. It should not be a surprise to anyone to discover that Native Americans have to contend with some of the worst pollution in the United States (Beasley, 1990b; Kay, 1991; Taliman, 1992; Tomsho, 1990). Native American nations have become prime targets for waste trading (Angel, 1992; Geddicks, 1993). More than three dozen Indian reservations have been targeted for landfills, incinerators, and other waste facilities (Kay, 1991). The vast majority of these waste proposals have been defeated by grassroots groups on the reservations. However, "radioactive colonialism" is alive and well (Churchill & LaDuke, 1983).

Radioactive colonialism operates in energy production (mining of uranium) and disposal of wastes on Indian lands. The legacy of institutional racism has left many sovereign Indian nations without an economic infrastructure to address poverty, unemployment, inadequate education and health care, and a host of other social problems.

Some industry and governmental agencies have exploited the economic vulnerability of Indian nations. For example, of the 21 applicants for the DOE's monitored retrievable storage (MRS) grants, 16 were Indian tribes (Taliman, 1992a). The 16 tribes lined up for $100,000 grants from the DOE to study the prospect of "temporarily" storing nuclear waste for a half century under its MRS program.

It is the Native American tribes' sovereign right to bid for the MRS proposals and other industries. However, there are clear ethical issues involved when the U.S. government contracts with Indian nations that lack the infrastructure to handle dangerous wastes in a safe and environmentally sound manner. Delegates

at the Third Annual Indigenous Environmental Council Network Gathering (held in Cello Village, Oregon, on June 6, 1992) adopted a resolution of "No nuclear waste on Indian lands."

Transboundary Waste Trade

Hazardous waste generation and international movement of hazardous waste pose some important health, environmental, legal, and ethical dilemmas. It is unlikely that many of the global hazardous waste proposals can be effectuated without first addressing the social, economic, and political context in which hazardous wastes are produced (industrial processes), controlled (regulations, notification and consent documentation), and managed (minimization, treatment, storage, recycling, transboundary shipment, pollution prevention).

The "unwritten" policy of targeting Third World nations for waste trade received international media attention in 1991. Lawrence Summers, at the time he was chief economist of the World Bank, shocked the world and touched off an international scandal when his confidential memorandum on waste trade was leaked. Summers writes: "'Dirty' Industries: Just between you and me, shouldn't the World Bank be encouraging *more* migration of the dirty industries to the LDCs?" (quoted in Greenpeace, 1993, pp. 1–2).

Consumption and production patterns, especially in nations with wasteful "throw-away" lifestyles like the United States, and the interests of transnational corporations create and maintain unequal and unjust waste burdens within and between affluent and poor communities, states, and regions of the world. Shipping hazardous wastes from rich communities to poor communities is not a solution to the growing global waste problem. Not only is it immoral, but it should be illegal. Moreover, making hazardous waste transactions legal does not address the ethical issues imbedded in such transactions (Alston & Brown, 1993).

Transboundary shipment of banned pesticides, hazardous wastes, toxic products, and export of "risky technologies" from the United States, where regulations and laws are more stringent, to nations with weaker infrastructure, regulations, and laws smacks of a double standard (Bright, 1990). The practice is a manifestation of power arrangements and a larger stratification system in which some people and some places are assigned greater value than others.

In the real world, all people, communities, and nations are *not* created equal. Some populations and interests are more equal than others. Unequal interests and power arrangements have allowed poisons of the rich to be offered as short-term remedies for poverty of the poor. This scenario plays out domestically (as in the United States, where low-income and people-of-color communities are disproportionately affected by waste facilities and "dirty" industries) and internationally (where hazardous wastes move from OECD states flow to non-OECD states).

The conditions surrounding the more than 1,900 maquiladoras (assembly plants operated by American, Japanese, and other foreign countries) located along the 2,000-mile U.S.-Mexico border may further exacerbate the waste trade (Sanchez, 1990). The maquiladoras use cheap Mexican labor to assemble imported components and raw material and then ship finished products back to the United States. Nearly a half million Mexican workers are employed in the maquiladoras.

A 1983 agreement between the United States and Mexico required American companies in Mexico to return their waste products to the United States. Plants were required to notify the U.S. EPA when returning wastes. Results from a 1986 survey of 772 maquiladoras revealed that only 20 of the plants informed the EPA that they were returning waste to the United States, even though 86% of the plants used toxic chemicals in their manufacturing process (Juffers, 1988). In 1989, only 10 waste shipment notices were filed with the EPA (Center for Investigative Reporting, 1990).

Much of the wastes end up being illegally dumped in sewers, ditches, and the desert. All along the Lower Rio Grande River Valley, maquiladoras dump their toxic wastes into the river, from which 95% of the region's residents get their drinking water (Hernandez, 1993). In the border cities of Brownsville, Texas, and Matamoras, Mexico, the rate of anencephaly—babies born without brains—is four times the national average. Affected families have filed lawsuits against 88 of the area's 100 maquiladoras for exposing the community to xylene, a cleaning solvent that can cause brain hemorrhages and lung and kidney damage.

The Mexican environmental regulatory agency is understaffed and ill-equipped to adequately enforce its laws (Barry & Simms, 1994; Working Group on Canada-Mexico Free Trade, 1991). Only time will tell if the North American Free Trade Agreement (NAFTA) will "fix" or exacerbate the public health and the environmental problems along the U.S.-Mexico border.

Conclusion

. . . The poisoning of African Americans in Louisiana's "Cancer Alley," Native Americans on reservations, and Mexicans in the border towns all have their roots in the same economic system, a system characterized by economic exploitation, racial oppression, and devaluation of human life and the natural environment. Both race and class factors place low-income and people-of-color communities at special risk. Although environmental and civil rights laws have been on the books for more than 3 decades, all communities have not received the same benefits from their application, implementation, and enforcement.

Unequal political power arrangements also have allowed poisons of the rich to be offered as short-term economic remedies for poverty. There is little or no

correlation between proximity of industrial plants in communities of color and the employment opportunities of nearby residents. Having industrial facilities in one's community does not automatically translate into jobs for nearby residents. Many industrial plants are located at the fence line with the communities. Some are so close that local residents could walk to work. More often than not communities of color are stuck with the pollution and poverty, while other people commute in for the industrial jobs.

Similarly, tax breaks and corporate welfare programs have produced few new jobs by polluting firms. However, state-sponsored pollution and lax enforcement have allowed many communities of color and poor communities to become the dumping grounds. Louisiana is the poster child for corporate welfare. The state is mired in both poverty and pollution. It is no wonder that Louisiana's petrochemical corridor, the 85-mile stretch along the Mississippi River from Baton Rouge to New Orleans dubbed "Cancer Alley," has become a hotbed for environmental justice activity.

The environmental justice movement has set out clear goals of eliminating unequal enforcement of environmental, civil rights, and public health laws; differential exposure of some populations to harmful chemicals, pesticides, and other toxins in the home, school, neighborhood, and workplace; faulty assumptions in calculating, assessing, and managing risks; discriminatory zoning and land use practices; and exclusionary policies and practices that limit some individuals and groups from participation in decision making. Many of these problems could be eliminated if existing environmental, health, housing, and civil rights laws were vigorously enforced in a nondiscriminatory way.

The call for environmental and economic justice does not stop at the U.S. borders but extends to communities and nations that are threatened by the export of hazardous wastes, toxic products, and "dirty" industries. Much of the world does not get to share in the benefits of the United States' high standard of living. From energy consumption to the production and export of tobacco, pesticides, and other chemicals, more and more of the world's peoples are sharing the health and environmental burden of America's wasteful throwaway culture. Hazardous wastes and "dirty" industries have followed the path of least resistance. Poor people and poor nations are given a false choice of "no jobs and no development" versus "risky, low-paying jobs and pollution."

Industries and governments (including the military) have often exploited the economic vulnerability of poor communities, poor states, poor nations, and poor regions for their unsound and "risky" operations. Environmental Justice leaders are demanding that no community or nation, rich or poor, urban or suburban, Black or White, be allowed to become a "sacrifice zone" or dumping grounds. They are also pressing governments to live up to their mandate of protecting public health and the environment.

Notes

Bullard Robert D., and Glenn S. Johnson. 2000. "Environmental Justice: Grassroots Activism and Its Impact on Public Policy Decision Making." *Journal of Social Issues* 56(3): 555–78.

1. Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," was issued by President Bill Clinton on February 11, 1994. This order reinforces Title VI of the 1964 Civil Rights Act (which prohibits discrimination on the part of federally funded programs) in an attempt to respond to growing public concern and mounting scientific evidence regarding environmental injustices.

References

Agency for Toxic Substances and Disease Registry. (1988). *The nature and extent of lead poisoning in children in the United States: A report to Congress.* Atlanta, GA: U.S. Department of Health and Human Services.

Alston, D., & Brown, N. (1993). Global threats to people of color. In R. D. Bullard (Ed.), *Confronting environmental racism: Voices from the grassroots* (pp. 179–194). Boston: South End Press.

Angel, B. (1992). *The toxic threat to Indian lands: A Greenpeace report.* San Francisco: Greenpeace.

Austin, R., & Schill, M. (1991). Black, Brown, poor, and poisoned: Minority grassroots environmentalism and the quest for eco-justice. *Kansas Journal of Law and Public Policy*, 1(1), 69–82.

Barlett, D. L., & Steele, J. B. (1998, November 23). Paying a price for polluters. *Time*, pp. 72–80.

Barry, T., & Simms, B. (1994). *The challenge of cross border environmentalism: The U.S.–Mexico case.* Albuquerque, NM: Inter-Hemispheric Education Resource Center.

Beasley, C. (1990a). Of pollution and poverty: Keeping watch in Cancer Alley. *Buzzworm*, 2(4), 39–45.

Beasley, C. (1990b). Of poverty and pollution: Deadly threat on native lands. *Buzzworm*, 2(5), 39–45.

Bryant, B. (1995). *Environmental justice: Issues, policies, and solutions.* Washington, D.C.: Island Press.

Bryant, B., & Mohai, P. (1992). *Race and the incidence of environmental hazards.* Boulder, CO: Westview Press.

Bullard, R. D. (1993a). *Confronting environmental racism: Voices from the grassroots.* Boston: South End Press.

Bullard, R. D. (1993b). Race and environmental justice in the United States. *Yale Journal of International Law*, 18(1), 319–355.

Bullard, R. D. (1993c). Environmental racism and land use. *Land Use Forum: A Journal of Law, Policy & Practice*, 2(1), 6–11.

Bullard, R. D. (1994a). *Dumping in Dixie: Race, class and environmental quality.* Boulder, CO: Westview Press.

Bullard, R. D. (1994b). Grassroots flowering: The environmental justice movement comes of age. *Amicus*, 16 (Spring), 32–37.

Bullard, R. D. (1995). Prefiled written testimony at the *CANT v. LES* hearing, Shreveport, LA.

Bullard, R. D. (1996). *Unequal protection: Environmental justice and communities of color.* San Francisco: Sierra Club.

Bullard, R. D., & Johnson, G. S. (1997). *Just transportation: Dismantling race and class barriers to mobility.* Gabriola Island, British Columbia, Canada: New Society.

Center for Investigative Reporting. (1990). *Global dumping ground: The international traffic in hazardous waste.* Washington, DC: Seven Locks Press.

Chase, A. (1993). Assessing and addressing problems posed by environmental racism. *Rutgers University Law Review*, 45(2), 385–369.

Churchill, W., & LaDuke, W. (1983). Native America: The political economy of radioactive colonialism. *Insurgent Sociologist*, 13(1), 51–63.

Commission for Racial Justice. (1987). *Toxic wastes and race in the United States.* New York: United Church of Christ.

Cooney, C. M. (1999). Still searching for environmental justice. *Environmental Science and Technology*, 33 (May), 200–205.

Council on Environmental Quality. (1971). *Second annual report of the Council on Environmental Quality.* Washington, DC: U.S. Government Printing Office.

Council on Environmental Quality. (1997). *Environmental justice: Guidance under the National Environmental Policy Act.* Washington, DC: Author.

Escobedo, D. (1996, October 4). EPA gives in, will move all at toxic site. *Pensacola News Journal*, p. A1.

Geddicks, A. (1993). *The new resource wars: Native and environmental struggles against multi-national corporations.* Boston: South End Press.

Goldman, B. (1992). *The truth about where you live: An atlas for action on toxins and mortality.* New York: Random House.

Goldman, B., & Fatten, L. J. (1994). *Toxic wastes and race revisited.* Washington, DC: Center for Policy Alternatives/National Association for the Advancement of Colored People/United Church of Christ.

Greenpeace. (1990). *The international trade in waste: A Greenpeace inventory.* Washington, DC: Greenpeace USA.

Greenpeace. (1993). *The case for a ban on all hazardous waste shipment from the United States and other OECD member states to non-OECD states.* Washington, DC: Greenpeace USA.

Hernandez, B. J. (1993). Dirty growth. *New Internationalist* (August).

Hoversten, P. (1997, September 11). EPA puts plant on hold in racism case. *USA Today*, p. A3.

Institute for Southern Studies. (1992). 1991–1992 *Green Index: A state-by-state guide to the nation's environmental health.* Durham, NC: Author.

Juffers, J. (1988, October 24). Dump at the border: U.S. firms make a Mexican wetland. *Progressive.*

Kay, J. (1991, April 10). Indian lands targeted for waste disposal sites. *San Francisco Examiner.*

Lavelle, M., & Coyle, M. (1992). Unequal protection. *National Law Journal*, 1–2.

Lee, B. L. (1992, February). *Environmental litigation on behalf of poor, minority children:* Matthews v. Coye: *A case study.* Paper presented at the annual meeting of the American Association for the Advancement of Science, Chicago.

Lee, B. L. (1995, May). *Civil rights remedies for environmental injustice.* Paper presented at Transportation and Environmental Justice: Building Model Partnerships conference, Atlanta, GA.

Lee, C. (1992). *Proceedings: The First National People of Color Environmental Leadership Summit.* New York: United Church of Christ, Commission for Racial Justice.

Louisiana Blacks win nuclear war. (1997, May 11). *Sunday London Times.*

Mann, E. (1991). *LA's lethal air: New strategies for policy, organizing, and action.* Los Angeles: Labor/Community Strategy Center.

Mann, E. (1996). *A new vision for urban transportation: The bus riders union makes history at the intersection of mass transit, civil rights, and the environment.* Los Angeles: Labor/Community Strategy Center.

Motavalli, J. (1998). Toxic targets: Polluters that dump on communities of color are finally being brought to justice. *E* (July/August), 28–41.

National Institute for Environmental Health Sciences. (1995). *Proceedings of the Health and Research Needs to Ensure Environmental Justice Symposium.* Research Triangle Park, NC: Author.

Nuclear Regulatory Commission. (1997). *Final initial decision-Louisiana Energy Services.* U.S. Nuclear Regulatory Commission, Atomic Safety and Licensing Board, Docket no. 70-3070-ML. May 1.

O'Byrne, & Schleifstein, M. (1991, February 19). Drinking water in danger. *Times Picayune*, p. A5.

Pirkle, J. L., Brody, D. J., Gunter, E. W., Kramer, R. A., Paschal, D. C., Flegal, K. M., & Matte, T. D. (1994). The decline in blood lead levels in the United States: The National Health and Nutrition Examination Survey (NHANES III). *Journal of the American Medical Association*, 272, 284–291.

Sanchez, R. (1990). Health and environmental risks of the maquiladora in Mexicali. *National Resources Journal*, 30(1), 163–186.

Schueler, D. (1992). Southern exposure. *Sierra*, 77 (November–December), 45–47.

Stretesky, P., & Hogan, M. J. (1998). Environmental justice: An analysis of Superfund sites in Florida. *Social Problems*, 45 (May), 268–287.

Taliman, V. (1992a). Stuck holding the nation's nuclear waste. *Race, Poverty, Environment Newsletter* (Fall), 6–9.

Taliman, V. (1992b). The toxic waste of Indian lives. *Covert Action*, 40(1), 16–19.

Templet, P. T. (1995). The positive relationship between jobs, environment and the economy: An empirical analysis and review. *Spectrum* (Spring), 37–49.

Tomsho, R. (1990, November 29). Dumping grounds: Indian tribes contend with some of the worst of America's pollution. *Wall Street Journal.*

U.S. Environmental Protection Agency. (1991). *Hazardous waste exports by receiving country.* Washington, DC: Author.

U.S. Environmental Protection Agency. (1992a). *Environmental equity: Reducing risk for all communities.* Washington, DC: Author.

U.S. Environmental Protection Agency. (1992b). Geographic initiatives: Protecting what we love. In *Securing our legacy: An EPA progress report 1989–1991.* Washington, DC: Author.

U.S. Environmental Protection Agency. (1993). *Toxic release inventory and emission reduction 1987–1990 in the Lower Mississippi River industrial corridor.* Washington, DC: EPA, Office of Pollution Prevention and Toxics.

U.S. Environmental Protection Agency. (1996). *Escambia Treating Company interim action: Addendum to April 1996 Superfund proposed plan fact sheet.* Atlanta, GA: EPA, Region IV.

U.S. to move families away from Florida toxic dump. *Washington Post,* October 6, 1996.
Wernette, D. R., & Nieves, L. A. (1992). Breathing polluted air. *EPA Journal*, 18(1),16–17.
West, P., Fly, J. M., Larkin, F., & Marans, P. (1990). Minority anglers and toxic fish consumption: Evidence of the state-wide survey of Michigan. In B. Bryant & P. Mohai (Eds.), *Race and the incidence of environmental hazards* (pp. 100–113). Boulder, CO: Westview.
Wright, B. H. (1998). *St. James Parish field observations.* New Orleans, LA: Xavier University, Deep South Center for Environmental Justice.

5

Turning Public Issues into Private Troubles

Lead Contamination, Domestic Labor, and the Exploitation of Women's Unpaid Labor in Australia

Lois Bryson, Kathleen McPhillips, and Kathryn Robinson

This reading examines government efforts to deal with contamination from lead smelters in some Australian provinces. Lead is a dangerous environmental toxin, which can cause an array of physical problems, from kidney damage to hyperactivity. Lead is especially dangerous to young children and can cause, among other things, mental retardation, brain damage, and behavior problems. However, rather than address the source of the problem (the smelters themselves), government policies have focused on individual behaviors, specifically on housecleaning, to minimize the amount of lead dust in homes. The authors, pointing to the fact that most of the homes near smelters are occupied by working-class families and most of the housecleaning is done by women, argue that the government policies are not only ineffective but are embedded in unequal social class and gender relations.

Using a case study of state intervention in the industrial contamination of a residential community, this article offers a contribution to feminist analysis of the role of the state. Residents of three Australian lead smelter towns, with high levels of toxic pollution, have been given a strong message by state health authorities that their children's health could be irreparably damaged unless they adopt a strict regimen of housecleaning and child management to reduce the ingestion of lead particles by their children.

This case study of state action on a site that is classically women's domain provides insight into a "state gender regime" (Connell 1990) through examining the state "doing gender" (West and Zimmerman 1987). . . .

Unraveling the complexity of the state's role in developing and implementing its health strategy for dealing with the effects of lead pollution within smelter towns allows us to tease out some of the complexities of state intervention. How do they identify and address this health issue? Whose interests do the interventions serve? What are the impacts for different groups of women? Because the intervention is focused on mothering, we start by examining some relevant features of motherhood in contemporary Australia and its place within the wider scheme of gender relations.

Motherhood and the State Gender Regime

. . . While schools of feminist thought account in different ways for women's position and gender relations, they do not contest that motherhood involves a responsibility for family work, which falls unequally to women. Graham (1983) pointed to the bifurcated nature of caring as involving "caring about" and "caring for." In terms of parenthood, she suggested that fathers are expected to "care about" their children, and this may involve taking some responsibility for overseeing that care is provided. For mothers, the two aspects are firmly fused: They are expected to both "care about" and "care for."

Empirical studies in Australia and elsewhere of perceptions of motherhood clearly expose a dominating ideology that reflects such views of caring (Dempsey 1997; McMahon 1999; Russell 1983). . . .

Decades of research into time use confirm women's disproportionate share of the work involved in both domestic cleaning and child care relative to their male partners (Bittman and Matheson 1996; Bryson 1997; Fenstermaker Berk 1985). Women in Australia, as elsewhere, are far more likely to undertake cleaning chores and physical care of children. The Australian Bureau of Statistics (1994) found that women's share of laundry was 89 percent (90 percent if in full-time employment), their share of cleaning 82 percent (84 percent if in full-time employment), and of physical care of children 84 percent (76 percent if in full-time employment) (Bittman and Pixley 1997, 113). These tasks are central to the housecleaning regime devised by state authorities that we examine here. . . .

The Smelter Communities: Method and Background

We first became interested in the public health intervention processes in lead-affected towns when one of us (McPhillips) became caught up with the effects of lead contamination in her residential community, which bordered on Boolaroo, a smelter town in NSW [New South Wales]. McPhillips's personal experience of dealing with lead contamination became the subject of spirited debate and theorizing in our (then) shared work context—the sociology department of the local university. This led to the development of the research reported in this article.

Method

. . . In investigating the case study of Boolaroo, we collected qualitative data through direct engagement in the community; through participant observation in community activities; and through interviews with eight residents of Boolaroo, including female members of community groups (both for and against the smelter). We also interviewed personnel in the local health authority who had been involved in testing children's blood levels and in designing and implementing subsequent intervention measures.

Historical materials relating to the genesis of the political conflict over contamination in Boolaroo were available to us. These included reports in local newspapers (which had been systematically filed by the municipal library and collected by activists), reports and scholarly articles produced by the public health authorities, and a television documentary produced for the state-owned public broadcasting authority that critically recorded an intervention in 1991 intended to remove historic contamination from Boolaroo residences (Australian Broadcasting Corporation 1992). The smelter company produced regular community newsletters, which were available to us, as were the public health information brochures.

In interpreting the data relating to Boolaroo, we used a comparative perspective, drawing on the reports of similar interventions in the other Australian lead smelter towns. There are three major sites of lead production in Australia: Port Pirie in South Australia, and Broken Hill and Boolaroo in NSW [New South Wales]. . . .

. . . The critical features of the populations in all three areas affected by the pollution is that they are of low socioeconomic status with manufacturing providing predominantly male employment.

The Household Cleaning Regime

Public health authorities have systematically turned to an approach dealing with lead effects that is focused on the ways in which it is ingested, particularly by children, rather than with stopping pollution. In the vicinity of the Boolaroo

smelter, for example, an attractive poster was distributed to residents, with the title "Lead: Lower the levels & protect your child" (PHU n.d.). It mentions soil, food, household dust, old paint, and the lead worker as potential sources, identifying interventions that can be made, with most of them involving an intensification of domestic labor. To avoid exposure of children to lead in household dust, parents are advised to use a wet mop instead of a broom; keep dust from children's play areas, including under beds and in closets; and remember to dust corners, along sides of windows, and behind furniture and doors. Advice to the lead worker includes the following: Keep kit bags out of reach of children; keep children away from work clothes; and clean dust from inside and outside of car, especially if driven to work. To avoid lead in food, the parents are advised to intensify domestic labor by preventing children from sucking dirty hands, fingernails, or objects; wiping surfaces before preparing food; and covering food and utensils to prevent lead dust from settling on them. The problem of contaminated soil is addressed by advice to wash children's hands before eating, especially if playing outside; to provide clean soil or sand for children to play in; and to use a nail brush under nails. The poster does not represent the source of the lead contamination in any way.

The focus on domestic-based interventions deflects attention away from the source of the pollution, which is clearly in the interests of capital. We argue that the burden of activities to ameliorate the effects of pollution falls disproportionately to women and must be counted as an aspect of the state's gender as well as class regime. The communities, which already bear the burden of toxic contamination and its attendant health, social, and economic effects, are further burdened with the responsibility of "putting things right."

The spotlight in the three smelter towns in recent years has been very much on children, even though evidence suggests that lead is a health hazard for all age groups (Alperstein, Taylor, and Vimpani 1994; Centers for Disease Control and Prevention 1991). In earlier years, the focus of official programs was on workers and also in a manner that deflected attention away from the smelting companies' practices. . . .

The 1980s and 1990s: Developing the Domestic Cleaning Regime

In the early 1980s, the South Australian health department responded to U.S. research linking impaired intellectual development with lead by undertaking a survey of the factors implicated in elevated blood lead levels of young children living within the vicinity of the smelter at Port Pirie (Landrigan 1983). Using a control sample of children with low blood lead levels, researchers found that 5 of the 16 evaluated behavioral factors were significantly associated with high lead levels. These factors were a history of placing objects in the mouth, nail biting, dirty hands, dirty clothes, and eating lunch at home rather than at school

(Landrigan 1983, 8). The survey also found that higher lead levels in children were associated with the number of persons in the household working in the lead industry (cf. Donovan 1996).

However, the research also showed that none of the factors were as important as living in a contaminated environment and that living near the smelter was three times more important than anything else (Landrigan 1983, 9). Because past emissions still contaminate the atmosphere and the soil, reducing emissions was acknowledged as insufficient for dealing with the problem. More recently, public health officials recognized that the only effective way of dealing with lead contamination at smelter sites is relocating residents (Galvin et al. 1993, 377), although to our knowledge no public body has ever implemented a relocation program.

In 1984, the South Australian health department and the smelter management started an education program about the importance of personal hygiene and household cleaning. The focus was on "pathways" through which lead is ingested by children and the ways this can be minimized within the home. The general manager of smelter operations expressed the view that "given reasonable care and hygiene, then you can live with the levels of contamination from past emissions." Fowler and Grabosky (1989, 153–57) suggested that the company was "defensive and cautious" lest remedial action imply admission of legal responsibility. The company maintained public health to be a government responsibility and invested far less than the government. The South Australian government's response was restrained as well, illustrating the power of major capital by showing an unwillingness to "antagonise one of the state's largest employers" (Fowler and Grabosky 1989, 150). The government was prepared to burden working-class women, rather than business.

In 1986, another case control study examined children's blood lead levels in Port Pirie (Wilson et al. 1986). The study focused mainly on environmental issues and the implications for the smelter. It assessed behavioral differences between "cases" and "controls" and again pointed to the "pathways" for ingestion such as "biting fingernails" or "dirty clothing/hands at school."[1] In 1988, the public health program at Port Pirie also undertook external decontamination in the yards of 1,400 homes at highest risk, and adjacent vacant blocks and footpaths were sealed (Heyworth 1990, 178). Subsequently, a "partial decontamination" of the same area was instituted, in recognition that contamination is continuous. Such a program requires a permanent cycle of treatment of the homes and vacant blocks and a continuing awareness within the community of the need for vigilance in terms of personal and home hygiene (Heyworth 1990, 183).[2]

In 1993, after several months of remediation, including replanting tailings dumps and the implementation of housecleaning regimes, the blood lead levels had elevated in a part of the town deemed to be a nonrisk area and hence not subject to the campaign. Further investigation found the source to be stacks

of lead ore left on the wharves in open piles, with dust being carried by the winds into residential areas not previously considered at risk from the smelter.

The South Australian Health Commission published a decade review of the Port Pirie program in 1993 that concluded, "Given the amount of lead contamination to which these households are exposed, changes in dust hygiene would not seem to be a realistic way to ensure lower exposures to lead by the child" (Maynard, Calder, and Phipps 1993, 25). This point, that domestic strategies are unsustainable in the long term (Maynard, Calder, and Phipps 1993, 5), had previously been made by Landrigan in 1983 and by Luke in 1991 after an extensive search of the world literature on the topic (Luke 1991, 161–67). Many people are prepared to modify their behavior in the short term, but sooner or later they revert to more comfortable habits. The report notes that because there is a constant process of recontamination, it is unrealistic to expect continuing voluntary participation of residents in programs for lead remediation. Another barrier to ongoing participation is the stigmatization that is involved if a child's blood levels are high. Parents are reluctant to have their child labeled as potentially intellectually impaired, and they themselves feel stigmatized by the implication that they have dirty houses.

Over time, parents tend to withdraw from participation in blood-monitoring programs. This can be seen as a form of resistance in situations where parents are expected to comply with surveillance of a problem that has a source external to the home and family, but they are expected to deal with the consequences. Their concerted efforts at housecleaning fail to bring the promised results, and they continue to suffer the stigmatization of the threats to their children's healthy development and the implication that they are poor housekeepers.

During the evaluations of cleaning regimes by health authorities, little attention was paid to the women involved as the cleaners, which indirectly provides us with some insight into the state gender regime. Apart from the effort and the responsibility, there is evidence that the cleaning process itself can be contaminating (Australian Broadcasting Corporation 1992; Luke 1991, 99).[3]

Fowler and Grabosky (1989, 148) suggested that the "regulatory orientation to pollution control has been characterized by negotiation and compromise, rather than strict enforcement." Governments have been reluctant to antagonize business, and business has been motivated by a "desire to avoid the loss of a marketable product rather than environmental concern" (Fowler and Grabosky 1989, 147). State recognition of business interests as more important than smelter community residents has ultimately resulted in greater recourse to the cleaning regime. Furthermore, it is unlikely that the public health care system has the long-term capacity to maintain the level of involvement and monitoring that is required. This suggests the program is "window dressing," a project of state legitimation, which rests on the state's class and gender regime and which masks the

interests that are served by de facto tolerance of levels of industrial pollution damaging to a small and easily ignored segment of the population.

Domestic Cleaning Regimes—The 1990s

A similar household cleaning regime to that developed and applied in the 1980s by public health workers in the vicinity of the Port Pirie lead smelter was subsequently put in place in the NSW smelter towns of Boolaroo and Broken Hill. The regime was formalized in 1994 by a federal agency, the Commonwealth of Australia Environmental Protection Authority (EPA), and outlined in a document published by the EPA titled *Lead Alert: A Guide for Health Professionals* (Alperstein, Taylor, and Vimpani 1994).

Lead Alert set out the "steps to minimise exposure and absorption" of lead by children. Health professionals are told to give the following advice "to parents if a child's blood lead is more than 15½ g/dL" (Alperstein, Taylor, and Vimpani 1994, 17). Parents should ensure that children's hands and face are washed before they eat or have a nap, discourage children from putting dirty fingers in their mouths, encourage children to play in grassy areas, and wash fruit and vegetables. In terms of housecleaning, they are advised to wet dust floors, ledges, window sills, and other flat surfaces at least weekly or more often if the house is near a source point for lead; to clean carpets and rugs regularly using a vacuum cleaner; to wash children's toys, especially those used outside; and to wash family pets frequently and discourage pets from sleeping near children. The parent should ensure that the child does not have access to peeling paint or chewable surfaces painted with lead-based paint and that the child's diet is adequate in calcium and iron, which helps to minimize lead absorption. Children should be provided with regular frequent meals and snacks, up to six per day, because more lead is absorbed on an empty stomach (Alperstein, Taylor, and Vimpani 1994, 17).

The document was widely disseminated, not just in smelter communities but in situations where people had elevated blood lead levels from any source. The housecleaning regime has been promoted as a primary intervention strategy, despite the evidence from evaluations of the Port Pirie experience (as well as studies in other countries) that show it to be ineffective.

This extremely detailed cleaning regime involves an implicit threat for noncompliance, the threat of adversely affecting one's child's health and intellectual development. Because of the nature of the tasks, the responsibility for most of this work falls to mothers rather than all parents.

For communities in the vicinity of lead smelters in Australia, public health authorities recommend an even more stringent regime than that implied in *Lead Alert*. The regime suggests not vacuuming with a child in the room since the cleaning raises dust. Dusting should ideally cover what one Boolaroo mother described as "bizarre places" such as the fly wire in screen doors. Other suggested

strategies include moving children's beds from under windows and putting away soft toys because they cannot be easily washed (Gilligan 1992, 4). To add to this intensification, some anxious parents intensify the regime further. The "wet dusting" or mopping over of all horizontal surfaces is done more than once a day by some mothers. In a television documentary on the subject of lead poisoning and children, women who had implemented the regime in both Boolaroo and Port Pirie expressed their frustration. "They tell you to run round with a washer after them. They are not allowed to put their fingers in the mouths"; "You do things that you just would not do"; "We must be the only housewives in New South Wales that do these tasks" (Australian Broadcasting Corporation 1992). Another mother verbalized the worry and guilt associated with such responsibility for her children's health, "You feel guilty if you just don't want to do the work . . . you think your child does not have a normal life . . . should you have more children?" (Gilligan 1992, 45).

The lead abatement program also involves the monitoring of the child's blood lead levels as the most significant means of measuring the levels of lead absorption. This means subjecting the child to frequent blood sampling and a constant measuring as to whether the family's efforts have been successful. There is constant contact for both mother and child with health and other professionals and often researchers (Australian Broadcasting Corporation 1992; Gilligan 1992, 4). The constancy of the monitoring creates the impression that the responsibility for the public health problem falls on the residents themselves (and especially on mothers), rather than the government or the corporation (see also McGee 1996, 14). The monitoring of blood lead levels also gives the impression that something is being done but actually does nothing to address the source of the contamination. In some cases, children's blood lead levels have risen after the implementation of household cleaning regimes.

A study of the effects of the lead issue on Boolaroo residents found that families of children with high blood lead levels experienced "feelings of guilt, stigma, anxiety, stress and powerlessness . . . that the difference may be due to or to be seen to be due to some action or inaction of them as parents" (Hallebone and Townsend 1993, 17). We found that in Boolaroo, health professionals regarded parental failure to present children for monitoring as evidence of irresponsibility. As with smelter workers in the 1920s, stigma is attached to those who do not conform to the cleaning standards. . . .

Not only are women enslaved by the domestic cleaning, but their children's psychological and/or emotional development is put in question. In the education booklet written by the education department for use in Boolaroo schools, the family unit is presented as the most important element in dealing with lead exposure: "Children who are supported and confident in their family unit will be better able to deal with any problems associated with the lead issue" (quoted in Mason 1992, 41).

Despite evidence of limited success in the long term, domestic cleaning regimes are becoming popular for dealing with lead contamination from gasoline.[4] As has occurred with the smelter communities, the effect again is to shift responsibility from the polluting source to the private sphere of the family and women.

Resistance to State Interventions

The focus on housecleaning regimes as a response to children's elevated blood lead levels has the effect of stigmatizing parents and calling into question their capacity to care for their children. As noted above, mothers who have implemented the regime, however, find it very oppressive and anxiety provoking, hence many cease doing it (McGee 1996, 14). There is also resistance to the surveillance of children's blood lead levels in situations where the health authorities are not offering an effective response to the problem. The proportion of smelter-town families who continue to present their children for blood testing has declined considerably over time (Isles 1993; Maynard, Calder, and Phipps 1993, 9; Stephenson, Corbett, and Jacobs 1992; Western NSW PHU 1994).

Nevertheless, women in smelter towns have responded with active as well as passive resistance. Following the PHU's 1991 revelation of elevated blood lead levels in Boolaroo children, local residents, mainly women, formed the North Lakes Environmental Action Defence Group (No Lead). It has campaigned for action by state and local government and by the smelter to counter the high levels of lead pollution. . . .

No Lead has addressed the issue of lead contamination by refocusing public attention on the responsibilities of the government to regulate the industry and the industry's responsibility to reduce toxic emissions. They have found themselves in direct conflict with the company's public relations strategists who have attempted to downplay their political significance as legitimate representatives of community interest. No Lead has been able to successfully work with environmental groups like Greenpeace and has achieved some success in refocusing government attention on Boolaroo. For example, a Parliamentary Select Committee set up in 1994 resulted in a management plan that placed more responsibility on the smelter and the local government in limiting the effects of plant emissions, although it reinforced the emphasis on housecleaning regimes (NSW Parliament 1994).

Other women in Boolaroo have actively resisted government interventions intended to ameliorate the exposure of children to lead, which they see as stigmatizing their children as intellectually limited or themselves as poor housekeepers. The most significant of these was the 1992 resistance by the Parents and Citizens Association to a temporary closure of the local school for remediation. The parents questioned whether the school was indeed contaminated or if the

contamination was any more significant than that which they experienced in their homes. They rejected the implication that the school posed a threat to their children's intellectual development, citing cases of local children who had succeeded academically. The women involved in this public protest expressed a fear that the school would be closed forever, once the children had been relocated. McPhillips (1995, 48) commented that the issue brought out the "deep-felt suspicion that this section of the local community held for government bureaucracies." That is, they do not see the public authorities as acting in their interests and resist the authorities' efforts to intervene in the situation. In this case, the women's resistance was successful, and the remediation was carried out while the school was routinely closed for summer holidays.

Conclusion: Lead Levels, Public Health Strategies, and State Gender Regimes

The strategy promoted by public health authorities for smelter towns, rather than dealing with the source of the pollution, turns this public issue into a private family matter. In appearing to do something, the state selected a remediation strategy that has been repeatedly proven to be ineffective. Research from many countries (Luke 1991) persistently shows that the major issue is one of proximity to the smelter and the level of emissions, with past pollution also a critical factor. There is a continuing history of failure of the smelting companies to own the pollution problem they cause and to deal with it. Profit levels, rather than health concerns, have historically taken precedence, with the state mediating the corporations' interests. The state historically has facilitated the shifting of the focus of responsibility for the problem to the relatively powerless. Now the blame is laid on working-class women, whereas early in the twentieth century, it was directed toward recently arrived male immigrant workers, although women were indirectly implicated.

The official remediation strategy does not fall in a gender-neutral way on both parents. It relies for its implementation on additional daily caring labor being undertaken by mothers of children deemed "at risk" and thus on the basis of a traditional understanding of the responsibilities associated with motherhood. In addition, it relies for compliance on the mothers' emotional commitment to their children's health, a situation with great potential to engender feelings of guilt and to stigmatize those who "fail." The exploitation of these working-class women's unpaid caring labor is not only an example of the state "doing" gender but a recent form of "doing" class as well. Brown and Ferguson (1995, 161) noted that

> when activists discover that local industry values its bottom line or international reputation more highly than it does the health of children in the

community, this realization violates the trust that the women toxic waste activists have placed in the ideal of corporate citizenship and governmental protection.

Working-class mothers are the target of a burdensome housecleaning regime that absorbs their labor but at the same time effectively shifts responsibility for ensuring the pollution does not damage their children's health away from the corporation and the state. This strategy reflects a state gender regime that involves material exploitation in the form of reliance on women's labor in a manner that serves powerful interests and ideological exploitation through the manipulation of the women's sense of maternal responsibility.

The structural features of class and gender do not, of course, account for the whole story. Residents are not duped nor have they have been silent on the matter. The women as individuals resist or reject the recommended regime and have been at the forefront of organized community resistance strategies. Women organized into community-based pressure groups have had limited success in directing attention back onto the smelter as the source of the toxic pollution and away from their responsibility as domestic carers for the health of their children.

This case study raises specific questions about where the responsibility lies for the health of residents of smelter communities. But it also illuminates class and gender relations in contemporary Australia and the manner in which the state is engaged in the reproduction of class and gender difference.

Notes

Bryson, Lois, Kathleen McPhillips, and Kathryn Robinson. 2001. "Turning Public Issues into Private Troubles: Lead Contamination, Domestic Labor, and the Exploitation of Women's Unpaid Labor in Australia." *Gender & Society* 15(5): 755–72.

1. In terms of current standards, the controls also had elevated blood levels (with a mean of 17½ g/dL), which casts doubt on the conclusions from the study. The study had the effect of normalizing the underlying high level of contamination (represented in the high blood levels) and, once again, the effect of focusing attention away from the source.

2. Over time, improvements have been made in levels of air emission. However, past emission levels ("historic contamination") remain part of the problem that needs to be dealt with by major decontamination programs that should establish buffer zones by buying up the houses closest to the smelter. (By 1992, 100 houses in Port Pirie had been purchased and demolished.)

3. This potential was belatedly recognized in the 1993 Port Pirie high-risk area program when the blood of both parents and children was tested after residents were encouraged to participate in the home contamination procedure (Maynard, Calder, and Phipps 1993, 9).

4. At the Newcastle conference on Lead Abatement and Remediation in 1994, Professor Bornschein, director of Epidemic Research at Cincinnati University, claimed that "full abatement is expensive and ineffective" and that good results can be obtained

from educating people about personal and home hygiene. He indicated that this was to be the focus of 29 programs to start in the United States in the near future (Maguire 1994).

References

Alperstein, G., R. Taylor, and G.Vimpani. 1994. *Lead alert: A guide for health professionals*. Canberra, Australia: Commonwealth Environmental Protection Agency.

Australian Broadcasting Corporation. 1992. *Living with lead*. Television documentary screened on *Four Corners*, 14 September.

Australian Bureau of Statistics. 1994. *How Australians use their time*. Canberra: Australian Bureau of Statistics.

Bittman, Michael, and George Matheson. 1996. *"All else in confusion": What time use surveys show about changes in gender equity*. SPRC Discussion Paper Series No. 72. Sydney: Social Policy Research Centre.

Bittman, Michael, and Jocelyn Pixley. 1997. *The double life of the family: Myth, hope, and experience*. Sydney: Allen and Unwin.

Brown, P., and F. Ferguson. 1995. "Making a big stink": Women's work, women's relationships, and toxic waste activism. *Gender & Society* 9:145–72.

Bryson, Lois. 1997. Citizenship, caring and commodification. In *Crossing borders: Gender and citizenship in transition*, edited by Barbara Hobson and Anne Marie Berggren. Stockholm: Swedish Council for Planning and Co-ordination of Research.

Centers for Disease Control and Prevention. 1991. *Preventing lead poisoning in young children*. Atlanta, GA: U.S. Department of Health and Human Services.

Connell, R. W. 1990. The state, gender, and sexual politics. *Theory and Society* 19:507–44.

Dempsey, Ken. 1997. *Inequalities in marriage: Australia and beyond*. Melbourne: Oxford University Press.

Donovan, John. 1996. *Lead in Australian children: Report on the national survey of lead in children*. Canberra: Australian Institute of Health and Welfare.

Fenstermaker Berk, Sarah. 1985. *The gender factory: The apportionment of working American households*. New York: Plenum.

Fowler, R., and P. Grabosky. 1989. Lead pollution and the children of Port Pirie. In *Lead pollution: Fourteen studies in corporate crime or corporate harm*, edited by P. Grabosky and A. Sutton. Milson's Point NSW, Australia: Hutchinson.

Galvin, J., J. Stephenson, J. Wlordarczyk, R. Loughran, and G. Wallerm. 1993. Living near a lead smelter: An environmental health risk assessment in Boolaroo and Argenton, New South Wales. *Australian Journal of Public Health* 17:373–78.

Gilligan, B., ed. 1992. *Living with lead: A draft plan for addressing lead contamination in the Boolaroo and Argenton areas, NSW*. Lake Macquarie, Australia: Lake Macquarie City Council.

Graham, Hilary. 1983. Caring: A labor of love. In *A labor of love: Women, work and caring*, edited by Janet Finch and Dulcie Groves. London: Routledge and Kegan Paul.

Hallebone, E., and M. Townsend. 1993. Who bears the weight of lead in society? A social impact assessment of proposed changes to the national guidelines for blood lead levels. Technical appendix 3. In *Reducing lead exposure in Australia: An assessment of impacts*, vol. 2, edited by Mike Berry, Jan Garrard, and Deni Greene. Canberra, Australia: Department of Human Services and Health.

Heyworth, J. S. 1990. *Evaluation of Port Pirie's environmental health program*. Master of Public Health diss., Adelaide University, Adelaide, Australia.

Isles, Tim. 1993. Boolaroo blood-lead tests show no change. *Newcastle Herald*, 13 July.

Landrigan, P. J. 1983. *Lead exposure, lead absorption and lead toxicity in the children of Port Pirie: A second opinion*. Adelaide: South Australian Health Commission.

Luke, Colin. 1991. A study of factors associated with trends in blood lead levels in Port Pirie children exposed to home based intervention. Master of Public Health diss., Adelaide University, Adelaide, Australia.

Maguire, Paul. 1994. Green buffer "best way" to cut lead poisoning in young children. *Newcastle Herald*, 3 June.

Mason, Chloe. 1992. Controlling women, controlling lead. *Refractory Girl* 43:41–42.

Maynard, E., I. Calder, and C. Phipps. 1993. *The Port Pirie lead implementation program: Review of progress and consideration of future directions (1984–1993)*. Adelaide: South Australian Health Commission.

McGee, T. 1996. Shades of grey: Community responses to chronic environmental lead contamination in Broken Hill, NSW. Ph.D. diss., the Australian National University, Canberra.

McMahon, Anthony. 1999. *Taking care of men: Sexual politics in the public mind*. Cambridge, UK: Cambridge University Press.

McPhillips, K. 1995. Dehumanising discourses: Cultural colonisation and lead contamination in Boolaroo. *Australian Journal of Social Issues* 30:41–55.

NSW Parliament. 1994. *Report of the select committee upon lead pollution*. Vol. 1. December.

Public Health Unit. n.d. Hunter Area Health Service. Poster.

Russell, Graeme. 1983. *The changing role of fathers?* St. Lucia, Australia: University of Queensland Press.

Stephenson, J., S. Corbett, and M. Jacobs. 1992. Evaluation of environmental lead abatement programs in New South Wales. In *Choice and change: Ethics, politics and economies of public health. Selected papers from the 24th Public Health Association of Australia conference, 1992 Canberra*, edited by Valerie A. Brown and George Preston. Canberra: Public Health Association of Australia.

West, C., and D. H. Zimmerman. 1987. Doing gender. *Gender & Society* 1:125–51.

Western NSW Public Health Unit. 1994. *Risk factors for blood lead levels in preschool children in Broken Hill 1991–1993*. Dubbo, Australia: Western New South Wales Public Health Unit.

Wilson, D., A. Esterman, M. Lewis, D. Roder, and I. Calder. 1986. Children's blood lead levels in the lead smelting town of Port Pirie, South Australia. *Archives of Environmental Health* 41:245–50.

The Next Revolutionary Stage

Recycling Waste or Recycling History?

David N. Pellow

Some environmental sociologists have questioned whether recycling is unambiguously positive. This reading, excerpted from David Pellow's book Garbage Wars, *reveals that sometimes recycling advocates and other environmentalists have been guilty of caring more about narrowly defined "environmental" issues than about the daily lives of working people, in this case those who work at recycling centers. The materials recycling facilities (MRFs) described by Pellow are among the most dangerous and dirty kinds of facilities, but recycling is rarely a desirable job. This research begs the question "What about the 'environments' of recycling workers?"*

In Chicago . . . non-profit recyclers have largely faded, and privatized, "dirty MRF" recycling has become dominant. The privatized model is characterized by the paradox of more public investment with less public control, by a stronger market orientation for recycling, rather than an ecological value base, and by control and degradation of labor.

. . . [Chicago adopted] the "Blue Bag" approach to recycling. Many curbside recycling programs are characterized by source separation, which entails putting

recyclables into bins to be picked up by recycling (not garbage) trucks. This program is different. Through the Blue Bag program, residents place their recyclables in blue plastic bags, which are then collected along with household garbage in a single garbage truck. The trucks then dump their loads at materials recovery facilities operated by WMX [a corporate waste management company], where the bags are pulled out of the garbage and their contents separated. Recyclable materials not in bags are also pulled out of the garbage for processing.

In addition to meeting the requirements of the city's recycling ordinance (i.e., that 25 percent of the waste stream be recycled by 1996), the city promised that the new recycling system would create between 200 and 400 jobs. Like many industrial cities of the Northeast and the Midwest, Chicago had experienced continuous recessions and bouts with de-industrialization. Between 1967 and 1987 the city lost 326,000, or 60 percent, of its manufacturing jobs.[1] More and more, recycling was shaping up to be the next "win-win" urban policy for Chicago. It would solve the landfill problem, please the environmental community, and provide jobs in some of the city's depressed areas. The Blue Bag system seemed especially advantageous insofar as an infrastructure was in place, with the city already providing waste pickup service using a fleet of trucks and several transfer stations and landfills (owned by WMX). The Blue Bag program would fit right into this structure with no major changes. A cost-benefit analysis of a curbside recycling program versus the mixed-waste Blue Bag system revealed that the latter would cost millions of dollars less. Thus, ignoring ecological and social criteria, the *Solid Waste Management Newsletter* reported that "the primary reason given for adopting the commingled bag/MRF recycling program is its affordability."[2]

. . . With average annual revenue in the neighborhood of $11 billion, WMX has operations in Australia, Canada, Europe, and South Africa. Probably the corporation most vilified by the anti-toxics and environmental justice movements in recent years (owing to its ownership of scores of landfills, incinerators, and hazardous waste facilities), WMX is widely alleged to be an "environmental terrorist" and a perpetrator of flagrant corporate crimes.[3] What is curious is that several local community organizations that had been fighting WMX for years decided to support the Blue Bag program. For example, People for Community Recovery [PCR] had been fighting WMX since 1982. Specifically, PCR was up in arms about the location of WMX's landfill and chemical waste incinerator in the neighborhood and even held several public protests against the company. For years, PCR's diagnosis of the problem was "too much pollution and not enough good jobs" a mantra that was taken up by the rest of the environmental justice movement. When WMX announced that it was finally going to address the "jobs versus environment" issue by building a recycling plant that would hire local residents, PCR, the Mexican Community Committee, and several other organizations lent support. WMX made an arrangement with these organizations to

recruit, interview, and pre-screen potential employees who later went to work for the company. What only WMX could know at that time was that the jobs at these recycling centers were terribly unsafe and unhealthy. In this way, many environmental justice movement organizations were unwittingly complicit in the imposition of environmental injustices on workers from their own communities. This is but a fraction of the complexity that is missing from much of the research on environmental racism. That is, the systems of institutional racism and classism produce arrangements that place certain people of color in the role of "the oppressed as oppressor," or stakeholders who receive small gains while more powerful actors benefit handsomely from both groups' oppression.[4]

. . . The City of Chicago provided taxpayer dollars and political will to WMX; neighborhood groups worked with WMX to recruit workers; residents participated in the Blue Bag program by providing their trash and recyclables to the waste haulers; and, while environmentalists were critical of WMX's recycling methods and its political power, they had earlier lent support to the campaign for a citywide recycling program, and they ignored the problems of occupational safety and environmental inequality inherent in the Blue Bag system. They objected mainly to the lack of non-profit involvement and the anticipated low quality of recovered recyclables. The stake-holders generally left out of the debate over the Blue Bag were the workers. This was in large part because the city and WMX had already determined that the jobs would be non-union.[5] And since residents were desperate for any type of work, and environmentalists were paying no attention to job quality or to wages, this exclusion went uncontested.

Green Business or Global Sweatshop? Management's Decisions and Environmental Hazards

. . . WMX created an unbearably hazardous work environment where people of color were concentrated.

The structure of the Blue Bag system and the MRFs in which they were processed was created by managers with a range of options available to them. These decisions had direct impacts on the nature of environmental inequality at the MRFs.

The Blue Bag program went into effect on December 4, 1995, serving single-family homes and low-density buildings in Chicago. Some 750,000 residents were expected to separate their paper and commingled products (plastic, metals, etc.) into blue bags that were to be mixed in with the regular garbage pickup and taken to four colossal MRFs in the city, where they would be processed for end markets. These "dirty MRFs"—MRFs processing both recyclables and garbage—were each the size of several football fields and were staffed by 100 African American and Chicano workers picking, sorting, lifting, and cleaning tons of trash and recyclables. WMX workers faced environmental inequalities

in the plants based largely on managerial decision making. Two principal decisions contributed to environmental inequality at this MRF: to accept mixed waste and to maintain an oppressive work culture.

Decision 1: Accepting Certain Types of Waste

. . . [T]he Blue Bag system was touted as the most sophisticated and advanced waste management technology ever assembled under one roof. WMX's MRFs revealed that these buildings were packed with computer stations, assembly lines, magnetic sorters, air classifiers, balers, cameras, and other forms of machinery and technology. Although designed for efficient recycling, they seemed to neglect two important things: high-quality recycling (mixed-waste systems like the Blue Bag combine trash and recyclables, thus contaminating the latter) and a high-quality work environment. These two issues would haunt this recycling program from day one. The decision to use a capital-intensive production process to make recycling more efficient failed. This decision also created an occupational environment where workers were expected to adapt to machines and regularly increase production.

There are hundreds of MRFs across the United States that receive only source-separated materials and do not accept municipal solid waste (MSW). WMX departed from this model in an apparent effort to innovate and reap greater value from the entire waste stream. This managerial decision to build a "dirty MRF" had a major impact on the health and safety of workers at the MRF. MSW is material that a Danish inspection service ruled "presents a very high health hazard, and must not be sorted by hand."[6]

In a December 1995 episode of the television series *ER,* one emergency room patient was a man who had fallen from a 15-foot sorting line and impaled himself on a piece of machinery in a recycling center. The WMX recycling workers I interviewed faced hazards no less serious. And while these hazards are both physical and psychological in their impact, they originate in social structures.

WMX grossly miscalculated the environmental and safety issues, which is ironic since Blue Bag recycling was touted as an environmentally responsible initiative. I spoke to more than two dozen workers and managers who worked under the Blue Bag system. The stories they told resemble the experiences of laborers in the sweat shops, the mines, the steel and textile mills, and the slaughterhouses of the nineteenth-century United States and the contemporary Global South.

Recycling workers face a number of health and safety hazards. To the horror of most workers, the Blue Bag system was characterized by the routine manual handling of chemical toxins, hazardous waste, and infectious medical wastes, all of which are found in household garbage (whose contents are not regulated). Bleach, battery acid, paint, paint thinner, inks, dyes, razor blades, and homemade explosives are in the waste stream. Medical waste has recently emerged as a significant problem because, as hospital patients are more frequently sent home under

managed care, so is their waste. Garbage and recycling workers are regularly exposed to these substances. One worker told me: "There are tons of medical wastes and construction wastes. Say, for instance, the red bags that have biohazards would drop down the chute. One time a bag went through marked 'asbestos' and I said 'Damn, that looks like asbestos, a cloud of asbestos dust just hanging there!'"[7]

Finger and arm pricks by syringes and hypodermic needles and battery acid sprays are becoming quite common in MRFs around the world.[8] Workers have died as a result of battery acid exposure. Needle pricks are particularly worrisome, as many employees fear exposure to HIV.

The newspapers covered the Blue Bag controversy from day one, but they generally focused on recycling rates and on whether recyclables were being contaminated when mixed with garbage. A few stories about working conditions appeared, but this issue never really concerned environmentalists. When city or WMX officials did address the question of labor, they pointed out that they had "created" 400 jobs in Chicago that were, according to Commissioner of the Department of Environment Henry Henderson, "clean and safe."[9] WMX management insisted that the working conditions were "excellent." A WMX MRF site-manager named Mitchell told me:

> The enclosures, we have nine of them, where the sorting will be done, are in a climate-controlled area, [which] will be heated and air conditioned. The system will produce six air changes an hour within the enclosure, for the sorters. . . . We've gone pretty far to make that environment safe.[10]

Another manager, Jake, added:

> The way the sorting is done, there are very different ways, some of them are "throw-across" into a backboard situation. And other sorts are pulling and dropping into a thing, where there's no lifting, so you don't have the back injuries. And what experts call "depth burden" (i.e. the length one has to reach) is greatly reduced. All of the exchanges of materials are outside of the enclosures, so any dust that's generated will stay out of the enclosure so the environment they're in is good.[11]

. . . On July 11, 1996, eight months after the Blue Bag program began, the U.S. Occupational Safety and Health Administration slapped WMX with a $10,500 fine for several labor violations. Although the penalty was not heavy, the fact that OSHA (by most accounts an immobile bureaucracy) actually came out and inspected the sites is notable. . . .These violations correspond strongly with the ethnographic data I gathered, but they fall short of capturing the full reality of the labor process WMX employees confronted every workday, including the oppressive work culture maintained at the plants. A year later, OSHA

representatives made a follow-up visit to the WMX MRFs and found that the company had engaged in "willful violation" of previous orders to follow labor law and inoculate its employees against Hepatitis B. The penalty this time was $112,500. The charge regarding inoculations was verified by a WMX employee who told me that he and other workers had had "no physical examination, no inoculation":

> That's what made me kind of skeptical . . . because you were working around raw garbage and I was talking with a couple of guys that were *managers* for WMX, and before they were hired, they had to take physicals and they were inoculated. But the people from REM were given no physicals or inoculations.[12]

WMX hired its laborers from a temporary labor service called Remedial Environmental Manpower (REM). WMX therefore deliberately withheld legally mandated vaccinations from the REM "temps," all of whom were men and women of color. This withholding of medical care placed employees at great risk. WMX workers confronted other dangers too, many of which were seemingly unpreventable once the MRF was up and running. One employee told me: "WMX was built on top of a landfill. And for a while before they had the fire suppression systems working, we had to have people walking around with fire extinguishers because there was methane gas seeping through the floor. . . ."[13]

WMX's management made the decision to build this MRF on the methane-producing landfill. This decision contributed directly to a hazardous work environment.

In December of the Blue Bag's first year, a deceased infant was discovered on the recycling line. This was the fourth human body discovered at the city's recycling centers in a year.[14]

The workers I interviewed made it clear that dangerous incidents were routine. In two weeks' time, Ferris (a line sorter in the "primary" department, where the trucks dump the garbage) had witnessed "about six" accidents. He elaborated:

> I got cut on my finger with some glass, because the glass went through the glove. And then this other girl, she got stuck in the arm with needles, but they sent her to the company doctor. And they put her back to work the next day when her arm was still hurting. They gave her some medicine and she was still hurting, so I feel that wasn't right. Then this one guy fell down a chute and broke his arm. And then this one guy got burnt with some battery acid.[15]

These psychological and physical hazards intermingled as people desperate for gainful employment and job security continued working in the face of gross health and safety violations. In a city where the unemployment rate in many

African American neighborhoods exceeds 50 percent, it is not difficult to understand why, as one worker explained, "you never turn down work when you're looking for it."[16] However, that worker also reasoned, "you also have to think of your safety because that *job* might be there next year, but if you contracted some disease, *you* might not be there next year."[17]

The sociological implications of hazardous jobs have always had effects beyond the workplace.[18] Often a worker exposed to hazards has unknowingly carried dangerous chemicals home on his or her clothing or body. Such transfers of toxins sometimes have direct impacts on the health of family members or friends. Other evidence of dangerous work is also often found in the home, in the form of the social and psychological wounds that risky jobs inflict upon employees and their families. WMX workers were no exception. Workers' families were stuck in a catch where either the lack of work or the presence of socially and physically oppressive work was a routine source of stress. . . . [The following] quote is typical of families facing the oppressive nature of the work. Jason's mother answered the phone one night when I called to schedule an interview with him. He was not home, but his mother had this to say about WMX: "They were just evil, and they treated him like the devil would treat somebody."[19]

Thus, management's decisions routinely produced an unsafe working environment for WMX employees and impacted their families. The way management "would treat somebody" is a part of what I would call "the work culture."

Decision 2: Maintaining an Oppressive Work Culture

Most secondary labor markets in which African Americans and Latinos are concentrated are characterized by low wages, a lack of mobility, a lack of health and safety guarantees, and a lack of hope. (Secondary labor markets are characterized by lower wages and lesser opportunities for mobility than are found in primary labor markets.) Thus we should not be surprised to find similar patterns at WMX. Most work in secondary labor markets is also characterized by the fact that workers are not encouraged or allowed to think creatively and independently on the job. Workers employed in hazardous occupations find that this problem is compounded by the job's dangers. "Workers in hazardous occupations are 50–90 percent more likely than workers in safe occupations to describe their jobs as uncreative, monotonous, meaningless, and as providing no worker control over work pace. They are 10–20 percent more likely to report no control over job duties, no control over work hours, and the pervasiveness of rules."[20]

The oppressive social environment at WMX contributes to the problem of dangerous and uncreative work. Richard Edwards's classic book *Contested Terrain* outlines three types of managerial control over labor: simple, technical, and bureaucratic.[21] WMX managers made use of all three. Simple control generally includes direct supervision of labor. WMX managers made the decision

to use a disciplinarian management style. For example, workers regularly complained of being harassed by foremen and managers who rarely let them leave the sorting lines to use the bathrooms and arbitrarily instituted mandatory overtime. One whistle-blowing former manager put it as follows:

> John and Norm's [the general managers] philosophy was to "keep your foot in their ass." That was their verbal philosophy as communicated to us. That is bound to fail, nothing new about that. . . . Dan Karlson was an REM supervisor and he walked around the plant with a pistol in his holster. His philosophy was "whenever you get a disgruntled worker you have to slap them and shut them up."[22]

As evidence of this philosophy in action, one worker who contacted OSHA to file a complaint in early 1996 was fired within a week of doing so. After several workers spoke to journalists about the deplorable health and safety conditions in the plant, REM issued a memo to its employees "strictly prohibiting" any communication with the news media. Workers were explicitly instructed to respond with "no comment" to any inquiries about working conditions in the MRFs and were warned that "violation of this work rule may result in disciplinary action up to and including immediate termination of employment."[23]

These oppressive conditions had direct impacts on the state of occupational health at the WMX MRF. Collins, a worker at one facility, told of the following experience between the managers and workers who were determined to keep their jobs:

> They [management] was always threatening people. . . . They said that if you didn't work Saturdays then you might as well not come back Monday. . . . A couple of guys there had twisted ankles and everything. I looked for medical kits but didn't notice any of that. These guys with hurt ankles were frightened for their jobs because the way that these people were pushing them was like "Hey, I'm gon' tell you. We got more people standing in line waiting on this job." He wasn't lying because I noticed that they started bringing in Mexican Americans late at night who didn't speak English. They would bus them in late at night and then take them out in the morning.[24]

A female worker in the same plant told a similar story:

> One lady I know cut her foot. This was in where they pick the trash off the conveyor belts—it's upstairs. She had cut her foot and she was bleeding. And I was thinking you know, if you hadn't had a tetanus shot and you

> don't know what you stepped on, I thought the company should have took her right away to get her a tetanus shot. They didn't. They gave her a piece of toilet tissue, put it back in her shoes and sent her right back to work. When she got injured, that was part of her 15 minute break. She used her 15 minute break to take care of it.[25]

Workers and management battled over the control and the speed of assembly lines throughout the twentieth century.[26] In Richard Edwards's typology of forms of managerial control, the assembly line is the classic example of technical control. Like many workers on assembly lines, however, some recycling workers had the power to stop the process for emergencies and for certain quality-control purposes, although doing so was strongly discouraged. However, the *speed* of the line was inflexible. One female worker noted, "There was no way you could control the speed [of the line]. You could control it if you wanted to stop it, but not control how fast or how slow it went."[27]

Like major managerial decisions, the assembly line as technical control influenced occupational safety and health in the WMX MRF. Another worker recounted the following experience: "With the [conveyor] belt constantly running, you're reaching for one thing and, by the time you turn your head back, there's something in your face. . . . You couldn't see what was actually coming and that made it real dangerous for you."[28] For example, one female employee almost "got her neck slit on the line" when landscape clippings and branches poked her as she worked.[29]

The oppressive conditions also impacted workers' social psychological stability with regard to their status as "temps." Temporary status was difficult for many workers to contend with. Being a "temp" is alienating and marginalizing. Temporary status and the informal managerial practices that often accompany it were used as a form of bureaucratic control. That is, the presence or absence of company rules, regulations, and procedures can place many barriers to a worker's compensation, safety, status, power, and job advancement. Bureaucratic control: WMX included a structure of rules and procedures that guaranteed that African Americans and Latinos would remain temporary employees in the lowest-ranking, most dangerous jobs in the plant. . . .

As I mentioned above, workers at WMX were hired through a temporary job service called Remedial Environmental Manpower. In recent years, powerful lobbyists for temporary employment firms have fundamentally changed federal labor legislation. For example, workers at the WMX MRFs were technically not employees of WMX or of REM. Rather, as a result of recent changes in labor laws, they were "consumers" of REM's services.[30] They therefore had questionable legal rights as workers and an ambiguous legal relationship to WMX. This arrangement encouraged and rewarded abuse and exploitation by management.

All the workers at WMX were "temps," and therefore they could be fired arbitrarily. Two workers recounted the following:

> When they did [suddenly] lay us off, they was telling us all that we did a great job . . . and that we'd be first for consideration when they started hiring back again. But I haven't heard anything else from 'em.[31]
>
> They got our hopes up so high. They didn't tell us that we was experimental guinea pigs. They just had us psyched all up like we was gon' be there for a while and they just dropped us like that.[32]

. . . [M]any times workers worried about when they would be allowed to finish a shift and go home. Angela stated:

> I started work at 6 that morning and I got out by 7 that night. And that was during a time when some guys had been working from 6 in the morning until 2 the next morning straight. They had been threatened with immediate dismissal otherwise. The managers said that anybody that didn't want to work until they told them to go home should leave right then. Because they said they might work you 15–20 hours that day. And then it was more of a demand that you stay. It wasn't like eight hours and anybody that wanted to work overtime after eight could stay. It was like "You stay till we tell you to leave."[33]

Surprisingly, many laid-off workers expressed a desire to return. For example, after being laid off, rehired, then laid off, again, DJ told me: "I really liked that job and I wouldn't mind going back."[34] Leila, a temporary worker "on call" for WMX, told me she would like to become a permanent WMX worker because any job was better than no job: "It was just a job to get money, you know? Well I'm out of work now. Well, not really out of work because I'm working there, but I would like to do that, yes, for as long as possible. Being a temp is something that you never know what's going to happen."[35]

The decisions by management at the WMX MRF imposed a range of environmental injustices on workers of color. Despite the conditions workers face, WMX has insulated itself somewhat. Because the city was the client and because they recruited workers through a temporary agency and through local community organizations, they have been able to deflect some of the blame for the Blue Bag's shortcomings. WMX's public relations efforts have also helped. In early 1995, before the Blue Bag controversy erupted, WMX issued a "Good Neighbor Policy" indicating commitment to "environmental protection and compliance," "civic and charitable programs," "host community consultation," "communication and disclosure," and "local hiring and purchasing."[36] Relative to these promises, the resources workers sought were basic and direct. Most of them simply wanted bet-

ter pay, job security, and more attention to occupational safety. Many of them drew on a range of strategies to express their opposition to the system.

Shaping Environmental Inequalities from Below: Worker Resistance to Occupational Hazards and Recycling Ideology

. . . Communities and workers are not always passive, and in fact they have measurable and powerful effects on government and industrial policies.

WMX workers responded to social subjugation and occupational hazards through various strategies. Resistance included responses to the ideology of recycling in the context of the dirty work it requires. It also included responses to management decisions that contributed to environmental inequalities.

Some workers gave voice to their concerns. One worker, in a letter to the press, pleaded for journalists to exercise "that constitutional freedom I do not [have]." He noted that he and his co-workers experienced "constant colds, flu, diarrhea and coughing"[37] as a result of working at WMX. He continued:

> Several people have been struck by discarded hypodermic needles. Air quality is bad. Others, including myself, have been injured by battery acid, muscle strains, lower back pain, pinched nerves, contusion, various types of trauma including emotional or psychological from witnessing dead bodies, parts of animal carcasses, live and dead rats, etc. And let's not forget the supervisors' bogus tactics. . . . [We have been] threatened to be fired by voicing your opinion. . . . Being talked to loud in front of other people. Not being able to take a day off even if you are sick or a family member dies.[38]

This worker was later fired for this action, after which he pressed for an OSHA investigation of unfair labor practices at his former workplace. Another worker, the aforementioned Collins, was very clear about his willingness to speak out and be heard in the media. When I said to him "I will use a false name for you in anything I write up from this interview, unless you would like it otherwise," he responded: "You can write my name anywhere you want to. I want people to know who I am and what I'm saying."[39]

Several workers articulated their circumstances and grievances through their experiences as men and women of color in an unequal society. One female worker referred to her manager as a "prejudiced, chauvinistic, racist."[40] Another female worker declared: ". . . it was mostly all black folks [working in the MRF], about four Mexicans and no white folks. Yes, they had us slaving, we was back in slavery."[41]

Critiquing the racially biased authority structure at one firm, one man said:

> I would love to see more people of color in positions of authority over there because all the bigwigs are white. Black folks are the peons over there. And then they shipped illegal immigrants in there at night under cover of darkness. . . . And they probably hired them so they could lower their wages to about half what we [blacks] is making. And if you ever go down to the facility you'll see what goes in and out of there . . . nothing but garbage, blacks, and Mexicans.[42]

Intraracial conflict was a theme in many interviews because the temporary agency (REM) that hired workers for WMX was owned by African Americans. REM and WMX had promised that workers would be eligible to join a union after a 90-day probation period. Few if any workers ever made it through 90 consecutive days, however: One female recycler told me that she had confronted the manager of the agency and accused him of firing and rehiring workers to avoid paying them union wages:

> When people are getting their 90 days then you want to lay them off. He said "That ain't got nothing to do with it," but I said "Yes it do, it has a lot to do with it, because you don't want us in the union." And I told [the African American manager]: "You know what, Jack? Instead of you trying to help the next black man, you're a black person up there doing a little something for yourself and you're trying to kick the next black man in the back. You don't want them to get up there, and that ain't right."[43]

. . . Workers were well aware of the contradictions between recycling's public image and the personal trials they were subjected to. One worker said: "There are so many smells that you come across, they make your stomach queasy. Yet before we went to work, they showed us a safety film where all the stuff was really clean."[44]

A Chicana worker who later quit her job at the MRF explained:

> . . . they told us that it was going to be a clean work environment. They said that fresh air was going to be pumped through there every 15 minutes, so it wouldn't smell, and stuff like that, but it wasn't. It was a little different than they had described it. One time they had a dead dog . . . go through there. There was all garbage, you know [not just recyclables]. At first we thought they were only talking about plastic bottles and cans going through there. But that was plain garbage, everything, you know? Dirty diapers, cleaning products, and stuff like that.[45]

Many workers exercised their option to leave. The coercive work environment and the extreme occupational hazards were generally cited as the reasons for this type of response. Another Chicana worker told me: "The [heaters] upstairs would make you so hot sometimes we had to turn them off and that's how some people got sick. This one guy he got pneumonia. They told him he had to either work or go home, and that wasn't right. He left."[46]

Workers' responses to hazards and coercion included "everyday forms of resistance."[47] Some common forms this hidden resistance took were muted character assassinations directed at management and silent refusal to touch things on the line that were perceived as "too nasty" or "dangerous." The latter often angered managers because it had a negative impact on the plant's productivity. A worker named Seela explained: ". . . if [a pile of garbage] was too high, I just let it go. Plain and simple. That's what everybody else was doing. [The feeling was] 'Hey, if you can't see nothing, just back away from it and let it pass.'" I asked: "But would that end up messing up the process?" Seela replied: "Yeah 'cause then the manager would come up on the line and be all really bitchy" seeing that so much went down that wasn't supposed to go down. He would be talkin' all crazy."[48]

In one instance, a worker's response included an extreme form of resistance. A manager explained:

> Did you ever hear about the riot at WMX? You know, it was the week of Christmas and people had been working a lot of overtime. But management didn't keep track of their hours so people were getting checks for like $1.05 and $1.50 for two weeks of work. So the workers rioted. They tore the hell out of the dining room, knocking over tables, breaking out windows and all kinds of stuff.[49]

Management responded accordingly:

> Ken Carlson was the site supervisor for REM, and when things took a turn for the worse, when everybody started to riot at the plant . . . we had armed guards. I don't know if they were policemen or not, but they looked like street thugs. They were sitting around the dining room making sure that workers weren't going to bust any windows out or anything.[50]

Despite these efforts, the workers remained embedded in a larger social and political process that continued to support and ignore these environmental inequalities. In fact, most of WMX's employees were forced to choose between their safety and a job.

Workers at WMX resisted and shaped the nature of environmental inequalities at the MRFs. Through a variety of strategies, they responded to managerial decision making and environmentalist ideology, and this may have empowered

them in significant ways. Even so, workers were never able to organize collectively in a formal sense, particularly since union eligibility was routinely denied them. In addition, the environmental injustices at WMX remain so entrenched and severe that, despite the range of resistance strategies workers drew on, most report that it remains a highly undesirable and unsafe job.

Notes

Pellow, David N. 2002. "The Next Evolutionary Stage: Recycling Waste or Recycling History?" In *Garbage Wars: The Struggle for Environmental Justice in Chicago*. Cambridge: MIT Press.

1. Wilson 1996.
2. *Solid Waste Management Newsletter* 1990. . . .
3. WMX's Chem Waste subsidiary was the owner of a hazardous waste landfill whose expansion was challenged by El Pueblo para Agua y Aire Limpia and the California Rural Legal Assistance Foundation in what became a landmark environmental justice case. . . .
4. Stockdill 1996.
5. There are conflicting reports about the union issue at the MRFs because, allegedly, some workers were allowed (or forced) to join a "union" that was clearly company run, while many others were fired before even being considered for union eligibility.
6. Ritter 1996. The RC's decision *not* to accept MSW had a positive impact on that work environment.
7. Interview by author, fall 1996.
8. Horowitz 1994; Powell 1992; Ritter 1996; van Eerd 1996.
9. Chicago Tonight 1996.
10. Interview by author, fall 1996.
11. Ibid.
12. Interview by author, fall 1996. . . .
13. Interview by author, fall 1996. . . .
14. Sullivan 1996. . . .
15. Interview by author, fall 1996.
16. Ibid. The 50% unemployment figure is from Wilson 1996.
17. Interview by author, fall 1996.
18. Nelkin and Brown 1984.
19. Interview by author, summer 1996.
20. Robinson 1991, p. 84.
21. Edwards 1979.
22. Interview by author, summer 1996.
23. Memo to REM Employees 1996.
24. Interview by author, fall 1996.
25. Ibid.
26. Braverman 1974; Burawoy 1978; Edwards 1979; Thompson 1989.
27. Interview by author, summer 1996.

28. Interview by author, fall 1996.
29. Ibid.
30. Gonos 1997.
31. Interview by author, fall 1996.
32. Ibid.
33. Ibid.
34. Ibid.
35. Ibid.
36. WMX 1995.
37. REM Employees 1996.
38. Interview by author, fall 1996.
39. Ibid.
40. Ibid.
41. Ibid.
42. Ibid.
43. Ibid.
44. Ibid.
45. Ibid.
46. Scott 1990.
47. Interview by author, summer 1996.
48. Interview by author, fall 1996.
49. Ibid.
50. Bullard and Wright 1993; Johnson and Oliver 1989.

References

Braverman, Harry. 1974. *Labor and Monopoly Capital.* Monthly Review Press.
Bullard, Robert and Beverly Wright. 1993. "The Effects of Occupational Injury, Illness and Disease on the Health Status of Black Americans." In *Toxic Struggles: The Theory and Practice of Environmental Justice*, ed. R. Hofrichter. New Society.
Burawoy, Michael. 1978. *Manufacturing Consent: Changes in the Labor Process Under Monopoly Capitalism.* University of Chicago Press.
Chicago Tonight. 1996. PBS Television (WTTW).
Edwards, Richard. 1979. *Contested Terrain: The Transformation of the Workplace in the Twentieth Century*. Basic Books.
Gonos, George. 1997. "The Contest over 'Employer' Status in the Postwar United States: The Case of Temporary Help Firms." *Law and Society Review* 31: 81–110.
Johnson, John H., Jr. and Melvin Oliver. 1989. "Blacks, and the Toxics Crisis." *Western Journal of Black Studies* 13: 72–78.
Nelkin, Dorothy and Michael Brown. 1984. *Workers at Risk.* University of Chicago Press.
REM Employees. 1996. "Open Letter to the Press."
Ritter, Jack. 1996. "Recycling Plant Blues." *Chicago Sun Times*, March 10.
Robinson, James. 1991. *Toil and Toxics: Workplace Struggles and Political Strategies for Occupational Health.* University of California.
Scott, James. 1990. *Domination and the Arts of Resistance.* Yale University Press.

Solid Waste Management Newsletter (Office of Technology Transfer, University of Illinois Center for Solid Waste Management and Research). 1990. "Chicago Announces 1991 Recycling Plan." Vol. 4, no. 12.

Stockdill, Brett. 1996. Multiple Oppressions, and Their Influence on Collective Action: The Case of the AIDS Movement. Ph.D. thesis, Northwestern University.

Sullivan, Molly. 1996. "Baby Found Dead in Trash." *Daily Southtown,* December 27.

Thompson, Paul. 1989. *The Nature of Work: An Introduction to Debates on the Labor Process.* Macmillan.

Wilson, William J. 1996. *When Work Disappears.* Random House.

WMX. 1995. "Good Neighbor Policy." Oakbrook, Illinois.

PART

The Social Construction of Nature

7

Wild Horses and the Political Ecology of Nature Restoration in the Missouri Ozarks

J. Sanford Rikoon

One of the core concepts of sociology is the "social construction of reality"—the idea that we shape our understanding of reality through our interactions with each other. Sociologists promote the view that our ideas about nature are necessarily embedded in our personal experience, sociopolitical history, and cultural context. In the next two selections, the authors examine different ways in which humans construct "nature." In doing so, they emphasize how different social actors may have more or less power to impose on others their own stories or understandings about the natural world. In the first article of this section, J. Sanford Rikoon analyzes a conflict between the National Park Service and the Missouri Wild Horse League over how to manage horses on the range. Rikoon explains how the National Park Service managers and scientists defined the horses as a "feral" nonnative species that was introduced by humans and should be removed. The Missouri Wild Horse League, on the other hand, defined the horses as "wild" animals that represented an important part of the unique ecological history of that region; the league argued, therefore, that the horses should be allowed to continue to roam free on the range. This study shows how the differences in the way groups define nature has to do with the

collective identities of those groups; and the question of who gets to do the defining has to do with the groups' relative access to political, financial, and other resources.

1. Introduction

In May of 1990, the National Park Service (NPS) announced its intention to remove small bands totaling around 25 free-roaming horses from the Ozark National Scenic Riverways (ONSR) in south-central Missouri. Immediately following the appearance of a brief NPS press release in the weekly newspaper in Eminence, near the Park's headquarters, community residents began voicing their opposition to the NPS, politicians, and the media. Within six months, local citizens united under the banner of a new group called the Missouri Wild Horse League (MWHL). Resistance by the anti-removal advocates took the form of protests and demonstrations, news releases, a series of litigation challenges, and appeals to state and federal legislators. Legal efforts resulted in a temporary restraining order from a federal judge in St. Louis in late 1990 and a permanent injunction against NPS action from the US District Court in Cape Girardeau in 1992. The Park Service in turn was successful the following year in overturning the injunction before the US Circuit Court of Appeals in St. Louis (Wilkins et al., 1991 and Wilkins et al., 1992). Although legally entitled to remove the horses, the agency refrained from taking any action as it contemplated the potential fallout from heightened media attention and a rising tide of Federal legislative proposals to curb its powers.

After three years of efforts in the US Congress, Bill Emerson (R-MO, 8th District) finally put an end to the conflict with an amendment to the 1996 Omnibus Parks and Public Lands Management Act. Emerson's rule prohibited the NPS from carrying out its 1990 decision and further enjoined the agency to "protect free roaming horses living within the boundaries" of the OSNR and ordered the agency to provide "adequate pastures to accommodate the free-roaming horse herd" (Omnibus Parks, 1996). The Congressman's success thus finished off a conflict that had endured through five years of state and federal legislative attention, four years of legal arguing in federal courts, and six years of oftentimes intense and acrimonious encounters between the NPS and local citizens.

Environmental conflicts are at their heart issues about power to decide everything from the definition of nature to access to natural resources and, as a consequence, to reap whatever tangible and intangible spoils go with such victories. As Congressman Emerson's amendment reveals, the power of who gets to decide who decides is often paramount in a theater where the actors range, as in this case, from the local to the national and where the appropriate public (and not so public) arenas range from pastures along the Current River to committee hearing rooms on Constitution Avenue.

This essay focuses on competing cultural constructs about the object of the conflict—the horses themselves. Specifically, it examines the discourses and narratives of the National Park Service and local residents active in the MWHL to understand how each framed the wild horses in relation to both nature and culture, to examine the meaning that the horses had in terms of preferred landscapes, and to reveal how these meanings reflected the social identities of the actors themselves (Nygren, 1999).[1] These are epistemological issues because they require us to ask about the process through which knowledge is created and evaluated, and how particular understandings of the world relate to organized and specific systems of logic, belief, and authority (Raedeke and Rikoon, 1998).

2. Social Constructions of Landscapes

. . . Resolutions of environmental conflicts in most public arenas require a decision about whose construction of the environment should be protected, and whose construction should be discounted. In these contexts, settlement rarely depends on any objective measure of whose construct is "better," but rather on which competitor has the greater power—usually political and economic power—to influence the decision-makers. The results, of course, have critical implications not only for the evolution of environmental policy but also for the protection of local people, livelihoods, and culture bound up with access to and use of physical resources. Conflicts over the protection or restoration of landscapes, natural resources, and species are not isolated or simple struggles over defining nature or the landscape. In many cases, conflicts between groups with competing views and interests in the environment embody wider social and economic power relationships and struggles over the control of finite resources. Victory in any environmental conflict results not only in the legitimation and ascendance of one type of knowledge over another, but also in the domination of particular social groups and cultural systems because knowledge itself is part of the cultural systems embedded in social groups. In other words, controversies over physical resources—including the conflict over Ozark wild horses discussed in this essay—can be viewed as social struggles played out in the form of environmental conflict.

3. Feral or Wild: National Park Service Understandings of Feral Horses

The Park Service perspective, as expressed in both legal arguments and personal interviews with NPS staff, characterize the horses as exotics, literally species in the wrong place or habitat. The first and major line of reasoning for this worldview is formalized agency rules and regulations. The concept of "exotic" in NPS

discourse developed out of an ecosystem management philosophy and set of guidelines harking back to the so-called Leopold Report, which in 1963 recommended that "biotic associations within each park be maintained, or where necessary recreated, as nearly as possible in the condition that prevailed when the area was first visited by the white man" (Leopold et al., 1963). The NPS implemented this perspective as an agency-wide mandate for designated "natural zones," including the horses' habitat area in the ONSR, through the 1970 General Administration Act and the 1978 Redwoods Amendment. In essence, the changes shifted the orientation of NPS management from a more recreationalist and conservationist approach to one firmly wedded to an ecosystem preservation ideology and the science of ecology. The authorities in this latter system are the ecologists, biologists, and other scientists who determine the nature of native habitats (Zimmerer, 1996). Adherents of this perspective understand the world through generalized laws and principles developed in the institutional and research contexts of the natural sciences; their constructions of the landscape are not embedded in the local social or cultural contexts in which habitats are located (Forbes, 1999 and Watts, 2000).

Exotic species are of no use to protectors of a "natural area" who, in this case, view the horses as intruders.[2] Consequently, NPS narratives about the landscape contain scant references to the horses, except to establish their recent historical origins and "unnatural" introduction that places them outside of nature and therefore labels them as candidates for removal. Texts that mention the horses are typically couched in impersonal tones with a distant and objective rhetoric:

> The original ownership of the horses is not known. The present small band is believed descended from a pair of horses released in the 1950s. The original group may have been supplanted by additional release in subsequent years. As feral stock, introduced by human action, the horses are not considered native species. (US Department of Interior, 1991)

> I've seen the horses a number of times. I don't know if you've seen them, but you wouldn't know they're wild horses. They're like any horse out in the field. You can get fairly close to them. If someone wasn't sitting there to point it out—They talk about them being a draw to the visitor. I don't necessarily think that's true because unless someone was pointing the horses out to you as wild, as far as you know they're just like horses in any pasture. They don't look any different [laughs]. Need to paint a big "W" on the side [laughs]. (Interview with Ben Clary, Superintendent of the OSNR)

These narratives mark the horses as marginal to the NPS mission to preserve "nature" and further highlight the animals' position in NPS belief systems

as neither native nor truly wild. Interestingly, the connection of the horses to culture, which is so important to local constructions, disqualifies them from being characterized in NPS worldviews as either "wild" or a legitimate "wilderness" species. The Park Service's preservationist ideology conceives the landscape as an object to be "wildernized" by removing any connection to culture. NPS employees code these meanings through the particular descriptors used to characterize the horses and through the maintenance of skepticism to local narratives. The horses are rarely termed "wild" but typically are characterized as "feral," a designation that suggests their danger to other species. NPS constructions seldom recognize narratives from local residents, area legends, or information from oral histories. When such perspectives are mentioned, the references include such vague disclaimers as "is believed" and "are known to." This rhetoric serves as signifiers of local understandings of the landscape that the NPS considers suspect because these experiences remain non-validated by professional expertise.

The composite NPS "master" narrative about the horses is grounded in the experimental and universalizing cultural framework of a positivistic science. Relevant knowledge is collected at field sites, tested in laboratories, aggregated in computer models, and transmitted within the group through formal educational channels and conduits. "Natural" landscapes are bounded by the "natural" laws of energy, climate, geology, hydrology, and other physical systems as these are "discovered" by experts. Park Service officials understand the world through their commitment to the principles of a scientific ecosystem management, and several park officials involved with the wild horse case said that they were "bound by science" (and regulation) to make the decisions that they did. The overall process then is deterministic rather than emergent, and deductive rather than inductive.

Visions of nature are often connected to the self-identities of groups (Bell, 1994, Forbes, 1999 and Nygren, 2000). The social communities within the NPS most central to the agency's constructions of "natural" landscapes are those of the wildlife biologists, ecologists, and other physical and biological scientists. As Robbins (2002) emphasizes, institutionalized knowledge at all scales and levels are an important part of most stories, and certainly the knowledge system of "scientists" are socioculturally embedded. In this case, ecological science adherents have over the years developed a holistic, albeit temporally and spatially limited, ecosystem-based cultural framework reflecting their understandings of the world. It is this framework through which NPS staffers evaluate knowledge and make management decisions. In relation to the horse conflict, the Park Service considered themselves as "honor bound rule upholders" working on behalf of ecosystem integrity and the larger public good (typically defined as "national" rather than "local"). Such views indicate a belief that humans are the protectors of an integrity that exists outside of themselves and can be objectively assessed.

One important product of this kind of thinking is the development of "natural" ecosystems narratives at odds with either humanistic or social science understandings of cultural or human ecology. Park management decision-makers have been socialized to accept a value system that characterizes natural ecosystems devoid of any human contamination as good, and human intrusions on those ecosystems as bad (a stance that oddly places most homo sapiens—other than the managers themselves—outside any "natural sphere"). According to this orientation, resource professionals are managing for nature; they are nature protectors. In its strictly preservation narrative, an idealized nature is associated with the past, specifically a pre–European immigration past, while culture and human activities have become associated with modernity and the present. Thus nature is depicted in NPS narratives as something that must be "wildernized," "demodernized," and managed apart from, rather than connected to, human communities.[3] The attempt to remove the wild horses and the controversy that followed are consequences of this attempt to "naturalize" the ONSR.

A second product of this way of organizing the world is faith in what might be called a progressive linearity of ecological education, and a concomitant belief that a lack of education is the major obstacle standing between people's resistance and acceptance of NPS decisions. According to this orientation, resistance to ecological ideas comes from lack of ecological understanding; hence, NPS employees usually believe that with patience and education, people who resist will over time come to see and accept the perspective of science and the authority of scientists. In a rather direct letter to Congressman Emerson, a wildlife biologist commented:

> The decision of the National Park Service to remove livestock from the park is the only sound and sensible policy it could adopt. There exists a wealth of research literature on the consequences of allowing exotic plants and species to occupy native systems. The literature argues powerfully that exotic plants and animals have a high potential for causing serious and irreversible damage to native areas.
>
> As in science generally, the field of conservation biology is studded with cases where 'common sense,' meaning what an uninformed individual thinks is reasonable, is directly contrary to what sound science suggests.
>
> I recognize that political capital can be generated for arguing the locally popular yet biologically disastrous position that the horses should remain. I would urge you to consider the evidence more thoroughly. You may not understand the issues, but just as a patient with a tumor is liable to trust the physician who recommends the treatment, I urge you to recognize that it is as wise to reject the evidence from conservation biology as to reject the medical evidence regarding treatment for a tumor. (Letter

to Congressman Emerson, September 9, 1994, from a faculty member of a campus of the state university system)

The NPS narratives invoke a set of standards established through the cultural frameworks of biologists and ecologists and disavow any significance to the cultural meaning systems of local residents. While the ONSR, like most Park Service sites, includes personnel and activities concerned with area cultural resources, NPS epistemology disassociates these horses from culture (or, more accurately, a culture worth conserving) in two ways. First, the agency tends to prioritize cultural units using the same time perspective they attach to "good" species and "bad" species. As Howell (1994, p. 122) notes, the more removed a human activity is from the present, the more compatible it is with the NPS mission: "Over the years it's preservationist ethic led the Park Service to separate nature from culture and to value historical over contemporary cultural expressions."[4] NPS narratives fix the horses' origin in the very recent past and this modern pedigree is inconsistent with their notion of "true" Ozark heritage and history. Second, the dominant NPS view of Ozark history and heritage rarely extends to the conservation of contemporary physical artifacts whose cultural significance to local residents is largely intangible and, in many respects, anti-NPS. Indeed, to many MWHL members, the wild horses have come to symbolize the struggle of a people who perceive their recent history as one of disempowerment and disenfranchisement at the hands of government and external forces.

4. Local Resident Understandings of Wild Horses

In contrast to the academic and science-based foundations of the belief and value systems of NPS employees, local residents' views of the horses and their importance to the landscape are based on knowledge generated through immediate personal experience and local culture and filtered through collective interpretations of their Ozark past and anxieties about their future.[5] In effect local constructions exchange the sanitizing lens of the institutional relations and the community of physical and biological scientists as moral authorities for the praxis of everyday life and the experience of past and future generations. Opponents' narratives of the horses, in contrast to NPS discourse, are embedded in discussions of the area's culture and history, contain many references to community places and people, and are related in personalistic styles.[6]

Local knowledge of the horses themselves is based on direct encounters and personal sightings. The resulting narratives describe the horses and human encounters with them in great detail and suggest a much more developed human-nature intimacy than is apparent in the NPS narratives.

> We were over there on V Highway by Two Rivers. We rode up in the field and there was all three herds. Now they were not together. There was one little herd and then over about thirty yards another. And then out there about 50 or 60 yards was the other herd. And that was all of them, to my knowledge, except two little yearling studs that had been kicked out . . . . And I'd give anything to have had a movie camera. When we rode up, the wind was a-blowing and we come up on the wrong side for them to smell us or hear us either. And we just rode out on the edge of that field and set there watching them. And then all of a sudden one of them look up and seen us. Man, he throwed his head up and snorted, whinnied. He just whistled, whistled through his nose. Then they all took that look. So here comes that first bunch. They are running up there always looking us over. And then here comes the other bunch running up and lined up with them. And then here comes the third bunch. (Author interview with Jim Smith)

> I'm real fond of the two white mares in that one bunch that spends a lot of time by the old Thomas place. Sometimes I wouldn't know those two apart. They're old. They're like thirteen, fourteen years old. I know that because I saw them as colts and for a while there I couldn't tell one from the other. And there's a gray mare with 'em and I'd always know her. And there's a white crooked necked mare. And that bunch has got three, kind of roanish grays in there. And then they got two colts. One of them has a blaze face and it's been turning white. (Author interview with Russ Noah)

Local attachments to the wild horses are often intensely personal because of individual and social connections to sighting the horses that are free to roam the area, "owned" by no one.[7] Some Ozarkers tell of regular Sunday afternoon family outings to look for the animals; others would ride out periodically or during particular seasons to check the herds.

> Well, my little girl got killed when she was fifteen. And then the other boy is twenty-five now. The girl was the one that (pause)—that's one reason that I (pause) have been so hard wanting them [wild horses] to stay here. When she was little, like nine or ten years old, we rode a lot. We rode a lot. She got a big thrill out of them. She always wanted to go see them. (Interview with Bill Smith)

> In fact, my great uncle, and granddad, my dad—their horses in the wintertime when they wasn't using them, they'd turn 'em out. And they'd go back on Jerktail Mountain on the Big Glade and winter back up there. And they'd be with the wild horses and sometimes it take 'em a month or two. When they got ready to go to plowing and working the field and stuff in

> the spring they'd have to go and get those horses. They kept a bell on one of their horses so they could hear em. And every once in a while during the winter when they wasn't doing anything they'd ride back there and call 'em up and feed them, especially that old bell horse. She was the herd leader. If they kept her gentle enough they could catch her. Then when they'd ride back they would catch her and lead her to the house with the rest of the herd. Her bunch would follow, you see. And a lot of the times that's the way they'd get em. Catch theirs back, you know. Somebody would get around and cut theirs out and when they took that old bell—cause them horses, you stayed with that bell. They'd cut 'em out and herd 'em a little bit and then they'd go and follow and follow 'em to the house. You can't hardly run 'em and catch 'em period. It's like trying to catch a deer out in the woods, you know. (Author interview with Jim Thomas)

Local social constructions of the landscape also include diverse legends of the horses' origins. Almost all of these texts establish an older pedigree for the bands still in the ONSR. Whether or not the actual date of the wild horses' origin is more recent or more remote, such stories establish in local tradition a connection of the horses with previous generations and experiences.

> I've heard lots of stories about those wild horses. There's some that tell you that those horses date back to the Civil War and before. Wild horses of the Ozark hills were caught and trained and used for cavalry mounts. Then the settlers and the farmers they used them to clear and till and work their fields and such. I don't know how they did that but that's what they had and they did it. And then the timber used them to skid the logs, great big logs sometimes, from the forests around here and that's what they used to build our houses and our farms. (Author interview with Alan Akers)

> Well, there have always been wild horses. I grew up in the Ozarks. We had wild horses when I was a kid and I'm 77 years old. But like I said, we had open range and I used to drive the cattle in when I was a little kid and I'd run into a herd of wild horses then. They'd be a running around and they'd scare me. I'd be kind of afraid of 'em. (Author interview with Elmo Thompson)

Elmo Thomspon's reference to "open range" keys a critical meaning of the horses—the horses' connection of locals to a series of events that have changed Ozark people and life forever. In many of the Ozarker narratives, and especially in the discourses of longer-term residents, the horses are closely linked to the closure of the open range and, by extension, to the erosion of a cherished and traditional Ozark lifestyle due to the intrusions of the values, regulations, and

lifestyles of outsiders. While the region had previously coped with a number of menaces, including the cultural hegemony and resource exploitation of timber companies around the turn of the twentieth century, families had withstood previous external threats through the operation of a strong informal economy, use of available natural resources (including those now in the protected OSNR), and access to and use of a public commons in the form of an open range comprised largely of undeveloped forest and meadow areas. The current older generation is steeped in a tradition of open range, and even the official NPS history of the ONSR area (Stevens, 1991, p. 29) notes that the "southern hillmen . . . fervently believed in open range." Although agricultural mechanization diminished open range customs in southern Missouri following World War II, the practice continued in parts of the Missouri Ozarks, especially in the region in and around the ONSR, until the late 1960s, or past the date of the park's establishment. Shannon County (the site of Eminence) was the last county in Missouri, and one of the last in the nation, to use open range practices.[8] In the stories of removal opponents, the wild horses are products and tangible reminders of the open range era and express the essence of the philosophy of open range in which inhabitants adapt to, rather than change, the environment. In particular, the open range connotes an earlier, and pre-government, era of Ozark lifestyle based on a system of individual freedom to use the land, and a strong community in which individuals shared a basic social trust and system of communal resource use.

> Well, you see, most people around here it's just kind of part of the heritage. It's the only wild horses in the state of Missouri, you know. And now they call 'em feral horses. And I guess maybe any horse at sometime or another has become a tame horse. But these horses there's not one live horse in that bunch that I know of that's ever been touched, you know. And I mean when I was a boy it was open range. There was always horses that people—that didn't really belong to anybody. And then when the range closed there was some of these horses left and they're still here. (Author interview with Bill Smith)

> They've (wild horses) originated out of domestic horses. Back in the 20s and 30s there was people that lived up and down the Jacks Fork and Current River and every little old holler almost had a family living there—and of course, there was a lot of sawmill work back then and that's about all there was to do really. But then when the Great Depression come along a lot of those folks just simply starved out and had to leave here and go to work somewhere. And at that time, see, they had open range. And those people would run their stock outside, especially what they wasn't using. They'd keep their milk cows up and their buggy horse or their horse that

> they was riding and using, you know—keep them up where they could catch 'em and get to 'em and use 'em. But, the other they just let run out in the wild. And everybody had their own brand and their own mark on their animals and they left 'em and they just made it. (Author interview with Jim Smith)

Narrators opposed to the horses' removal tell their stories with pride and emotion. A self-described "old-timer" named Matt Hunt, who is also acknowledged by many residents as the local "expert" on the horses, says that he has seen and heard of the wild horses throughout his life. He claims that "removing those horses from the Park Service grounds would be like tearing the last page out of a history book" (Author interview with Matt Hunt). Like long-time Ozark residents, the horses are a product of the mountainous geography and complex social and economic processes that created them. But perhaps unlike the locals, the wild horses are survivors and symbols of what the locals would like to be.

By defining the wild horses as cultural objects and invoking meanings involving family and the communal action associated with the practice of open range grazing, residents closely associate themselves materially and ideologically with the wild horses and their plight. The wild horses are not simply a product of the open range, but in their "wildness" they are a last tangible reminder of an idealized lifestyle characterized by freedom, community, and self-control. The close of open range represents an example of how Ozarkers believe outside pressures have affected, and continue to affect, their unique institutions and lifestyles. As with many resource dependent communities with a relatively recent history of geographic and cultural isolation, the Ozarks have been tremendously impacted over the past three decades by outsiders, especially government agencies, environmental organizations, and tourists (Stevens, 1991). Beginning with the creation of the ONSR in the mid-1960s, resident peoples in the region have witnessed land condemnation and a host of restrictions on their economic and recreational activities in the name of ecological restoration, protection, and management. The ONSR itself was the second NPS site (after Yellowstone) in the country whose creation required the acquisition of private lands and the use of eminent domain. And since then, as Brady (1991 and Brady, 1994) and other researchers (Rikoon and Goedeke, 2000) have pointed out, the history of NPS–local resident relationships is marked by numerous attempts (some successful and some not) at cultural and social intervention on the part of the federal agency.

As a result of this history, many long-term residents have come to associate the Park Service, and the government in general, as an immensely powerful force whose legacy has been the loss of local control, freedom, and power over their lives and livelihoods. The same values are associated with both the wild horses and an idealized Ozarker identity. Importantly, local visions of the horses

and strategies of self-identity are deeply intertwined in constructions of the landscape. These links were made dramatically clear in the 1990s at events such as wild horse benefit shows where t-shirts and ball caps emblazoned with the phrase "wild and free let 'em be" referred to the protesters' own idealized identity as much as that of the horses. Local residents came to symbolically identify with the plight of the horses, and they linked treatment of the horses with their own treatment at the hands of the government. This is no inappropriate stretch of imagination—both groups are marginalized, both groups are powerless. In the end, if the Park Service would consider the wild horses as species *non grata* and ticket them for removal, is it not also possible to believe that local people fear their own futures in the region are marked by a similar precariousness?[9]

5. Implications for Ecosystem Management

In summary of the preceding discussion of competing cultural constructions of this landscape, NPS texts speak in terms of ecosystem generalities and principles, present a unidimensional discourse of an idealized landscape devoid of human-nature interaction apart from management activity, and characterize the horses as an anonymous intruding species.[10] In contrast, local residents' depictions are expressed in terms of experiential events and specific encounters, tell of the horses in a personalized and detailed rhetoric, present a more complex and symbiotic human-nature relationship, and relate the horses' experiences to their own Ozark history and heritage. In regard to symbol formation, the horses represent a secular intrusion to the NPS, a symbol of contemporary human culture that mars their sacred scientific ecosystem vision of an ideal nature landscape. To removal opponents, the entire conflict has served to elevate the horses from a secular and largely taken for granted status to a more sacred status as symbols of residents' own lost, or in jeopardy, regional identities and the long and continuing struggle between many locals and the NPS/outsiders.

The two competing visions concerning the free-roaming horses on the Ozark landscape reflect continuing and contrasting notions about the relationship between nature restoration and resource use. Ecosystem management of public nature parks in the US stresses the goals of preservation and restoration. Local communities and resident peoples have increasingly contested the dominant NPS ethic of preservation, as exemplified in Yellowstone National Park, but the relationship between nature preservation and nature use is unresolved. For the Park Service, the notion of being an agency protecting a national public good remains strong. Local site managers have realized that some balance is needed in terms of local use of the park. They are inclined, however, to regard local uses as "special interests" that must be placated to maintain good public relations, but they are inclined to regard such compromises as fundamentally opposed to agency interests.

Local opponents to the wild horse removal accept a conception of nature as wilderness. But in this case the horses are part of that nature in that they are "wild" and run "free." As opposed to NPS self-identification as naturalists or environmentalists, many local citizens define themselves as conservationists who champion a dynamic and interactive human-nature relationship. Their narratives of the landscape focus more heavily on issues of resource use and the conservation of resources linked to the maintenance of local livelihoods and cultural and social traditions. They argue to the Park Service that the Ozarks are not Yellowstone. In the words of local trail-rider Kathy Thomas, "we don't want to be made into another Yellowstone; we live here."[11] Instead, they call for a "common sense" approach to nature and ascribe a concomitant lack of common sense to the Park Service. This view is most overt in a host of narratives about Park Service regulations, local resistance, and conflicts between local traditional uses of the landscape and the Park Service's impositions of what can and cannot be done in the ONSR.[12]

Blaikie (1995, p. 209) notes that "only by acknowledging multiple views, understanding the politics of how actors present their views and pursue their projects, can current scientific and conservation thinking be literally brought down to earth." The Ozark wild horse conflict is at first glance a disagreement between NPS officials and local citizens regarding whether or not a small band of horses should be removed. However, in a deeper context it represented a fundamental and symbolic conflict about social and political power and who should have it. There are certainly many justifications for the Park Service's imperative to protect nature (as they define "nature" and "the natural") and to engage in restoration activities. Yet, when protected areas such as the Ozark Riverways are created and managed without the involvement and interest of people in the area, there are costs involved—not only to the protected area itself, but also in terms of the loss of regional identity and missed opportunities for cultural conservation and livelihood sustenance. The struggle over the wild horses in the Ozark Riverways reveals the many disjunctures that result from the dichotomous categories used by conservation professions (Rikoon, 1996). The small bands of horses that continue to roam the region are oblivious, of course, to the categories that humans use to describe them. But the thirst to categorize the landscape into dichotomies of nature and culture, tangible and intangible, and exotic and indigenous may exclude more than they include. It is into these kinds of conceptual gaps that the horses fall, and certainly it is this kind of marginality issue with which many of their protectors often self-identify. . . .

It seems so obvious today to argue that local communities can and should be more involved in the policy and program decisions that affect the ecosystems in which they live, although even this lesson learned over decades of international development and protection failures is under renewed scrutiny (Chapin, 2004). But too often the knowledge and needs of local residents remain discounted in

the US by more powerful outsiders who feel themselves possessors of a privileged knowledge of the world. Such perspectives, however, ultimately defeat themselves by alienating the very people whose support is crucial if the environment is to be protected in a sustainable way (Cronon, 1996a and Cronon, 1996b). As Berry (1987, p. 43) notes, "The only thing we have to preserve nature with is culture." In the case of the resolution of the Ozark wild horse controversy, the final verdict had very little to do with wild horses and community empowerment and a lot to do with the Republican Party's 1996 Contract with America. In a rather ironic twist, the horse controversy became a symbol used by the Republican Party, including Congressman Emerson, to depict the excesses of an overbearing, misdirected, and intrusive government bureaucracy (Author interview with Bill Emerson).[13] The horses are now protected, but this outcome was not the result of an effort to empower local communities and their culture; rather it was the end result of a political slap on the wrist given to an agency that legislators felt should be directing its resources to more "important" concerns.

. . .

Notes

Rikoon, J. Sanford. 2006. "Wild Horses and the Political Ecology of Nature Restoration in the Missouri Ozarks." *Geoforum* 37: 200–211.

1. Documentation of NPS perspectives consisted of 17 interviews with 13 key ONSR personnel, including the two park superintendents during the course of this controversy and eight NPS staff whose reports and testimonies outlined NPS positions. Additional information was derived from NPS employee court testimonies and briefs, news releases and reports from the ONSR, and correspondence between Department of Interior officials and US Representative Bill Emerson. Data on opposition to the horses' removal is derived primarily from six sources: 26 formal interviews with active Missouri Wild Horse League participants, including MWHL officers and key spokespersons; 12 interviews with local residents who were not official members of the MWHL; observation of key local public events, including marches, community meetings, and MWHL meetings; letters-to-the editor and other articles in local newspapers; official testimony and briefs in the two primary legal cases; and claims articulated in public meetings and events sponsored by the MWHL.

2. Neither side of this dispute ever focused on the environmental impact of the horses, with both agreeing that the horses caused little degradation to their habitats (US Department of Interior, 1991). Scott Sewell, Interior Assistant Secretary for Fish and Wildlife and Parks (NPS) initially claimed the horses were "competing unfavorably with highly valued park wildlife" (letter reprinted in *Eminence Current Wave*, February 27, 1991), but this line of justification was never followed in ensuing legal or public contexts.

3. The clearest delineation of this perspective and use of this language by the NPS in this case was the post-trial brief filed on October 7, 1991, as part of *Richard Wilkins and Ronald Smotherman v. Secretary of the Interior*, United States District Court, Eastern District Missouri, Southeastern Division, Case Number S91-31-C(5).

4. Not all horses are equally prized or despised by the NPS. Clearly there are bands of wild horses in the west whose importance (for example, through historical links to Theodore Roosevelt) is accepted by the Park Service and whose continuity on the landscape is an accepted management objective.

5. See note 2 for the sources of the data presented in this section. The "local" perspective is derived from the claims and discourse of individuals who played key roles in the multiple public arenas surrounding this conflict. "Local" is used interchangeably with "Missouri Wild Horse League" as almost all local opposition leaders were actively involved with this organization, but this essay cannot be considered a comprehensive or quantitative assessment of the worldviews of either local communities or the MWHL. The latter's membership fluctuated between 195 and 542 during the 1990–1996 period, although some of their activities, for example procuring more than 1,200 mostly local signatures on a petition in 1990 and a gathering of more than 1,000 for a public protest on October 10, 1993, reflect resonance with a greater number of residents.

6. While most of these narratives are expressed in the privacy of informal conversations and natural performance contexts, the stories formed an important component of speeches at public events and letters to local newspapers. For representative texts in the Shannon County local paper, see *Eminence Current Wave* for June 13, September 29, and December 5, 1990; February 27, 1991; June 24, and August 29, 1992; February 10, April 7, June 23, August 29, and October 6 and 13, 1993; February 2, 1994; and January 11, 1995.

7. For published narratives with themes discussed in this section, see the *Eminence Current Wave* for June 13, October 5, and December 5, 1990; February 27, 1991; June 24 and August 29, 1992; and February 10, April 7, and June 23, 1993.

8. Although Shannon County voters rejected all proposals to close the range, in 1969 the state legislature passed a law prohibiting local-option stock laws, which effectively ended open range. The plaintiffs in the legal cases emphasized these connections in the supplementary narratives submitted in both court cases (Wilkins et al., 1991 and Wilkins et al., 1992).

9. These fears became more public during the fight of citizens against a proposed Man and Biosphere Reserve in the Missouri Ozarks, see Rikoon and Goedeke, 2000.

10. Linkages between constructions of the landscape and social boundaries are also evident in the rhetoric used to describe their own position and the social location of the other side's perspective. Local people often talk about "the Park Service" or, with greater emotion, "THE GOVERNMENT," and to these names they attach various negative images; for example, often characterizing them as secretive, dishonest, duplicitous, and as being Big Brother–like. Park Service personnel, on the other hand, categorize their others as "locals." It is significant that NPS employees rarely refer to themselves as locals although they all live in the immediate area. In essence, they do not identify socially or culturally with their locale, but rather locate themselves in the more universal, trans-place and cosmopolitan stance of the NPS system and a NPS culture.

11. Interview with Kathy Thomas, Eminence, Missouri.

12. There are rich local repertoires of stories concerning conflicts over landscape use and access. One subcorpus of these narratives are what might be called "ticket" stories; that is, stories of people ticketed or fined or harassed for engaging in behaviors the locals consider legitimate, but which the NPS considers illegal. Among the more popular narratives

are those of individuals penalized for moving a rock, crossing a stream, or picking a flower. Two of the main morals of these stories are that increasing levels of laws and restrictions have completely crossed the boundaries of common sense and that the park, at its core, is not for people anymore.

13. Congressman Emerson, as well as MWHL lawyer Doug Kennedy (personal correspondence), also noted that public pressure was the main reason why the NPS never removed the horses between 1992 and 1996, when they had the legal right to do so.

References

Bell, M.M., 1994. *Childerley: Nature and Morality in a Country Village*, University of Chicago Press, Chicago.

Berry, W., 1987. *Home Economics*. Northpoint, San Francisco.

Blaikie, P., 1995. Changing environments or changing views? A political ecology for developing countries, *Geography* 80 (348), pp. 203–214.

Bradley, K., 1997. Unfinished business: Missouri's Natural Streams Campaign and the changing conditions of environmental action/research. Ph.D. Dissertation, University of Missouri-Columbia.

Brady, E., 1991. Mankind's thumb on nature's scale: trapping and regional identity in the Ozarks. In: B. Allen and T. Schlereth, Editors, *Sense of Place: American Regional Cultures*, University Press of Kentucky, Lexington, pp. 58–73.

Brady, E., 1994. "The river's like our back yard": tourism and cultural identity in the Ozark National Scenic Riverways. In: M. Hufford, Editor, *Conserving Culture: A New Discourse on Heritage*, University of Illinois Press, Urbana, pp. 138–151.

Chapin, M., 2004. A challenge to conservationists, *WorldWatch* 13 (6), pp. 17–24.

Cronon, W., 1996a. The trouble with wilderness: a response, *Journal of Environmental History* 1, pp. 52–53.

Cronon, W., 1996b. Introduction: in search of nature. In: W. Cronon, Editor, *Uncommon Ground: Rethinking the Human Place in Nature*, W. W. Norton, New York, pp. 23–56.

Forbes, A.A., 1999. The importance of being local: villagers, NGOS, and the World Bank in the Arun Valley, Nepal, *Identities* 6 (2–3), pp. 319–344.

Fairhead, J., and M. Leach., 1994. Contested forests: modern conservation and historical land use in guinea's ziama reserve, *African Affairs* 93, pp. 481–512.

Goedeke, T., 2005. Devil, angel or animal: the social construction of otters in conflict over management. In: Herda-Rapp, A., Goedeke, T. (Eds.), *Mad about Wildlife: Looking at Social Conflict over Wildlife*. Brill Academic Publishers, Leiden.

Howell, B.J., 1994. Linking cultural and natural conservation in National Park Service policies and programs. In: M. Hufford, Editor, *Conserving Culture: A New Discourse on Heritage*, University of Illinois Press, Urbana, pp. 122–137.

Leopold, A.S., S.A. Cain, C. Cottram, I.N. Gabrielson, and T.L. Kimbell, 1963. Report on wildlife management in the national parks, *National Parks Magazine* (October) (insert).

Nygren, A., 1999. Local knowledge in the environment-development discourse: from dichotomies to situated knowledges, *Critique of Anthropology* 19 (3), pp. 267–288.

Nygren, A., 2000. Environmental narratives on protection and production: nature-based conflicts in Río San Juan, Nicaragua, *Development and Change* 31 (4), pp. 807–830.

Omnibus Parks and Public Lands Management Act, 1996. US Congress. 1996. Public Law 104-333, Sec. 803.

Raedeke, A.J., and J.S. Rikoon, 1998. Competing knowledge systems and agricultural decision-making, *Agriculture and Human Values* 14, pp. 145–158.

Raedeke, A.J., J.S. Rikoon, and C.H. Nilon, 2000a. Factors affecting landowner participation in ecosystem management: a case study in South-Central Missouri, *Wildlife Society Bulletin* 29 (1), pp. 195–209.

Raedeke, A.J., J.S. Rikoon, and C.H. Nilon, 2000b. Ecosystem management and landowner concern about regulations: a case study in the Missouri Ozarks, *Society and Natural Resources* 14 (1), pp. 77–94.

Rikoon, J.S., 1996. Imagined culture and cultural imaging: the case of the USDA-SCS 'Harmony' campaign, *Society and Natural Resources* 9, pp. 583–597.

Rikoon, J.S., and T. Goedeke, 2000. *Challenging Environmentalism: The Failed Effort to Establish the Ozark Highlands Man and the Biosphere Reserve*. The Edwin Mellen Press, New York and Cardiff.

Robbins, P., 2002. Obstacles to a first world political ecology? Looking near without looking up, *Environment and Planning* 34, pp. 1509–1513.

Stevens, D.L., 1991. *A Homeland and a Hinterland: the Current and Jacks Fork Rivers*. National Park Service, Omaha.

US Department of Interior, 1991. National Park Service, 1991. *Environmental Assessment for Removal of Feral Horses, Ozark National Scenic Riverways, Missouri*. National Park Service, Omaha.

Watts, M., 2000. Contested communities, malignant markets, and gilded governance: justice, resource extraction, and conservation in the tropics. In: C. Zerner, Editor, *People, Plants, and Justice: The Politics of Nature Conservation*, Columbia University Press, New York, pp. 21–51.

Wilkins, Richard and Ronald Smotherman v. Secretary of the Interior, 1991. United States District Court, Eastern District Missouri, Southeastern Division, Case Number S91-31-C(5).

Wilkins, Richard and Ronald Smotherman v. Secretary of the Interior, 1992. United States Court of Appeals, Eighth Circuit, Case Number 92-2871.

Zimmerer, K.S., 1996. Discourse on soil loss in Bolivia: sustainability and the search for socioenvironmental middle ground. In: R. Peet and M. Watts, Editors, *Liberation Ecologies: Environment, Development, Social Movements*, Routledge, London, pp. 110–124.

8

Touch the Magic

Susan G. Davis

Like the Rikoon article, this excerpt by Susan Davis, a folklorist, uses a social constructionist lens to examine how Sea World presents nature as a highly visual and adventure-filled environment; nature becomes defined as a type of human playground in which the animals and trees are tame, pleasant, and under complete human control. The implication of this case study is that corporations, both in theme parks and through the media, have enormous potential influence over the way we understand nature. Davis argues that corporations like Anheuser-Busch, owner of Sea World, utilize theme parks and other educational programs as a form of green-advertising in order to send the message that they are good environmental stewards—a phenomenon often referred to as "greenwashing" (though Davis does not use that term).

The television commercial opens on a little boy, his face pressed to glass, "in absolute amazement," as a gigantic black-and-white killer whale swims past. The scene dissolves to a seal jumping, and then to an old man hugging a small girl. On the audio track a male singer asks, "Do you remember . . . the feeling of wonder? . . . Bring back the smile to the child inside of you. . . ."[1]

The scene dissolves back to the tank of the black-and-white whale, where an athletic, wet-suited man is thrust into the air on the whale's nose. As the stadium crowd cries out at the sight, the singer intones "Touch the magic. . . . Touch the world that you once knew."

Now the visual and aural pace of the commercial turns quiet and gentle. A little girl dips her hand into a tide pool, grasps a starfish, and turns it over.

Another little girl and her grandfather lean over a wall to pet a dolphin as the chorus fades away, singing "From the heart, Sea World touches you. . . ."

The images on the television screen alternate between shots of human groups and shots of animals. Waddling penguins dissolve into shots of a little girl waddling in imitation. A flock of flamingos is intercut with a woman in a wheelchair and a little boy watching dolphins at a glass wall. A mother duck swims by with her brood, and a small boy swings on a playground rope. The male singer returns to tell us that we will have good friends forever in this place.

The chorus swells in song as a pair of killer whales performs a synchronized jump: "A world apart. . . . That brings our world together. . . ." People in the stadium crowd throw back their heads and laugh. A father takes a picture of his wife and children, a mother tends her baby, a courting man and woman snuggle.

At the commercial's conclusion, the camera returns to the little boy and girl at the edge of the killer-whale tank. They approach the clear wall, and the camera lingers a few seconds in close-up as, with faces pressed close to the glass, they try to touch the black-and-white whale. The whale's head is close to the children; it appears to gaze back. Stringed instruments surge, and the chorus sings, "From the heart . . . Sea World touches you." Then silence for a few reverent seconds, as the television screen displays a blue, white, and black logo and the words "Sea World: Make Contact." And, at the very bottom of the screen, "An Anheuser-Busch Theme Park."

"Touch the Magic," as the television commercial is titled, is the centerpiece of a recent advertising campaign for the Busch Entertainment Company's four Sea World theme parks.[2] From the spring of 1993 through the spring of 1994, Busch Entertainment urged millions of prime-time viewers to "make contact."[3] At the simplest level the powerful "Touch the Magic" images sum up the product. A visit to a Sea World park, the commercial argues, is not just a day out of the house; it's a "magical," "touching" experience that "brings our world together."

In this essay I want to explore Sea World's nature magic as it appears in this commercial and as it is constructed and delivered at the theme parks. "Touch the Magic" is a rich text, presenting many ideas about the meaning of nature in contemporary American culture. It summarizes, as the Sea World parks elaborate, twentieth-century mass culture's dominant arguments about human relations to nature. Carefully thought out and expensively produced, this piece of publicity is a tiny but typical portion of a much larger field of images and arguments emanating from the corporate media. As such, it is part of a media world that helps shape how Americans understand nature and the environment. "Touch the Magic" has much to tell us about how Anheuser-Busch in particular and large businesses in general represent nature to vast audiences.

A look at Anheuser-Busch and its theme parks will help contextualize "Touch the Magic." Anheuser-Busch is the planet's largest brewer. The company

controls 43 percent of the U.S. beer market and in 1993 saw about $11.6 billion in sales worldwide.[4] While Busch Entertainment does not report theme park attendance figures to the public, this subsidiary is very successful. With the second-largest total attendance of the five U.S. theme park chains, Busch Entertainment is expanding abroad. (Attendance at the Disney parks far outranks that of all other contenders.) At a conservative guess, the four Sea Worlds together entertain about 11.35 million paying visitors annually, most of them North Americans. These visits alone evidence a wide exposure to and interest in Anheuser-Busch's powerful and colorful representations of nature.[5]

Nature exhibits and marine animals are the central themes of the Sea Worlds. Superficially, the ways the parks present nature seem varied. At the San Diego park, for example, some settings mimic the new environmental zoo. The ARCO Penguin Encounter is a sort of living diorama that simulates parts of the Antarctic environment. At Orlando and San Diego the shark exhibits carry customers on a moving walkway and through a Plexiglas tube, to encounter the "Terrors of the Deep." "Rocky Point Preserve" re-creates a bit of the Northwest coast in San Diego and houses dolphins and sea otters, albeit in separate tanks.

Despite all the variety within individual parks, however, Sea World's nature is not only highly artificial but also standardized. Busch Entertainment has overarching supervision of the parks, so each new exhibit or entertainment is carefully vetted in St. Louis. Successful displays from one park are exported to the others, as are the animal shows. And the killer whale in "Touch the Magic" is more than just a striking creature; it is a registered trademark. "Shamu" appears at all four Sea Worlds, in shows that emphasize similar themes of loving, caring, and closeness between whales and people. Among the most popular attractions at all the parks are the pools holding dolphins, sea stars, rays, and skates that visitors can handle and feed. The themes of "touch" and "contact" in the television commercial connect directly to one of the most appealing facets of a visit to any Sea World: the opportunity to encounter and pet wild animals.

Sea World's reconstructed nature is, in the 1990s, a highly commercial production. Like all theme parks, each Sea World draws customers and keeps them spending as long as possible by offering a diverse, even clashing, array of activities and diversions. Ice skating extravaganzas, power boat shows, game arcades, and sky rides coexist with aquariums and tide pools. Lush landscaping and gardens provide a backdrop for country music concerts, company picnics, and disco dancing. The animal shows, though, are the major draw. But compared with an old-fashioned zoo, a publicly supported museum, or a free park, Sea World is very expensive. In 1994 a child's admission to Orlando's Sea World was $29.95, the highest in the theme park industry.[6] Just as important as admissions for each park's profits are the almost endless concession stands, boutiques, and gift shops offering refreshments and souvenirs of many sorts. As a student in one of my undergraduate classes aptly put it, "Sea World is like a mall with fish."[7]

Anheuser-Busch is not the only company profiting from theme park nature. The Sea Worlds subsidize some of their displays with corporate sponsorships. Although "Touch the Magic" ignores this by presenting Sea World's environment as if it were noncommercial, a good number of the displays inside the parks have outside funding. In San Diego, ARCO helps present the Penguin Encounter, Home Federal Bank sponsors Rocky Point Preserve, and am-pm mini-markets support the shark reef. But many other businesses and manufacturers, from Kodak film to Pepsi-Cola and Southwest Airlines, take part in joint promotional and advertising ventures inside and outside the parks.[8] Perhaps more important, the parks provide a kind of advertising *and* public relations for the parent company. For example, besides selling Anheuser-Busch's Budweiser beers and Eagle snack foods, the Sea Worlds' "hospitality centers" feature "microbreweries" and free beer tasting. The theme parks house and display the company's trademark Clydesdale horses, converting the registered trademark of one corporate division into an attraction at a wholly owned subsidiary. And, of course, associating Anheuser-Busch and its products with animals, nature, education, and families positions the world's largest brewer as environmentally and socially concerned.[9] At the Sea World theme parks, advertising, marketing, and public relations are so thoroughly collapsed into entertainment and recreation that it is very hard to tell what is publicity and what is "just fun." Inside the park the advertising–promotional–public relations mix is an intricate maze.

Given this commercial and promotional environment, it is striking that the nature theme park styles itself a public facility.[10] To do this the Sea Worlds draw on today's concern with environmental issues and animals, and they emphasize education. Busch Entertainment and Anheuser-Busch make much of their involvement with research on whales and dolphins, their efforts at fostering the reproduction of species (including a few endangered species), and their part in marine animal rescue and rehabilitation efforts.[11] Sea World's rescue and research activities are also heralded in educational programs offered to public school systems, courses taught at the parks, and credentialing programs for teachers. Anheuser-Busch estimates that 650,000 children annually participate in education programs inside the Sea World parks. Direct satellite broadcasts now reach an estimated 16 million viewers via schools throughout the United States.[12]

This push by a private entertainment corporation into the public school classroom is not unique. "Channel One" of Whittle Communications is only the most famous recent example. On the environmental education front, the Walt Disney Company is at work on a curriculum for use in the California public schools. Procter & Gamble, one of the world's largest consumer goods producers and the world's biggest advertiser, has recently developed and distributed a free packet of "Decision Earth" materials for elementary school use.[13] However, Busch's expansion into public education suggests that the Sea World theme park is a new kind of institution. Unlike the older amusement park, the nature theme

park combines the search for private profits through entertainment with an attempt to occupy the cultural space and functions of the nonprofit, publicly funded zoo, natural history museum, or aquarium. Courses are taught, whales are bred, and the nesting patterns of the least tern are studied at the theme park. But these activities are inseparable from Sea World's marketing and Anheuser-Busch's public relations. Education, corporate image, and luxuriant profits go hand in hand.

"Touch the Magic" is just one small segment of the mass of pictures and print that Busch Entertainment commissions from ad agencies to support not just its theme parks but all its marine-themed products. Like all theme parks, the Sea Worlds are integral to a media culture that extends far beyond their physical boundaries.[14] For example, the Sea Worlds create whale- and dolphin-based entertainment specials. These network television shows, like the satellite broadcasts mentioned above, serve to advertise and promote the park as a tourist destination, while the theme park helps build an audience for the television programs.[15] Aggressive public relations departments make sure that the parks' animal-saving activities are regularly featured and highlighted in network entertainment and news programming. At present, Anheuser-Busch lacks only a syndicated television show to deliver to the widest possible audience filmed and animated media products based on its performing celebrity animals.[16] Many other Sea World-themed commodities result from licensing agreements: stuffed animals, postcards, T-shirts, story books, nature study books, and video tapes only begin the list of commodities marketed through the parks.[17] Again, the products support the parks, while these support the goods far outside the theme park gate. In creating and distributing its own imagery so extensively, Sea World has gone far beyond the traditional educational functions of the zoo or natural history museum, even while it claims to be providing those services.

This sprawling commercial operation is the context for "Touch the Magic." Let's return to the world of the nature theme park as proposed by the ad. In a very real sense, the expansive corporation is as much the author of the television commercial as any copywriter or video producer. What stories does Anheuser-Busch use "Touch the Magic" to tell? How do the commercial and the company ask the audience to think about relationships between humans and the natural world? What happens if we touch the magic?

"Touch the Magic" presents a condensed, more perfect world. The advertisement does a good job of delivering Sea World's visual richness. As other scholars have stressed, theme parks and television are intimately connected media. Not only does the advertisement aim to reproduce the qualities of the park, but the park in many ways tries to be "televisual." The advertisement compresses a richness of experience into the visual mode, and so does the park, which pays careful attention to color, detail, landscape, and sight lines. Sea World's leafy foliage and expensive plantings, its brightly colored birds and mass-

ing fish, the contrast of sun and shade, wet and dry, and the variety of its surfaces are all emphasized in the ad. Here is a wealth of things to see and touch.

Sea World defines nature as an overwhelmingly visual experience, but its way of seeing extends beyond kaleidoscopic abundance. In the commercial and the theme park, we see animals, greenery, and performers with an easy immediacy. As in other heavily photographic media, such as *National Geographic* or the television program "Nature," our approach to nature is simple and unobstructed. Our sight is unimpeded—we see nature in a way that we rarely could out in the "real world," where brush and trees block a view or murky water hides the fish. Like television, the parks are full of tricks of visual purification. The many carefully realistic aquariums, for example, are designed to make the unseen visible. Sea World assures us that its way of seeing nature will be natural.[18]

At the same time that we are tempted by perfect seeing, great distances are collapsed and we are promised adventure. As "Touch the Magic" offers to take viewers to spectacularly inaccessible, invisible, or little-known places, so Sea World designs a mass version of nature tourism implicitly built on an older tradition of exploration. A trip to the park is a condensed voyage that circles and surveys the world, without requiring us to go very far from home. Again, this is similar to the experience offered by other mass media, most famously *National Geographic* magazine.[19] Sea World is full of exhibits structured like a journey: the customer consults a map of the "World," navigates a place in line, and finally, slowly draws near. The supposedly strange sight is nevertheless thoroughly familiar from popular culture and the literature of travel and tourism: a penguin-packed Antarctic ice floe, a Polynesian atoll seething with sharks, a "forbidden reef" infested with moray eels, the rugged stretch of the Pacific Northwest coast, a ghostly sea bottom in the "Bermuda Triangle." On the one hand, this selective tour of the globe defines nature as exotic and remote. On the other, without ever calling up a precise history, the theme park offers its customers a chance to stand in the shoes of the European discoverers as they mapped the non-European world.

While Sea World locates this highly visual nature in an implied historical narrative of exploration, it paradoxically decontextualizes nature. Indeed, what customers don't see is as significant as what they do. At Sea World crowds of people watch a natural world seemingly uncrowded, unpeopled. Any human cultures or histories of the environments shown in the dioramas linger only as background information. At the "Shark Encounter" we see no Pacific Islanders, but the mysterious sound of drums enhances the carefully painted and sculpted set. Ersatz totem poles frame the park's centerpiece show, "Shamu New Visions," which is introduced with a (genuine?) Northwest Coast Indian story about a boy and a whale.[20] Otherwise, long human connections to animals and environments vanish. In Sea World's presentation nature and animals have been discovered and are being protected in a pristine state by white North

Americans. This pristine state is physically produced within the context of intense consumerism.

The most extreme examples of decontextualization are also the most popular: the trained animal performances. The theme park exhibits rebuild nature and bring the faraway close. But in the whale stadium nature is isolated and held up to the collective gaze. The surprise, awe, and wonder of crowds focus on individual animals. In these shows performers seem to push the possibilities of animal bodies and animal-human interactions to their limits, Shamu's launching the trainer off its snout being only the most famous example.

There is one exception to the decontextualization of nature: Sea World's technicians and scientists are ever present in the theme park frame. In its stories of exploration, Sea World always identifies itself with pioneering experts. Again, the trained killer whales are the famous and telling examples. Long a part of Northwest Coast Native American knowledge and mythology, orcas were first kept in captivity and developed as an entertainment resource by Sea World's founders in the mid-1960s. Anheuser-Busch makes much of this "pioneering" role, casting Sea World's success in inducing killer whales to reproduce successfully in captivity as an important scientific accomplishment.[21] In the Sea World version of natural history, the theme park itself brings exciting unknown things to public awareness, and the audience travels vicariously with the experts. Similarly, the Sea World Penguin Encounter in San Diego claims the capacity to support the penguin reproductive cycle. While visitors to a natural history museum's dioramas might view a scene that looks like part of Antarctica, at the ARCO-sponsored exhibit they are treated to something new in mass culture—the proliferating Antarctic. It appears that the skill of the theme park enterprise itself has made life multiply.[22]

Besides creating a larger-than-life, decontextualized nature, as the ad argues, Sea World has another magical effect. Having decontextualized nature, Sea World makes it a powerful carrier of human emotions. In "Touch the Magic" intense emotion is signaled by physical contact (the hugs and kisses in the crowd), power and speed (the trainer rocketing off the nose of the killer whale), and sound (the sentimental music track). Visuals and music underscore the ad's verbal references to happy feelings: "Bring back the smile to the child inside of you."

Here nature is not only about seeing, exploring, and collecting; it is about relationships, feelings, and families. "Touch the Magic" shows people close to each other, in groups and couples. Similarly, animals appear in flocks or pairs. We see two whales, two dolphins, and a mother duck leading her brood. Animal groupings parallel human groupings of families and potential families (boy- and girlfriends).

As the ad's theme underscores, relationships at Sea World are intimate, expressed through touch. Grandparents hug children, parents watch their kids cavort and clown, a young woman cuddles her boyfriend. Even that ambivalent

image of human community—the crowd—seems not to consist of strangers. Laughing, close together, the people enjoy themselves. The advertisement's argument is that the theme park as a cultural space can help bring people closer together—across boundaries of gender, races, handicaps, and generations, and perhaps even across the barriers of anonymity that separate people in crowds and audiences. As the song has it, Sea World is "another world . . . that brings our world together."[23]

But "Touch the Magic" contains a tension it sets up, resolves temporarily, and then calls up again. Gentle physical contact takes place not just among people but also between people and animals. The ad's opening and closing shots feature one of Sea World's most famous advertising images: the children and Shamu pressed nose to nose, reaching out to one another. But their intimacy is incomplete: the transparent barrier of Plexiglas allows humans and whales to come close while keeping them separated. Since the nose-to-nose shot precedes and follows so many images of direct contact between people, and between people and animals, it seems to express a fantastic wish for a total merging with wild nature.

The stark print text "Make contact with another world" accompanying the nose-to-nose image emphasizes Sea World's claim to create a kind of communication that is otherwise impossible. Making contact with "another world" may mean several things. Certainly the video shot of children and whale separated but trying to touch each other implies that nature and wild animals constitute a world distinct from humans, one that humans should wish to approach more closely. The notion of far-away worlds trying to contact us might be here, too—in a reference to spirits and unseen forces or, perhaps, as in science fiction, to other planets and parallel universes.[24] Given the surrounding emphasis on relationships, however, it seems more likely that the other world of nature is also an interior world, one of emotions and feelings. We've already been exhorted to remember feelings, to "bring back the smile to the child inside of you." "Touch the Magic" suggests that the theme park offers customers access not only to nature and exotic animals but to themselves. Asking us to "remember the feeling of wonder" and "bring back the smile" suggests that we need to return to authentic feelings.

In short, communication and contact with nature promise to remake people. This is familiar: most contemporary advertising presents the product as magically transforming the consumer herself from an alienated and isolated state to a meaningful, whole identity.[25] Consumer products also promise to alter social identities, and perhaps a visit to Sea World is no different. To make contact with nature is to have real feelings and to become someone different and more desirable. But how does this transformation work?

[N]ature is a vast complex of ideas as well as a biological world. This is part of what makes the idea of a more intimate contact with it so evocative, powerful,

and magical. Sea World offers its customers transformation through contact with a long historical tradition of nature's social meanings, a tradition the theme park version of nature, with its emphasis on visual realism and scientific expertise, paradoxically obscures.[26]

For at least the last two hundred years, Europeans and Euro-Americans have made nature a visual, touchable, "out there" object. Making nature literally "another world," Euro-Americans endowed it with cultural and spiritual properties. At the same time, art and literature emphasizing labor and the complex interactions between humans and the biological world have been marginalized in the Euro-American aesthetic tradition.[27] Appreciation of this aestheticized, separate version of nature has been used to distinguish people from each other and to normalize the differences between them. For example, in the eighteenth century, as Raymond Williams argues, the gentry justified its expanding property rights and dominance over the rural poor through aesthetic practices. Sculpting nature into country estates, celebrating it in pastoral poetry, manipulating it in the form of lovingly landscaped gardens, the gentry literally naturalized its vast social and economic power.[28] In the nineteenth century appreciating nature by viewing it, painting it, or hiking through it helped factory owners and businessmen define themselves as rational and sensitive men, especially in comparison with rural and urban workers.[29] Toward the end of this period, zoos and museums did more than popularize the global scientific world view and integrate nature into a Euro-centered colonial map. Their boards of directors also hoped museums would teach respect for law and "natural order" to the urban, immigrant working classes, whom they saw as having anarchic, un-American ideas.[30]

For at least two centuries the propertied have used nature as a material and a symbolic resource and as a favored tool of improvement aimed down the social scale at class and racial others. And while nature education in classrooms and summer camps has surely had many democratic and socially progressive uses, it has also been closely tied to efforts to model a hierarchical social order. The right sort of person, as advocated by nature educators, was an English-speaking, self-controlled, property-respecting, refined middle-class citizen. Sea World's nature magic partakes of this uplifting tradition. As "Touch the Magic" argues, contact with nature creates or affirms a customer's identity as a caring, sensitive person. A visit to Sea World offers nature as a source of rational pleasure albeit in a context of irrational prices and endless throw-away souvenirs. There are no gut-wrenching, mind-blowing roller coasters here. Perhaps a visit to Sea World also helps customers distance themselves, however little they think about it, from people defined as uneducated, insensitive, and irrational.

In "Touch the Magic" Sea World's visitors dress casually but well. They are mostly white adults with children, respectfully excited by the sights they behold. The ad reflects Sea World's marketers' understanding of their audience as

defined by age, income, ethnicity, and education. Although Sea World's managers, like most white Americans, are reluctant to speak in terms of social class or to acknowledge a racial pattern among their customers, market research for the San Diego park reveals that their audience is heavily southern Californian and white, with a very high level of income and education.[31] The San Diego park describes its customers as consisting heavily of "parents" who are "usually college educated and . . . interested in learning about ocean life."[32] It is not that the people who run Sea World do anything active to keep ethnic minorities out of the park.[33] Indeed, the education programs recruit minority children via public school field trips. But considering the multiethnic demographics of the five southern California counties, the whiteness of Sea World's paying audience seems to be an example of extreme self-selection.[34] Perhaps the high admission prices alone tend to keep poor people away; however, other expensive theme parks in southern California, most notably Disneyland and Six Flags–Magic Mountain, have strong followings among people of color. Is it possible that the version of nature marketed by Sea World appeals positively to white people as part of being appropriately middle-class? Conversely, does Sea World's discrete, aestheticized nature seem unfriendly or irrelevant to working-class people and nonwhites? Whatever the answer, Sea World's marketers clearly craft their nature product for the affluent.

The children in the ad give another clue that Sea World's nature magic is in part about social class. In white middle-class culture, the positive association between children and animals, children and nature, reaches far back.[35] Children are supposed to have special things to gain from contact with nature, but perhaps these special things are related as much to social ideals as to children's practical growth.[36] According to long-standing theories of education, nature and the outdoors teach the child about the inner self.[37] And, at a more mundane level, contact with nature is thought to lay the groundwork for the child's future success in biology or some other important science. It is not that any of these ideas are entirely false. But in this ideal of childhood, nature, social mobility, and the sense of self all run together. The nature-children-class connection is expressed in the century-old middle-class emphasis on suburban yards, summer homes, summer camps, and nature study in the classroom.[38] That "Touch the Magic" and all Sea World's advertisements and publicity feature children learning points to the theme park's claim that it helps produce the right sort of person. That children are shown learning in the context of the family implies that the park also helps reproduce social position.

So perhaps "Touch the Magic" and Sea World itself show us that mass-mediated nature is constructed to appeal to its consumers as much in terms of who they want to be, as individuals and members of families and communities, as in terms of the aesthetics of clarity and purity. In any case, when Sea World claims to create feelings of awe, wonder, and joy, we might understand this as

an argument that awe, wonder, and joy—as opposed to fear, boredom, hostility, or exhaustion—are feelings the "right sort" of person should have in the presence of nature.

While the desires and identities of Sea World's customers have a long past, something new is happening in the theme park, too. Touching the magic of nature is a way of making contact with a world of possibilities as well as a way of finding one's feelings and confirming a social identity. All of Sea World's and Anheuser-Busch's important publicity materials appeal strongly to the environmental interests of the American public, carefully positioning the corporation as at once a good environmental citizen and a responsible producer of goods. It is in the context of wishes and worries about the future, I think, that Anheuser-Busch and Sea World try to redirect popular environmental concerns. In the process of presenting nature as something for people to contact and care about, the company is arguing for nature's reinvention.

Once again, the shot of the children pressed nose to nose with Shamu is suggestive. This image sums up all Sea World's urgings about "making contact," but specifically making contact with another form of higher life, not just scenery and science. The promise of mutuality between whale and people is what is different. Traditional zoos and aquariums, the aesthetic theorist John Berger writes, reveal people's distance from the world of nature by bringing them close to animals. Because animals are turned into spectacle, and because their boredom and passivity is inescapable, zoos underline the extreme marginalization of nature from human life in industrial society.[39] The new zoo and the nature theme park actively try to override this disappointing perception by showing animals in more natural-looking environments, where they seem to have privacy, autonomy, and the ability to avoid the human gaze.[40] The aesthetic of the new zoo does not reverse the long separation of humans and nature, but it makes nature seem less dominated, less captive.

"Touch the Magic," however, makes a different argument for Sea World. If we look closely at the way the killer whales are represented in Sea World's commercials, we see that the whale appears to be meeting the children's gaze. It is looking back, and this is exactly what Berger argues zoo animals can never do. Why should the whale seem to be trying to make contact? Certainly the audience is being asked to have feelings with and about whales, but is it possible that by seeming to reach out, the whales ask people to join with them? Sea World constructs itself as "another world," a parallel world in a watery realm, and the parks surely argue that orcas parallel humanity, or at least that segment of humanity defined as Sea World customers. The largest, most popular mammals on display, the orcas are always discussed in terms of social organization, intelligence, and especially reproduction. Much of the pleasure of watching their performances comes from seeing them humanized. Orcas are made to seem so like us—caring for their babies, working hard for their rewards, and getting the

better of their foolish trainers—that a subtle identification takes place. Perhaps without intending it, Sea World asks its audience to form a relationship with nature—under the theme park's auspices. But which relationship? What prospect for humanity's relationship to nature is being promised to the audience as it makes contact?

The relationship Sea World proposes between humans and nature emerges more clearly when we recall that all the park's publicity contains claims for the social and scientific responsibility of the company and Anheuser-Busch. The nature images and animal performances flowing through the overlapping channels of entertainment, advertising, and promotion all tell the same story: Sea World and Anheuser-Busch conserve, protect, study, and foster nature. In this context, contact between whale and children invokes the beginning of a journey into the future, in which the protected, biologically reproducing animal and the learning, socially reproducing children travel together under the same, benign auspices. The right sort of person not only expresses interest in animals and science; she trusts and knows that companies like Anheuser-Busch are taking good care of nature. This caretaking goes beyond paying taxes, making donations to appropriate philanthrophic organizations, or establishing foundations. Corporate America is taking care of nature right down to the structure of DNA, and in the process, as Donna Haraway argues, it is transforming definitions of humanity, community, and nature. At the theme park customers collaborate in this corporate assumption of responsibility as audiences and consumers. As a neighbor of mine said to me, "Even the high admission fees are worth it, because they do such good things for the oceans there." And as a line from one of Sea World's shows has it, "Just by being here, you're showing that you care."

For all its seductive imagery, "Touch the Magic" is just one commercial, a tiny piece of media culture. But it is a good example of how much corporate culture hopes its audiences will understand nature and environmental issues. It is not that Sea World and Anheuser-Busch made up the idea of nature as pure, separate from humans, and under the benign care of experts and multinational capital. Rather, Anheuser-Busch, its parks division, and the collaborating sponsors have very intelligently recast and reworked some much older ways of seeing nature, in part for purposes of direct commercial appeal and profit, in part as a more general strategy for creating a positive public view of a very large corporation. In the process "Touch the Magic," Sea World, and many similar mass media products advance a vision of nature's future that is consonant with the interests of corporate America. The green public relations version of nature not only obscures a long history of relationships between humans and nature; it makes democratic pressures for environmental preservation, safety, and health invisible. Although parks like Sea World and ads like "Touch the Magic" appeal to popular environmental concern, neither the problems of pollution and resource exhaustion nor solutions from outside the corporate sphere have a

place in the Sea World scenario. Rather, nature theme parks show corporations like Anheuser-Busch rising to the conservation occasion with spontaneous good will.

Anheuser-Busch holds no monopoly on this corporate-friendly version of nature. The same story is told, with variations, in many streams of the mass media. The arguments of Sea World's nature magic resemble those conjured in corporate-image campaigns such as Chevron's "People Do" ads or the Dupont "Ode to joy" commercials.[41] The nature magic is also familiar from other kinds of television, film, and print. Environmentalists, students of environmental history, and communication scholars would do well to take mass-media representations of nature and environmental issues seriously. Environmental public relations, "green advertising," and nature programming occupy a significant proportion of network and cable television broadcast hours.[42] Nature magic is summoned in much, though certainly not all, of what one can see on the corporately sponsored Public Broadcasting System or the commercial Discovery Channel.[43] Its core ideas radiate into the larger culture from many different sources. But arguably the "Walkthrough TV" environment of the theme park—the synthesis of entertainment and advertisement that reaches into the day-care center, school, library, bookstore, and home—is more thoroughgoing than any earlier medium. Because it is at work on so many levels, Sea World's privately produced version of nature takes up a huge amount of space. This space is physical and cultural, imaginative and psychic. As Candace Slater argues . . . , such a spectacular but limited way of seeing nature necessarily displaces or hides other kinds of connections and contacts that need to be made. In the late twentieth century what are the alternatives to theme park nature? Where can missing connections be picked up?

In asking these questions about nature theme parks, we must recognize that most Americans—scholars included—live in the vast environment of mass-mediated culture, as surely as we drive cars and eat cheeseburgers. And we must confront the fact that many older forms of popular contact with nature and science that once enjoyed public support in the form of tax-based funding have been extensively reorganized. Zoos and natural history museums always had an elite bias; they often communicated the social vision of their philanthropic funders and directors. The establishment of national parks may have expressed, in part, an elitist wilderness aesthetic. But these institutions were not, in theory or practice, private property. Operating with some governmental funding and oversight, they were open to pressure for popular use and had to respond to often conflicting concerns.[44] As basically nonprofit institutions, zoos and museums were spared the pressure of having to turn every square foot of exhibit space into profits. But today aquariums, museums, zoos, and state and national parks are increasingly tied into the same tourist economies that shape theme parks; at the same time, declining tax support means that they are forced to rely heavily

on corporate funding. The new funds come with new strings attached—for example, the need to show that the zoo or museum has the appropriate audience demographics. All these institutions rely more and more on blockbuster exhibitions or special events that can be promoted to garner paying audiences.[45] Because funds are tighter, and corporate support unreliable, at many museums admission is no longer free or even modestly priced. The gift shop has become crucial to the institution's budget. As zoos and museums compete with theme parks, shopping malls, and television, they resemble these commercial forms ever more closely.

Nevertheless, what remains of the public educational sphere deserves the support of environmental activists just as much as the corporate version of nature demands critical analysis. San Diego's small and underfunded Museum of Natural History offers a good example. Competing directly with Sea World of California for visitor dollars, and often drawing on Sea World staff for resources, the museum has been forced to promote itself as an attraction for regional tourists, even while it struggles to provide a local educational resource. Despite its reliance on local corporate sponsorship, the museum has been able to mount some small but sophisticated exhibitions on serious environmental issues. These have covered topics ranging from the relationship between development, land use, and habitat destruction in San Diego County to the *Exxon Valdez* oil spill and to scientific controversies over global warming. If they are small and limited, spaces such as this one have great potential for enlivening informed debate about what nature is and how we might struggle to rethink its problems. Try to imagine a theme park mounting a thoughtful exhibit on ocean pollution—a problem of grievous immediacy in southern California.[46] While we criticize commercial culture's nature, we also need to create and support sites for less magical images and information. Defending older quasi-public spaces from the tyranny of the bottom line is one way to do this. To argue for public spaces for environmental discourse is not to argue for doing away with entertainment. Neither do I disdain people who enjoy the remarkable qualities of animals. But not all entertainment should be commercial, and education should not be collapsed into public relations and a ruthless drive for corporate profits.

Definitions of nature and the solutions to its problems are now massively authored by the private sphere of conglomerate, corporate culture, at the same time that corporations claim to further the public good. Sea World's theme park nature is only one example, but it is striking that it asks America's most affluent, educated, and influential citizens to trust nature's future, and their own, to the corporate matrix. Finding a new environmental ground depends on contentious debate, not on easy consensus that corporations and citizens are each doing their part. To conduct this debate, it is vitally important that all Americans have a wide range of ideas, information, and images to draw on.

Notes

Davis, Susan G. 1995. "Touch the Magic." In *Uncommon Ground: Toward Reinventing Nature*, ed. William Cronon. New York: Norton, 204–17. Special thanks for research assistance to Kay Mary Avila.

1. Descriptions and direct quotations refer to ad copy written by D'Arcy Masius, Benton and Bowles, Inc. USA, and the commercial as aired.

2. Anheuser-Busch owns ten theme parks: Sea Worlds in San Diego, Calif., Aurora, Ohio, San Antonio, Tex., and Orlando, Fla.; Busch Gardens parks in Williamsburg, Va., and Tampa, Fla.; Adventure Island in Tampa; Cypress Gardens in Winter Haven, Fla.; Sesame Place in Langhorne, Penn.; and Water Country USA in Williamsburg, Va. An Anheuser-Busch publicity brochure estimates that "over the past 30 years, more than 160 million people have visited Sea World parks." Anheuser-Busch, public relations brochure on environmental responsibility (untitled), "Item No. 001-584," St. Louis, 1993. The first Sea World was launched in San Diego in the early 1960s by a small group of private investors. Anheuser-Busch purchased the Sea World from the publishing, real estate, and insurance conglomerate Harcourt Brace Jovanovich in 1989.

3. Thirty- and sixty-second versions of "Touch the Magic" ran in major television markets nationally.

4. Richard Melcher, "Anheuser-Busch Says *Skoal, Salud, Prosit*," *Business Week,* Sept. 20, 1993, 76–77.

5. I estimate total attendance for all the Busch theme parks as about 18 million visits for 1993. The American Disney parks totaled about 41 million visits in the same year. *Amusement Business*, Year End Report, chart, Dec. 20, 1993–Jan. 2, 1994, 68–69. The Busch Entertainment Division brought $55 million in profits to the corporation in 1992, up 22 percent from the previous year (but still weaker than in 1990). Melcher, "Anheuser-Busch," 76.

6. Tim O'Brien, "Theme Park Admission Prices Reach Record High," *Amusement Business*, April 18–24, 1994, 1,35. Adult admission is $34.95.

7. According to their management, Sea World of San Diego earns roughly 50 percent of its profits from admissions and 50 percent from concession sales.

8. Through sponsorship arrangements the Sea World parks reduce their advertising costs; sponsors gain cross-promotion advantages, exclusive merchandising rights (for example, Kodak and Pepsi are "official suppliers"), and association of their name in connection with animals, the environment, and family entertainment. Sponsorship may have been more important when the Sea Worlds were owned by Harcourt Brace Jovanovich, especially as HBJ had to fight off takeover attempts. Anheuser-Busch's pockets are much deeper.

9. This may be especially important in an era of public concern over advertising alcoholic beverages to youth, and over commercial connections between beer, rock music, and sports. Beer companies' extensive sponsorship of rock concerts and band tours has been criticized by health professionals and advocates of drunk-driving prevention. Paul Grein, "Suds 'n' Bucks 'n' Rock 'n' Roll: Beer Companies Rock Sponsorships Stir Controversy," *Los Angeles Times*, Sunday Calendar, July 30, 1989, 8, 85, 86. Budweiser has been the major sponsor for U.S. concerts by Mick Jagger and the Rolling Stones, most recently providing millions of dollars for the 1994 "Voodoo Lounge" tour.

10. This commercial confusion of retail space with public space is increasingly common, as shopping malls, for example, begin to house playgrounds, museums, libraries, city halls, even public schools and community colleges. See Margaret Crawford, "The World in a Mall," in Michael Sorkin, ed. *Variations on a Theme Park: The New American City and the End of Public Space* (New York: Hill and Wang, 1992), 3–30; Leah Brumer, "Discovery Zone" (unpublished paper, summer 1994).

11. This argument is made over and over again throughout the parks and their public relations materials. Anheuser-Busch also emphasizes the parks' membership in the American Association of Zoological Parks and Aquariums. Anheuser-Busch, public relations brochure on environmental responsibility (untitled), "Item no. 001-584," St. Louis, 1993.

12. Busch Entertainment allows cable systems, school districts, and teachers to tape these broadcasts for repeated use; thus their reach is expanded.

13. The maker of many disposable paper and plastic items, Procter & Gamble has been criticized for distributing factually inaccurate and self-serving materials disguised as science study resources. Michael Parrish, "Environmentalists Criticize Firm's Educational Material," *Los Angeles Times*, Dec. 17, 1993, D2.

14. With the recent acquisition of parks chains by Time-Warner (Six Flags parks), MCA (Universal Studios), and Viacom (Paramount Parks), and with the merger of Viacom with Blockbuster, the theme park industry is dominated by mega-media corporations. Most of the large theme parks in the United States are now sites for the integrated marketing of diverse media products, following the Disney model. The five biggest companies in the industry are Disney, Anheuser-Busch, Time-Warner, MCA, and Viacom. Anheuser-Busch uniquely specializes in "nature."

15. Walt Disney pioneered this technique. Richard Schickel, *The Disney Version: The Life, Times, Art and Commerce of Walt Disney,* rev. ed. (New York: Simon and Schuster, Touchstone Books, 1985), 295–338. George Lipsitz, "Discursive Space and Social Space: Television, Highways, and Cognitive Mapping in the 1950s City" (paper presented at the American Studies Association Meeting, Nov. 1989).

16. One such model might be Discovery Channel's "Those Amazing Animals," filmed at another nature theme park, Marine World Africa USA. A feature-length film and an animated television show featuring "Shamu" are reported to be in development. Kim Kowsky, "Busch to Buy Rights to Films about Shamu," *Los Angeles Times* (San Diego County ed.), Jan. 5, 1990, D1.

17. In 1994 Third Story Books published twelve children's books based on the Sea World parks and characters. These were promoted in the Barnes and Noble bookstores, among others. "New Firm to Do Sea World Books," *Publisher's Weekly*, March 14, 1994, 11. LaPorta and Company produces the "Shamu and You" educational video series. "Video Treasures of the Deep and Wild," *Billboard*, Feb. 8, 1992, 47.

18. At the same time, we are always aware of the artifice of Sea World's realism. For example, the blue-painted pool holding Shamu is constructed to appear bottomless. The seeming depth of the pool is a kind of perceptual support system, letting us think the whale has boundless room to move way from us, even while we are aware that it cannot get away.

19. On the history and ideological structure of travel literature, see Mary Louise Pratt, *Imperial Eyes: Travel Writing and Transculturation* (London: Routledge, 1992); on nature,

knowledge, and empire, Harriet Ritvo, *The Animal Estate: The English and Other Creatures in the Victorian Age* (Cambridge: Harvard Univ. Press, 1987), 1–44; on *National Geographic,* Herbert I. Schiller, *The Mind Managers* (Boston: Beacon, 1974), 79–103, and Catherine A. Lutz and Jane L. Collins, *Reading National Geographic* (Chicago: Univ. of Chicago Press, 1993).

20. The public relations department at Sea World was unable to tell me the provenance of the myth referred to in "Shamu New Visions."

21. Anheuser-Busch, untitled public relations brochure, "Item no. 001-584."

22. Between 1983 and 1988, hundreds of eggs were "imported" from Antarctica, incubated, and the hatchlings hand-raised at Sea World of California. At least some of the penguins on display are descendants of these chicks.

23. Sea World's publicity materials and entertainments make much of teaching "naturally antagonistic" species "how to live together," although it's not clear what "naturally antagonistic" means, or that the parks really do this. (For example, killer whales and sea lions do not share tanks in the park.) *Amusement Business,* Jan. 14, 1984. In 1993–94 San Diego's Sea World featured a multispecies whale and dolphin show called "One World."

24. Sea World's exhibits do make use of such references, especially to "Star Trek."

25. Stuart Ewen, *All Consuming Images: The Politics of Style in Contemporary Culture* (New York: Basic Books, 1988). Very little work has been done on nature as an ingredient in contemporary consumer advertising. Judith Williamson's *Decoding Advertisements: Ideology and Meaning in Advertising* (New York: Marion Boyars, 1984) remains helpful.

26. Raymond Williams, "Ideas of Nature," in *Problems in Materialism and Culture* (London: Verso, 1980), 67–85; idem, *The Country and the City* (New York: Oxford Univ. Press, 1980).

27. See, for example, Williams, "Ideas of Nature."

28. Ibid. and Williams, *Country and the City,* 87–107.

29. Jonas Frykman and Orvar Löfgren, *Culture Builders: A Historical Anthropology of Middle-Class Life,* trans. Alan Crozier (New Brunswick: Rutgers Univ. Press, 1987), 42–87.

30. Pratt, *Imperial Eyes,* 15–37; John Michael Kennedy, "Philanthropy and Science in New York City: The American Museum of Natural History, 1868–1968" (Ph.D. diss., Yale Univ., 1968); Donna J. Haraway, *Primate Visions: Gender, Race, and Nature in the World of Modern Science* (New York: Routledge, 1989), 1–58; Peter J. Schmitt, *Back to Nature: The Arcadian Myth in Urban America* (Baltimore: Johns Hopkins Univ. Press, 1990), 77–95.

31. Each of the Sea Worlds commissions extensive market and "psycho-graphic" (lifestyle) research on its customers, interviewing as many as five hundred visitors in person per month and distributing numerous take-home questionnaires to others. In 1992 Sea World of California's interview research showed that only 15 percent of the customers reported family annual income under $30,000. (During this same period median family income in San Diego County was about $35,000.) Some 51 percent of the customers claimed more than $40,000 annual income; 33 percent stated that their family earned more than $50,000. Even allowing for the many problems inherent in self-reporting, this is obviously an affluent audience. Fully 43 percent of those interviewed claimed a college or higher degree, while 22 percent had a high school diploma or less. Market research for the same period reports that 89 percent of the customers interviewed are" Anglo" and 11 percent "non-Anglo" (only these two categories were used). It is unclear whether this identification is based on observation or self-description, whether it refers to color, his-

torical identity, or mother tongue. Nevertheless, the figure is sharply divergent from the general ethnic makeup of the southern California counties. The average audience member was a baby boomer, about thirty-eight years old, and nearly 65 percent of the audience was between the ages of twenty-five and fifty. (In other words, the audience closely resembled the people who wrote this book.)

32. *Amusement Business*, April 4, 1987, 4.

33. Other theme parks in California use dress codes to discourage the presence of "gang members." The content of youth music concerts at theme parks is also carefully vetted.

34. The five counties are Los Angeles, Riverside, Orange, San Bernardino, and San Diego.

35. Frykman and Löfgren, *Culture Builders,* passim; Yi-Fu Tuan, *Dominance and Affection: The Making of Pets* (New Haven: Yale Univ. Press, 1984), esp. 115–31; Schmitt, *Back to Nature*, 77–124.

36. See, for example, Richard Louv, *Childhood's Future* (Boston: Houghton Mifflin, 1990).

37. Frykman and Löfgren, *Culture Builders.* When thinking about what children "need," we should distinguish contact with nature from unstructured play or autonomous activities. There is little unstructured or autonomous about the "nature" children encounter at Sea World.

38. Schmitt, *Back to Nature.*

39. John Berger, "Why Look at Animals?" *On Looking* (New York: Pantheon, 1980), 1–26.

40. The rationale behind the architecture of the new zoo is summarized by Melissa Greene, "No Rms, Jungle View," *Atlantic Monthly*, Dec. 1987, 62–78.

41. The Dupont television commercial shows marine mammals applauding the chemical manufacturer's environmental record, to the strains of Beethoven's "Ode to Joy." Chip Berlet and William K. Burke, "The Anti-environmental Movement," *Democracy Watch,* July 1992, 3, 11. See also *Hold the Applause* (Washington, D.C.: Friends of the Earth, 1992).

42. Yet nature on TV has received almost no attention from media scholars. For example, while there has been extensive study of network news, soap opera, and crime drama, we have no broad and accurate picture of how much nature TV is broadcast, who produces it, and whom it reaches. Presumably a media genre this prolific has some important effects on how its television audience understands environmental problems and their social and political context.

43. On the general structure and corporate funding of PBS, see William Haynes, *Public Television for Sale: Media, the Market and the Public Sphere* (Boulder, Colo.: Westview Press, 1994), esp. 89–114. Haynes notes that "corporations such as BASF, DuPont, W. F. Grace and Waste Management, Inc., sponsor such programs as *Adventure, Discoveries Underwater, Victory Garden* and *Conserving America* (102–3). For criticism of the "public" nature of public television, see also David Choteau, William Haynes, and Kevin M. Carrageen, "Public Television and the Missing Public: A Study of Sources and Programming," *Extra,* Sept./Oct. 1993, 6–14; Janine Jackson, "When Is a Commercial Not a Commercial? When It's on Noncommercial TV," ibid., 17–18.

44. For example, Roy Rosenstein and Elizabeth Blackmar emphasize that the social uses of parks, landscapes, and museums are contested, and shaped by their diverse and

often antagonistic users. *The Park and the People: A History of Central Park* (Ithaca: Cornell Univ. Press, 1992).

45. Although institutions such as Chicago's Museum of Science and Industry have a long history of connections to corporate sponsors, the interpenetration of the for-profit and nonprofit spheres has accelerated in the last decade. As zoos and museums have found their public funding and philanthropic support dwindling, they have come to depend heavily on gift shop and souvenir sales, and in this and other ways they have become more like the pay-to-enter, concession-driven theme park. Famous nonprofit science centers, such as San Francisco's Exploratorium, seek development funds through licensing and coproduction agreements with media giants like Time-Warner. For a critique of related developments in the world of art museums, see Debora Silverman, *Selling Culture: Bloomingdale's, Diana Vreeland, and the New Aristocracy of Taste in Reagan's America* (New York: Pantheon, 1986.) A more general and thoroughgoing critique is offered by Herbert I. Schiller, *Culture, Inc.* (New York: Oxford Univ. Press, 1991). On national parks, see Dean MacCannell, "Nature Incorporated," in *Empty Meeting Grounds: The Tourist Papers* (New York: Routledge, 1993), 114–20.

46. Interestingly, Sea World's references to the *Exxon Valdez* oil spill are limited to its display of rehabilitated Alaskan otters. Wildlife biologists, writing in *Science,* have criticized the media focus on otter and bird rescue after the spill. They argue that media coverage of the rehabilitation of a small number of animals has diverted attention from the extent of environmental damage, and from the need for the absolute prevention of oil spills, and given the public a false sense that catastrophic environmental damage can be mitigated. James A. Estes, "Catastrophes and Conservation: Lessons from Sea Otters and the *Exxon Valdez*," *Science* 254 (1991): 1596.

PART

Corporate Responsibility

Silent Spill

The Organization of an Industrial Crisis

Thomas D. Beamish

Our ancestors were most likely to live and work in small, tightly knit communities of families and neighbors where many decisions were made informally. Much has changed in the last 100 to 200 years, and now most of us spend the majority of our time in larger impersonal organizations, like corporations, where most of the decisions are made according to a bureaucratic and impersonal set of rules and practices. The corporation, a uniquely modern entity that has its own legal rights and liabilities apart from that of its members, sits at the center of modern life. The two pieces in this section are sociological explorations into questions about the structure and nature of large corporations. One important question is the extent to which and under what conditions well-meaning individuals and groups are able to express concerns within powerful bureaucracies, such as a petrochemical company. Also, under what conditions do large corporations limit the public's control over its processes? Thomas Beamish examines one of the biggest oil spills in U.S. history—the spill at Guadalupe Dunes in California. While some environmental tragedies happen in a flash, like the Exxon Valdez *oil spill described in the introduction, much environmental destruction happens slowly over many years. As Beamish shows, the cleanup at Guadalupe Dunes came late; the original problem had been allowed to mushroom into a total disaster over many years of inaction. Beamish, in his investigation of the systemic and institutional underpinnings of this long-term event, argues that the extent of this disaster was exacerbated by both the slowness in which it occurred and the style of decision making that takes place in particular kinds of organizations.*

> There's a strange phenomenon that biologists refer to as "the boiled frog syndrome." Put a frog in a pot of water and increase the temperature of the water gradually from 20°C to 30°C to 40°C . . . to 90°C and the frog just sits there. But suddenly, at 100°C . . . , something happens: The water boils and the frog dies. . . . Like the simmering frog, we face a future without precedent, and our senses are not attuned to warnings of imminent danger. The threats we face as the crisis builds global warming, acid rain, the ozone hole and increasing ultraviolet radiation, chemical toxins such as pesticides, dioxins, and polychlorinated biphenyls (PCBs) in our food and water—are undetected by the sensory system we have evolved.
>
> —GORDON AND SUZUKI 1990

Underneath the Guadalupe Dunes—a windswept piece of wilderness[1] 170 miles north of Los Angeles and 250 miles south of San Francisco—sits the largest petroleum spill in US history. The spill emerged as a local issue in February 1990. Though not acknowledged, it was not unknown to oil workers at the field where it originated, to regulators that often visited the dunes, or to locals who frequented the beach. Until the mid-1980s, neither the oily sheen that often appeared on the beach, on the ocean, and the nearby Santa Maria River nor the strong petroleum odors that regularly emanated from the Unocal Corporation's oil-field operations raised much concern. Recognition, as in the frog parable, was slow to manifest. The result of leaks and spills that accumulated slowly and chronically over 38 years, the Guadalupe Dunes spill became troubling when local residents, government regulators, and a whistleblower who worked the field no longer viewed the periodic sight and smell of petroleum as normal. . . .

I first heard of the Guadalupe spill on local television news in August 1995. (My home was 65 miles from the spill site.) The scene included a sandy beach, enormous earth-moving machinery, a hard-hatted Unocal official, and a reporter, microphone in hand, asking the official how things were proceeding. The interplay of the news coverage and Unocal's official response caught my attention more than anything else. The representative asserted that Unocal had extracted 500,000 gallons of petroleum from a large excavated pit on the beach just in view of the camera. The newscaster ended the segment by saying (I paraphrase) "It's nice that Unocal is taking responsibility to get things under control." This offhand remark about responsibility set me to thinking about the long-term nature of the spill and about why it had not been stopped sooner, either by Unocal managers or by regulators.

A few months later, a colleague and I drove to the beach. My colleague, a geologist who was familiar with the area, had suggested that we visit the Guadalupe Dunes for their scenic beauty. We walked the beach and the dunes

that border the oil field, alert for signs of the massive spill. The pit that Unocal had recently excavated had been filled in. The only hint of the project that remained was a small crew that was driving pilings into the sand to support a steel wall intended to stop hydrocarbon drift (movement of oil on top of groundwater) and the advancing Santa Maria River, which threatened to cut into an underground petroleum plume and send millions more gallons into the ocean.

Unocal security personnel followed along the beach, watching suspiciously as we took pictures. In fact, the spill was so difficult to perceive (only periodically does the beach smell of petroleum and the ocean have rainbow oil stains) that my impressions wavered. Was this really a calamitous event? The whole visit was imbued with the paradox of beauty and travesty.

Under my feet was the largest oil spill in California, and most likely the largest in US history. . . . Yet the "total amount spilled" continue to be, as one local resident noted in an interview, a matter of "political science." There is still controversy over just how big this spill really is. The smaller of the two estimates . . . (8.5 million gallons) comes from Unocal's consultants. State and local regulatory agencies do not endorse it (Arthur D. Little et al. 1997). The estimates quoted most often by government personnel put the spill at 20 million gallons or more, which would make it the largest petroleum spill ever recorded in the United States.

At first glance, it seems strange that so many individuals and organizations missed the spillage[2] for so many years; "passivity" seems to be the word that best characterizes the personal and institutional mechanisms of identification and amelioration. It is also clear that the Guadalupe spill is very different from the image of petroleum spills that dominates media and policy prescriptions and the public mind: the iconographic spill of crude oil, complete with oiled birds and dying sea creatures.

The Guadalupe Dunes spill is only the largest *discovered spill.* Representing an inestimable number of similar cases, it exemplifies a genre of environmental catastrophe that portends ecological collapse.

Describing his impression of the spill in a 1996 interview, a resident of Orcutt, California, explained why he remained unsurprised by frequent diluent seeps: "When you grow up around it—the smell, the burning eyes while surfing, the slicks on the water—I didn't realize it could be a risk. It was normal to us." In a 1997 interview, a local fish and game warden—one of those initially responsible for the spill's investigation—responded this way to the question "Why did it take so long for the spill to be noticed?": "It is out of sight, it's out of mind. I can't see it from my back yard. It is down there in Guadalupe, I never go to Guadalupe. You know, I may have walked the beach one time, but I never saw anything. It smelled down there. What do you expect when there is an oil field? You know, you drive by an oil production site; you are bound to smell something. You are bound to."

In the days and weeks after my initial visit to the dunes, I wondered why the spill had gained so little notoriety. Beginning my research in earnest, I visited important players, attended meetings, took official tours of the site, and followed the accounts in the media.

What makes the Guadalupe spill so relevant is that it represents a genre—indeed a pandemic—of environmental crises (Glantz 1999). Collectively, problems of this sort—both environmental and non-environmental—exemplify what I term *crescive troubles.* According to the *Oxford English Dictionary*, "crescive" literally means "in the growing stage" and comes from the Latin root "crescere," meaning to "to grow." "Crescive" is used in the applied sciences to denote phenomena that accumulate gradually, becoming well established over time. In cases of such incremental and cumulative phenomena (particularly contamination events), identifying the "cause" of injuries sustained is often difficult if not impossible because of their long duration and the high number of intervening factors.[3] Applied to a more inclusive set of social problems, the idea of crescive troubles also conveys the human tendency to avoid dealing with problems as they accumulate. We often overlook slow-onset, long-term problems until they manifest as acute traumas and/or accidents (Hewitt 1983; Turner 1978).

There are also important political dimensions to the conception of crescive troubles. Molotch (1970), in his analysis of an earlier and more infamous oil spill on the central coast of California (the 1969 Santa Barbara spill), relates a set of points that resonate with my discussion. In that article, Molotch examines how the big oil companies and the Nixon administration "mobilized bias" to diffuse local opposition, disorient dissenters, and limit the political ramifications of the Santa Barbara spill. Two of his ideas have special relevance: that of the *creeping event* and that of the *routinization of evil.* A creeping event is one "arraigned to occur at an inconspicuously gradual and piecemeal pace" that in so doing diffuses consequences that would otherwise "follow from the event if it were to be perceived all at once" (ibid., p. 139). . . .

Our preoccupation with immediate cause and effect works against recognizing and remedying problems in many ways. It is mirrored in the way society addresses the origin of a problem and in the way powerful institutional actors seek to nullify resistance and diffuse responsibility. The courts and the news media, for instance, often disregard the underlying circumstances that led to many current industrial and environmental predicaments, focusing instead on individual operators who have erred and pinning the blame for accidents on their negligence (Perrow 1984; Vaughan 1996; Calhoun and Hiller 1988). Yet this ignores the systemic reasons why such problems emerge. In short, most if not all of our society's pressing social problems have long histories that predate their acknowledgment but are left to fester because they provide few of the signs that would predict response—for example, the drama associated with social disruption and immiseration. . . .

The inability of our current remedial systems, policy prescriptions, and personal orientations to address a host of pressing long-term environmental threats is frightening. There are, however, numerous examples of disconnected events—seemingly unrelated individual crises recognized after the fact—that have received widespread public attention. Through national media coverage, images of ruptured and rusting barrels of hazardous waste bearing the skull and crossbones have become icons that fill many Americans with dread (Szasz 1994; Erikson 1990, 1994). But these are only the end results of ongoing trends that have been repeated across the country with less dramatic consequences. In view of the startling deterioration of the biosphere, much of which is due to slow and cumulative processes, more attention should be devoted to how such scenarios unfold. . . .

My specific intent is to uncover how and why the Guadalupe spill went unrecognized and was not responded to even though it occurred under unexceptional circumstances. The industrial conditions were quite normal, and the regulatory oversight was typical. It would seem that there was nothing out of the ordinary, other than millions of gallons of spilled petroleum. This is, in part, why the spill is so instructive. It represents a perceptual lacuna—a blank spot in our organizational and personal attentions. . . .

Why didn't local managers report the seepage, as the law requires? How did field personnel understand their role? How could pollution of such an enormous magnitude be left so long before receiving official recognition and action? Why did the surrounding community take so long to react? . . .

The reality that surrounds crescive circumstances is characterized by polluters who are unlikely to report the pollution they cause, authorities who are unlikely to recognize that there is a problem to be remedied, uninterested media, and researchers who take interest only if (or when) an event holds dramatic consequence.[4] In short, all those who are in positions to address crescive circumstances are disinclined to do so. Forms of degradation that lack direct and immediate impact on humans, dramatic images of dying wildlife, or other archetypal images of disaster tend to be downplayed, overlooked, and even ignored.

The national print media certainly mirrored the propensity to ignore the Guadalupe spill (Hart 1995). Over the period 1990–1996, the national press devoted 504 stories to the *Exxon Valdez* accident and only nine to the Guadalupe spill.

In a 1996 interview, a reporter for the *Santa Barbara News Press* offered his opinion as to why the Guadalupe spill had received little public attention until 1993. His view resonates with three of the four social factors articulated above (social disruption, stakeholders, and media fit):

> We didn't see black oily crude in the water and waves turning a churning brown. We didn't see dead fish and dead birds washing up. We didn't see

> boats in the harbor with disgusting black grimy hulls. This is largely an invisible spill. It took place underground. . . . Because it was not so visual, especially before Unocal began excavation for cleanup, I think that it just didn't capture the public. . . . But after Unocal began excavations, driving sheet pilings into the beach, scooping out massive quantities of sand, setting up bacteria eating machines, burning the sand. It began to dawn on people the magnitude of this thing, but again it wasn't in their back yards, Guadalupe is fairly remote. . . . And it's not a well-to-do city [the city of Guadalupe]—comparatively, anyway, with the rest of our area. . . . So I don't think it really sparked the public interest as much as it could have or would have if it was . . . a surface spill. . . .

Central to my research were field interviews with members of the local oil industry, government regulators, community members, and environmental activists. These interviews were tape recorded, transcribed, and systematically analyzed. In addition to the interviews, there were many spontaneous conversations—in hallways, in office waiting rooms, in the homes of those that were the intended interviewees—with individuals I had not originally contacted or planned to meet. Though not recorded, these conversations should not be seen as any less important than the others. I also pursued ethnographic context, recording scores of informal conversations concerning the spill. I accumulated and analyzed a substantial collection of archival materials, and I have followed media portrayals of the spill closely since 1989. . . .

In its early stages (from 1953 until 1978 or 1979), the leakage at the Guadalupe field was not troubling, nor was there anyone to whom to report it. Because it was part of routine fieldwork, it received little attention. According to those who read the meters that tracked the coming and going of the diluent, "many times there were little leaks; that was just normal" (field worker, telephone interview, 1996). A worker quoted in a local newspaper went so far as to say that "diluent loss was a way of life at the Guadalupe oil field" (Friesen 1993). Dumping hundreds of gallons of diluent into the dunes, as long as it was done a gallon at a time, was an ordinary part of production. This is not a great leap of reason; oil work obviously involves oil. Until the 1970s, Unocal sprayed the dunes with crude oil to keep them from shifting and thus to make field maintenance and transportation easier. If spraying crude oil over the dunes was unproblematic, why would diluent leaks, which were largely invisible as soon as they hit the sand, be unsettling? Although workers mention that they became alarmed in the 1980s when puddling diluent periodically appeared as small ponds on the surface of the dunes, the chronic leaks themselves evoked little attention. In brief, at Guadalupe the normalcy of spilling oil of all kinds (crude oil, lubricants, and diluent) worked to blunt perceptions of the leaks as problematic. The leaks were an expected part of a day in the life of an oil worker.

According to the *Telegram-Tribune* (Greene 1993b): "A backhoe [operator] at the field . . . for 12 years . . . cited 'an apparent lack of concern about the immediate repair of leaks or the detection of leaks.' Diluent lines would not be replaced unless they had leaked a number of times or were a 'serious maintenance problem. . . .' Although workers checked meters on the pipelines and looked for leaks if there was a discrepancy, often a problem wasn't detected until the stuff flowed to the surface' said . . . a field mechanic."

By both historical and contemporary accounts, oil spills have long been a common occurrence in oil-held operations.[5] This seems to have been especially the case at fields operated by Union Oil. But this does not help us understand why, once field personnel recognized the spillage as a significant problem, they denied it and failed to report it (as specified by state and federal law) for 10 years or more. A first step in understanding why workers failed to report their spill to the authorities once it had "tipped" toward becoming a grievous problem requires us to attend to the vocabulary, the structure, and the enactment of work and how these factors not only molded workers' perceptions of the leaks but also kept them from reporting outside their local work group.

The "Company Line," 1978–1993

Organizationally, oil work at the Guadalupe field was arranged, like work in many traditional industrial settings, around a hierarchical seniority system. Recruitment and promotion were internally derived, meaning the field workers relied on their immediate foremen and supervisors for instruction, guidance, and ultimately, future chances at success (promotion, salary increase, choice of shifts, and so forth). . . . This organizational structure helps to explain Unocal employees' silence about the Guadalupe spill after it was recognized as a threat. Even when the leaks began to look more like a bona fide spill, the rank-and-file workers were insulated from reporting it themselves by their position within the field's hierarchy and their immediate responsibilities. Reporting outside the work group was management's domain.

A Unocal field worker I interviewed in 1997 articulated his experience of the change from a normal to a problematic spill as follows: "You come up and you see a clamp [on a] diluent [pipe]line. It is leaking. You tighten it up, you change it, you . . . fix it and it . . . has made a puddle. That is not something you would turn in. When it went into the ocean . . . and you see the waves break and they weren't breaking white [but] brown water, there is a problem. [That happened] sometime in the 1980s. . . . We all knew right then . . . we had some kind of problem. Well, we all kind of estimated it could be rather large considering that this field had been here so long before we ever got there." Corroborating this worker's impressions, another worker quoted in the *Telegram-Tribune* (Greene 1993b) remembered finding large concentrations of diluent that were

no longer the "leaks" that had created them but looked more like a typical "oil spill": "In 1980 a large puddle of diluent that had saturated the sand and bubbled up to fill a spot 5 to 10 feet wide. . . ." He told investigators that he and his co-workers realized at the time there were problems with the diluent system "even though management seemed to ignore the problems."

By this time, the problems brought on by "normal operating procedures" were obvious and destructive. This became especially apparent in the mid-1980s, when accelerated spillage periodically slowed oil production at the field (Greene 1992b, 1993a; Rice 1994). Yet, instead of self-reporting the spillage, the field workers turned to denial and secrecy. . . .

In view of the hierarchy in the field, they were not responsible; their managers were. The hierarchical insulation from responsibility thus helped to keep workers who watched diluent spill into the dunes from feeling obligated to do something about it. When relieved of making decisions, people tend to cede their personal responsibility to those who are in control (Milgram 1974; Asch 1951). . . .

The field's hierarchy had five major levels.[6] A new worker began as a utility man, then worked his way up to pumper and then to field mechanic. If able, with long enough tenure at the field he could become a foreman. Over the foremen were the field supervisors, who headed operations at specific fields; over them was a superintendent who oversaw Guadalupe and another oil operation in the area. . . .

The culpability of all those at the field, but especially the superintendent, supervisors, and field foremen, coupled with the field's organizational characteristics, meant that explicit knowledge concerning the scope and scale of the leaks stayed inside the local operation. "Each field is its separate own little field," said a field worker interviewed in 1997. "We were kind of out in the middle of nowhere. So once we reported to our superior [a field foreman] then he has to report it to the field supervisor, who has to report to the regional superintendent, who then reports it to Los Angeles. Some where along the line I think it stopped. I think that it stopped with the field supervisor." This field worker was describing a loosely *coupled* organizational arrangement—one with organizational units that are "somehow attached, but [whose] attachment may be circumscribed, infrequent, weak in its mutual affects, unimportant, and/or slow to respond"[7] (Weick 1976, p. 3). In this case, the slack that existed at the local field between workers and between workers and managers and the loose organizational coupling that existed between the local field and corporate offices (including environmental divisions) were reflected in the technical division of responsibilities, in the authorities of office, and in the expectations placed on each. A great deal of flexibility existed between these units as long as certain goals were met. In this case, petroleum continued to be produced and sent out at an

acceptable rate. In view of the local field's autonomy and field personnel's collective interest in remaining a viable production unit, not telling outsiders about the spill made a great deal of sense. . . .

The long-term nature of the Guadalupe spill made it especially problematic for all those who worked the field for any length of time. Liability for it was diffuse—indeed, organization wide. For those in the lower echelons, going outside the proscribed line of command to report the spill created triple jeopardy: Not only would they risk being personally associated with an organizational offense; they also would have been informing on co-workers and endangering their careers by implicating their superiors. One does not succeed within a vertically organized work setting by "ratting out" one's superiors or co-workers.[8] Fear of social and organizational reprisal was evident in my discussions with field personnel, in California wardens' accounts of their interactions with subpoenaed field personnel, and in local newspapers' stories such as Greene 1993b: "Current employees contacted for this story were surprised and dismayed their names would become public because of what they told the state investigators. They worried about their superiors and co-workers at Unocal finding out."[9]

Workers at the Guadalupe field did not want to go over the head of their field foreman, their supervisor, or their superintendent. A field worker, interview by telephone in 1997, said: "There is somebody above you and someone above them and someone above them. One thing that you don't want to do is break the chain of command . . . that causes friction." Informing might have affected how many hours of work one received, one's chances of promotion, and ultimately whether or not one would keep a well-paying job. . . .

A Culture of Silence

Local managerial power and organizational routines did not wholly determine behavior at the field. The normative framework that prevailed there was also attributable to the subculture of oil-field work and to individual workers' agency. . . .

To understand more fully why workers kept quiet about a spill they knew was patently illegal while field managers covered it up and lied to authorities about its origins, we must look beyond matters of hierarchy and seniority. We must look at individual motivations and at the social glue that bound workers to their work group. In short, we must look at the dominant social milieu at the oil field in order to see how social relations between workers played into the initial normalization of the spill and how they reinforced the intra-organizational conditions that discouraged self-reporting. Taken separately, both structural and cultural explanations would predict that self-reporting was unlikely; together, they make self-reporting appear a dubious regulatory strategy. . . .

Social Ties and Field Secrets

Workers at Guadalupe inherited and developed a set of norms and beliefs about what were and were not appropriate in-group behaviors. This is a normal part of group unity. Moreover, that this unity led to the coverup of an ongoing petroleum spill becomes more understandable (even if socially inexcusable) when we address the threat it posed to each individual at the field and to the local outfit as a whole. . . .

. . . [P]ressure to keep the spill a secret, based in a de facto culture of silence was observable in how field workers reacted when they found out that one of them had called the authorities. (. . . the first admission came in an anonymous telephone call to state officials in February of 1990.) When interviewed in 1997, the field worker who initially blew the whistle related being overheard by the field office's secretary and described the secretary's reaction to his phone call as follows:

> I got on the phone in the office. I say [to the health department official], "Okay, I'll talk to you later," and I hear his click, and I'm still on the phone, and I hear another click. The secretary eavesdropped and heard my conversation. She came in, and she started yelling at me, "What are you doing! We will all lose our jobs!" And I said, "Not if we didn't do anything! If it isn't ours, why would we lose our jobs? We are not going to lose our jobs!" We knew [about the spill]. But I never thought it would come to the point where they would shut everything down. What I thought would happen is they would isolate the problem and go on producing.

[. . .]

. . . Individuals, in protecting themselves from association with the spill, also collectively shielded the organization from harm, at least in the short term. The threats of a shutdown of the field and a loss of jobs and the social pressure to remain silent kept workers from reporting the spill. (Once the spill was "discovered" by regulators, Unocal's corporate headquarters did shut the field down, and all the workers were either transferred or laid off.)

Moreover, breaking with one's peers and eliciting an out-of-group admission about what was (initially at least) a "normal" part of production was also unlikely for a set of more socially relevant reasons. Even once the spill had accumulated and became noticeable, reporting it would mean informing on coworkers and facing their opinions.[10] Once his identity became known at the site, the whistleblower was ostracized by many of his fellow workers. . . .

Inter-Organizational Location as Amplification

In conjunction with the organizational location of workers relative to one another and to management and with the culture of silence that characterized the field, the Guadalupe field's structural isolation from outside interference (both physically and organizationally from regulatory authorities and Unocal's head offices) and the corporate incentives worked against self reporting. Like many other corporations, Unocal was not a monolithic undifferentiated body with a single objective or universally shared knowledge. In organizational form, Unocal consisted of loosely coupled upstream corporate offices, production units, and downstream refinery and vending segments. Insulation from outside interference amplified the power that field routines and the local production culture had over individual perceptions and over field workers' choices.

Because the Guadalupe field was largely autonomous from its head offices, its day-to-day domestic affairs were largely internal. A report of an incident had to go to the top before making its way to outside authorities. Because the information stopped in the field's chain of command, it never made it out of the field, where action could be taken to stem it. This is not a claim that Unocal headquarters could not have known about the spill if they had wanted to investigate it. The argument forwarded here is more passive: Headquarters was interested only in specific information from Unocal's extraction divisions, and this information tended to consist of production quotas rather than of information as to whether environmental matters were being addressed. Again, Unocal, as a corporation, seemed to care little about how local operations performed their production as long as the fields continued to produce profits. . . .

Had efficiency included not wasting diluent, a case could be made that the loss of diluent into the dunes would have been a sign to those on the outside that something was amiss. In this instance, Unocal's head offices may have taken a more active interest if dollars were being lost. Had hundreds of thousands of gallons of refined petroleum product been purchased from an external source and subsequently lost, it would seem expensive and hard to cover up. But spilling was considered a part of producing oil at Unocal's operations, and it also was rather normal for others in the industry. Furthermore, it was considered largely an internal affair. The diluent used at the site beginning in the early 1950s originated at Unocal's refinery situated at the edge of the Guadalupe Dunes, literally a part of the Guadalupe field's production infrastructure. Oil extracted from the Guadalupe field was piped to the Nipomo refinery for initial separation. Diluent, as a by-product of this refining process, was then pumped back to Guadalupe for use. At Guadalupe, diluent was stored at a number of tank farms; from there it was transferred via pipeline to individual extraction wells. If production was consistent, lost diluent would not be missed, especially in view of the normality of spilling and the shoddy records that were being kept (because

the price of refining was internal). Losing diluent cost the local operator little (at least, relative to getting caught or facing the prospects of personally reporting it), as long as crude oil was being produced at the expected rate. On the other hand, if the field supervisor reported the spills (which had "tipped" toward the obvious in the 1980s) he would have known that he had a big monetary and criminal problem on his hands. It would have tarnished his personal record, reflected badly on Unocal's image as a whole, potentially shut down the local operation, and presented the possibility of criminal prosecution. What is more, the potential fines for having not reported the spill are significant. . . .

Two examples of the penalties associated with pollution of this sort illustrate the predicament that field managers confronted when deciding whether to report the spill. The federal Clean Water Act specifies that violators can be fined between $5000 and $50,000 a day per violation for being "knowingly" negligent.[11] Estimating the potential fines involved for this single act would require starting with the date of the amendment's passage (in 1973) and calculating daily fines up to 1990 (when Unocal ceased using diluent at the field). The estimate ranges from $31,025,000 to $310,250,000. Likewise, under California's Proposition 65 (a citizen-sponsored "right to know" act passed in 1987) Unocal was also liable for not reporting its release of petroleum into local river and ocean waters frequented by recreationalists. Proposition 65 caps fines against violators at $2,500 per person per exposure day. These are but two examples.

Moreover, the field supervisor and superintendent personally stood to lose thousands of dollars in potential bonuses that were paid for meeting corporate expectations. Field supervisors received incentives in the form of commendations, quick advancement, and end-of-the-year bonuses for keeping production costs down and petroleum yields high. High production costs would have resulted from capital outlays for such items as Guadalupe's pipeline infrastructure. Much as in the system that prevailed in the Soviet Union into the 1980s, costs were "hidden" by a reward system that recognized only production goals and the accompanying steady income stream. Thus, the primary goal was keeping production high, not worrying about diluent costs that (at least on paper) were trivial, being locally internalized. According to a Unocal supervisor interviewed in 1997 for this research, why it took 38 years for the spill to be reported by field managers was rather easy to understand: "Unocal [did not report the spill] to the public because local managers received financial incentives to keep costs low. The corporate culture of the production outfits saw spills as a normal part of their routine." Although this was not the only reason that local Unocal managers would continue to spill, it certainly provided a strong incentive not to report it or stop the leakage at the field once it had become organizationally ominous. Only negative personal and organizational repercussions would have resulted if local managers reported the spill. As a latent product of the pressures

articulated thus far, spilling and not reporting makes a great deal of sense from the production side of the equation. . . .

In brief, organization-sponsored complicity, the culture of silence, and the inter-organizational isolation of the field combined to make reporting of the Guadalupe spill improbable until the accumulation of diluent had gotten so bad that neither insiders (field personnel) nor outsiders (regulators) could fail to recognize it, a society of environmentalists was there to be concerned about it, and the insistent local media were eager to report on it. These are all factors that society can ill afford to either count on or wait for. . . .

. . . The predominantly social, cultural, and structural explanations I have put forth are powerful in part because of the nature of industrial regulation in the United States, where it has been left to corporate actors to report their own excesses. There is little interdiction, investigation, or active following up of problems by government authorities until a situation is so dire that a coverup is impossible to sustain. Thus, outside of personal motivation on the part of a worker, a foreman, or a supervisor to report a leak, there is little (aside from morals) that would impel anyone in a company to do so. And that is a slippery slope that takes us back inside the social dynamics that characterized the normative and cognitive institutions that characterized Unocal's local field operations. . . .

Notes

Beamish, Thomas D. 2002. *Silent Spill: The Organization of an Industrial Crisis.* Cambridge, MA: MIT Press.

1. The Guadalupe Dunes have been designated a National Natural Landmark. This designation, conferred by the US Secretary of the Interior, acknowledges the national significance of the dunes as an exceptional and rare ecosystem.

2. I use "spill" to refer to the total accumulation of diluent—the end product. I use "spillage," "leaks" and "leakage" to denote the process by which diluent was chronically lost over time, eventually becoming an enormous spill.

3. For analyses of cases of community contamination and the struggle to seek legal redress, see Calhoun and Hiller 1988; Brown and Mikkelsen 1990; Hawkins 1983.

4. I am as guilty of this as anyone. I did not become aware of the Guadalupe spill until the local news media reported that 500,000 gallons of petroleum had been recovered by Unocal.

5. My visits to oil fields, my interviews concerning other fields in the region, and historical accounts of oil work all indicate that petroleum production has been a messy business since its origins in the late nineteenth century. See also Pratt 1978, 1980; Dinno 1999.

6. There were also seniority-related grades within these five levels (field worker, telephone interview, 1997).

7. On "coupling" see Weick 1976, 1995; Perrow 1984.

8. On "whistleblowing" see Glazer 1987; Bensman and Gerver 1963; Elliston et al. 1985.

9. I encountered similar resistance to being interviewed on the part of oil-field personnel. One of the major constraints involved legal liability. Most potential respondents

who represented the legal side (state attorney general, Unocal lawyers) as well as both current and former Unocal employees were largely unwilling to speak to me, formally at least, about the spill because of potential liabilities.

10. See Garfinkel 1956.

11. On environmental law in the US, see Yeager 1991; Wolf 1988; Skillern 1981. When taken to court in 1992 and 1993, Unocal did not face a single charge, but 28 separate criminal and misdemeanor violations.

References

Arthur D. Little Inc. in association with Furgro West, Headley and Associates, Marine Research Specialists, and Science Applications International Corp. 1997. Guadalupe Oilfield Remediation and Abandonment Project.

Asch, S. 1951. "Effects of Group Pressure upon the Modification and Distortion of Judgments." In *Groups, Leadership, and Men*, ed. H. Guetzkow. Carnegie Press.

Bensman, J. and I. Gerver. 1963. "Crime and Punishment in the Factory: The Function of Deviancy in Maintaining the Social System." *American Journal of Sociology* 28: 588–598.

Brown, P., and E. Mikkelsen. 1990. *No Safe Place: Toxic Waste, Leukemia, and Community Action.* University of California Press.

Calhoun, G., and H. Hiller. 1988. "Coping with Insidious Injuries: The Case of Johns-Manville Corporation and Asbestos Exposure." *Social Problems* 35, no. 2: 162–181.

Dinno, R. 1999. *Protecting California's Drinking Water from Inland Oil Spills.* Planning and Conservation League, Sacramento.

Elliston, F., J. Keenan, P. Lockhart, and J. Van Schaick. 1985. *Whistleblowing: Managing Dissent in the Workplace.* Praeger.

Erikson, K. 1990. "Toxic Reckoning: Business Faces a New Kind of Fear." *Harvard Business Review* 90: 118–126.

Erikson, K. 1994. *A New Species of Trouble: The Human Experience of Modern Disasters.* Norton.

Friesen, T. 1993. "Criminal Charges May Be Eliminated against Unocal." *Five Cities Times-Press-Recorder*, December 7.

Garfinkel, H. 1956. "Conditions of Successful Degradation Ceremonies." *American Journal of Sociology* 61: 420–424.

Glantz, M., ed. 1999. *Creeping Environmental Problems and Sustainable Development in the Aral Sea Basin.* Cambridge University Press.

Glazer, M. 1987. "Whistleblowers." In *Corporate and Governmental Deviance*, ed. M. Ermann and R. Lundman. Third edition. Oxford University Press.

Gordon, A., and D. Suzuki. 1990. *It's a Matter of Survival.* Harvard University Press.

Greene, J. 1992b. "Unocal: A Leaky Environmental Record." *Telegram-Tribune*, August 5.

Greene, J. 1993a. "Unocal Spills May Have Gone Unreported." *Telegram-Tribune*, July 1.

Greene, J. 1993b. "Unocal Workers Confirm Leaks." *Telegram-Tribune*, June 17.

Hart, G. 1995. "How Unocal Covered Up a Record-Breaking California Oil Spill." In *The News That Didn't Make the News and Why*, ed. C. Jensen. Four Walls, Eight Windows.

Hawkins, K. 1983. "Bargain and Bluff: Compliance Strategy and Deterrence in the Enforcement of Regulation." *Law and Policy Quarterly* 5, no. 1: 35–73.

Hewitt, K., ed.1983. *Interpretations of Calamity: From the Viewpoint of Human Ecology*. Allen & Unwin.

Milgram, S. 1974. *Obedience to Authority*. Harper & Row.

Molotch, H. 1970. "Oil in Santa Barbara and Power in America." *Sociological Inquiry* 40 (Winter): 131–144.

Perrow, C. 1984. *Normal Accidents: Living with High Risk Technologies*. Basic Books.

Pratt, J. 1978. "Growth or a Clean Environment? Responses to Petroleum-related Pollution in the Gulf Coast Refining Region." *Business History Review* 52, no. 1: 1–29.

Pratt, J. 1980. "Letting the Grandchildren Do It: Environmental Planning during the Ascent of Oil as a Major Energy Source." *Public Historian* 2, no. 4: 28–61.

Rice, A. 1994. "Endless Bummer." *Santa Barbara Independent*, March 17.

Skillern, F. 1981. *Environmental Protection: The Legal Framework*. McGraw-Hill.

Szasz, A. 1994. *Ecopopulism: Toxic Waste and the Movement for Environmental Justice*. University of Minnesota Press.

Turner, B. 1978. *Man-Made Disasters*. Wykeham.

Vaughan, D. 1996. *The* Challenger *Launch Decision: Risky Technology, Culture, and Deviance at NASA*. University of Chicago Press.

Weick, K. 1976. "Educational Organizations as Loosely Coupled Systems." *Administrative Science Quarterly* 21, March: 1–19.

Weick, K. 1995. *Sensemaking in Organizations: The Mann Gulch Disaster*. Sage.

Wolf, S. 1988. *Pollution Law Handbook: A Guide to Federal Environmental Law*. Quorum Books.

Yeager, P. 1991. *The Limits of the Law: The Public Regulation of Private Pollution*. Cambridge University Press.

Corporate Responsibility for Toxins

Gerald Markowitz and David Rosner

The Beamish piece in this section focused on microlevel processes within corporations—the interactions between a corporation's decision-making structure and the members of that organization. Markowitz and Rossner focus on the macrolevel question of how corporations interact with other large social institutions such as the government and media. The authors examine the claim that industries will regulate themselves and voluntarily seek out the safest, least environmentally damaging production and disposal processes because they are under the scrutiny of the consumers of their products and are watched by a vigilant health-concerned public. The authors present three case studies that indicate the opposite. Their studies of the lead, silica-using, and plastics industries show that industry associations have sought to control information about their harmful production processes and products; in addition, industries have sought to challenge those regulations that do exist.

The protests around the World Trade Organization in Seattle, the Group of Eight Summit in Genoa, the World Economic Forum in New York, and the campaign to protect consumers and ordinary citizens raise important and difficult questions concerning the global economy in general and the problem of industrial pollution in particular. How can the physical environment be

protected from the actions of huge multinational corporations whose activities have, until recently, gone virtually unchallenged and unregulated? Although this question of corporate responsibility sounds rather new, in fact it is the result of a century-long conflict over the rights of industry to control production and the obligation of industry to the broader society, whether global or national. How much should government regulate private companies to ensure that they act responsibly and in accord with the broader public interest? How can government and industry create incentives for responsible corporate behavior? From the beginning of its history, industry has responded to calls for government regulation by arguing that voluntary compliance was sufficient to ensure that it acted responsibly.

Here, we outline three cases that raise broad policy questions concerning the degree to which we can trust industry to control its own behavior with regard to industrial pollutants. First, we outline the experience of Americans with the lead industry, the producer of a well-known industrial toxin. Second, we look at the silica-using industries, whose central mineral caused innumerable deaths and disabilities to exposed workers in the 1930s. Finally, we trace the efforts of the plastics industry to keep knowledge about the carcinogenic potential of vinyl chloride secret from the government. As early as 1905, federal action was taken to protect consumers and the environment from irresponsible actions of industry. That year, Theodore Roosevelt and other conservationists established the principle of federal protection of national forests. In 1906, Congress passed the Pure Food and Drug Act that extended its authority to inspect and test for adulterated consumer products. In 1970, the federal government established the Environmental Protection Agency and the Occupational Safety and Health Administration to protect the environment and the workforce. Unfortunately, these measures have not always been adequate, as industry has used its enormous power and resources to challenge government's authority and to restrict information necessary for appropriate regulatory policies.

It is a tenet of democracy that citizens should have full access to information so that they can make informed decisions about risks that affect their lives. In the case of industrial toxins, such information has been regularly denied to workers and the public by the very corporations that have had the most up-to-date knowledge about the effects of exposure to chemicals, poisonous minerals, and dusts. As a result, factory workers have been assailed by noxious fumes and dangerous chemicals even while beseeching industry for information and protection. These toxins were all too often vented into the air, spilled into waterways, and dumped onto the land, both legally and illegally, making industrial pollution an issue of widespread public concern. It took catastrophes such as Love Canal in Niagara Falls, New York; Times Beach, Missouri; and Bhopal, India, to bring home to people the danger posed by industry to their lives and the environment (Fowlkes 1982).

Nonetheless, a great deal has happened outside of industry (often in spite of industry manipulation) to educate the public about the dangers of pollution and to begin to confront industry's negligence. In 1962, Rachel Carson published *Silent Spring*, which publicized the harm pesticides caused public health and the environment (Lear 1997). Ralph Nader began his crusade as a consumer advocate by exposing the willingness of General Motors to sacrifice human beings for profit, as exemplified in their promotion of the dangerously designed Corvair (Morris 1970). Paul Brodeur (1974) dramatized the duplicity of the asbestos industry's willingness to expose workers and entire communities to asbestos, despite the known risk of cancer and lung diseases. By the 1970s, questions were raised about the safety of a host of products: DES, red dye number 2, phosphates, Firestone radial tires, the Ford Pinto, tampons, Dalkon Shields, cyclamates, and saccharine (Gottlieb 1993). The Three Mile Island disaster led to widespread skepticism about the safety of the nuclear power industry (Houts, Cleary, and Hu ca. 1988; The Three Mile Island nuclear accident 1981). By the 1980s, civil rights groups developed the concept of environmental racism to describe the tendency of industry to situate polluting plants and toxic waste dumps primarily in poor and minority communities. Environmental activists made environmental justice a rallying cry when demanding that industry redress the race and class bias in many industry decisions (Bullard 1993, 1994a, 1994b).

In the 1990s, citizens became aware of perhaps the most serious breach of the social contract with corporations: major players in the tobacco industry, after decades of denial that cigarettes were addictive and carcinogenic, were finally forced to admit that they had manipulated the nicotine content of its products for the specific purpose of keeping smokers addicted and that they had falsified scientific research, thereby lying to the public about the deadly effects of tobacco smoking. Companies such as Johns-Manville, which mined and processed asbestos, and Phillip Morris, which grew and marketed tobacco products, were notorious for their willingness to hide information about the dangers of their products (Glantz et al. 1996). Although some have maintained that the activities of these companies were not typical of industry practices, that in fact these were rogue corporations acting outside the norms of industrial practice, our research points to a different conclusion. In the cases of lead, silica, and vinyl, entire industries actually have banded together to deny and suppress information about the toxic nature of their products and to call into question results by outside researchers that indicated their products posed a danger to the health of individuals (Markowitz and Rosner 2002).

In addition to withholding information, some industries have been able to assure the public that its products are benign by controlling research and manipulating science. Throughout much of the twentieth century, most scientific studies of the health effects of toxic substances have been done by researchers in the

employ of industry or in universities with financial ties to industry. At times, their results were subject to review by industry, and if the results indicated a problem, the information was suppressed. At times, the independence of the academy has been undermined by industry's influence through grants and other support for research. . . .

Since the establishment of the Occupational Safety and Health Administration, the National Institute for Occupational Safety and Health, and the Environmental Protection Agency in 1970 and of independent foundations working with university researchers and public interest groups, a new generation of scientists not employed by industry are highlighting the risks and discounting industry's assurances about the benign nature of their products and production processes. They are providing research for the public and the public health community to consider. Newspaper articles, television specials, and other media bring home to people the personal toll industry practices take on people's lives. Increased knowledge has become a powerful weapon in the battle to hold corporations accountable for their impact on public health.

At the heart of the current struggle regarding the control of industrial toxins is the very difficult question of how industry or the government decides what is safe. Industry has always taken the position that there is no reason to hold up production of useful products if no danger has been proven. But the history of the twentieth century is riddled with disasters resulting from industry's moving forward with products whose danger became apparent only over time. Lead, asbestos, tobacco, and radioactive materials became widely used because scientific studies could not prove with certainty that these substances caused harm. In the realm of environmental health, it is extremely difficult to say that a particular substance causes a particular health problem; usually only after decades of observation can a scientifically valid correlation be made between exposure to a chemical and increased death and disease in a large population. Even then, it may not be possible to establish a connection conclusively and to the satisfaction of the entire scientific community.

As a result, the battle being waged today by public health advocates is to establish a different method for deciding how and when industry should proceed with the introduction of new substances or products. Many argue for the precautionary principle, according to which suspect substances must be held off the market until their potential dangers are more clearly understood and their safety is better established. Public health officials and some politicians are increasingly aware that the threats from dioxins, chlorinated hydrocarbons, and greenhouse gases in the environment are so high that social policy demands regulatory action—even before the existing data absolutely prove danger. Many argue that we should protect our citizens and not wait for objective studies to prove further danger. Industry has used scientific uncertainty to argue that its activities should not be interfered with (Markowitz and Rosner 2002).

The lead and plastics industries and industries in which toxic substances such as silica are used or produced have been central to the expansion of the American economy throughout the twentieth century. For the first half of the century, lead was critical to every industry involved in the building of the urban infrastructure, the modern suburb, and the expanded agricultural system. In the 1930s, 1940s, and beyond, silica was identified as a serious threat to workers in a host of industries critical to the American economy, such as mining, foundry work, and construction. After World War II, the plastics industry came to dominate American consumer society; plastics were used in vinyl siding, linoleum, tabletops, rugs, clothing, phonograph records, and computers. When, in the early 1970s, it was revealed that vinyl chloride monomer, the major constituent of polyvinyl chloride plastic, was a human carcinogen, the chemical industry in general and the plastics industry in particular were faced with serious questions about the safety of their products and how forthcoming it had been about its knowledge of these dangers. In many ways, the struggles over these three substances—lead, silica, and plastic—are paradigmatic of a broader struggle that continues to this day over the responsibilities of industry and government to protect public health.

Lead: A Strategy of Denial

As one of the central elements in the industrial revolution, lead was a known toxin throughout the nineteenth century. In the early twentieth century, reformers such as Dr. Alice Hamilton, often considered the founder of industrial hygiene in America, documented the extent of lead poisoning among the workforce and sought to clean up paint factories, battery manufacturing plants, potteries, and other industries where workers were being poisoned by lead. Despite this understanding of the toxic nature of lead, the automobile and gasoline industries decided in the 1920s to introduce tetraethyl lead into gasoline as a way to increase the power and efficiency of automobiles. Alarmed that five workers had died and dozens more had been poisoned producing tetraethyl lead, public health officials warned that in addition to the dangers to the workforce, there were possible long-range effects on consumers' health of depositing millions of pounds of inorganic lead dust onto the streets of cities all over the country from the exhaust pipes of cars. But the increasingly important automobile and petrochemical industries successfully argued that in the absence of absolute proof of tetraethyl lead's dangers to consumers, such a tremendously vital product to America's economy must not be banned or restricted. Frank Howard, first vice president of the Ethyl Gasoline Corporation, formed by General Motors and Dupont as a company devoted to the production and distribution of tetraethyl lead, stated the general position of industry "You have but one problem," he told a conference called by the surgeon general to consider the poten-

tial dangers to consumers and workers of leaded gasoline. "Is this a public health hazard? But," he answered, "unfortunately, our problem is not that simple." Rather, he argued, automobiles and oil were central to the industrial progress of the nation, if not the world. "Our continued development of motor fuels is essential in our civilization," he proclaimed, and the development of tetraethyl lead, after a decade of research, was an "apparent gift of God." The argument Howard developed would become a mainstay of industry's position regarding industrial toxins for decades to come: potential, or unproven, risks should not inhibit industry from being able to produce and market new products. It was the responsibility of government, consumers, and researchers to first prove danger before imposing controls on the private market. In the case of tetraethyl lead, this argument put the public health and labor communities on the defensive, making them appear to be reactionaries whose limited vision of the future could permanently retard human progress and stunt the nation's economic growth. . . . In the end, the Public Health Service concluded there was not enough evidence of long-term ill effects to justify restricting tetraethyl lead's sale and distribution. Industry learned a valuable lesson from the tetraethyl lead crisis in the early 1920s. It had to keep knowledge about harm out of the public eye or to find ways to argue that while these constituent materials might be toxic, the products produced from them were not.

The story of lead paint illustrates industry's efforts to downplay information about the dangers of its products. As children were identified as suffering from lead poisoning, industry sought to forestall a possible threat to its product's popularity. In many ways, the story of lead in paint is that of a guerrilla war fought by small groups of individuals—mostly doctors and a few public health officials—against the giant lead corporations. As evidence emerged, first of lead's dangers to factory workers and painters, then among children, then in the environment, the industry made it its business to frustrate the efforts of any who warned of the dangers of lead or called for lead regulation in consumer products. Throughout the 1920s, evidence of lead paint's toxic effect on children accrued in the medical literature. Articles in the *Journal of the American Medical Association* and a variety of pediatrics journals documented scores of children who had ingested lead paint from toys, cribs, windowsills, and woodwork and had developed palsies, seizures, brain damage, and listlessness, ultimately dying of classic symptoms of acute lead poisoning (Strong 1920; Holt 1923a, 1923b; Council of Queensland Branch 1922; McLean and McIntosh 1926; Weller 1925; Aub et al. 1926; Holt and Howland 1926; Hoffman 1927; Boston Health Department 1927). In 1928, partly in response to the growing attention to lead poisoning among workers and children, the industry organized the Lead Industries Association (LIA), a trade group aimed at promoting the various uses of lead and its products. Almost immediately, combating the negative image of lead within American society became a major part of the LIA's agenda. . . .

The most cynical response of the lead industry to reports of danger was a three-decade advertising campaign to convince people that lead was safe and, most insidiously, to target its marketing campaign specifically to children. From 1906 through the 1940s, for example, industry engaged in a massive effort to portray lead as a benign substance, essential to the economic, social, and cultural development of the country and of no threat to children. In one such series of promotions, the National Lead Company, manufacturers of Dutch Boy paints and lead pigments, sought to reach parents through their children by producing a series of "children's paint books," which carry "a message to the grownups, while its jingles and pictures amuse the little ones." . . .

One paint book, titled *The Dutch Boy's Lead Party*, extolled the advantages of white lead over nonleaded paints; its cover showed the Dutch Boy, bucket and brush in hand, looking at lead soldiers, light bulbs, and other members of what the paint book called the "lead family." Throughout the booklet, the Dutch Boy is featured carrying the bucket inscribed "Dutch Boy White Lead" (National Lead Company ca. 1923). The National Lead Company explained to parents that "the drawings afford [the child] pleasure," for the "story of lead, told in rollicking jingles," was meant to "capture his interest." But, again, the book was intended to do more than merely entertain the child; inside its pages there was a booklet for parents "so that a decisive paint message is placed in the hands of both parent and child." Through the marketing campaign to children, "business is built for the present and insured for the years ahead" (Insuring business 1924; National Lead Company 1925; *The Dutch Boy's hobby* 1926).

Not until the 1950s was there a significant challenge to the lead industry's dominance over lead research and the definition of lead poisoning. As a result of public health activities, municipalities restricted the use of lead as a pigment in paint, and in the 1960s, new attention was directed to the potential long-term damage caused by this mineral.

Finally, in the 1970s and 1980s, the federal government banned lead in paint and in gasoline, signaling a major victory for public health. Even so, the industry continued to seek ways of challenging researchers whose work pointed to lead as a continuing problem at lower and lower levels of lead in children's bodies. Herbert Needleman, a pediatrician whose research was critical in uncovering the effect of low-level lead exposure, was harassed by industry's consultants for nearly fifteen years (Cole 1977, 1980; Markowitz and Rosner 2002).

Silica: Controlling the Scientific Debate

While lead illustrates the levels to which industry will go to control the public perception of a product, silica presented a different dilemma. Unlike lead, silica in its most dangerous form, dust, was not widely used as a consumer product. Rather, it was a threat to a wide swath of workers in a host of critical American

industries. These workers, largely out of the public eye, ultimately had to seek redress through the legal system, initiating in the 1930s millions of dollars of lawsuits that ultimately forced silica onto the national agenda. As a result, throughout the thirties, silicosis was considered the preeminent occupational disease, the subject of numerous conferences at the local and federal levels and the subject of major exposés in national periodicals. Industry's reaction to what was widely seen as a silicosis crisis was to seek ways to reassure the public, the workforce, and the government that industry itself had taken the lead in controlling exposures and that silicosis no longer posed any significant threat. Through the activities of the industry-sponsored Air Hygiene Foundation (later the Industrial Health Foundation), the various "dusty trades" banded together to set standards that they deemed acceptable. The issue of silicosis was being defined at the time of the foundation's initial meetings in terms that were extremely threatening to a business community already on the political defensive. In the midst of the Depression, silicosis was frequently framed by the government, industry, and workers as a labor and management problem, not solely a health issue. Industry recognized that it had to find a way of defusing the political conflict that a class-based model could ignite and sought to develop a viable, apolitical alternative. It wanted to return the discussion of silicosis to the realm of science and medicine where experts from the Public Health Service, industry, and other academic and research entities could reassert the dominance of industry-sponsored professionals over politicians and labor unions. Roger A. Hitchens (1935), chairman of the Temporary Organizing Committee, complained that "there is now no one place where there is available all information on all phases of the problem; and no *concerted* planning is being done either as to the present or future as to all many different phases." And Dr. E. R. Weidlein (1935), the director of the Mellon Institute of Industrial Research, argued that it was in the interests of industry to collect research studies as well as to initiate and direct research efforts: "It is necessary that there be some organization representing industries for the reason that no program of research investigation could be carried on without assurance of continuity and financial support." In the absence of government agencies able to carry out a long-term research program, industry could shape the research agenda to meet its political, scientific, and public relations objectives. The organization of industry behind a research effort was especially important when addressing chronic diseases, wherein it might be necessary to follow the long-term development of symptoms in humans and animal subjects. By organizing a research institute, it was possible to avoid the charge that the organization was a special interest that was pursuing a narrow agenda. The organization

> must have a broad outlook, a sympathetic understanding of the problem, and wide contacts with all cooperating agencies; and it must have the confidence of the industries, and of the physicians, engineers and all

> institutions, groups or individuals who might cooperate to advantage. (Weidlein 1935)

Industry could achieve major benefits by providing the funding for such an organization. The new organization could determine which specialists "may not be properly qualified and whose results might, therefore, not be entirely acceptable . . . to be in position to make reasonable grants to qualified individuals and agencies to study special problems or phases of problems" (Weidlein 1935). Weidlein suggested that industry could retain some control over the dissemination of information if it were to support a permanent research organization. On a more practical level, such research could be "important from both medical and legal standpoints in the preparation of court cases" as well as assisting "in the preparation of safety codes and fair laws" (Weidlein 1935). . . .

. . . Faced with a crisis of overwhelming proportions, the affected industries were hardly defensive. Rather, they acted to gain control over dust research and public policy (Weidlein 1935).

Elsewhere, we argue that because silicosis was hidden from public view, a national tragedy developed in which workers were assured that they were safe from harm while many were still being exposed and ultimately killed by exposure to silica dust (Rosner and Markowitz 1991, 1995). Indeed, it is very probable that the epidemic of silicosis among shipyard workers and sandblasters in the 1970s and 1980s can be traced to the lethargy of industry and its active efforts to assure the government, the public, and the workforce that it had the situation well in hand (Markowitz and Rosner 1998).

Vinyl Chloride: Deceit as an Industrial Policy

During the post–World War II period, the production of new petrochemical synthetic materials gave rise to a new set of concerns. Unlike lead and silica, many of these chemicals and products were of unknown toxicity, and because they were so new, there was little history by which to judge the potential problems they posed for the broad community. But that was all to change in the late 1960s and early 1970s, when the chemical industry's own research indicated the systemic disease and carcinogenic properties of vinyl chloride monomer, the building block of polyvinyl chloride, the widely used plastic. It was then that the industry embarked on a serious effort to mislead the public and avoid federal regulation.

In 1970, just as the federal government vastly expanded the scope of its power in occupational and environmental health with the establishment of the Occupational Safety and Health Administration and the Environmental Protection Agency, the chemical industry learned that vinyl chloride at high dosages caused cancer in animals. Shortly after, the European chemical compa-

nies conducted secret animal studies that revealed that vinyl chloride monomer was an animal carcinogen in kidneys and livers at levels half the level that industry recommended as safe (Viola, Bigotti, and Caputo 1971; Knapp 1972; Markowitz and Rosner 2002). The American chemical industry was given access to these findings after signing a secrecy agreement with the Europeans that also committed the Europeans to not reveal the results of any future American experiments. When the newly established National Institute of Occupational Safety and Health requested, in January 1973, any information that industry or others might have about the potential hazards of vinyl chloride, the chemical industry trade association, Manufacturing Chemists Association, was faced with a serious dilemma (Request for information 1973). Since the American companies had signed the secrecy agreement with the Europeans, the Manufacturing Chemists Association had to choose between what it acknowledged was its "moral obligation not to withhold from the government significant information having occupational and environmental relevance" and its self-interest in not disclosing information that might lead the government to impose regulations on the industry (Best 1973). The chemical industry decided to act in its own, rather than the public's, interests and not tell the National Institute for Occupational Safety and Health what it knew about the carcinogenic potential of vinyl chloride for humans. In an elaborately planned and scripted event in July of 1973, representatives of the industry met with National Institute for Occupational Safety and Health officials at their headquarters in Rockville, Maryland. While appearing to be forthcoming by providing information to the government, at the same time, the industry studiously withheld the key findings of the secret European studies that indicated vinyl chloride's carcinogenic nature (Notes on meeting 1973). Even at the time, industry officials recognized that their actions could be interpreted as "evidence of an illegal conspiracy by industry" (Wheeler 1973), but they gloated that the meeting had accomplished its purpose, forestalling any "precipitous action" by the government (Kusnetz 1973).

But in 1974, physicians hired by the Goodrich Company discovered that during several years, four workers in its Louisville, Kentucky, polyvinyl chloride plant had died from angiosarcoma of the liver, an extremely rare cancer, leading the chemical industry to inform state and federal officials. In the case of lead, no federal agencies existed to oversee the regulation of environmental and work-related diseases for the first seven decades of the twentieth century. With vinyl, however, the existence of the Environmental Protection Agency and Occupational Safety and Health Administration, along with a strong environmental movement and a labor movement that paid more attention to occupational disease, led to a fierce battle over the regulation of vinyl chloride. Although strict controls of the production process were achieved, in the years following the vinyl crisis, the business community mounted a fierce public relations and political offensive that caused the Occupational Safety and Health

Administration to be more wary of future confrontations with industry (Markowitz and Rosner 2002).

Conclusion

The struggle over environmental exposures continues to this day with uneven results. Certainly, there have been successes. Lead, identified as a major danger to children in the 1920s, was brought under greater control as a threat to children in the 1980s and 1990s, despite continuing efforts by the industry to control research and information about its dangers. Standards regulating exposure of workers and community residents to vinyl are considered models of strong and effective government regulation. Responsible CEOs of major corporations must now reconcile their fiduciary responsibilities to their stockholders with their environmental responsibilities to the public. They must, for example, reduce toxic air and water emissions from their plants to satisfy government regulations. In recent decades, industry, to protect its interests, has escalated its efforts to oppose the work of environmental groups. Organizations such as the Business Roundtable, made up of the CEOs of 200 of the largest corporations in the country, have intensified their lobbying efforts among government officials and established well-funded and large offices in Washington. Through political contributions, message ads, support for proindustry legislators, and direct contact with members of the executive branch—at the very highest levels—industry attempts to gain protection for its interests.

The effect of environmental toxins does not end simply because regulators have done their job. The impact of lead and vinyl will continue to be felt for generations. Recent studies show that all Americans carry in their bodies materials not normally found in human tissue and whose health effects may not be understood for many years to come (Centers for Disease Control and Prevention 2001). Because of their developing physiology, children especially are at risk. The walls of millions of homes are still coated with lead paint, which continues to pose a serious threat to children. The landfills of our country are absorbing millions upon millions of pounds of polyvinyl chloride that will deteriorate, releasing vinyl chloride monomer, a known carcinogen, into the air and groundwater. Computers, a commonplace of contemporary American life, pose a problem as their casings and components end up as refuse in landfills, where they deteriorate, producing vinyl chloride monomer. Computer monitors, on average, contain four pounds of lead, and millions of them are crowding landfills and leaching into drinking water. Even new methods of waste disposal pose new problems—for example, the burning of plastics, particularly vinyl, produces dioxins in all but the most efficient and up-to-date incinerators.

The activities of the lead, silica, and vinyl industries with regard to the known dangers of their product were not exceptional. Lying and obfuscation

were rampant in the tobacco, automobile, asbestos, and nuclear power industries as well. In this era of privatization, deregulation, and globalization, the threat from unregulated industry is even greater. In fact, a deeper schism than ever separates the broader population's concerns about industrial pollution and the current political establishment's infatuation with market mechanisms and voluntary compliance. For this reason, it is imperative for future policy decisions that those concerned with responsibility for the public's health be aware of industry's response to environmental danger.

Note

Markowitz, Gerald, and David Rosner. 2002. "Corporate Responsibility for Toxins." *Annals, AAPSS* 584: 159–74.

References

Angell, Marcia. 2000. Is academic medicine for sale? *New England Journal of Medicine* 342:1516–18.

Aub, Joseph, Lawrence Fairhall, A. S. Minot, Paul Reznikoff, and Alice Hamilton. 1926. *Lead poisoning.* Baltimore: Williams and Wilkins.

Best, George. 1973. Letter to John D. Bryan. Manufacturing Chemists Association Papers, 26 March.

Blackman, S. S., Jr. 1936. Intranuclear inclusion bodies in the kidney and liver caused by lead poisoning. *Bulletin of the Johns Hopkins Hospital* 58:384–97.

———. 1937. The lesions of lead encephalitis in children. *Bulletin of the Johns Hopkins Hospital* 61:40.

Boston Health Department. 1927. Lead poisoning in early childhood. *Monthly Bulletin* 16:266.

Brodeur, Paul. 1974. *Expendable Americans.* New York: Viking.

Bullard, Robert. 1994a. *Dumping in Dixie: Race, class, and environmental quality.* Boulder, CO: Westview.

———, ed. 1993. *Confronting environmental racism: Voices from the grassroots.* Boston: South End.

———. 1994b. *Unequal protection: Environmental justice and communities of color.* San Francisco: Sierra Club Books.

Carson, Rachel. 1962. *Silent spring.* Cambridge, MA: Riverside Press.

Centers for Disease Control and Prevention, National Center for Environmental Health. 2001. National report on human exposure to environmental chemicals. NCEH Publication no. 010164. Atlanta, GA: Centers for Disease Control.

Cole, Jerome. 1980. Letter. *New York Times*, 3 June, C5.

Cole, Jerome F. 1977. Letter to Gershon W. Fishbein. 21 July.

Council of Queensland Branch. 1922. An historical account of the occurrence and causation of lead poisoning among Queensland children. *Medical Journal of Australia* 1:148–52.

Dublin, Louis. 1933. Letter to Ella Oppenheimer. 14 September. Courtesy Christian Warren.

The Dutch Boy's hobby: A paint book for girls and boys. 1926. New York: National Lead Company.

Dutch Boy's jingle paint book. 1922. New York: National Lead Company.

Fowlkes, Martha. 1982. *Love Canal: The social construction of disaster.* Washington, DC: FENIA.

Glantz, Stanton A., John Slade, Lisa A. Bero, Peter Hanauer, and Deborah F. Barnes. 1996. *The cigarette papers.* Berkeley: University of California Press.

Gottlieb, Robert. 1993. *Forcing the spring: The transformation of the American environmental movement.* Washington, DC: Island Press.

Hitchens, Roger A. 1935. The industrial dust problem. In W. G. Hazard, letter to L. R. Thompson, 21 March. National Archives, Record Group 90 (Records of the Public Health Service), File 087596-49. Pittsburgh, PA: State Boards of Health.

Hoffman, Frederick L. 1927. Deaths from lead poisoning. U.S. Department of Labor bulletin no. 426. Washington, DC: Bureau of Labor Statistics, Government Printing Office.

Holt, L. Emmett. 1923a. General function and nervous diseases. In *The diseases infancy and childhood for the case of students and practitioners of medicine*, 8th ed., 645–94. New York: D. Appleton.

———. 1923b. Lead poisoning in infancy. *American Journal of Diseases of Children* 25: 229–33.

Holt, L. Emmett, and John Howland. 1926. *The diseases of infancy and childhood.* New York: D. Appleton.

Houts, Peter S., Paul D. Cleary, and TeWei Hu. ca. 1988. *The Three Mile Island crisis: Psychological, social, and economic impacts on the surrounding population.* University Park: Pennsylvania State University Press.

Insuring business for the years ahead. 1924. *Dutch Boy Painter,* July, p. 139.

Knapp, W. A. 1972. Allied Chemical Corporation memorandum to J. C. Fedoruk and A. P. McGuire. Manufacturing Chemists Association Papers; Law Offices of Baggett, McCall, Burgess & Watson; Lake Charles, Louisiana, 20 November.

Kusnetz, Shell. 1973. Letter to files. Manufacturing Chemists Association Papers, 17 July.

Lear, Linda. 1997. *Rachel Carson: Witness for nature.* New York: Henry Holt.

Lead Industries Association (LIA) annual meeting. 1935. Lead Industries Association Papers, 13 June.

Markowitz, Gerald, and David Rosner. 1998. The reawakening of national concern about silicosis. *Public health Reports* 113:302–11.

———. 2002. *Deceit and denial: The deadly politics of industrial disease.* Berkeley: University of California Press/Milbank Memorial Fund.

McLean, Stafford, and Ruston McIntosh. 1926. Studies of the cerebral spinal fluid in infants and young children. In *The human cerebrospinal fluid*, 299300. New York: P. B. Hoeber.

Morris, J. D. 1970. Nader says G.M. suppresses data. *New York Times*, 5 September.

National Lead Company. ca. 1923. *The Dutch Boy's lead party.* New York: National Lead Company.

———. 1925. *Dutch Boy in story land.* New York: National Lead Company.

Notes on meeting between representatives of Manufacturing Chemists Association Technical Task Force on Vinyl Chloride Research and NIOSH. 1973. Manufacturing Chemists Association Papers, 17 July.

Painting the house that Jack built: Do not forget the children—Someday they may be your customers. 1920. *Dutch Boy Painter* August: 126.

Request for information. 1973. *Federal Register* 30 January: 2782.

Rosenstock, Linda. 1999. Global threats to science: Policy, politics, and special interests. In *Contributions to the history of occupational and environmental prevention*, edited by A. Grieco, S. Iavicoli, and G. Berlinguer, 111–13. London: Elsevier Science.

Rosner, David, and Gerald Markowitz. 1991. *Deadly dust: Silicosis and the politics of occupational disease in twentieth century America.* Princeton, NJ: Princeton University Press.

———. 1995. Workers, industry, and the control of information: Silicosis and the industrial hygiene foundation. *Journal of Public Health Policy* 16:29–58.

Strong, Robert. 1920. Meningitis caused by lead poisoning in a child of nineteen months. *Archives of Pediatrics* 37:532–37.

The Three Mile Island nuclear accident: Lessons and implications. 1981. *Annals of the New York Academy of Sciences* 365.

U.S. Public Health Service. 1925. Proceedings of a conference to determine whether or not there is a public health question in the manufacture, distribution or use of tetraethyl lead gasoline. *Public Health Bulletin* 158:4, 69, 105–7.

Viola, P., A. Bigotti, and A. Caputo. 1971. Oncogenic response of rats, skin, lungs, and bones to vinyl chloride. *Cancer Research* 31:516–32.

Weidlein, E. R. 1935. Plan for study of dust problems. In W. G. Hazard, letter to L. R. Thompson, 21 March. National Archives, Record Group 90 (Records of the Public Health Service), File 087596-49. Pittsburgh, PA: State Boards of Health.

Weller, Carl Vernon. 1925. Some clinical aspects of lead meningo-encephalopathy. *Annals of Clinical Medicine* 3:604–13.

Wheeler, R. N. 1973. Letter to Eisenhour et al. Manufacturing Chemists Association Papers, 31 May.

PART

Globalization

The Unfair Trade-off

Globalization and the Export of Ecological Hazards

Daniel Faber

Globalization is the process by which technological, communications, and political changes have intensified the worldwide exchange of money, goods, people, and culture. In this piece, Daniel Faber discusses how globalization has also accelerated the exchange of ecological hazards between nations. Due to imbalances between countries in terms of national-level environmental governance and due to weak global structures of environmental governance, this exchange has led to a worldwide system of environmental "in"justice, in which affluent nations (where environmental laws are relatively strict) export ecological hazards to poor nations (where environmental laws are relatively weak). The poorer countries (often referred to as "the global South") have limited capacity to adequately evaluate and manage the risks associated with such hazards; transnational corporations are thus endangering people's health and environments in many areas of the world. Faber suggests that only by achieving greater social governance over trade, lending institutions, and regulatory bodies can the process that leads some national and corporate leaders to sacrifice human and environmental health in order to compete in the world economy be overcome.

The Global Ecological Crisis

. . . The creation of modern global communications and transportation systems, and the development of advanced infrastructure in the newly industrializing

countries, are granting industrial capital the geographic mobility to take advantage of more favorable business climates abroad. This is especially true in the countries of East Asia and the global South with large supplies of cheap and highly disciplined wage laborers, abundant natural resources and energy supplies, tax advantages, and weaker environmental regulations. The commodities and surplus-profits produced by the factories are then exported back into the United States and other advanced capitalist countries. The pollution, however, remains behind. Even worse, the toxic waste, industrial pollution, discarded consumer goods, and other forms of "anti-wealth" produced in the United States are also becoming increasingly mobile, and end up in the "pollution havens" of the Third World. Prior to the invention of environmental protection laws in the United States and elsewhere, it was not necessary (let alone cost-effective) to export environmental problems to other countries. This is no longer the case. . . .

Dumping on the Third World: The Export of Ecological Hazards and Environmental Justice

. . . The worsening ecological crisis in the global South is directly related to an international system of economic and environmental stratification in which the United States and other advanced capitalist nations are able to shift or impose the environmental burden on weaker states. In fact, one of the primary aims of US economic planners is to cut costs by displacing environmental problems [externalities] onto poorer Southern nations—countries with little power in global environmental policy decision-making institutions. Lawrence Summers, former Undersecretary of the Treasury of International Affairs and key economic policy-maker under the Clinton administration [and former President of Harvard University], is infamous for writing a 1991 memo as a chief economist at the World Bank that argued,

> Just between you and me, shouldn't the World Bank be encouraging more migration of the dirty industries to the LDCs [less developed countries]? . . . I think the economic logic behind dumping a load of toxic waste in the lowest wage country is impeccable and we should face up to that. . . . I've always thought that under-populated countries in Africa are vastly under-polluted.[1]

The Summers memo reflects the "thinking" of many US policy makers aligned with the interests of US multinational corporations: that human life in the Third World is worth much less than in the United States. If the poor and underemployed masses of Africa become sick or die from exposure to pollution exported from the United States, it will have a much smaller impact on the profits of international capital. Aside from the higher costs of pollution-abatement in the United States, if highly-skilled and well-compensated American workers

fall prey to environmentally-related health problems, then the expense to capital and the state can be significant. Although morally reprehensible, under the capitalist system it pays business to shift pollution onto the poor in the less developed countries.[2]

Given the willingness of undemocratic governments in the global South to trade-off their environmental protection for economic growth, the growing mobility of capital (in all forms) is facilitating the export of ecological problems from the advanced capitalist countries to the third world and sub-peripheral states.[3] This *export of ecological hazard* from the United States and other Northern countries to the less developed countries takes place: (1) . . . in the form of foreign direct investment (FDI) in domestically-owned hazardous industries, as well as destructive investment schemes to gain access to new oil fields, forests, agricultural lands, mining deposits, and other natural resources; (2) . . . with the relocation of polluting and environmentally hazardous production processes and polluting facilities owned by transnational capital to the South; (3) . . . as witnessed in the marketing of more profitable but also more dangerous foods, drugs, pesticides, technologies, and other consumer/capital goods; and (4) . . . with the dumping of toxic wastes, pollution, discarded consumer products, trash, and other forms of "anti-wealth" produced by Northern industry.[4]

Hence, corporate-led globalization is facilitating the displacement of ecological hazards from richer to poorer countries. Although a few international agreements (such as the Basel Convention) have been put into place, they are for the most part ineffective at stemming the transfer of hazards. Since few peripheral countries have the ability to adequately evaluate and manage the risks associated with such hazards, the export practices of transnational corporations are increasing the health, safety, and environmental problems facing many peripheral countries. . . .[5]

Antigreen Greenbacks: The Export of Ecologically Hazardous Investment Capital

. . . Since the mid-1970s, the US regime of environmental regulation has resulted in stricter laws, increased delays due to permitting, and higher costs related to pollution control technology, liability and insurances cases, and worker health and safety. These costs are especially significant for companies involved in the production of heavy metals, asbestos-containing products, copper and lead smelting, and leather tanning, and has led these industries to relocate overseas.[6] On the other hand, the competition for foreign investment among the developing countries is fierce, and combined with the imposition of structural adjustment policies by the International Monetary Fund (IMF) and World Bank on indebted developing countries, more and more nations are opening themselves up to increased FDI by weakening environmental standards.

. . . As a consequence, the rate of growth in hazardous industries in the developing countries is now greater than the overall industrial growth in those same countries, indicating that the cost advantages stemming from weaker environmental protection is attracting investment. Again, this trend began in the late 1970s, just as environmental regulations became more stringent in the United States and other advanced capitalist countries.[7]

China: The New Economic Superpower, or Ecological Nightmare?

. . . Although China has excelled in providing low-quality consumer goods, the country is now ramping up to create more advanced industries, adding state-of-the-art capacity in cars, specialty steel, petrochemicals, and microchips. So, while American petrochemical makers have invested in little new capacity inside the United States over the past decade, over 12,000 workers are constructing a $2.7 billion petrochemical complex in Nanjing, China. This facility will be among the world's biggest, most modern complexes for making ethylene, the basic ingredient in plastics. Constructing such a plant in China offers sizable cost advantages over rival facilities in the United States, Europe, and Japan due to the lower environmental costs of doing business. The Chinese government allows industry to freely pollute the air, water and ground, which (combined with the low cost of labor) easily allows industry to undercut the prices charged by companies abiding by strict standards elsewhere in the world. However, the economic incentives offered to foreign capital to invest in China, including few controls over pollution and worker health and safety violations, have created an ecological nightmare. As stated by the journalists Joseph Kahn and Jim Yardley,

> Environmental woes that might be considered catastrophic in some countries can seem commonplace in China: industrial cities where people rarely see the sun; children killed or sickened by lead poisoning or other types of local pollution; a coastline so swamped by algal red tides that large sections of the ocean no longer sustain marine life. China is choking on its own success.[8]

The magnitude of this ecological crisis is apparent in a 2007 draft report by the World Bank and China's State Environment Protection Agency. The study finds that 750,000 people die prematurely in China each year, mainly from air pollution in the large cities. . . .[9] Incredibly, only 1 percent of the country's 560 million city dwellers breathe air considered safe by the European Union. And air quality is getting worse. The central government's most recent report put the cost of air pollution at $64 billion in 2004.[10]

Of the twenty most polluted cities in the world, according to the World Bank, sixteen are located in China. About one-third of China's lakes, rivers, and

coastal waters are so polluted that they pose a threat to human health, according the Organization for Economic Cooperation and Development. As a result, 300 million Chinese don't have access to clean drinking water, resulting in 60,000-odd premature deaths a year.[11] Acid rain falls over 30 percent of the country.[12] Industrial pollution is so extensive that the country's birth defect rate is triple that of the developed nations. At least a million Chinese babies born each year have birth defects.[13] As acknowledged in the World Bank report, China's poor are disproportionately affected by these environmental health burdens.[14] The World Bank puts the cost of China's pollution at 8 percent of GDP, although some economists say it as high as 10 percent of GDP, which is equal to the country's rate of economic growth. Fed up with the pollution, a number of environmental riots have erupted in China in recent years, and are likely to become more numerous in the future.[15]

Africa's Black Gold: Investing in Repression and Environmental Injustice

. . . Nigeria . . . has seen huge investments of US capital to develop the oil fields, and is now the eighth leading exporter of oil in the world (and the largest oil producer in Africa). More than $300 billion in oil has been exported since 1975. Petroleum companies such as Chevron and Royal Dutch Shell have invaded the oil-rich Niger Delta, home to the Ogoni people, and one of the most populated regions in all of Africa. At the invitation of a brutally repressive Nigerian government, the international oil companies ignore standard environmental protection measures in order to cuts costs and maximize profits. Enjoying a complete lack of government oversight, the oil companies have created what the European Parliament calls "an environmental nightmare" for the Ogoni people. A constant barrage of oil spills—an average of 300 per year—have significantly contaminated waterways and groundwater, killed fish and other wildlife on which the local people are dependent, and decimated the resource base of numerous subsistence economies in the region. Petroleum pollution in Ogoni streams is 680 times greater than European Community permissible levels. Leaking pipes have also caught fire, exploded, and killed hundreds of people. Toxic wastes dumped in unlined pits litter the countryside, while continuous gas flares pollute nearby villages with 35 million tons of CO_2 a year (76 percent of natural gas in the oil producing areas is flared, compared to 0.6 percent in the United States, along with 12 million tons of methane, which is more than any nation on earth). Local crops will not grow, and acid rain pervades the area.[16]

As the ecological crisis emerged full force in the early 1990s, the Ogoni people organized peaceful protests to raise international awareness of their plight. In response to awareness such actions were generating around the world, the [then] military government reacted with extreme repression. In November of

1995, Ken Saro-Wiwa, the leader of the Movement for the Survival of Ogoni People—a highly respected and renowned playwright in the international community—and eight other Ogoni leaders, were arrested on trumped-up treason charges. They were immediately tried by a military tribunal, found guilty, and executed. Despite the military's unfounded allegations, the world knew the "Ogoni 9" were killed for organizing peaceful protests against the country's large oil exporter, Royal/Dutch Shell. As stated in a recent report, "Shell failed to use its substantial influence with the Nigerian government to stop the execution. Indeed, Shell has publicly admitted that it had invited the Nigerian army to Ogoni land, provided them with ammunition and logistical and financial support for a military operation that left scores dead and destroyed many villages."[17] In defense of the company and the military regime following the execution, Naemeka Achebe, the general manager for Shell Nigeria, stated, "For a commercial company trying to make investments, you need a stable environment . . . Dictatorships can give you that. Right now in Nigeria, there is acceptance, peace, and continuity."[18]

In response to the repression, Nigerian villagers have brought suit in US court against Chevron alleging that the company supported military attacks on protesters in the Niger Delta. A Human Rights Watch investigation uncovered Chevron's use of a covert Nigerian security force known as the "kill-and-go" squad against the movement. In the trial, Chevron stated that the incident was "regrettable" but resulted from attempts by protesters to take control of weapons held by security personnel. Although the company was cleared of direct liability in 2004, the judge in the case noted that a reasonable juror could reason that the company had indirect responsibility, and could be liable for reparations due to its "extraordinarily close relationship" with Chevron Nigeria. In August of 2007, another judge allowed claims of wrongful death and other human rights suits to proceed. . . .

Global Pollution Havens: The Export of Ecologically Hazardous Industry

. . . In the age of corporate-led globalization, free trade and neo-liberal economic policies are encouraging countries to lower wages and environmental standards in order to cuts costs and achieve a comparative advantage in the world economy. By pitting various nations against one another in this "race to the bottom" phenomenon, in which countries lower environmental regulations in order to gain a competitive edge, multinational corporations have acquired greater and greater power vis-a-vis the nation-state. With the increased international mobility of industrial capital, various governments [at all levels] are pressured to reduce the financial burden of environmental regulations, taxation policy, labor rules, and consumer product safety requirements upon industry.

Otherwise, the manufacturer will simply pick up and move to another part of the world where the business climate is more favorable. The state is left with little choice but to grant such concessions if the jobs and other economic benefits are to be preserved.

Over the last three decades, those US-based industries most heavily impacted by environmental regulations, including lead smelting, dye and chemical manufacturing, asbestos-related production, pesticides, textiles, copper smelting, vinyl chloride, etc., have moved to other countries with weaker rules and enforcement.[19] American companies often make no secret of the fact that more stringent environmental regulations are a major factor in relocating facilities abroad. As stated by the US corporation Chemex, "As a result of tougher environmental regulations . . . many North American [mineral oil] refineries have ceased operations. Recognizing an opportunity, Chemex redirected its focus to the procurement of quality used refineries" for export to developing countries.[20] This process is now accelerating, as double standards in worker and community health protection become more commonplace in the world, especially in the less developed countries of the Caribbean, Africa, Latin America, and especially Asia. According to a United Nations study, over half of the transnational firms surveyed in the Asia-Pacific region adopt lower standards in comparison to their country of origin in the North.[21] As a result, the increased mobility of US capital is serving to relocate many of the worst public health risks and environmental injustices associated with "dirty industry" to the global South. . . .

Mexico: Environmental Troubles South of the Border

. . . Since the passage of the North American Free Trade Agreement (NAFTA) in 1994, Mexico's environmental problems have worsened throughout the country. NAFTA is a free trade agreement that reduces tariffs and other barriers to trade among Mexico, Canada, and the United States. Aided by the agreement, dirty industries are moving out of the United States to Mexico, where environmental standards are lax, unions are weak, and worker health and safety concerns are ignored.[22] Along the 2,100-mile US-Mexico border running from the Pacific Ocean to the Gulf of Mexico, there are more than 2,000 factories, or *maquiladoras*, including US companies, involved in textiles and clothing, chemicals, and electronics. A 1991 US Government Accounting Office study even found that several Los Angeles furniture manufacturers relocated to Mexico after the establishment of stringent air pollution restrictions in California (80 percent of these businesses cited environmental costs in their decision to move).[23]

The explosive growth of the *maquiladoras* is creating an ecological disaster along both sides of the border. Factories big and small generate huge volumes of pollution (some 87 percent of *maquiladoras* use toxic materials in their production processes). Reports show that industrial waste is seldom treated before

it is discharged into rivers, arroyos, the Rio Grande, or the ocean. *Maquiladoras* also generate a substantial amount of hazardous waste, including dangerous solvents such as trichloroethylene, acids, heavy metals like lead and nickel, paints, oils, resins, and plastics. Over 65 percent of such waste is unaccounted for in either the United States or Mexico.[24] The situation is growing worse because NAFTA no longer requires TNCs to return waste to the United States for proper disposal.[25] . . .

Buyer Beware: The Export of Ecologically Hazardous Commodities

In the era of corporate-led globalization, dangerous pesticides and other chemicals, biotechnology, drugs, and other consumer products that are highly restricted in the United States are still manufactured here and routinely exported to other nations. American corporations know that there is little government oversight or public pressure to inspect and regulate such products in overseas markets, and that significant profits are to be made from shipping their hazardous products to unsuspecting consumers all around the world. This process has been underway for many decades, but is accelerating with the expansion of world trade.

One of the most hazardous commodities exported by the United States to the rest of the world are pesticides. Roughly a billion pounds of pesticides are exported each year, or *45 tons per hour*. Tragically, American policy makers have done little to stop the export of pesticides forbidden in the United States. Under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), EPA does not review the health and environmental impacts of pesticides manufactured for export only, or what are termed "never registered" pesticides. The most recent figures available indicate that nearly 22 million pounds of these exported pesticides are banned or severely restricted for use in the United States, an average of more than 22 tons per day. Furthermore, an average rate of more than 30 tons per day of "extremely hazardous" chemicals, as rated by the World Health Organization, are also exported. Nearly 1.1 billion pounds of known or suspected carcinogenic pesticides were exported by the United States between 1997 and 2000, an average rate of almost 16 tons per hour.[26] As a result, many pesticides that the Environmental Protection Agency (EPA) has judged too dangerous for domestic use, as well as pesticides never evaluated by the EPA, are regularly shipped from US ports.[27]

. . . The most dangerous US chemical exports are often destined for Third World countries where the prevailing working conditions—a lack of protective equipment, unsafe application and storage practices, inadequate training of pesticide applicators—greatly magnify the health risks for agricultural workers and their families. In fact, about 57 percent of these products are shipped to the

developing world, while most of the remaining chemicals are shipped to ports in Belgium and the Netherlands for reshipment to developing countries.[28] As a result, poisonings continue to mount. The World Health Organization (WHO) estimates that three million severe pesticide poisonings occur each year, and, of these, a minimum of 300,000 people die, many of them children. Some 99 percent of these cases occur in developing countries.[29]

The Global Circle of Poison

The people of the global South are not the only ones being poisoned by pesticides exported from the United States. Third World agricultural exports contaminated with pesticides come back to the United States and other Northern countries in a vicious "circle of poison." Although the US environmental movement was successful in legally restricting or prohibiting the use of many hazardous chemicals such as DDT in the 1970s, multinational corporations continue to manufacture and export these same pesticides to the Third World. The circle of poison closes when US citizens consume Third World exports contaminated with the pesticides. For instance, imports of Chilean grapes, Canadian and Mexican carrots, Mexican broccoli and tomatoes, Argentine and Hungarian apple juice, and Brazilian orange juice are found to have worse levels of pesticide contamination than US-grown crops.[30]

Food and Drug Administration (FDA) data shows that food imports from developing countries are often contaminated with pesticides banned or restricted for health reasons in the United States, including a violation rate of 40.8 for all imports of Guatemalan green peas; 18.4 percent for Mexican strawberries; and 15.6 percent for Mexican lettuce. FDA inspections of Chinese imports have also caught dried apples preserved with a cancer-causing chemicals; frozen catfish laden with banned antibiotics; scallops and sardines coated with bacteria, and mushrooms laced with illegal pesticides. These were among the 107 food imports from China that the FDA detained at US ports in April of 2007, along with more than 1,000 shipments of tainted Chinese dietary supplements and other products.[31]

Both US and foreign corporations know that exporting tainted products into the United States poses little risk of being caught by an underfunded and understaffed Food and Drug Administration. FDA testing of food imports (and domestic products) is infrequent and restricted to only a few choice chemicals. Since 1997, FDA officials have examined just 1.5 percent of all food imports, while shipments skyrocketed from more than 4 million entries in 1997 to more than 15 million in 2006. Under assault from the Bush administration and the polluter-industrial complex, the FDA's regulatory affairs staff is getting leaner—it shrank from a high of 4,003 full-time employees in the 2003 fiscal year to 3,488 in 2007. As a result, noncriminal foreign and domestic inspections carried

out by FDA's Center for Food Safety and Applied Nutrition staffers amounted to 9,038 in 2005, down from 11,566 just two years earlier.[32]

In the few instances where testing is done, FDA health standards are inadequate. In some cases, consumption of a single food item contaminated with chemicals at levels allowed by FDA, such as DDT in fish, would expose the consumer to more than 50 times the daily intake levels considered "safe" by the EPA. Persistent organic pollutants such as DDT and PCBs are implicated in a breast cancer epidemic that impacts an estimated 2,044,000 women in the United States, and claims about 40,000 lives each year.[33] In fact, a person eating the USDA's recommended five servings of fruits and vegetables per day will eat illegal pesticides at least 75 times per year. In contrast, the average consumer has to eat about 100 pounds of fresh fruits and vegetables in order to eat from a shipment tested for pesticides by the FDA. This means that the average American is at least 15 times more likely to eat an illegal pesticide than to eat from a shipment tested by the FDA.[34] A form of *toxic trespass*, these dangerous chemicals are invading the bodies of US citizens, and are linked to various types of cancers, learning disabilities and autism, immune system suppression, central nervous disorders, damage to reproductive systems, and numerous other disorders.[35] According to the US Centers for Disease Control (CDC), the American people carry a "body burden" of the pesticides chlorpyrifos (Dursban) and methyl parathion that dramatically exceed acceptable thresholds for chronic exposure.[36] . . .

Dumping on the Third World: The Export of Pollution and Hazardous Waste

The United States is the single largest producer of hazardous wastes in the world. Each year the United States produces some 238 million tons.[37] Meanwhile, the costs of hazardous waste disposal in the United States has grown from $15 per ton in 1980 to over $250 per ton, while the costs of incineration has increased over three-fold to between $1,500 and $3,000 per ton. Although capital has looked to reduce expenses by locating hazardous waste dumps and facilities in poor communities of color throughout the United States, there is also a growing incentive to export wastes to developing countries. The disposal costs per metric ton of hazardous waste in Africa, for instance, has historically hovered around $40–$50 per ton (and in the case of an agreement between the Gilbraltar-based company and the Benin Republic government, for as low as $2.50 per ton).[38] These costs are so low because regulations governing toxic waste disposal are virtually nonexistent in developing countries.

The incentive to cut disposal costs by exporting toxics to the global South is also strong among other advanced capitalist countries. Hundreds of cases involving hundreds of millions of pounds of hazardous waste being exported

from the advanced capitalist countries to the South have been documented over the last two decades. As if emboldened by the words of former World Bank chief economist Lawrence Summers, "I've always thought that under-populated countries in Africa are vastly *under*-polluted," dump sites of toxic waste from Western nations can be found throughout Africa, from Senegal to Nigeria, to Zimbabwe, Congo, and even South Africa. In some years, West Africa alone has imported up to 300 million tons of toxic waste from some 24 industrialized countries.[39]

A Toxic Terror in the Ivory Coast

The devastating impacts of hazardous waste trade in Africa and the global South is illustrated by case of the *Proba Koala* in the Ivory Coast. Exemplary of the growing integration of capital on a global scale, the *Proba Koala* was a Korean-built, Greek-managed, Panamanian-flagged tanker chartered by the London branch of a Swiss trading corporation whose fiscal headquarters are in the Netherlands—the multibillion dollar Dutch global oil and metals trading company called Trafigura Beheer BV. The ship had been acting as a storage vessel for unrefined gasoline. In the summer of 2006, the Trafigura had explored disposing of the ship's "washings" after a routine cleaning of the storage hull with caustic soda in Amsterdam. However, due to the $300,000 or more cost estimate for disposing of the waste in that city, the company instead elected to take the ship to the Ivory Coast, even though there are no facilities capable of handling high-level toxic wastes. Upon arrival, the captain of the *Proba Koala* contacted a local company called Compagnie Tommy to dispose of the waste for a mere $15,000, representing a huge savings for Trafigura.

On August 19th of 2006, the *Proba Koala* offloaded 528 tons of the washings onto more than a dozen tanker trucks. The washings were a toxic alkaline mix of water, gasoline, and caustic soda, which gave off many poisonous chemicals, including hydrogen sulfide. After loading up, Compagnie Tommy simply waited until after midnight. Under the cover of darkness, the tanker trucks fanned out to dump the waste in 18 public open-air sites around the country's main city of Abidjan. These sites included the city's main garbage dump, a roadside field beside a prison, a sewage canal, and several neighborhoods. In a scene eerily reminiscent of the Bhopal disaster, citizens throughout the city awoke at night to an overpowering stench that burned their eyes and made it hard to breathe. By morning, nausea, vomiting, diarrhea, nose bleeds, stomach aches, chests pains, and breathing difficulties were affecting thousands of people. Tests later showed the sludge contained excessive levels of mercaptans and hydrogen sulfide, a potent poison that can quickly paralyze the nervous system, and cause blackouts, respiratory failure and death. More than 100,000 Abidjan residents sought medical treatment, and 69 were hospitalized as a result of the dumping. Fifteen people died. The spreading illnesses sparked violent demonstrations

from a population convinced that government corruption was to blame for the dumping. The political furor ultimately forced the prime minister and his government to resign in September of 2006 (though many were later reinstated). Nevertheless, this mass resignation is unprecedented in the history of the Ivory Coast, and symbolizes the anger among the African people that their home would be used as a dumping ground by the advanced capitalist nations.[40]

Limitations of the Basel Convention for Controlling Global Dumping of Toxic Waste

In 1989, some 118 countries signed onto the Basel Convention on the Transboundary Movement of Hazardous Wastes and Their Disposal. Enacted in 1992, the treaty was designed to better regulate the movement of hazardous waste between nations. Unfortunately, there were problems left unaddressed. For one, the Convention did *not* prohibit waste exports to any location except Antarctica, and instead merely required a notification and consent system known as "prior informed consent" (PIC). As such, if a nation did consent to accept hazardous wastes for disposal, but did not have the capacity to control and monitor such wastes in a safe and environmentally sound manner, then the prior informed consent rule was meaningless.[41] In addition, a number of key nations, including the Ivory Coast and the United States, undermined the agreement by failing to ratify the main amendment to the Basel Convention. The Convention also did not adequately address the dumping of toxic products and materials through industrial recycling programs. Nevertheless, despite these problems, the Basel Convention established a new international norm that views the export of hazardous wastes from the North to the South as an unacceptable act of ecological imperialism.

Immediately after the adoption of the Convention, the international environmental movement and less developed countries went to work on overcoming its limitations. Over the course of the 1990s, their actions proved successful. The Convention has subsequently been strengthened through the adoption of hundreds of decisions, a protocol, an amendment, and the amendment of annexes. Of these agreements, the Basel Ban is the most important, as it puts into place a global ban on the export of hazardous wastes from members of the Organization for Economic Co-operation and Development (OECD) to non-OECD countries. It has, without question, in the words of the Basel Action Network, "transformed the Basel Convention from a control regime, to a no-exceptions, environmentally-justified trade barrier to hazardous waste."[42]

Unfortunately, even as a non-Party, the United States has vociferously opposed improvements to the Basel Convention. In fact, since the very beginning of the Basel negotiations, both Republican and Democratic administrations alike have joined with the polluter-industrial complex to strongly oppose

the concept of a no-exceptions waste trade ban. Furthermore, the United States is attempting to redefine what constitutes hazardous wastes, including efforts to avoid the Basel Convention for the management of end-of-life American ships or to de-list certain types of electronic wastes. . . .

Recycling "Trash for Cash"

In the new millennium, a new wave of waste trade is developing in the form of various "trash for cash" or recycling schemes of post-consumer products. Loopholes in the rules allow waste transfers to legally continue under the auspices of recycling. These exported wastes take the form of used car (lead acid) batteries, cell phones, plastics, heavy metals, old ships laden with asbestos, and lead scrap, which is shipped from the United States to southern China, India, Pakistan, the Philippines, Malaysia, and Taiwan for "recycling." In January of 1993 alone, for instance, the United States sent over 1,985 tons of plastic waste to India.[43] These new types of waste products are becoming a far more serious form of toxic dumping in comparison to the export of toxic chemicals.

. . . Electronic waste (or E-waste) is perhaps the most rapidly growing waste problem in the world. According to the United Nations, about 20 million to 50 million tons of E-waste is generated worldwide annually. Such waste contains toxins like lead, mercury, and other chemicals that can poison waterways, the land, or air (if burned). The United States, which uses most of the world's electronic products and generates most of the E-waste, is able to significantly reduce disposal costs by shipping E-wastes to the developing countries, especially Asia. In addition to US efforts to undermine the Basel Convention, the US government has also intentionally exempted E-wastes from the Resource Conservation and Recovery Act (RCRA).[44] In short, the export of E-waste to developing countries serves as an economic escape valve for American industry. Rather than designing products that are less toxic and that can be more easily rebuilt and reused, American business maximizes profits by building products with very hazardous components with a short life span. Some 20 million computers become obsolete each year in the United States, generating some 5 to 7 million tons of E-waste.[45]

In the era of corporate-led globalization, toxic wastes disposal is running "downhill" on the path of least resistance. About 80 percent of the E-waste handled by traders is exported to Asia, and 90 percent of that is destined for China, where environmental regulations are weak and poorly enforced. E-waste today contains a witches' brew of toxic substances such as lead and cadmium in circuit boards; lead oxide and cadmium in monitor cathode ray tubes (CRTs); mercury in switches and flat screen monitors; cadmium in computer batteries; polychlorinated biphenyls (PCBs) in older capacitors and transformers; and brominated flame retardants on printed circuit boards; plastic casings, cables, and polyvinyl chloride (PVC) cable insulation.[46]

The open burning, acid baths, and toxic dumping around recycling centers releases vast quantities of pollution. Lead levels in drinking water are 2,400 times higher than what the World Health Organization considers to be safe in the Guiyu region of China. Similar environmental problems can be found in India and Pakistan recycling operations.[47] As in the United States, poor communities surrounding the plants bear the greatest health impacts from these operations. . . .

A Better World Is Possible?

In the era of neo-liberalism and corporate-led globalization, environmental justice (EJ) movements in the both the United States and the global South have a mutual interest in developing coordinated strategies. The growing ability of multinational corporations and transnational financial institutions to evade environmental safeguards, worker/community health and safety regulations, and dismantle unions and the social safety nets in the United States is being achieved by crossing national boundaries into politically repressive and economically oppressive countries. And in this context, abetted by "free trade" agreements and economic liberalization enforced by the WTO, various nationalities and governments are increasingly being pitted against one another to attract capital investment by dismantling labor and environmental laws seen as damaging to profits. In this respect, corporate-led globalization is weakening the power of the EJ movement to win concessions from the state and American industry.

At the same time, any potential victory by a community of color in the United States against the disposal of toxic incinerator ash in their own locality is quite limited if the result is the transport and disposal of the same waste in a poor West African community. If multinational corporations flee to the Third World to avoid environmental regulations and liability in the North, then the actions of US environmentalists may be indirectly exacerbating environmental injustices elsewhere in the world.[48] Stringent environmental standards must be applied to all nations in order to foster global environmental justice. A reworking of established "free trade" agreements in favor of more positive "fair trade" agreements are an important first step in the struggle to defeat neo-liberal economic policy. Such a "fair trade" agreement would establish minimum standards or "floors" for regulations rather than "ceilings." In other words, rather than a "race to the bottom," whereby the nation with the weakest environmental regulations sets the standard "ceiling" which all trading partners must accept, a transnational EJ movement must work for a series of mandatory strong standards that apply to all nations. Such a regulatory harmonization process would privilege nations with the strictest environmental laws as establishing a standard "floor" to which all other countries must comply if trade is to be conducted between them.[49]

. . . The implementation of new international agreements and treaties to address the environmental injustices fostered by corporate-led globalization cannot be piecemeal in approach. Strong baseline standards around particular issues is not enough. Agreements must be comprehensive in nature, taking into account *all* of the interconnected processes by which ecological hazards are displaced and transferred between countries, and especially between the North and South. For instance, in response to the Basel Convention (and Basel Ban), there is evidence that as dirty industries are deterred from exporting hazardous wastes abroad, many factories are relocating from their home bases in the United States to more permissive investment locations in the poorer countries. Once relocated, industry is able to take advantage of the less stringent environmental regulations to more cheaply dispose of hazardous waste directly inside the new country. As a result, the intent of the Basel Ban will be defeated.

Unless comprehensive international rules are also put into place to govern foreign direct investment in "toxic" industries, hazardous wastes may still wind up in other countries via this alternative route. The migration of dirty industries to maquiladora zones in Mexico are a strong example of the migration process.[50] . . . [T]here are signals that a new transnational EJ movement devoted to tackling the export of ecological hazards to poor communities of color inside and outside of the United States is beginning to take shape. The Southwest Network for Economic and Environmental Justice (SNEEJ), and the Environmental Health Coalition (EHC), for instance, are placing pressure on multinational corporations and government agencies to clean-up pollution along the US-Mexico border. In addition, a coalition of Canadian, US, and Mexican organizations have successfully expanded right-to-know legislation in Mexico, including the establishment of a Pollutant Release and Transfer Register that is similar to those in Canada and the United States.[51] Although still in its infancy, the rise of an environmentalism of the poor in the global South and new transnational networks of EJ organizations in the North are among the most promising vehicles for curbing the ecological horror stories brought about by corporate-led globalization.

In the short run, only by achieving greater social governance over trade and lending institutions and regulatory bodies can the process that leads different countries to sacrifice human and environmental health in order to compete in the world economy be overcome. This includes efforts to reestablish popular control over the United Nations as a counterweight to the WTO.[52] . . . [I]nstitutions, including transnational corporations and large banks, the International Monetary Fund and the World Bank, the United Nations, and the General Agreement on Trade and Tariffs (GATT), must be opened up to greater public participation in decision-making.[53]The anti-globalization movement, in the form of the International Forum on Globalization (IFG), has prepared alternative proposals for building a more just and sustainable international system that ends corporate

dominance over the world economy. These IFG proposals include a system of unified global economic governance under a restructured United Nations.[54] In the long run, however, even bigger transformations are necessary. . . .

Notes

Faber, Daniel. 2008. "Chapter 4: The Unfair Trade-off: Globalization and the Export of Ecological Hazards." In *Capitalizing Environmental Injustice: The Polluter-Industrial Complex in the Age of Globalization.* New York: Rowman & Littlefield.

1. Excerpts from a December 12, 1991, internal memo by Lawrence Summer that was leaked to the press in 1992. Summers was at the time the chief economist at the World Bank in 1991. Summers would later become US treasury secretary under the Clinton administration, and a major figure in organizing international trade arrangements.

2. John Bellamy Foster, "Let Them Eat Pollution: Capitalism in the World Environment," in *Ecology Against Capitalism*, John Bellamy Foster (New York: Monthly Review Press, 2002), 60–68.

3. Francis O. Adeola, "Cross-National Environmental Injustice and Human Rights Issues: A Review of Evidence in the Developing World," *American Behavioral Scientist* 43, no.4 (2000): 686–706, esp 691.

4. Kate O'Neill, *Waste Trading Among Rich Nations: Building a New Theory of Environmental Regulation* (Cambridge, MA: MIT Press, 2000); Barry Castleman and Vicente Navarro, "International Mobility of Hazardous Products, Industries, and Wastes," *Annual Review of Public Health* 8 (May 1987): 1–19.

5. R. Scott Frey, "The Transfer of Core-Based Hazardous Production Processes to the Export Processing Zones of the Periphery: The Maquiladora Centers of Northern Mexico," *Journal of World-Systems Research* 9, no.2 (Summer 2003): 317–354.

6. Jennifer Clapp, *Toxic Exports: The Transfer of Hazardous Wastes from Rich to Poor Countries* (Ithaca, NY: Cornell University Press, 2001), 109–110.

7. Robert Lucas, David Wheeler, and Hemamala Hettige, "Economic Development, Environmental Regulation, and the International Migration of Toxic Industrial Pollution, 1960–88," *Policy Research Working Papers*, WPS 1602 (Washington, DC: World Bank, 1992), 14.

8. Joseph Kahn and Jim Yardley, "Amid China's Boom, Pollution Reaches Deadly Extremes," *Boston Globe* (August 26, 2007), A9.

9. World Bank, *The Cost of Pollution in China: Economic Estimates of Physical Damages*, a report prepared by the World Bank and State Environmental Protection Administration, P.R. China (2007), 1–111.

10. Jim Jubak, "How Long Can China Pollute for Free?" *Jubak's Journal* (February 9, 2007), 1–8; and Elizabeth C. Economy, *The River Runs Black: The Environmental Challenge to China's Future* (Ithaca, NY: Cornell University Press, 2004).

11. World Bank, *The Cost of Pollution in China*, 1–111.

12. Jubak, "How Long Can China Pollute for Free?" 1–8.

13. Blacksmith Institute, *The World's Most Polluted Places: The Top Ten of the Dirty Thirty*, a report prepared by the Blacksmith Institute (New York: September 2007).

14. World Bank, *The Cost of Pollution in China*, 1–111.

15. Tim Johnson, "Environment: A Social Issue—Bad Air and Toxic Water Spark Protests and Reflect Political Conflicts," *Philadelphia Inquirer* (November 25, 2005), A1, A18.

16. Michael Watts, "Violent Environments: Petroleum Conflict and the Political Ecology of Rule in the Niger Delta, Nigeria," in *Liberation Ecologies: Environment, Development, Social Movements,* 2nd ed., ed. Richard Peet and Michael Watts (New York: Routledge, 2004), 273–298.

17. Amnesty International USA, *Environmentalists Under Fire: 10 Urgent Cases of Human Rights Abuses* (Washington, DC: Amnesty International USA and the Sierra Club, 2000), 22–23.

18. Joshua Hammer, "Nigeria Crude: A Hanged Man and an Oil-Fouled Landscape," *Harper's* (June 1996), 68; cited in Karliner, *The Corporate Planet*, 86.

19. Jeffrey Leonard, *Are Environmental Regulations Driving US Industry Overseas?* (Washington, DC: Conservation Foundation, 1985), 155.

20. Jorg Janischewski, Mikael P. Henzier, and Walter Kahlenborn, *The Export of Second-Hand Goods and the Transfer of Technology: An Obstacle to Sustainable Development in Developing Countries and Emerging Markets?* (Berlin: German Council for Sustainable Development and Adelphi Research, May 2003), 29.

21. ESCAP/UNCTC, *Environmental Aspects of Transnational Corporation Activities in Pollution-Intensive Industries in Selected Asian and Pacific Developing Countries* (Bangkok: UN/ESCAP, 1990), 61.

22. Frey, "The Transfer of Core-Based Hazardous Production Processes to the Export Processing Zones of the Periphery, 317–354.

23. US General Accounting Office, *U.S.-Mexico Trade: Some U.S. Wood Furniture Firms Relocated from the Los Angeles Area to Mexico* (Washington, DC: US GAO, 1991).

24. D.M. Perry, Roberto Sanchez, and William H. Glaze, "Binational Management of Hazardous Waste: The *Maquiladora* Industry in the US-Mexico Border," *Environmental Management* 14 (1998): 441.

25. Clapp, *Toxic Exports,* 116.

26. These findings come from a special issue of the *International Journal of Occupational and Environmental Health* 7, no. 4 (2002), and summarized in the Pesticide Action Network Updates Service, "US Pesticide Exports Remain High," January 11, 2002, at www.panna.org/resources/panups/panup_20020111.dv.html (September 15, 2007), 1–2.

27. Foundation for Advancements in Science and Education, *Exporting Risk: Pesticide Exports from US Ports, 1995-1996* (Los Angeles, FASE: 1998), 1–18; and Carl Smith, "US Pesticide Traffic—Exporting Banned and Hazardous Pesticides," *Global Pesticide Campaigner* 3, no. 3 (1993): 1.

28. Foundation for Advancements in Science and Education, *Exporting Risk*, 1.

29. Flemming Konradsen, "Acute Pesticide Poisoning—A Global Public Health Problem," *Danish Medical Bulletin* 54, no.1 (February 2007): 58–59.

30. Edward Groth III, Charles M. Benbrook, and Karen Lutz, *Do You Know What You're Eating?: An Analysis of US Government Data on Pesticide Residues in Foods*, a report by the Consumers Union of United States, Inc (February 1999).

31. Environmental Working Group, *Forbidden Fruit: Illegal Pesticides in the US Food Supply* (Washington, DC: Environmental Working Group, February 1, 1995), 2.

32. Diedtra Henderson, "Food imports seldom checked: Odds favor rogue producers over underfunded, understaffed FDA, critics say," *Boston Globe* (May 1, 2007), C1, C5.

33. Kristin S. Schafer, Susan E. Kegley, and Sharyle Patton, *Nowhere to Hide: Persistent Toxic Chemicals in the U.S. Food Supply* (San Francisco: Pesticide Action Network North America, March 2001), 8, 21–23.

34. Environmental Working Group, *Forbidden Fruit*, 3.

35. Schafer, Kegley, and Patton, *Nowhere to Hide*, 24.

36. For a discussion of the 2004 CDC report, see Kristin S. Schafer, Margaret Reeves, Skip Spitzer, and Susan E. Kegley, *Chemical Trespass: Pesticides in Our Bodies and Corporate Accountability*, a report by the Pesticide Action Network North America (May 2004).

37. R. Scott Frey, "The Transfer of Core-Based Hazardous Production Processes to the Export Processing Zones of the Periphery: The Maquiladora Centers of Northern Mexico," *Journal of World-Systems Research* 9, no. 2 (Summer 2003): 317–354; and Frey, "The Hazardous Waste Stream in the World System," 109.

38. Segun Gbadegesin, "Multinational Corporations, Developed Nations, and Environmental Racism: Toxic Waste, Oil Exploration, and Eco-Catastrophe," in *Faces of Environmental Racism: Confronting Issues of Global Justice*, 2nd Edition, eds. Laura Westra and Bill E. Lawson (New York: Rowman & Littlefield, 2001), 187–202, esp.190.

39. Gbadegesin, "Multinational Corporations, Developed Nations, and Environmental Racism: Toxic Waste, Oil Exploration, and Eco-Catastrophe," 190.

40. Lydia Polgreen and Marlise Simons, "Global Sludge Ends in Tragedy for Ivory Coast," *New York Times*, October 2, 2006, at www.nytimes.com/2006/10/10/02/world/africa/02ivory.html (September 12, 2007).

41. Frey, "The Hazardous Waste Stream in the World System," 115.

42. Basel Action Network, "The US Must Ratify the Entire Basel Convention (or not at all)," Briefing Paper no. 2 (September 2007), 1–2.

43. Anne Leonard, "South Asia: The New Target of International Waste Traders," *Multinational Monitor* 14 (December 1993): 21–24, esp. 22.

44. Jim Puckett, Leslie Byster, Sarah Westervel, Richard Gutierrez, Sheila Davis, Asthma Hussain, and Madhumitta Dutta, *Exporting Harm: The High-Tech Trashing of Asia*, a report by the Basel Action Network and the Silicon Valley Toxics Coalition (February 25, 2002).

45. National Safety Council, *Electronic Product Recovery and Recycling Baseline Report* (Washington, DC: 1999).

46. Puckett, et al., *Exporting Harm*, 6–9.

47. Puckett, et al., *Exporting Harm*, 9, 22.

48. Adeola,"Cross-National Environmental Justice and Human Rights Issues," 703.

49. Mark Ritchie, "Trading Away the Environment: Free-Trade Agreements and Environmental Degradation," in *Toxic Struggles: The Theory and Practice of Environmental Justice*, ed. Richard Hofrichter (Philadelphia: New Society Publishers, 1993), 209–218.

50. Clapp, "Seeping Through the Regulatory Cracks,"141–155.

51. Talli Nauman, "Mexico's Right-to-Know Movement," *Citizen Action in the Americas* (February 2003), cited in Frey, "The Transfer of Core-Based Hazardous Production Processes," 338–341.

52. Kenny Bruno and Joshua Karliner, *Earthsummit.biz: The Corporate Takeover of Sustainable Development* (Oakland, CA: Food First Books, 2002).

53. Martin Khor Kok Peng, "Economics and Environmental Justice: Rethinking North-South Relations," in *Toxic Struggles: The Theory and Practice of Environmental Justice*, ed. Richard Hofrichter (Philadelphia: New Society Publishers, 1993), 219–225.

54. International Forum on Globalization, *Alternatives to Economic Globalization: A Better World Is Possible* (San Francisco: Berrett-Koehler Publishers, 2002).

12

Driving South

The Globalization of Auto Consumption and Its Social Organization of Space

Peter Freund and George Martin

As Daniel Faber's piece illustrated, the development of a global economy is among the most important trends of the last several decades. Aided by heavy governmental support for transportation infrastructures, such as roads, wealthy countries became completely dependent on auto transport by the middle of the twentieth century. Now the automobile culture is spreading throughout the world. Freund and Martin explore the effects that the automobile, the most mass-traded durable good, is having on the organization of social space in poorer countries. The authors show that poorer countries face challenges in their attempts to adopt the automobile culture, including a lack of automobile infrastructure and the high costs of importing oil. Because of these challenges, pollution, health problems, dangers to pedestrians and bicyclists, and the loss of green space are exacerbated.

1. Introduction

Since its introduction over a century ago, the automobile has become an icon of freedom, progress, and modernity throughout the world. Auto ownership is used as an indicator of economic development; it is the leading mass-produced durable good in the world.[1] In developed countries, it has become the domi-

nant transport modality; in parts of the U.S. it is the *only* viable means of everyday mobility. Most significantly, the attainment of individualized auto consumption for the great majority of populations in places like the U.S. has structured general perceptions of what is the most desirable and the most practical means of mobility.[2] This attainment is made material by the now-embedded public infrastructures necessary for private auto use, from roads to regulating bureaucracies.

Countries of the South[3] are rapidly adopting Western modes of consumption such as mass auto ownership as a path to economic development. Between 1993 and 1997, vehicle registrations rose by 40 percent in the North, compared to 61 percent in the South. But what kind of development is it?

> But what, then, should we mean by development? And how do we measure higher living standards? Are the living standards of a family in Bangkok raised, for example, when their cash income rises enough so that they can purchase an automobile—when the pleasure of car ownership is offset by the loss of free time caused by the need to work more hours, or even take a second job, to pay for the car and all its attendant costs, by the longer commuting time caused by other motorists exercising their freedom, by lung cancer, by the generalized urban blight of jammed roads, car parks, petrol stations, used-car lots, drive-in fast-food franchises, brown skies and howling car alarms? Is this a higher standard of living?[4]

It is the replication of auto transport, etched in concrete and asphalt, that is the embodiment of a dream to which many in the world aspire. However, the auto represents more than transport. Its mass consumption has transformed the physical structure of landscapes, contributed to atmospheric, soil, and water degradation, and shaped, often in negative ways, the social organization of communities.

It is important, when considering these changes, not to see them as a product of "the automobile" but rather as a consequence of the way its use is promoted and organized, as part of an auto-centered transport *system*.[5] This system includes a vast material infrastructure of roadways, repair facilities, auto supply shops, gas stations and service facilities, motels and tourist destinations, storage spaces, and an extensive social infrastructure of bureaucracies for the control of traffic, the education of drivers, and the regulation of drivers, vehicles, and fuels (among other things).

In addition to their dependence on elaborate infrastructures and to their increasing scale of use, autos have qualitative features that maximize their use of space; they require multiple, dedicated spaces. Spaces have to be allocated not only in driveways, but also on roads, in parking lots, and at work sites. All of these spaces are difficult to use for any purpose other than temporary car

storage; at other times they are vacant. Fundamentally, in auto-centered transport systems (ACTS) the auto is not only the dominant mode of transport; its use commands the disposition of much public space, which it wastes much more than it employs.

The emergence of auto-centered systems and their hegemony over public space in many parts of the world is not only a testament to the success of a particular technological form and a system for organizing its use, including the social life around it, but also to the extreme way in which capitalism has come to structure consumption. As a *mode of consumption,* auto-centered transport is a highly individualized, privately-owned form which is heavily subsidized by the state. The relationships among the auto, the environment, and capitalist economy revolve around the use of a technology which is the central durable commodity in the mature capitalist economy. This mode of consumption—not just the auto itself—is being diffused to countries in the South, a diffusion that has accelerated in the global, neoliberal 1990s.

2. The Globalization of Auto Hegemony

While auto production and consumption became worldwide phenomena at the end of the 20th century, great variation in the concentration of ownership remains. . . . [J]ust three nations in the world—the U.S., Germany, and Japan—account for 53 percent of world vehicle production and 49 percent of consumption, while they have only eight percent of world population. Their domination of auto production and consumption is a major factor in their supremacy over the world economy.[6] Despite the ongoing economic restructuring based on technological advances in computers, electronics, and telecommunications, the auto-oil industrial complex retains a leading position in the global economy; in 1997, it accounted for six of the world's 10 largest business firms.[7]

Auto densities in the world range from a high of 1.3 persons per vehicle in the U.S. to a low of 12,913 persons per vehicle in Afghanistan. For purposes of analysis, the nations of the world can be sorted into three groups by their degree of auto-centered transport systems (ACTS):[8]

1. The counties with the most developed ACTS feature three or less persons per vehicle, in a total of 38 places. The most populous among these places are the U.S., Japan, Germany, Italy, the UK, and France. Africa and Central and South America have no developed ACTS, but several oil-rich nations in Asia—Brunei, Kuwait, and the United Arab Emirates—do have developed ACTS. In places with the most developed ACTS, autos dominate the cities, auto-induced urban sprawl is considerable, and the countrysides have become auto-dependent.

In the nation with the most developed ACTS, the U.S., we can speak of the emergence of *hyperautomobility*—characterized by very high auto density (high-

lighted by the specialization of vehicles within households) and by very high auto use (indicated by increasing trips and distances, but with decreasing vehicle occupancy).[9] The hyperautomobile U.S. is different from the other nations with the most developed ACTS. While U.S. cities average 54 percent more autos per person than European cities, auto use is even more pronounced. Auto kilometers per year per person average 143 percent more in U.S. cities than in European cities.[10]

2. The mid-range ACTS countries have 4–50 persons per vehicle, in a total of 70 places. The most populous mid-range ACTS nations are Russia, Brazil, Mexico, Turkey, and Thailand. Mid-range ACTS countries include all of the former centrally planned economies of Eastern Europe and most of South America, as well as Israel, South Korea, and Taiwan. In these places with mid-range ACTS, the cities are also auto-dominated, but auto-induced urban sprawl is not yet pronounced and cities maintain a moderate level of transport diversification. The countrysides retain a mix of motorized and non-motorized transport.

3. Finally, the least developed ACTS countries have more than 50 persons per vehicle, in a total of 50 places. All these are in Africa or Asia, with the exception of the following nations in the Americas: Bolivia, Cuba, El Salvador, Guatemala, Haiti, and Honduras. The most populous nations are China, India, Indonesia, Pakistan, Bangladesh, and Nigeria. In these countries with the least developed ACTS, cities have been penetrated by autos but retain considerable diversity of transport modalities, while the countrysides are virtually auto-free. There is little or no auto-induced urban sprawl. . . .

In many respects, car troubles are an urban phenomenon, and this is starkly illustrated in the growing transport problems of the megacities of the South. Autos have been increasing at relatively high rates in many Asian, African, and Latin American cities, so that these cities at first glance resemble those of the North—featuring super highways and super traffic congestion. However, there are several significant differences in the current status of auto transport in cities of the North and the South:

1. In the South, auto transport has not become a mass phenomenon; it is largely restricted to the relatively small elite and middle class sectors, which constitute a small minority of the population.

2. Because auto transport is the privilege of a minority in Southern cities, these cities retain a more diversified transport modal split relative to the North. The working and poor classes of Southern cities depend on public transport (where available) and upon non-motorized transport, especially cycling, walking, and animal power.

3. Because many of the nations of the South are relatively poor and debt-laden, the public costs of auto transport come at a greater social price than they do in Northern cities. Principal among these costs is the provision of an adequate

sociomaterial infrastructure, including roadways and regulating bureaucracies. The development of infrastructure lags behind the introduction of the car in Southern cities. Infrastructures for walking and other non-motorized forms of transport are even less developed than auto infrastructures. For instance, over 70 percent of Jakarta's roads have no sidewalks.[11] Mass transit is similarly neglected as scarce resources are diverted to subsidize ACTS. One of the more dramatic illustrations of this uneven development is the relatively high toll in roadway-related human carnage in Southern nations.

4. Related to this infrastructure issue is a special problem for many Southern nations: They have to import oil to operate autos. Since autos can run without an adequate material and social infrastructure but not without oil, the oil-poor nations of the South are further disadvantaged, as their meager resources can be sapped by oil import costs.

. . . [S]ince auto markets in the developed nations have matured, the great potential for new markets exists in the South. The greatest increases in new car sales from 1997 to 2005 are forecast to be in China, India, and the Philippines.[12] For auto makers such a trend is hopeful, yet the globalization of auto-centered transport represents an immeasurable ecological threat and badly aggravates already existing social inequities in access to transport. In short, ACTS are neither sustainable nor equitable.

The growth of auto-centered transport in the South thus brings into sharp relief issues of social inequality, the inappropriate use of transport technology, and the limits of globalizing such an energy-and-resource intensive and environmentally unfriendly system. The ideal of a motorized world built in the image of Southern California is simply not physically and economically feasible on a global scale.

The continuing diffusion of ACTS into the South is a major contributor to the South's growing ecological problems. The environmental problems of auto-centric transport in the South, especially air, soil, and water pollution, have been well documented.[13] Here, our focus is on the social organization of space promoted by auto-centered transport.

3. Modes of Consumption and the Social Organization of Space

In considering the diffusion of auto-centered transport systems, it is important to emphasize the sociomaterial aspects of consumption, of which two are central. First the resource (including especially land) and energy-intensive nature of auto-centered transport systems is at the core of the social and ecological problems that these systems cause. In the 1990s, the environmental problems caused by such systems have become global issues (e.g., global warming).

Second, most central for our analysis is the impact of auto-centered transport as a mode of consumption on the *social organization of space.*

While the negative aspects of the diffusion of the auto are obvious enough in countries of the North, in the poorer and less developed South they are gravely aggravated. Surface transport (in this case the auto) has been described by some as an "engineering industry" that is not carried out inside a factory but outside in public space.[14] In the South, just as the economic and technological development of the means of production is uneven, so is the development of the modes of consumption. Uneven development here means that the spatial and other contradictions of auto-centered transport are accentuated in countries of the South.

What are being exported to the South are not only technological forms that originated in the North, but consumerism, mainly modeled on that of the U.S. In this evolving model of consumerism, the auto is the transport commodity for local elites and is rapidly becoming the "privileged means of urban transportation."[15] These newly emerging auto consumption patterns have influenced urbanization and drained scarce public resources in the South.

One looming consequence of the diffusion of such a mode of consumption to the South revolves around issues of sustainability or what some have called the "China factor."[16] What happens to space in the form of arable land if, for instance, auto transport was to be adopted by all 1.2 billion Chinese? Total vehicle production increased by 152 percent between 1991 and 1998 in China and its mix changed as well. While the proportion of passenger cars was only six percent in 1991, it rose to 31 percent in 1998.[17]

While arable land is not in scarce supply in many Northern countries, in many nations of the South it is.

> China, which has almost exactly the same land in area as the U.S., has four times as many people living on it. Since such a large proportion of China is desert or mountains, its population is crammed into dense concentrations around the great river valleys. As a result, the country must feed more than one-fifth of the world's population on less than one-fifteenth of its farmland.[18]

Does it make sense for China to pave over arable land or land usable for dwelling spaces? Other countries of the South face similar problems, especially Egypt, Bangladesh, and Indonesia.[19] For example, each year in Indonesia, 250 square kilometers of agricultural land, forest, and wetland become roads and urban spaces, displacing large numbers of people.[20]

The use of land by autos reflects the great social inequality that exists in the South.

> In developing countries in general—and in Brazil in particular—transport and traffic policies, coupled to economic and social policies, have crystallized

> remarkable differences between those with and without access to private transport. Most decisions have a common objective: to adapt space to the use of the automobile for selected social groups.[21]

In the North, the disenfranchisement of poor people, people displaced by freeways, people with disabilities and older people and children is one harsh feature of auto-centered systems. In the South, such disenfranchisement is amplified, particularly in African and Latin American cities in which alternative modalities are underdeveloped and human-powered vehicles are not as widespread as in many Asian cities.

In the less developed auto-centered systems of the South, spatial contradictions and their impact on safety are glaring, since the possibilities of technological fixes (e.g., resources for more benign organizations of traffic) are not available, and the technical potentials of mass automobility have not been realized. While road deaths in the developed countries are down to less than five per 10,000 vehicles per year, in the developing countries the picture is quite different: 40 deaths per year per 10,000 vehicles in India, 77 in Bangladesh, and 192 in Ethiopia.[22] Transport space is in poor condition and it disenfranchises and is unsafe for the great majority who are not auto users. Traffic control is poor, as are mass transit alternatives. . . .

In South Africa, extremes of wealth and poverty contribute to one of the world's worst safety records. Luxury cars mix with overcrowded trucks (used as buses), donkey carts, cows, and pedestrians to produce a deadly combination.[23] Black townships do not have sidewalks, adequate lighting, or pedestrian overpasses on the roads through which affluent-owned high-powered vehicles race. For most blacks, transport (even now, in post-apartheid society) in cities is confined to public transport. Whites travel mostly by auto: one out of two white South Africans owns a car; only one of 100 blacks do.[24] South Africa, unlike many other countries of the South, has a developed transport infrastructure—but one which excludes modalities other than the automobile.

The growing space demands of auto owners are also degrading public places, the urban commons, in cities of the South; for example, the principal plaza in Mexico City. What used to be a popular and pleasant place to walk and socialize is now "filled with deafening traffic and the air is blue with car exhaust—trying to walk is more dangerous than driving."[25] Another example is Bangkok. Once called the "Venice of Asia," the city has paved over its canals; still, gridlock and pollution grow.[26] . . .

Autocentric transport demands massive public investment of land and resources for its infrastructures. The public purses of most nations of the South are not big enough to make these investments. In many cities of the South, the result is traffic congestion on an unprecedented level, congestion that carries great inefficiency costs in the transport of goods as well as workers. For example, in Sao Paulo, the lack of an adequate subway system and of well-developed auto infra-

structures has produced perhaps more traffic noise, air pollution, and congestion than in any other city in the world. However, consistent with their positions of power and their orientations to technologies of the North, wealthy Paulistanos are buying themselves out of this morass—by purchasing helicopters. At over 400, the fleet of private helicopters is the biggest of any city in the developing world, trailing only the fleets of New York City and Tokyo. The social class contradictions of such uneven development is highlighted by the fact that "it is easier for a wealthy person to buy a helicopter than it is for a working class person to buy a car."[27] . . .

. . . Poor people, particularly poor rural women, have an unequal transport burden. In effect, they are invisible to transport planners mainly concerned with large scale economic activity and with motorized traffic.[28]

In many countries of the South where other modalities are in pervasive and intensive use (e.g., bicycles in Chinese cities), these modalities are being pushed to the side and increasingly marginalized. Human-powered vehicles such as rickshaws and bicycles are seen by the middle classes and elites as archaic and as impeding the smooth flow of motorized traffic. In Bombay and Jakarta, such vehicles have been banned and in Manila they have been removed from the main roads.[29] Transport planners dislike large amounts of mixed traffic and their bias is to eliminate any obstacles to motorized traffic. Calcutta, despite a shortage of revenues, is investing in a huge new road infrastructure complete with flyovers, motor ways, and the rest. These structures will exclude the cycle rickshaws which are a source of jobs for many of Calcutta's poor.[30] In Bangladesh approximately 1.25 million people are directly involved with driving and maintaining rickshaws, while five million people depend on them for subsistence. Rickshaws are not part of government planning and in a government report, they were described as "slow moving" vehicles that should eventually be eliminated and replaced by automobiles and trucks.[31]

4. Transport Policy and Change

Governments in Southern countries are eagerly adopting the auto as the primary means of transport. Automobility is viewed as a sign and a means of economic development. Malaysia's experience with its government's "National Car Project" in the 1980s is an example of the huge costs involved in developing an auto industry. The auto is an up-market product that costs more than the average Malaysian house. In addition to sinking funds into production of the car, the government built new auto infrastructures, while cutting expenditure for rail and bus transport. Despite this public investment, the Malaysian car faces immense challenges.[32] Local critics argue that the experience demonstrates the folly of such industrial mega-projects for developing nations.

While most cities in the South have allowed free rein to the auto, some have restricted its use. One successful example of diversifying transport in the South is Curitiba, Brazil, a city of 1.6 million. Beginning in the 1970s, the city adopted

a series of transport-related measures, including improved bus transit, cycle ways and pedestrian ways, and integration of transport and zoning policies, in which higher densities were encouraged along major arterials and a mix of jobs, homes, and services were included in local areas. Additional policies have included traffic calming schemes and in-fill, in which new development is sited in abandoned land in the existing city rather than sprawling outward. Several improvements have been attributed to these policies, including the facts that Curitiba's rate of accidents per vehicle is now the lowest of Brazilian cities and its fuel consumption per vehicle is 30 percent less than in other Brazilian cities of its size. Finally, residents of Curitiba spend about 10 percent of their incomes on transport, one of the lowest such rates in Brazil. This is despite the fact that the city's auto ownership rate is high by Brazilian standards, second only to Brasilia's.[33] Various grassroots projects, such as those sponsored by the Institute for Transportation and Development Policy, are trying to develop and sustain transport diversity, especially those modalities that are less energy-and-resource intensive and are useful to poor people, women, and people with disabilities. "Afri Bike," for instance, promotes bicycles as development tools, sponsoring an urban-based center where vendors can lease load-carrying bikes.[34] . . .

Mobility is a growing problem for poorer people in the South. There, the increasing cutbacks in the public sector because of debt repayment, coupled with population growth in urban areas that outdistances the availability of public transport, deprives many people of any form of mobility except walking. . . .

Not only do many Southern governments subsidize auto transport and the auto industry at the expense of alternatives, so, too, do banks. Non-motorized forms of travel such as improved bicycles (e.g., using light metal) and carts have received virtually no subsidies. Alternative transport, which local elites view as "backward," is sacrificed to the auto. Yet, in the South, bicycles are a source of jobs and foreign exchange, and generate small-scale entrepreneurial activities such as vending, scrap collecting, and delivery services. Moreover, their manufacture and maintenance are labor-intensive enterprises.

Because of government support for the wholesale introduction of auto technology many Southern cities have become caricatures of the most auto-centered cities in the U.S. Cities such as Caracas have almost unimaginable journeys to and from work (up to seven hours per day), elaborate freeways without adequate feeder arterials that result in massive congestion, and highways that stop abruptly at the edges of old city centers because of lack of space. These cities could hugely benefit from improved bus service, bicycle and jitney use, and other less energy-and-resource intensive modes of transport.

5. Conclusion

The automobile and its socioenvironmental consequences revolve around its dual aspects as a transport *system* and a *mode of consumption.* When speaking

of development, one is not simply talking about technological diffusion, but also the diffusion of consumption patterns. In countries of the South, the automobile has spread to local elites and is beginning to dominate (especially urban) space and to drive other modalities out. Just as with the diffusion and globalization of a mature capitalist mode of production, so too the diffusion of a mature capitalist mode of consumption takes place in an uneven fashion.

A consumption mode of transport characterized not only by auto hegemony but by auto dependence is increasingly proving itself to be a form of unsustainable development and a socially destructive mode of consumption. Its diffusion to countries of the South aggravates its problematic social and environmental consequences in the short term. Even in the long term, if countries of the South could fully develop an auto-centered transport system such as that which exists in North America, the results would be disastrous in terms of the impact on the ambient environment and, above all, on social space. Deconstructing the taken-for-granted notion that autocentric transport is "progress" can lead us to reconsider such general questions as what is the "good life" and what constitutes material prosperity, and what kind of transport investments and planning need to be made—in the *North*, not only the South.

What distinguishes the auto from other consumer goods (including other durable goods) is that while the latter may also be energy-and-resource intensive, the car's pervasive and intensive use requires a great deal of *space*. The bulk of this space, furthermore, is the most desirable *public* space (e.g., in urban centers). The auto appropriates valuable public space and, particularly in countries of the South, makes this space virtually unusable for other non-motorized modalities (including walking). In this way, the adoption of autocentric transport can spearhead a more general development of capitalist consumption, i.e., the car provides a material inlay for Western consumerism. For example, in Venezuelan cities, auto-centered consumption patterns have been the catalyst in privatizing public space and in individualizing consumption.[35]

The auto is a private consumer good that is (in the North as well as South) heavily subsidized by the state. Scarce public resources go into highways and the infrastructures that automobiles need in order to be intensively and pervasively used by a minority of citizens in the South. Yet little is invested in ameliorating the impact of emerging automobility on social and physical environments. Technical fixes (e.g., systems of traffic control) and educational campaigns for safety are not nearly as developed as in countries of the North. There, the systemic limits to emission control and accident prevention are being reached, with further significant reductions only possible through social changes—changes in travel patterns and modal splits, both of which lead to a consideration of the re-organization of space.[36]

As a means of empowering the mass of the population and contributing to a more sustainable form of transport, a *diversity* of modalities should be developed and subsidized. Non-motorized vehicles can be appropriate technologies, not only for countries of the South, but also in the North (e.g., countries like

Denmark and the Netherlands). Mass transit and non-motorized transport need to be valorized and taken seriously in technological development (e.g., new metal alloys, solar power). Developing such modalities can represent a move "back to the future." Asian cities, particularly those of China, could benefit a great deal from such a shift in development policy.

Contemporary auto technologies do not co-exist well with other uses of their spaces. Highways built for autos are not hospitable for walkers and cyclists. Even motorized public transit like buses find it difficult to use auto-centered space. For example, effective bus transit requires frequent stopping for on- and off-loading passengers. For this reason, local buses are unable to make full use of auto highways. In the North, where auto-centered transport has matured, other modalities have been pushed aside, especially in the U.S. It will be difficult to re-engineer social space in the U.S., so that other modalities can be effectively used—even if the political will were present. In cities of the South, diversification in transport still remains, but it is gradually being pushed aside as auto consumption rises. While the South could profit from the negative lesson of the North and preserve (and modernize) their transport diversification, it is not happening. So far the neoliberal global development model has been too powerful.

. . . Transnational corporations based in Western Europe, North America, and Japan view the South—especially the so-called emerging market countries—as fast-growing, potentially vast markets for their commodities, as their own markets become saturated with goods and tend to stagnate. These corporations and the nation-states of the North are trying to globalize the way of life that evolves from automobility in general and to help develop the material infrastructure for the use of automobiles in the South in particular. The auto industry, petrochemicals, and other sectors dependent in part or whole on mass automobility are clamoring for a greater play in the South. Mass motorization in the South, it is thought, is the answer to excess productive capacity and profit shortfalls in the North.

While it is easy for countries of the North to tout sustainable development (having reaped the dubious benefits of unsustainable development), the countries of the South suffer the most. It is thus the North that needs to take the initiative in "greening" both production and consumption. This is because the North has done the most damage to the environment (especially as imperialists and neo-imperialists in exploiting resources in the South); has the material resources to make needed changes (some have termed the countries of the North post-scarcity societies); and as a model for development (particularly the U.S.) has the moral obligation to provide an example of a greener and socially less destructive way of life.[37]

Whether or not there can be a greening of consumption in the North *or* the South depends on planning the global market place, shifting production to less energy-and-resource intensive consumer goods, encouraging more sustainable and socially democratic modes of consumption—in all countries of the world.

Notes

Freund, Peter, and George Martin. 2000. "Driving South: The Globalization of Auto Consumption and Its Social Organization of Space." *CNS*, 11, no. 4: 51–71.

1. Unless otherwise indicated, data sources were: American Automobile Manufacturers Association, *Motor Vehicles Facts & Figures*, 1997 (Detroit); United Nations, *Human Development Report*, 1996 (New York); United Nations, *Statistics of Road Traffic Accidents*, 1994 (New York); U.S. Department of Commerce, *Statistical Abstract of the United States*, 1998 (Washington); Ward's Communications, *Motor Vehicles Facts & Figures*, 1999 (Southfield, MI); World Health Organization, *The Global Burden of Disease*, 1996 (Geneva).

2. Peter Freund and George Martin, "The Commodity That Is Eating the World: The Automobile, the Environment, and Capitalism," *CNS*, 4, 1996.

3. We would agree with Wolfgang Sachs, et al. (*Greening the North*, London: Zed Books, 1998) that with the dissolution of the Second World, the Third World is no longer (if it ever was) a homogenous category, with its countries dividing into underdeveloped and "emerging market economies." Following Sachs and others, we will use "North" and "South," accepting all of their imprecision. We also separate the South into two parts, based on levels of auto-centeredness.

4. Richard Smith, "Creative Destruction: Capitalist Development and China's Environment," *New Left Review*, 222, 1997, p. 28. The debate over measuring standards of living in quantitative versus qualitative terms first began between those looking at growth statistics during the English Industrial Revolution versus those whose focus was the loss of community, the decline of social cohesion, environmental destruction, and the like.

5. While we speak of autos, our data refer to motor vehicles, which includes passenger cars, light trucks, commercial trucks, and buses. However, passenger cars are numerically dominant. In the world in 1997, they represented 71 percent of all motor vehicles. It is also valid to include trucks as autos because in the U.S. about one-half of current passenger car sales are classified as light trucks, a category which includes SUVs, vans, and pick-up trucks. The SUV is of course a new phenomenon that deserves special treatment.

6. See Peter Dicken, *Global Shift: Transforming the World Economy* (New York: Guilford Press, 1998), Chapter 10.

7. *Forbes*, July 28, 1997, p. 180.

8. The long-standing assumption of a close link between automobility and economic development (wealth) may be no longer valid. See Peter Newman and Jeffrey Kenworthy, *Sustainability and Cities: Overcoming Automobile Dependence* (Washington, DC: Island Press, 1999), pp. 111–114.

9. George Martin, "Hyperautomobility and Its Sociomaterial Impacts," Working Paper, Centre for Environmental Strategy, University of Surrey, Guildford, February, 1999.

10. Newman and Kenworthy, op. cit., p. 80.

11. ITDP, "Jakarta's Non-motorized Modes, 'Living Dangerously,'" *Sustainable Transport*, 6, 1996, p. 8.

12. *The Economist,* June 13, 1998, p. 142.

13. See Kenneth Button and Werner Rothengatter, "Global Environmental Degradation: The Role of Transport," in David Banister and Kenneth Button, eds., *Transport, the Environment and Sustainable Development* (London: E. & A.N. Spon, 1993); Asif Fail,

"Motor Vehicle Emissions in Developing Countries: Relative Implications for Urban Air Quality," in Alcira Kreimer and Mohan Munasinghe, eds., Discussion Papers, No. 168 (Washington, DC: World Bank, 1992); Asif Fail et al., *Automotive Air Pollution—Issues and Options for Developing Countries* (Washington, DC: World Bank, 1990); World Bank, *Sustainable Transport: Priorities for Policy Reform* (Washington, DC: World Bank, 1996).

14. David Banister, *Transport Planning in the UK, USA, and Europe* (London: E & AN Spon, 1994), p. 20.

15. Tom Angotti, "The Political Economy of Oil, Autos and the Urban Environment in Venezuela," *Review of Radical Political Economics*, 30, 1998, p. 101.

16. John Whitelegg, *Critical Mass* (London: Pluto Press, 1997).

17. Today, Volkswagen has three car factories in China; Suzuki has four factories; Daihatsu, Citröen, General Motors, Honda, Audi, and Daimler-Chrysler have one each (*New York Times*, August 3, 2000).

18. Smith, op. cit., p. 33.

19. Lester Brown, "The Future of Automobiles," *Society*, 21, 1984, p. 65.

20. Walter Hook, "Jakarta: A City in Crisis," *Sustainable Transport*, 8, 1998, p. 14.

21. Eduardo A. Vasconcellos, "Urban Transport and Equity: The Case of Sao Paulo," *World Transport Policy and Practice*, 4, 1998, p. 16.

22. Oliver Tickell, "Death Duties," *The Guardian*, June 24, 1998, pp. 4–5.

23. Donald G. McNeil, "South Africa's Well-Kept Roads, a Grim Harvest of Traffic Deaths," *The New York Times*, December 25, 1997, p. 5.

24. John Griffin, "South Africa: Mobility in the Post Apartheid City," *Sustainable Transport*, 3, 1994, p. 8.

25. Wayne Ellwood, "Car Chaos," *New Internationalist*, 195, 1989, p. 6.

26. Smith, 1997, op. cit., pp. 29–30.

27. Simon Romero, "Rich Brazilians Rise Above Rush-Hour Jams," *The New York Times*, February 15, 2000, p. A4.

28. Priyanthi Fernando, "Gender and Transport," in Saskia Everts, ed., *Gender and Technology* (London: Zed Books, 1998).

29. Whitelegg, op. cit., p. 47.

30. Paul Brown, "Road Accidents Set to be the World's Biggest Killer," *The Guardian*, June 24, 1998, p. 14.

31. Whitelegg, op. cit., p. 47.

32. Halinah Todd, "The Proton Saga Saga," *New Internationalist*, 195, 1989, pp. 14–15.

33. Marcia D. Lowe, "Shaping Cities," in Lester Brown, ed., *State of the World* (New York: W. W. Norton, 1992); Jonas Rabinovitch and Josef Leitman, "Urban Planning in Curitiba," *Scientific American*, March, 1996.

34. Karen Overton, "Women Take Back the Streets," *Sustainable Transport*, 3, 1994, p. 6.

35. Angotti, op. cit.

36. Deaths from roadway accidents (relative to the number of motor vehicles for vehicle miles driven) in the U.S., for example, have been falling. However, the absolute number of deaths remains stubbornly high. Deaths slowly declined from a high of 51,093 in 1979 to a low of 39,250 in 1992. Since 1992, they have inched up again, to 41,480 in 1998, despite the introduction of improved safety technology (such as airbags) and the tightening of social controls (over drunk drivers, for instance).

37. Sachs, et al., op. cit.

PART

Media and Popular Culture

13

Selling "Mother Earth"

Advertising and the Myth of the Natural

Robin Andersen

The two articles in this section show how media and popular culture serve as tools for different interest groups to send competing messages and claims about the environment. Wealth often determines who controls the media, and, as Robin Andersen shows in this selection, corporations use advertisements to very successfully express their own versions of "nature" and "environment." As this selection documents, advertisements utilize visual imagery to create symbolic connections between pristine nature and consumer goods. At the same time that these ads portray products that appear to mimic, merge with, or revere nature, the production processes associated with many consumer items actually destroy the environment. Like the Davis piece from a previous section, Anderson is discussing a process called "greenwashing," which refers to a corporate strategy that directs resources to public relations—especially to the presentation of images of their organization's "greenness"—rather than to effecting substantial change toward environmental sustainability.

A television advertisement for KitchenAid opens with spectacular vistas of purple mountains framing a desert landscape. A foregrounded spire juts heavenward, rising from scarred hills cut by centuries of water runoff. Mist hangs between the barren ranges. This image fades to an oven framed by kitchen counters decorated in the same sun-washed shades as a voice intones,

"KitchenAid ranges mirror nature in surprising ways." The camera moves across another exquisite desert view. This time the camera is closer, the hills are smaller, and sparse desert flora cover the dry earth. The camera moves over ancient hills rounded by centuries of wind erosion; superimposed are the words "KitchenAid."

These desert contours morph into the visually similar curved forms of twisted bread baking inside the oven. The voice adds, "with even warmth." Next, as the camera glides high above the protruding formations, it moves toward us and passes over a sheer, free-standing rock face. The image transposes from the sun-washed rock wall to the off-white oven door, moving upward to close. The voice assures, "strength that endures." Next, "a mystery that unfolds," reveals, through time-lapse photography, cactus flowers opening. With the same pacing, the image turns into a rising soufflé. "The fire of creation" fills the screen with the desert sun's warm golden glow. The golden circle fades into the lit stovetop burner, then into a circular skillet sautéing vegetables, "all someplace a little closer to home. KitchenAid freestanding ranges, built-in ovens and cook tops," the ad continues.

Inside the kitchen now, a woman moves around the appliance-laden, picture-perfect room. She wears a long earth-mother, printed gauze skirt, and as we hear, "because we took a cooking lesson from Mother Nature," the image moves back to a panorama of the desert with "KitchenAid" slashed across the hot, dry landscape. Throughout the ad, the female voice, soft and low, mixes with continuous new-age spiritual humming that rises to an inevitable crescendo as the commercial ends.

There is no essential, authentic, or inherent connection between the desert and the oven. A pristine ecosystem bears little logical connection to a manufactured appliance. They are both hot, though not comparable in degree, but the sensuous analogy establishes a connection. More important, however, stunning visual juxtapositions and editing forge a powerful and compelling association that unites the natural world with the commodity. They become indistinguishable; our social constructions and commonsense conceptions of "untouched wilderness" are now compatible with the highly materialistic lifestyles of first-world consumer culture.

This chapter seeks to demonstrate how corporate consumer culture creates enchanting and persuasive advertising messages, using both visual and textual strategies, that celebrate the environment while their own business practices continue on a path of ecological destruction. Left unexamined, such influential messages help facilitate corporate environmental destruction, especially in the absence of information and public debate about the destructive consequences of consumer culture.

The KitchenAid ad inserts the oven into the untarnished landscape through the use of a highly persuasive mode of visual language. Visual persuasion uses symbolic, associative terms that lack "propositional syntax," that is,

they do not explicitly indicate causality or other logical connections.[1] This syntactical indeterminacy is one important aspect of the persuasive uses of images of nature in advertising.

The symbolic landscapes of consumer culture, including visually enhanced images of the natural world, allow advertisers to make insinuations about their products without explicitly claiming anything. To state openly that an oven is like nature because it is hot, and because a rising soufflé can be made to look like the opening of a cactus flower, would sound ridiculous. However, because the visual implications have not been stated plainly, they are not logically rejected. Such stunning associations make powerful connections between the natural world and the world of products; pleasing aesthetic representations and feelings about awe inspiring natural landscapes are united with the product. The sense of psychic pleasure and inspiration is linked to the KitchenAid freestanding ranges. KitchenAid used these techniques in a series of ads for their appliances.

Perhaps most significant is their refrigerator advertisement. The aerial camera glides though clear, blue skies over a high-mountain forest covered in pure, white snow. As we hear the words "crisp, freshness," the image cuts to a refrigerator vegetable compartment. And with "brilliant light," another snow-covered peak and a dazzling bright-white mountain meadow are transfigured into the refrigerator's interior. The voice proclaims, "The refrigerator designed with a blueprint from Mother Nature, by KitchenAid." The last shot is a high-mountain lake luminous with the reflection of snow-covered peaks, as a woman's voice whispers, "For the way it's made." But what *about* the way it's made?

Advertising's symbolic culture inserts the product into the natural world, removing it from the context of its production. The ad never explains how it is made, who made it, or the effect on the environment, either during its production or during its use. The remarkable juxtapositions silence those realities and hide the social and environmental relations of the production and use of the commodity.

However, there is much to say about the "way it's made." The primary industrial cause of ozone depletion is the gases associated with refrigeration. Chemicals such as chlorofluorocarbons and hydrochlorofluorocarbons (CFCs and HCFCs), widely used as refrigerants and insulating foams, destroy the ozone layer by releasing chlorine in the upper atmosphere. Refrigeration, however, no longer requires ozone-depleting gases. Over one million "greenfreezes" have been sold in Europe, but such environmentally friendly refrigerators are not available in the United States. A campaign by Greenpeace encourages American manufacturers to offer nonozone-depleting refrigerators to the American public. The campaign targeted Whirlpool, the parent company that manufactures KitchenAid, because it is a huge company that produces parts for the greenfreeze sold in Europe. Whirlpool actually sells compressors to some

leading manufacturers of the greenfreeze. However, the attempts have failed. U.S. companies will not make them here.

Instead, Whirlpool chose to respond with a slick advertising campaign. Even as Whirlpool capitalized on persuasive portraits of natural beauty, it refused to invest in the new technology available for making environmentally safe refrigerators, creating a symbolic culture that seemingly reveres the environment as it helps destroy it. This public relations strategy has been referred to as "greenwashing"; it has become a cornerstone of American corporate promotional culture.

Instead of creating popular support by moving toward sustainable resource management, less toxic ingredients and manufacturing, waste reduction and reusable packaging, corporations rely on perception management through advertising as a major feature of their strategies. Perception management creates symbolic associations that evoke a sense of well-being. Since the advertising taps directly into psychic associations using the language of art, poetry, and the unconscious, the logical mind does not reject absurd representations about "taking a cooking lesson from Mother Nature," because as psychoanalysts Haineault and Roy argue, such impressions are psychologically pleasing.[2] Rejecting them would require a degree of distress the psyche seeks to avoid. The destructive qualities of the product and its negative environmental effects are successfully hidden. In an age when the public is bombarded with 1,500 advertising messages a day, and when corporate ownership and advertising influence successfully block information about environmental destruction by corporations, it is difficult to nourish citizen awareness and action.

Such false connections exist in a media environment that offers little information to counter advertisers' representations. With a few notable exceptions, major advertising clients have been successful in putting direct pressure on editors and producers not to contradict the messages of their advertising campaigns in programming content.[3] The only way the impressions created by advertising culture can persist is in an atmosphere devoid of contradiction.

There is another aspect of advertising's appropriation of nature that also makes it a powerful tool for greenwashing and, more broadly, an enchanting and influential celebration of capitalism as a social system. In addition to the visual persuasions and the lack of information are the underlying belief systems and commonsense conceptions of nature that much advertising successfully mines. How can we accept the assertion that Whirlpool "took a cooking lesson from Mother Nature," or that ideas about the industrial design of appliance manufacturing "flowed from Mother Nature"? Why do these and other absurd presentations, even without direct information on ozone depletion, sound acceptable to a public willing to revere nature but at the same time participate fully in consumer culture?

Media Representations and Cultural Conceptions of Nature

In large measure, the visual constructions of nature in advertising can be linked to, and have been appropriated from, some key conceptions of the environmental movement. The advertisements are effective because they do not contradict the "commonsense" understandings of the natural world shared by many. These compatible portrayals, rooted in ideological assumptions about nature, must be examined and redrawn in order to foster public awareness and citizen action and achieve sustainable social and environmental ecosystems.

Many environmental writers regard the space missions as key cultural markers in our contemporary conception of nature, the Earth, and the need for conservation: "It is almost commonplace to note how the first pictures of Earth from Space in 1966 made evident the frailty of the planet and sparked a global ecological consciousness."[4] Ecofeminist Chaia Heller (1993) writes, "Awareness of the ecological crisis peaked in 1972 when the astronauts first photographed the planet, showing thick furrows of smog scattered over the beautiful green ball. 'The planet is dying' became the common cry. Suddenly the planet, personified as Mother Earth, captured national, sentimental attention."[5] The mass media presented pictures of the Earth as well as representations of the significant environmental issues of the last 30 years, from protecting endangered species around the globe to preventing the destruction of the rain forests and saving the whales.

Indeed, even though most people have not been to the moon, or the faraway wild places they become concerned with, television creates critical impressions. As DeLuca observes, "in particular PBS documentaries, I learn of and become concerned about the Amazon rainforests."[6] However, television and other media representations are just that, (re)presentations. They are stories of nature, not the Earth made real. We know Mother Nature through the stories we tell about her. Our cultural narratives help shape our perceptions.[7] Ecosystems, wilderness areas, and wild things are most often unknown to us without the framing of such cultural texts. And those texts will affect not only our perceptions of nature but also the way we act in and upon the natural world.

Heller argues that we tell a particular type of cultural narrative about Mother Nature. This narrative features characters and relationships borrowed from the medieval romanticization of women as depicted in passionate love poetry: "The metaphors and myths of this eco-drama are plagiarized from volumes of romantic literature written about women, now recycled into metaphors used to idealize nature."[8] The medieval narrative drama of romantic love plays out in the wistful longings of a man for an idealized, pure woman whom he vows to protect, for his love can never be consummated. Rooted in Platonic dualism, the ideal love is unpolluted by physical contact. She is powerless and in need of protecting. The lover realizes his romantic fantasy only through noble

self-control and heroic acts of protection and sexual self-restraint. The beloved is deserving because she is pure and chaste.

Heller argues that the imagery of the contemporary ecology movement finds its ideological roots in this cult of the romantic. Mother Nature takes the role of the helpless beloved, and those in the ecology movement vow not to defile her. "In our modern iconography, nature became rendered as a victimized woman, a Madonna-like angel to be idealized, protected, and saved from society's inability to constrain itself."[9]

Procter & Gamble's advertising campaigns display similar iconography and the same sentimentalized message. In soft focus, a little girl drinks water from a beautiful indoor sink. In the next picture a deer drinks from a pond in an idealized outdoor setting. The caption reads, "everybody deserves a clean home." This series also includes images of a baby girl playing with a little yellow duck, while fuzzy little yellow ducks swim in a placid soft-focus lake in the picture next to her. Helpless and idealized, Mother Nature must be protected from all those who would destroy her.

The sentimentalized renderings of romantic ecology raise many questions. For example, whom does Mother Nature need to be protected from? This category is always vague and sweeping, but the implied formulation is often "human nature," as with Devall and Session's formulation in *Deep Ecology*:

> Excessive human intervention in natural processes has led other species to near-extinction. For deep ecologists the balance has long been tipped in favor of humans. Now we must shift the balance back to protect the habitat of other species.[10]

Condemning all of humanity as equally responsible for environmental degradation ignores oppressive social and economic relations, as well as the unequal distribution and use of natural resources and wealth. Certainly "failing to expose the social hierarchies within the category of human erases the dignity and struggle of those reduced to and degraded along with nature."[11] The exploited laborers of the third world who toil in extreme conditions in sweatshops making commodities for first world consumers are not equivalent to the ravages of global capitalism.

Overpopulation must certainly be a concern, not only for environmental organizations, but for all of the globe's peoples. Yet some would put the central responsibility for the problem squarely on the shoulders of women—human mothers defiling an idealized Earth Mother. While women own and control only about 1 percent of the Earth's wealth, they account for 80 percent of human labor power. United Nations population studies demonstrate that in countries where women have become less economically exploited and more educated and socially empowered, the birth rate has declined.

The first world consumes almost four times more of the Earth's resources than its third world counterparts. Those who are victimized by and struggle against the ravages of global capitalism are not to blame for the ecological crisis, corporate global practices are. Habitually emphasizing birthrates out of context only facilitates capitalism's ravages of the Earth.

The idea that every person is equally culpable of defiling the Earth conceals the role of corporations in ecological degradation and distracts attention from the production, use, and disposal of resources. Public service announcements and advertising campaigns often suggest that solutions to environmental problems are the private responsibility of individual consumers. "We recycle" and recycling logos on many products are omnipresent, but such campaigns help manufacturers prevent mandatory deposit and recycling regulations. As long as manufacturing does not make recycling, especially of plastics, more effective, recycling will have little positive impact. The romantic narrative focus on individual responsibility and such socially constructed stories place corporate responsibility outside their discourse.

In this cultural ecodrama that we present, and read ourselves into, how are the characters drawn? What is the nature of this relationship between the beloved Mother Nature, and the protective ecoknight? As Heller points out, the romanticization of nature is "based on the lover's desires, rather than on the identity and desires of the beloved." The role of nature as the beloved is to offer emotional well-being to dedicated environmentalists and consumers alike. Some "daily affirmations" of new-age environmentalism begin to sound very similar to advertising messages. "I hold in my mind a picture of perfection for Mother Earth. I know this perfect picture creates positive energy from my thought, which allows my vision to be manifest in the world."[12]

An advertisement for Evian water mirrors these sentiments. Evian's campaign features healthy people delighting in pristine natural settings. On the left half of a two-page ad, a man runs across a blurred, cold, dark-blue background. Across his chest are the words, "In me lives a wildcat who chases the moon and races the wind and who has never measured his life in quarterly earnings." The opposite page is an image of the French Alps, rendered in soft beige tints. The perspective places us on one of the mountains, peering over, but within, the snow-covered, jagged peaks. The caption claims, "In me lives the heart of the French Alps. Pure, natural spring water perfected by nature. Untouched by man, it is perfect for a wildcat." On the left page the word "wildcat" stands out in boldface, and on the right page "heart" appears in boldface. This graphic design unites the two pages; at a glance the viewer sees wildcat heart.

As with many ecologically posed ads that feature the natural world, this one constructs an alternative sense of place, a pure, untouched environment offered to the ecoknight turned consumer as an escape from the unpleasant realities of modern industrial life. The goodness of Mother Nature is generally

depicted in advertising by what she can do for us and most often by the way she can make us feel. Turned into a commodity, nature promises a return to a state of emotional well-being from the strain and stress of urban and social life.[13]

In addition, the absence of a social presence in the renderings of wild places reinforces a solitary, individual relationship to nature that negates collective action. In the Evian ad, the heart of Mother Nature nurtures the wildcat, the human spirit supernaturally transformed and empowered. This is what Mother Nature can do for us. Such ideas are compatible with a new-age environmentalism based in the romantic tradition. However, once turned into a commodity through advertising, romantic attainment can only be realized through the possession of the product tied to those sentiments. With all those wildcat spirits consuming water sold in plastic bottles, what happens to the environment?

The Costs of Consumption

Over the last decade the marketing of bottled water has vastly increased sales of the product. Instead of relying on municipal water supplies, especially when away from home, it has become popular to buy and carry individual water bottles made of plastic. Plastic is made from nonrenewable fossil fuels and manufactured from fractions of crude oil or natural gas changed into solid form through the use of different chemicals. Many of these chemicals are highly toxic, such as benzene, cadmium and lead compounds, carbon tetrachloride, and chromium oxide. They are used as solvents, for coloring, and as catalysts in chemical manufacturing. Over the past two decades, the production of synthetic chemicals has almost tripled, and much of this increase is attributed to the manufacture of plastics. Synthetic chemicals released into the environment create dioxins and other toxins.

Thermoplastics, the soft type of plastic, such as polyethylene, are used for everything from milk jugs and margarine tubs to pipes and tubing. Polystyrene is used to make styrofoam, other packaging material, and tiles. The most toxic plastic is polyvinyl chloride (PVC), and it is used for pipes, shower curtains, and insulation, and as Greenpeace points out, many children's toys and accessories. Polyethylene terephthalate (PET) is used to make plastic bottles.

According to the U.S. Environmental Protection Agency's (EPA) home pages on the World Wide Web, in 1994 only 4.7 percent of all plastic was recycled in the United States. Recycling is difficult because of the mix of plastics that cannot be degraded together. Incineration reduces the plastic headed for the landfill, but it also releases toxic pollutants, including heavy metals, into the air and through the remaining ash. These pollutants also enter the groundwater and contaminate the water supply. The EPA recommends what is called

"source reduction" for plastics, to reduce the amount of plastic purchased and thrown away.

Instead of reducing the use of plastic, however, the marketing and distribution of bottled water has led to a dramatic increase in its use. The development of polyethylene terephthalate (PET), the lightweight, durable yet malleable plastic, allowed the manufacture and distribution of smaller, individual containers which continue to proliferate. Portable plastic, huge advertising budgets, and a profit margin of 40 to 45 percent (compared with 30 to 35 percent on soda) have led to an increase in the sales of bottled water by an amazing 144 percent over the past decade.[14]

Thus we have come full circle. The concept Mother Nature helps associate bottled water with purity and inspiration and compels people to express their love for nature by buying individual plastic containers, a substance that degrades the environment, presents hazards to public health, and ultimately has the potential to contaminate our drinking water.

Such uses of mythic nature help cloud judgment, as well as the knowledge and understanding of how consumer culture actually affects the environment. Nature is perfect purity, undefiled, "untouched by man," waiting there, after centuries, just to quench the spiritual thirst of the running man in the Evian ad. As with many advertisements, nature exists to provide solace and satisfy the spiritual longing of those who love her. Like all myths used to reinforce ideologies, this idealization of pure, untouched nature has been drained of any essential meaning. Nature exists only as it is reflected in the needs and desires of the Evian runner.

Loss of any true knowledge of the beloved is another consequence of grounding our love of nature in romantic mythology. "The romantic's love depends on his fantasy of his beloved as inherently powerless and good as he defines good."[15] This type of "knowing" nature is unidimensional and is "wedded to ignorance. Certainly the romantic does not know his lady to be a woman capable of self-determination and resistance."[16] Just as the true qualities of the beloved are never known to the lover in romantic poetry, when romanticized, nature itself remains a mystery. As long as nature is made myth, is docile and willing to give, she is deserving of love and protection.

However, this is a selfish love indeed. For once Mother Nature challenges the ego, refuses the needs, or engages in self-expression and determination, anything can be done to her. These points are borne out in the most common representations of nature in advertising today, those promoting sport utility vehicles (SUVs).[17] While the male would-be drivers are invited to experience the wild world of jungles, forests, deserts, and even underwater ecosystems to gain a sense of inspiration and adventure (again, nature making the hero feel good), nature can also be unruly and anything but docile.

Nature is often depicted acting up, creating bad weather and rough roads. She will burn you, she will freeze you, she will try to blow you away, as one 4×4 ad

threatens. This invites the worst kind of treatment, and nature must be tamed. SUVs are most often depicted off-roading; Mother Earth flies out from under the tires that are tearing up wildlands, disturbing wildlife, and breaking down river banks as the 5,000-pound vehicles cleave through them. Domination and mastery over nature is the result when she steps out of line.

However, simply portraying nature as female is enough to invite a certain behavior. In a Wrangler ad for jeans, a man is given a pink cake by his wife. In the next scene, he is shown smashing through the now huge pink cake in a forest, expressing a distinctive adolescent male rebellion.

The romantic gendering of nature has resulted in complicated and contradictory advertising messages that are used for very destructive purposes. Originally, the concept of Mother Nature was borrowed from Native American philosophy and other indigenous cultures. While it may have had a noble purpose, when this concept is lifted from its social and cultural contexts and reinserted within patriarchal capitalist culture, it is turned into a commodity and commercialized in ways that ironically come to support the economic practices that misappropriate the Earth's resources. This new hybrid of Mother Earth is now a woman destined to be dominated in the same ways that women are subjugated by the legacy of patriarchal capitalist culture.[18] In such a culture, protective paternalism quickly loses its tolerance when those subjugated—women, minorities, or those outside the dominant social order—express rage at their unequal treatment or make demands for self-determination.

This is how we come to such contradictory uses and depictions of nature in consumer culture. For example, studies show that those who purchase SUVs think of themselves as environmentally conscious. They want to enjoy the great outdoors and have adopted a vehicular consumer style that expresses that. At the same time, the ads invite them to dominate nature. Because nature has been portrayed as an unruly female, these two messages are not seen as contradictory.

In addition, a mythicized conception of nature, existing only to please those who admire her, does not invite knowledge and understanding of how humans might best interact with nature. Because of the ways we formulate our love for nature, environmental consciousness can sit comfortably in the cab of an SUV, a machine that uses far more gas than a smaller car. Extracting the greater amounts of fossil fuel needed to run SUVs helps destroy the wilderness areas and animal habitats, such as the last Alaskan wilderness, so lovingly depicted in the persuasive ads for these vehicles. SUVs increase greenhouse gases and therefore global warming because of their lower emission standards. Because of lobbying by the automobile industry, this situation is not likely to change. The same industry that professes a love of nature fights fuel efficiency, emission standards, and public spending on mass transportation while it continues to make as much as $10,000 gross profit on the biggest and most destructive SUVs.[19] This is greenwashing at its worst.

The Beauty of Nature and the Cosmetics Industry

If we turn to another major aspect of consumer culture, that of the beauty and cosmetics industry, we find that the advertising of such products often features the globe, the concept or language of Mother Earth, and the natural world. It is common for beauty and hygiene product advertising to extol "natural" ingredients, proclaim the benefits of nature, and in general, associate the Earth's goodness with a wide range of cosmetics and their ingredients. In cologne advertisements, women sit in fields of sun-drenched flowers, and in hygiene ads they are compelled to douche with fresh, flower-scented liquids. Advertisements feature the goodness of Mother Nature in striking contrast to the depiction of real women's experience of nature.

In a comical essay reprinted in the *Utne Reader* titled, "Forever Fresh: Lost in the Land of Feminine Hygiene," journalist Alison Walsh writes that she was "astonished to discover that most daytime TV commercials have one clear message: women leak, dribble, and smell. . . . Apparently women must buff, douche, diet, gargle, and primp constantly if they are to overcome their basic vileness." Walsh, noting a certain gender imbalance observes that if we are to judge from television commercials aimed at men, "Evidently men are just fine the way they are. They have a small problem with weight gain and graying hair, but mainly they are handsome, playful and successful." She ends her piece with a query as to why there is no masculine hygiene aisle in the drugstore.[20]

However, women have been told, "how not to offend," by the cosmetics industry for a long time. In an essay with the same title, Marshal McLuhan noticed an anxiety-producing message from Lysol in the 1940s. The magazine advertisement features a woman waist deep in swirling water as the words "doubt, inhibitions, ignorance, and misgivings" seem to be pulling her down. Distressed, with her arms raised helplessly in the air, the ad rebukes, "Too late to cry out in anguish. Beware of the one intimate neglect that can engulf you in marital grief. For complete Feminine Hygiene rely on Lysol."[21] Advertising, as McLuhan comments, continues to remind us of "the terrible penalties . . . that life hands out to those who are neglectful . . . left in sordid isolation because they 'offend.'" When a lovely woman "stoops to BO, she is a Medusa freezing every male within sniff. On the other hand, when scrubbed, deloused, germ-free, and depilatorized, when doused with synthetic odors and chemicals, then she is lovely to love."[22] For McLuhan, "the cult of hygiene and the puritan mechanisms of modern applied science" were all part of technological progress. "Fear of the human touch and hatred of the human smell are part of this landscape of clinical white-coated officials and germ and odor proof laboratories."[23] Feminist writers . . . have long noted that the domination of women's bodies coincides historically with the domination of the natural world. Today, the white-coated hygienists of the 1940s and 1950s have been replaced with images of Mother Earth, but the message is the same.

Just as the domination of nature often results in its destruction, the advertising imperative that the female body be sanitized, tamed, powdered, and redolent only of perfumes has led to dire health consequences. In "Taking a Powder," journalist Joel Bleifuss documents epidemiological evidence connecting the use of talcum powder with ovarian cancer, the fourth leading cause of death in American women.[24] While talc and other toxins found in cosmetic products pose a serious health risk to American consumers, especially women, the industry is not regulated. A U.S. Food and Drug Administration (FDA) document found on their WWW home pages states, "a cosmetic manufacturer may use any ingredient or raw material and market the final product without government approval." The FDA does prohibit seven known toxins such as hexachlorophene, chloroform, and mercury, but for the remaining 8,000 ingredients used in the manufacture of cosmetics, the industry regulates itself. While the FDA has the power to pull dangerous products off the shelf, it rarely does so, "despite mounting evidence that some of the most common cosmetic ingredients may double as deadly carcinogens."[25]

It is impossible to assess advertising claims of "natural" ingredients of cosmetic products most of the time, but cosmetic products "are often contaminated with carcinogenic byproducts, or contain substances that regularly react to form potent carcinogens during storage and use."[26]

Identified as one of the most dangerous toxins by FDA doctors and cancer researchers are nitrosamines, a group of carcinogens found in a variety of products from shampoos to sunscreens. One of these nitrosamines, N-nitrosodiethanotamine (NDELA), forms when some common cosmetic ingredients, such as triethanotamine (TEA) and Cocamide diethanol amine (DEA), interact with the nitrites that are used to preserve many products. Vidal Sassoon shampoo, for example, contains the toxin Cocamide DEA.

Joel Bleifuss also uncovered a number of research reports documenting the toxins contained in cosmetic products.[27] In 1992, tests conducted by the FDA revealed a product that contained NDELA at a concentration of 2,960 parts per billion, but the agency will not publish the brand name. The European Union does not allow more than 50 parts per billion of nitrosamine-producing chemicals in cosmetic products. In 1992, all 14 products tested that year by the FDA were contaminated with the nitrosamine carcinogens. Individual FDA scientists are speaking out. Drs. Harvey and Chou assert that with the "Information and technology currently available to cosmetic manufacturers, N-nitrosamine levels can and should be further reduced in cosmetic products." A social goal should be to keep "human exposure to nitrosamines to the lowest level technologically feasible by reducing levels in all personal care products."[28]

Even as Redkin hair product features a picture of the globe, contrasting heaven (beautiful hair) and Earth (an image of the globe), plastic bottles appear in the lower right corner of the ad. The pervasive plastic packaging used for cosmetic products (with the exception of those made by the Body Shop) usually end

up in the landfill (as noted above). In addition, one common general-purpose plasticizer, adipate, or DEHA, used in processing polyvinyl and other polymers, is also used as a solvent or plasticizer in such cosmetics as bath oils, eye shadow, cologne, foundations, rouge, blusher, nail polish remover, and moisturizers. It can contaminate foods wrapped in plastic films. This common plasticizer contaminates groundwater through fly ash from municipal waste incineration and wastewater effluents from treatment and manufacturing plants.

The $20 billion plus a year cosmetics industry relies on a lack of media scrutiny, which was made apparent in 1998 when epidemiological studies and the carcinogenic contents of some cosmetics were identified as important censored news stories for that year.[29] "Few publications put effort into investigating the cosmetics industry, which is not surprising since the industry is a major magazine and newspaper advertiser. This is especially true of the women's magazines. Consequently, there is almost no coverage of the industry."[30]

What is necessary to unveil the toxic substances and environmental destruction hidden behind advertising's compelling symbolic culture? Corporate cultural conceptions of nature must be recognized and transformed. Romantic protection of a mythic version of nature must become obsolete because of the ease with which its appropriation serves the interests of economic exploitation and environmental destruction. Instead, we should strive "to know and care for the resistance of all living things that dwell in poisoned eco-communities, offering ourselves as allies in resistance to social and ecological degradation."[31]

Authentic love is based on knowledge not myth, and "allied resistance" enjoins citizens to offer their support for the struggles against the global corporate domination that sustains the production and use of toxic substances. Given the power of global corporations, we need to identify and support innovative forms of resistance in our homes around the planet with a unified strategy against industries that pollute the environment, oppress their workers, and promote toxic substances. Such solidarity would demonstrate an authentic love for nature, rejecting the image of drinking water bottled in plastic, or smelling "naturally" fresh with a toxic cosmetic product, or driving an SUV as having any relation to a healthy life or preservation of the ecosystem.

Notes

Andersen, Robin. 2000 "Selling 'Mother Earth': Advertising and the Myth of the Natural." In *Reclaiming the Environmental Debate: The Politics of Health in a Toxic Culture*, ed. Richard Hofrichter. Cambridge: MIT Press.

1. Paul Messaris, *Visual Persuasion: The Role of Images in Advertising* (Thousand Oaks, Calif.: Sage Publications, 1997).

2. Doris-Louis Haineault and Jean-Yves Roy, *Unconscious for Sale: Advertising, Psychoanalysis and the Public* (Minneapolis: Univ. of Minnesota Press, 1993).

3. Robin Andersen, *Consumer Culture and TV Programming* (Boulder, Colo.: Westview Press, 1995); Michael Jacobson and Laurie Ann Mazur, *Marketing Madness: A Survival Guide for a Consumer Society* (Boulder, Colo.: Westview Press, 1995); Matthew McAllister, *The Commercialization of American Culture: New Advertising, Control and Democracy* (Thousand Oaks, Calif.: Sage Publications, 1996).

4. Kevin DeLuca, "Constituting Nature Anew through Judgment: The Possibilities of Media," in *Earthtalk: Communication Empowerment for Environmental Action*, Star A. Muir and Thomas Veenendall, eds. (Westport, Conn.: Praeger, 1996, p. 60).

5. Chaia Heller, "For the Love of Nature: Ecology and the Cult of the Romantic," in *Ecofeminism: Women, Animals and Nature*, Greta Gaard, ed. (Philadelphia: Temple Univ. Press, 1993, p. 219).

6. DeLuca, "Constituting Nature."

7. Ibid.

8. Heller, "Love of Nature."

9. Ibid.

10. Ibid., p. 223.

11. Heller, "Love of Nature," p. 226.

12. Ibid., p. 223.

13. See Paul Messaris, "Pristine, Damaged, and Nightmare Landscapes: Visual Aesthetics of American Environmentalist Imagery," unpublished paper, presented at the Seventh Annual Visual Communication Conference, Jackson, Wyo. (June, 1993).

14. See the cover story by Corby Kummer, "What's in the Water?" in *New York Times Magazine,* August 30, 1998:41. Ironically, "standards set for municipal drinking water supplies are mandatory and are monitored and tested more often than for bottled water," while the bottled water industry has been self-regulated for years (p. 41). In addition, a good portion of the bottled water sold in the United States is simply filtered or deionized.

15. Heller, "Love of Nature," p. 222.

16. Ibid.

17. Robin Andersen, "Road to Ruin! The Cultural Mythology of SUVs," in *Critical Studies in Media Commercialism*, Robin Andersen and Lance Strate, eds. (London: Oxford Univ. Press, 1999).

18. For a discussion of a related position on "cultural essentialism," see Laura Pulido, "Ecological Legitimacy and Cultural Essentialism: Hispano Grazing in the Southwest," in *The Struggle for Ecological Democracy: Environmental Justice Movements in the United States*, Daniel Faber, ed. (New York: Guilford Press, 1998).

19. See Andersen, 1999.

20. Alison Walsh, "Forever Fresh: Lost in the Land of Feminine Hygiene," *Utne Reader* (September/October, 1996):32.

21. Marshall McLuhan, *The Mechanical Bride: Folklore of Industrial Man* (New York: Basic Books, 1967, p. 61).

22. Ibid.

23. Ibid., p. 62.

24. Peter Philips (ed.), *Censored 1998: The News That Didn't Make the News* (New York: Seven Stories Press, 1998).

25. Ibid., p. 30.

26. Ibid.
27. Ibid.
28. Ibid., p. 324.
29. Ibid.
30. Ibid., p. 31.
31. Heller, "Love of Nature," p. 235.

Prime-Time Subversion
The Environmental Rhetoric of The Simpsons

Anne Marie Todd

In this next selection, Anne Marie Todd uses rhetorical analysis—the careful examination of spoken, written or visual texts—to explore how messages about the environment are produced in the popular TV series, The Simpsons. *In her analysis of this show, an animated sitcom that focuses on life in Springfield, a nuclear reactor town, the author focuses on two rhetorical forms: the comic frame (a device that allows the audience to laugh at themselves) and the visual argument (the use of images to make persuasive statements). Todd shows how these two forms are used to create a detachment on the part of the audience, which lets us watch the environmental and other social criticism contained in the show without feeling guilt or other negative emotions. Comic persuasive images include, for example, the portrayal of a three-eyed fish, gum used to seal a crack in the coolant tower and nuclear waste shin-deep in the hallways. By packaging messages about human destructiveness or/and human thoughtlessness toward the natural environment in this nonthreatening way, Todd argues, the show "raises awareness of environmental issues and educates the TV audience while entertaining them." Thus she asserts,* The Simpsons "*functions as a form of environmental activism.*"

On April 19, 1987, America was introduced to the Simpsons, the title family of the first animated prime-time television series since the 1960s. Described by its creator and executive producer, Matt Groening, as "a celebration of the American family at its wildest" (Steiger, 1999, p. 1), *The Simpsons* offered a critical view of mainstream social and cultural norms. In a television world dominated by upper-middle-class storybook families like the Huxtables of *The Cosby Show*, *The Simpsons* presented a satirical documentary of a more complex family whose characters and plots were more directly relevant to the familial experience of America's television audience. . . .

This chapter explicates the meaning and significance of *The Simpsons*' social commentary through two mediums of rhetorical criticism. The first method of analysis utilizes Kenneth Burke's (1959) comic frame to determine the meaning of the show's multi-textual rhetoric. Analysis of televisual communication requires an enhanced application of the comic form through a second mode of inquiry, the explication of the symbolism of *The Simpsons*' visual argument. The show presents a unique rhetorical form that exhibits profound pop-cultural influence, and in particular makes a significant impression on American environmental consciousness. This analysis begins with an explication of the utility of the comic frame and visual argument as prolific tools of rhetorical criticism. The synthesis of these two approaches engenders an enriched analysis, which articulates *The Simpsons*' inter-textual environmental rhetoric. Next, the convergence of comic and visual critical practices is examined, which illuminates the symbolic elements of the show's environmental rhetoric. The abundance of episodic material, teeming with rich dialogue and resplendent visuals, rendered focusing this analysis an enigmatic task. As a directive for this criticism, two predominant metaphors are explored: Springfield's nuclear power plant as an icon of irresponsible energy use and the figurative role of non-human characters in the series. The project's conclusion articulates the coherent ecological message in *The Simpsons*' rhetoric, and thus renders a conclusive evaluation of the show's televisual environmental commentary. Specifically, I propose that the show's rhetoric presents a strong environmental message regarding the relationship between humans and the rest of nature.

This message is most clearly articulated in the show's rhetorical strategies, which reveal a pervasive ecological criticism of human activity, produced through comedy and visual argument—rhetorical tools that successfully engage the audience in *The Simpsons*' critical environmental commentary. This rhetorical criticism examines the [show's] first ten seasons . . . . The analysis was conducted by viewing various collected videotapes of the series' first ten seasons (4/9/87–5/16/99)—approximately 80% of the episodes—and supplemented with data from Matt Groening's two-volume guide to the show. The ten years of episodes included in the sample provide hundreds of rhetorical propositions of ecological tone. Conducting a satisfactory analysis of all such references in

the confines of this paper is impossible. Thus, I focused primarily (almost exclusively) on the show's principal environmental symbols and themes. As a result, the discussion focuses on only a few entire episodes, significant plot lines, familiar environmental themes, and explicit recurring rhetorical symbols. Focusing on the dominant characteristics of *The Simpsons*' environmental communication limited the scope of criticism, and thus fostered a more informed evaluation of the show's overall environmental message. These televised visual and linguistic images disclose that the show itself is an expression of environmental activism, and expose the salience of *The Simpsons*' environmental rhetoric.

The Comic Frame: Transcending the Social Order through Symbolic Action

In *A Rhetoric of Motives* (1950), Kenneth Burke describes the study of rhetoric as the understanding of human motives, and his theory of symbolic action provides the basis for innumerable conceptions of the study of rhetoric. . . . He introduces the comic frame as a means to enhance scholars' understanding of human motivations and foster better evaluation of the social and cultural meaning of symbolic action. The comic frame enables individuals to "be observers of themselves, while acting [to create] maximum consciousness. One would 'transcend himself by noting his own foibles'" (Burke, 1959, p. 171). . . .

Comedy provides the means to criticize one's own complicity in the dominant social order. By acknowledging the failings of the bureaucratic system, humans create discursive space for self-analysis. Such personal criticism invokes a discourse that promotes historically marginalized opinions within the public sphere. Thus, the comic frame is rhetorically powerful on two levels: through recognition of human error as the cause of social ills, and the spiritual and moral identification with humanity. Second, by creating social distance between reformers and the clown as a scapegoat, the comic frame conveys a preference for a social upbraiding rather than malicious immolation to promote the rapprochement engendered by comic consciousness. *The Simpsons* utilizes the comic frame to identify the incongruity of human action and the symbolic interpretation of the ecological context of our experience.

Pop-Cultural Imagery as Social Commentary: The Rhetoric of Visual Argument

. . . Visual media are capable of symbolic expression because they are rooted in a particularly rich context of social, cultural and political influences. The complexities of the existing social order are manifest in the stream of televised visual images—elemental, socio-cultural interpretations of human experience.

Effective visual communication exhibits rich and visual symbolism that incorporates signs and symbols of conventionalized images (Blair, 1996, p. 25). The symbolic form of visual argument is deeply rooted in the context of pop culture, a rubric for the innumerable vernacular of consumer cultural images. For this reason, visual arguments enjoy an appeal that eludes verbal communication: ocular recognition of pictorial images evokes meaning that is rooted in the memory of personal experience. Visual messages persuade because they provoke "unconscious identifications," which are not possible with the linguistic basis of verbal images (Blair, 1996, p. 34). Thus, visual images persuade because they give meaning to personal experience by connecting thematic elements of shared social experience (whether televised experience or actual, real experience) to individual perception. Audience members incorporate the symbolic meaning of the visual image(s) into their personal value system, affecting their individual and social worldviews (Blair, 1996, p. 34). The symbolism of visual images remains ambiguous without a stabilizing linguistic text. Thus, the rhetorical force of one visual image appeals to a heterogeneous audience because pictorial symbols adapt to individualized experience, and encompass a multiplicity of meanings.

. . . *The Simpsons* is an animated cartoon rather than a show filmed with real actors in an actual physical setting. The animation creates an air of detachment from real life, in addition to the detachment created by the comic frame. Animation is a particularly salient medium to television viewers who can suspend belief for plot development (which they would not be able to do with real characters). At the same time the show establishes a personal connection with viewers because the characters are believable. . . .

The Environmental Politics of the Springfield Nuclear Power Plant

"Both overshadowing and enlightening" (Steiger, 1999, p. 4), Springfield's nuclear power plant is owned and operated by the miserly Montgomery Burns, the town's wealthiest citizen. Homer is an employee of the plant, and holds the title of safety inspector despite his egregious lack of training. A Springfield institution, the plant is prominently featured in the show as a visual scenic element, or as a comedic factor in plot development. The plant's prominence as a visual symbol of the show's environmental message is exhibited in the longer version of the show's opening sequence. The camera moves in over a hillside for a view of the picturesque town, marred only by the centrally positioned image of the plant's twin smokestacks, which are billowing thick clouds of dark gray smoke. The rampant pollution billowing from the smokestacks juxtaposed to the unsullied town landscape is a disturbing image. This disturbing introduction establishes the show's dark humor, and the potent combination of visual argument

and comic frame. The negative symbolic image of the plant's egregious emissions, the dark gray billowing smoke, is reinforced by its contrast with the depiction of the town, which is animated in unrealistically bright colors. The plant symbolizes the show's environmental commentary by exhibiting a wide range of ecological implications of nuclear power, in general, and of the specific conditions of the building itself.

The power plant's interior affords a setting for further visual commentary regarding the pervasive negligence that characterizes company standards for disposing of nuclear waste. A recurring joke in interior scenes involves the visual image of open barrels, leaking bright green radioactive waste. The plant's inner recesses are overrun with barrels strewn about the halls and open areas of the plant, portraying a pernicious scene indicating the derelict administration of safety concerns. The painfully bright green waste is a caricature of radioactive refuse that emphasizes the absurd setting marked by discarded waste. The confluence of visual argument with the comic frame establishes the symbolic meaning of the images of leaking waste as an animated eyesore. The pervasive images of waste enhance the visual argument symbolized in the barrels. The images position the environmental rhetoric within a burlesque comic frame, which reveals the absurdity of the publicly ignored biohazard. That is, the conspicuous barrels reveal the neglect exhibited by their inadequate disposal of the barrels and the obvious environmental hazard they pose. The entire scene indicates the derelict administration of safety concerns.

The plant's employees remain unconscious to the adverse situation. Their blasé attitudes enhance the situation's comedic appeal. The more egregious methods of waste disposal demonstrate the comedic affect of the employees' general apathy. Lenny and Karl, Homer's co-workers, push wheelbarrows of nuclear waste down the hallways. As Lenny and Karl discuss proper locations and methods for disposal, one of the wheelbarrows crashes into a cement column, and overturns. Lenny and Karl look at each other, shrug their shoulders and continue down the hall. The waste from the overturned container spreads ominously through the passage, while the workers resume their labor apparently unaware of the exigency of the toxic spill. That the employees rarely notice the plant's production of waste adds humorous appeal to this visual image, and contributes to the show's rhetorical condemnation of unsound disposal practices. *The Simpsons* mocks the nuclear safety precautions typified in the overwhelming lack of concern for the hazards of radioactive waste. Leaking radioactive waste is a visual symbol intended to evoke criticism of the pervasive human disregard for the environment.

This social criticism is made more explicit within a burlesque comedic frame, in a parody of safety videos on nuclear energy. *The Simpsons* relies on the burlesque comic frame to render its explicit criticism of current standard practices of nuclear waste disposal. In Springfield's caricature of pro-nukes propa-

ganda, Smilin' Joe Fission describes the preferred method of disposal for nuclear waste: "I'll just put it where nobody'll find it for a million years" (Kogen and Wolodarsky, 1990). This parody represents the typical "out of sight out of mind" strategy for waste disposal, and attacks the general disregard for the environmental consequences of nuclear waste disposal. The show uses humor to reveal the ridiculousness of such careless disposal strategies—clarifying the obvious problems with improper disposal, and subsequent disregard for the possible environmental consequences. *The Simpsons* employs a comic frame to expose the failings of the social order, and criticize the audiences' complicity in the normalization of such environmentally unsafe methods. By making light of the impact of nuclear accidents and contamination of the environment, the show forces the audience to adopt a critical eye regarding real social practices that mirror the environmental negligence of the citizens of Springfield. In this way, the show's writers comment on the general human view of the environment and the anthropocentric methods that govern the safety code of the power plant.

Through the comic frame, *The Simpsons* carefully balances harsh criticism of American bureaucratic institutions and sardonic commentary of individual consumptive habits. "The comic frame inherently bypasses the extremes of the bureaucratic mindset. . . . Further, the comic frame allows observation of oneself, recognizing one's own failures and limitations" (Madsen, 1993, p. 171). Members of the audience recognize themselves in the show's characters, gaining perspective on the limits and failures of their own actions. Through this self-observation, the comic frame engenders enlightened criticism of the symbolic relationships that ground social action. The comic frame enables *The Simpsons* to rhetorically connect the economic motivations for environmental exploitation with the normalizing power of profit-driven bureaucratic social institutions that foster individual anthropocentric practices. The nuclear plant symbolizes tension between economic and environmental concerns. The plant represents the exploitation of environmental resources for wealth and power. Mr. Burns' priorities, exhibited in his operation of the plant, exemplify the attitude of economic elites and resource barons toward environmental concerns. Burns' methods of operation reveal the assumptions of characters represented by his prototype that environmental concerns are irreconcilable with economic interests. Furthermore, he uses his money and power to manipulate the image of his plant in order to make the environmental pollution more salient to the public. . . .

At times *The Simpsons* abandons this charitable attitude in favor of a rhetoric well beyond the boundaries of Burke's comic frame, adopting a satiric or even burlesque style. Such humor tactics offer unique methods for interpreting episodes, which feature extreme rhetoric of satire and the exaggerated symbolism of burlesque comedy. *The Simpsons*' successful use of the burlesque comic frame is nowhere more evident than in the second season when Bart and

Lisa catch a three-eyed fish while fishing near the Springfield Nuclear Reactor (Simon and Swartzwelder, 1990). When the event becomes public, a federal safety inspection team investigates the plant's emissions. In proper burlesque form, the episode chronicles the ludicrous findings of the inspection team: gum used to seal a crack in the coolant tower, a plutonium rod used as a paperweight, monitoring stations unattended, and nuclear waste shin-deep in the hallways. The Feds threaten to shut down the power plant unless Burns makes significant improvements. Rather than actually bring his plant up to standard, Burns runs for governor, intending to use his elected power to keep the plant open. Inevitably confronted with Blinky, the three-eyed fish—a travesty of the ecological impacts of nuclear pollution, Burns hires spin doctors to boost his public image. In a brilliant burlesque dialogue, Burns exacerbates Blinky's parodic symbolism with his dramatic interpretation of the fish's mutation as an evolutionary advance, based on the outlandish premise that three eyes are better than two.

> **Mr. Burns:** I'm here to talk to you about my little friend, here. Blinky. Many of you consider him to be a hideous genetic mutation. Well, nothing could be further from the truth. But don't take my word for it, let's ask an actor portraying Charles Darwin what he thinks . . .
>
> **Darwin:** Hello, Mr. Burns.
>
> **Burns:** Oh, hello Charles. Be a good fellow and tell our viewers about your theory of natural selection.
>
> **Darwin:** Glad to, Mr. Burns. You see, every so often Mother Nature changes her animals, giving them bigger teeth, sharper claws, longer legs, or in this case, a third eye. And if these variations turn out to be an improvement, the new animals thrive and multiply and spread across the face of the earth.
>
> **Burns:** So you're saying this fish might have an advantage over other fish, that it may in fact be a kind of super-fish.
>
> **Darwin:** I wouldn't mind having a third eye, would you?
> (Simon and Swartzwelder, 1990, in Groening, 1997, 38)

Mr. Burns' narrative continues the farcical tone of this episode, and performs a lampoon of evolutionary theory. Appealing to the authority of (an actor playing) Charles Darwin, Burns dismisses Blinky's (the so-called super-fish) state as a "hideous" blunder by Mother Nature. He characterizes the fish's extra eye as an improvement on Mother Nature's original creation, and explains the mutation as the result of the evolutionary process of natural selection that begets superfish like Blinky. This imparts an explicit visual argument in the visual image of the fish, and articulates a profound contradiction to the verbal text uttered by Mr. Burns. The triply endowed animated fish visually "voices" opposition to Mr. Burns' claims, and through its own vivid image conveys the heinous

maltreatment suffered by innumerable other animals in the same predicament in another location. The burlesque frame of this episode exposes the outlandish excuses for the plant's pollution, and offers insightful ecological commentary on several levels. Human pollution is characterized as an improvement on nature, and human progress is viewed as an integral part of human evolution. These references articulate specific criticism of current environmental regulations, specifically the lax enforcement of the dumping, safe storage and disposal of nuclear waste. Furthermore, this episode condemns the manipulation of political and economic power to disguise ecological accountability, and shift blame for environmental problems. The show comments on the lack of adherence to safety standards for the plant, and criticizes the apathetic acceptance of unforced environmental inspections. Finally, this episode explicitly criticizes media spin-doctors who distort the impacts of ecological degradation caused by wealthy corporations like the nuclear power plant. *The Simpsons* artfully employs a burlesque comic frame to condemn the established social order that promotes media distortion of public knowledge, while encouraging self-criticism for viewers to recognize their own fallibility in the show's parody of the disingenuous politics of the resource elites.

As an icon of televised pop-culture, *The Simpsons* offers critical social commentary on human experience. The show remarks on the cultural, social and political ramifications of human activity, in recognizing the limitations of exploitative human existence. "*The Simpsons* works to encourage critique, demanding that viewers be active in their consumption" (Korte, 1997, p. 3). *The Simpsons* characterizes human activity in an incriminating light, questioning the established social institutions and normalized behaviors of the dominant societal frames. The show fosters social change by providing the audience the opportunity to recognize the shortcomings of their own living practices and alter their behavior accordingly. This self-critical observation fosters a charitable attitude toward the motivations of others. The comic frame thus promotes cooperative discussion, rather than tragic blame assignment that offers no possibility for social transcendence. Certainly comic framing exposes the bureaucratic power in everyday life, and creates an ironic awareness of hierarchical absurdities, but the comic frame remains charitable rather than tragic, always assuming that negotiation of environmental issues is possible. Some environmental issues, however, inevitably have tragic consequences and may be impossible to reconcile. While the comic frame endows us with a sense of social awareness, it does not necessarily promote social activism. Toward this end, *The Simpsons* offers a critical view of the prevailing dominant attitude toward nature and exposes the dangers of human-centered practices. The show's rhetorical message fosters social transformation through comedy—revealing the negative social value of anti-environmentalism in a humorous light, which conveys the potential for positive social change. The comic frame offers a dynamic vision of

humanity and thus precludes the defeatism promoted by a static view of human activity that forecloses the possibility of cooperative action. As a televised communication medium, *The Simpsons* encourages the audience to engage in such dramatistic analysis to infer the implications of the show's humorous message.

Springfield's Other Creatures: The Role and Fate of Animals in *The Simpsons*

Through the comic frame, *The Simpsons* exposes the ecological implications of numerous types of human-animal relationships, and comments on socially accepted practices of animal exploitation. The series offers countless opportunities for rhetorical criticism, but to maintain the close focus of this project, this section analyzes two episodes which provide the richest comedic visual text for an informed rhetorical analysis: the show's portrayal of eating and wearing animals.

In perhaps its most vivid expression of ecological commentary, *The Simpsons* chronicles Lisa's social transformation to a vegetarian lifestyle after she correlates the cute baby lamb she met at the petting zoo with the lamb chop on her dinner plate (Cohen, 1995). When her new lifestyle becomes public, Lisa is constantly under attack, most notably at school, where she is shown an outdated film encouraging the consumption of meat. A production of the beef industry, the film presents a comical depiction of the production of meat that scorns children who do not abide by the dominant social norms that compel consumption of animals. While the film offers a humorous view of dietary norms, it has a dark humor appeal because the film parody exhibits strident similarities with the meat-industry's propaganda in the real world. Lisa is further ridiculed at Homer's barbecue where she is scorned for serving gazpacho, a vegetarian soup. The barbecue scene should resonate with vegetarian viewers as a depiction of the ubiquitous resistance to the provision of a vegetarian-friendly menu that offers meatless options in widely diverse social situations. At the barbecue, Lisa endures ridicule from her family as well as the guests, and she retaliates by attempting to vandalize the pig roasting on the rotisserie grill. Lisa's efforts to plunder the barbecue are themselves botched, propelling the entire barbecue—pig, pit and all—on an airborne trajectory, ruining the year's most momentous social event in Homer's estimation. The slapstick humor of the barbecue scene employs Burke's comedic frame, and facilitates the self-observation of the audience, calling socially constructed dietary norms into question. Through humor, the cookout scene reveals the calamity of intolerance of diverse lifestyles; both Lisa and Homer—representing opposite extremes of the dietary conflict—exhibited a remarkable lack of tolerance for the eating preferences of their counterparts. This egotistic clash destroyed the carnivorous and vegetarian options, demonstrating the need for socially accommodating conditions to facilitate mutual satisfaction.

As the episode continues, Lisa endures an inner conflict about whether she should pursue her individual preferences or admit defeat in a culture inundated with propaganda pushing consumption of meat. Succumbing to this social pressure to eat flesh, Lisa eats a hot-dog at the Kwik-E-Mart, but is informed it is a tofu hot dog, so she has not yet compromised her personal environmental code. She then meets Paul and Linda McCartney who school Lisa in the etiquette of good vegetarianism, respecting other's choices, yet remaining vigilant in one's protest of animal consumption. Lisa's earlier inner conflict is resolved as she reconciles her personal convictions with tolerance for the personal decisions of others. Through Lisa's struggle to resist dominant social norms, this episode sheds light on the inherent incongruity between individual experience and socially constructed normative practices. This is an essential use of the comic frame: to divest one's own fallibility and attain an enriched perspective of the established order and its incumbent social and cultural values.

The concurrence of visual argument and the application of the comic frame in *The Simpsons* establish the potency of this program's environmental message. The episodic commentary on Lisa's vegetarianism exemplifies the rich text of the show as a productive multi-dimensional environmental commentary. At a base level, the show critiques social and cultural norms that vigorously condone the rampant consumption of animals. Through the narration of Lisa's struggle for a dietary choice, this episode reveals the marginalized perspective of vegetarians, which is relegated to the periphery of public discourse by the hegemonic culture of consumption. At another level, this narrative employs the comedic frame to humorously interpret the discrimination suffered by vegetarians and other dissidents against animal cruelty, for instance. The show offers a comedic interpretation of the marginalization of individuals who publicly hold countercultural ideals and are ridiculed and ostracized for their lifestyle. . . .

Another preeminent episode critically comments on the subordinate position of non-human animals perpetuated by the extermination of animals expressly for the sartorial value of their coats. Mr. Burns represents the socially established and extremely affluent upper class. He demonstrates an unbridled consumptive appetite, and his social practices are marked by his exploitative tactics of manipulation that establish his disregard for persons of inferior social status (all of Springfield). Mr. Burns enjoys the privileged position of a resource elite and exhibits his privilege through excessively wasteful habits that neglect ecological conservation. Aside from his customary exploitative disposition, Mr. Burns displays a unique perspective for rhetorical analysis in his flagrant desire to destroy animals for their fur (Scully, 1995). To realize his special penchant for a fur tuxedo, Burns steals the Simpsons' litter of twenty-five puppies. . . .

The episode's predominant feature is a musical number performed by Mr. Burns extolling the virtue of wearing fur. Lisa and Bart observe Burns' performance from a window where they first learn of his plans for their puppies. As

external witnesses to Burns' theatrics, Lisa and Bart are a cruelty-conscious counterpoint to Burns' exploitative extravagance. The children possess a contrapuntal function to Burns' gleeful display—that is, they represent a socially conscious stance in disapproval of Burns' plans to exorcise the puppies. Bart and Lisa, who remain mostly silent spectators precluded from occupying space inside Mr. Burns' room, offer a critical perspective to the television audience through visual argument. Viewers identify with the spatial positioning of Bart and Lisa's visual images because Bart and Lisa's positioning as critical observers parallels the audience's relation to the animated reality of Springfield as critical observers. Bart and Lisa, as critical observers of Burns' flaunted excessive consumerism, serve as intermediaries to the contested practice of fur consumption. Through their mediating role and the spatial position of their visual images, the Simpson children perform an argumentative function. Bart and Lisa are positioned in physical opposition to Mr. Burns' stage (his closet), in a visual representation of social criticism against fur. The symbolic force of the children's visual images comes from the rhetorical power of their counterpoint to Burns. In addition, their discursive space on the second stage of the television itself, their spatial position, empowers the television audience to adopt similar roles as critical observers. The rhetorical tactics of the visual argument of this scene should ideally foster critical commentary regarding the ecological implications of killing animals for their pelts, and thus induce environmentally conscious change.

Mr. Burns provides a verbal text to add meaning to the pictorial, spatial arguments of the scene. He offers the perspective of guiltless consumption that is associated with the implications of environmental degradation. Unconcerned with socially responsible behavior, Mr. Burns sings a song that offers a riotous commentary on the fur trade. "See My Vest" is a hysterical musical number in which Mr. Burns models his wardrobe, making the argument for human wearing of animals. The song is a litany of animal skins and appendages including the title item, a vest "made from real gorilla chest." Mr. Burns describes the softness of his sweater made from "authentic Irish Setter," the elegance of his vampire bat evening-wear, and the warmth of his "grizzly bear underwear." . . .

Burns celebrates his successful acquisition of his impressive collection of clothing exclusively tailored from genuine animal pelts. He sings a lyrical commentary on the pleasure of owning such luxurious garments, and emphasizes the authenticity of these literally "wild" fabrics. The application of the comic frame is evident in the witty rhyming scheme coupled with the lyrical revelry of such outlandish social practices. The comic effect of Burns' eccentric performance is enhanced by the conflation of his morbid subject matter and his jubilant attitude. Burns plays the clown in this episode, performing a comic ritual that highlights social discrepancies, which warrant conscious action. The incongruity of the song's textual and musical elements articulates the usefulness of comedy to identify the absurdity of normative social practice. Burns' whimsical

inflection belies the literal meaning of his words, and exposes the absurdity of his message. In this way, Burns presents a farcical rendition of human consumption that fosters meaningful critical commentary through the composition of Burn's comedic message and the visual argument of Bart and Lisa's spatial position.

The Simpsons' environmental rhetoric demonstrates the power of the comic frame in pop-culture analysis, enabling the audience to see through "the obfuscation of the bureaucratic, while opening space for discourse by the minority and marginalized voices in society" (Madsen, 1993, p. 171). The comic frame exhibits a two-pronged approach for effective rhetorical commentary: exposing social ills while creating a new discursive space to incorporate marginalized opinions into the public sphere. Through comedic expression, *The Simpsons* presents a complicated environmental message. That message presents enlightened criticism of the hegemonic assumptions of the existing social order, while simultaneously maintaining a self-critical attitude that facilitates a reconceptualization of social and cultural relationships that grounds social action.

Nature as Ideology: *The Simpsons*' Prime-time Eco-Critique

. . . *The Simpsons* presents a strong ideological message about nature as a symbol—as an object for human exploitation. The characters of *The Simpsons* display an overall disregard for the environment and are separated from nature and often in opposition to nature. The show portrays the mainstream culture in which the environment has a solely utilitarian value, and exists exclusively for human purposes. Through humorous exaggeration, *The Simpsons* offers critical commentary on humanity in general and points out the danger of destroying the environment. The series' message is revolutionary because it portrays the counter-culture of environmental activism as an alternative to anthropocentrism. *The Simpsons*' activism is communicated effectively through the juxtaposition of characters that represent the extremes on an ecological spectrum. Homer represents the anthropocentrism of humanity in general, the quintessential exploitative human . . . (Steiger, 1999, p. 5).

Lisa counters Homer's egregious anthropocentrism and symbolizes an environmental ethic of caring for non-human creatures. She represents a moral center to the show, which enables her to reveal the irony of her father's anthropocentric actions. When Lisa bemoans the crashing of an oil tanker on Baby Seal Beach, Homer comforts her and reveals his anthropocentric perspective: "It'll be okay, honey. There's lots more oil where that came from" (Appel, 1996). Homer, not considering the ecological implications of the oil spill, instead thinks only of the effects on human access to resources.

Through humor, each character's commentary functions differently, Lisa presents a moral force that opposes Homer's flagrant anthropocentrism and effectively points out the absurdity of human action. In this way, the show offers the chance for positive social change. The comic frame permits observation of ourselves, while maintaining the possibility for action by increasing societal consciousness (Carlson, 1986, p. 447). *The Simpsons* is a subversive look at the state of human existence, but is effective because of its chosen methods of rhetorical commentary. The visual communication of the show makes its criticism palatable. The show's writers are well aware that the "pastel colors of animation often blind the censors to their biting critiques of the world" (Korte, 1997, p. 7). "Combining entertainment and subversion, *The Simpsons* angers some people as much as it amuses others . . . Joe Rhodes of *Entertainment Weekly* noted that 'The Simpsons at its heart . . . is guerrilla TV, a wicked satire masquerading as a prime-time cartoon'" (Korte, 1997, p. 9). Through its unique rhetorical methods, *The Simpsons* describes the environmental harms of social ills. Through the humorous interpretations of Springfield's environmental hazards and the moral force of Lisa's portrayal of environmental activism, the show offers an alternative solution to exploitative human practices.

The Simpsons functions as a form of environmental activism and thus reveals popular culture's effectiveness as medium for ecological commentary. The show increases public awareness of environmental issues, and serves to educate the television audience while at the same time entertaining them. "Unlike many shows on TV, *The Simpsons* works to encourage critique, demanding that viewers be active in their consumption" (Korte, 1997, p. 3). Through humor, the show reveals the anthropocentrism of human activity in such a way that what might otherwise be harsh criticism is palatable and potentially affects social change. By pointing out the humorous fallacies in human action, the series offers a significant look at the life of the typical American family, and in this way has a profound impact on the attitudes and beliefs of the television audience. The crude animation of *The Simpsons* transcends conventional boundaries of environmental rhetoric. The series embodies a powerful social force by presenting a multi-dimensional message that critically comments on institutions and practices of the normative social and cultural context, and engages the audience through rhetorical appeals to viewers' personal experiences.

References

Appel, R. (1996, November 24). Bart after dark (D. Polcino, Director). In J.L. Brooks, M. Groening, S. Simon (Executive Producers), *The Simpsons*. New York: Twentieth Century Fox Film Corporation.

Blair, J.A. (1996). The possibility and actuality of visual arguments. *Argumentation and Advocacy, 33,* 23–39.

Burke, K. (1950). *A rhetoric of motives.* Berkeley: University of California Press.
———. (1959). *Attitudes toward history.* Boston: Beacon Press.
———. (1966). *Language as symbolic action: Essays on life, literature, and method.* Berkeley: University of California Press.
Carlson, A.C. (1986). Gandhi and the comic frame: "Ad bellum purificandum." *Quarterly Journal of Speech, 72,* 446–445.
Cohen, D.S. (1995, October 15). Lisa the vegetarian (M. Kirkland, Director). In J.L. Brooks, M. Groening, S. Simon (Executive Producers), *The Simpsons.* New York: Twentieth Century Fox Film Corporation.
Gewirtz, H. (1991, October 17). Homer defined (M. Kirkland, Director). In J.L. Brooks, M. Groening, S. Simon (Executive Producers), *The Simpsons.* New York: Twentieth Century Fox Film Corporation.
Groening, M. (1997). *The Simpsons: A complete guide to our favorite family.* R. Richmond and A. Coffman (Eds.), Harper Perennial: New York.
———. (1999). *The Simpsons forever: A complete guide to our favorite family . . . continued.* S.M. Gimple (Ed.), Harper Perennial: New York.
Kogen, J. and Wolodarsky, W. (1990, January 21). Homer's odyssey (W. Archer, Director). In J.L. Brooks, M. Groening, S. Simon (Executive Producers), *The Simpsons.* New York: Twentieth Century Fox Film Corporation.
Korte, D. (1997). The Simpsons as quality television. *The Simpsons archive* [On-line]. Available: www.snpp.com/other/papers/dk.paper.html.
Madsen, A. (1993). The comic frame as a corrective to bureaucratization: A dramatistic perspective on argumentation. *Argumentation and Advocacy, 29,* 64–177.
Scully, M. (1995, April 9). Two dozen and one greyhounds (B. Anderson, Director). In J.L. Brooks, M. Groening, S. Simon (Executive Producers), *The Simpsons.* New York: Twentieth Century Fox Film Corporation.
Simon, S. and Swartzwelder, J. (1990, November 1). Two cars in every garage and three eyes on every fish (W. Archer, Director). In J.L. Brooks, M. Groening, S. Simon (Executive Producers), *The Simpsons.* New York: Twentieth Century Fox Film Corporation.
Steiger, G. (1999). The Simpsons—just funny or more? *The Simpsons archive* [On-line]. Available: www.snpp.com/other/papers/gs.paper.html

PART

Science, Risk, and Health

Science in Environmental Conflicts

Connie P. Ozawa

Many sociologists and other social scientists believe it is important to think critically about science and to understand how scientific endeavors are, at their heart, social endeavors—that science itself is a social construct. The four pieces in this section show how policy makers utilize scientific research in their decision making about environmental risk. In this reading, Connie Ozawa, professor of urban studies and urban planning at Portland State University, examines how environmental science is often used as a "weapon" by individuals or groups with conflicting goals. While science has an aura of being detached and neutral, it is, in fact, permeated with politics.

The April 20, 1993, *New York Times* reported another environmental controversy (Strum 1993). The Port Authority of New York and New Jersey filed an application to the U.S. Army Corps of Engineers to dredge container-ship berths in Newark Bay and dump the dredged material in the ocean. What had been an annual rite met delay when routine analysis of the silt to be displaced was found to contain dioxin. Two groups, environmentalists concerned about the impact of dioxin on marine life, such as endangered whales and sea turtles, and the coastal tourism industry, advocated storing the dredged

material on containment islands or barges until economical and effective decontamination technologies became available. Although ultimately resolved, more than three years later the Port Authority was still waiting for permit approval, losing revenues from nearly half the harbor's prime container ship berths.

Action on the application was delayed for a number of reasons. First, because no federal standards existed for dioxin contamination in the ocean, the EPA regional office attempted to establish acceptable levels for this case. The threshold for contamination initially set by EPA was later modified, requiring more testing, resulting in further delay, and fueling debate over testing methods. Second, although the U.S. Army Corps of Engineers had conducted research on safe methods of ocean disposal, no research specifically on the dumping of dioxin had been performed and environmentalists raised doubt about the ability to prevent the spread of dioxin-contaminated silt across the ocean floor. Finally, technological advances during the 36-month delay led to continual refinement of the scientific data on which regulators, environmentalists, and the port were basing their decisions. Rather than engendering greater confidence in the numbers, such modifications had the contrary effect of increasing skepticism about the effectiveness and stability of the government standard. If the numbers were revised once, what would prevent subsequent reconsideration?

Though the heat underlying the conflict over the harbor dredging was generated by the ethical, economic, and ideological implications of alternative actions, much of the public debate focused on the technical issues of standards, criteria, and testing methodologies. This dispute illustrates what has become a common role of science in environmental conflict—science used as a weapon in the arsenal of warring public policy actors.

. . . In this [essay], a distinction is made between the terms "dispute" and "conflict." Dispute refers to vocalized or articulated disagreements over what ought to be done. Conflict is the underlying basis for the disagreement—the perceptions (accurate or not) of an undesirable distribution of consequent costs and benefits and/or the more subtle redistribution of political control over similar decisions in the future.

Environmental disputes arise not only from the perceptions of unfavorable, potential consequences of proposed actions, but also the sense of the legal rights and recourse awarded individuals and groups, and validated and institutionalized in national legislation in the United States. Federal legislation, starting earlier but most exemplified by the National Environmental Policy Act [NEPA] (1969), mandates that decisions affecting the environment ensure that adverse impacts are mitigated to the fullest extent possible. What is adverse, of course, is subject to interpretation, but clearly the presumption of NEPA is that impacts can be identified and evaluated prior to actual implementation of a proposed action. The Clean Air Act instructs the Environmental Protection Agency to issue air quality criteria that "accurately reflect the latest scientific knowledge

useful in indicating the kind and extent of all identifiable effects on public health and welfare" (Clean Air Act 1967). Importantly, these laws and many others include citizen suit provisions that explicitly award citizens the legal right to question government actions.

Legislation like these have set the stage for decision makers and others to spotlight the scientific and technical elements in environmental disputes. Rather than having a role of equal standing with the human actors in a conflict, however, science ought best be viewed as a prop in the hands of those enacting environmental conflicts. This article is about the multiple ways science is used in environmental conflict. In addition to identifying and describing these multiple roles, I argue that a traditional image of science is essential in order for science to be used in these ways. I also describe an emerging alternative role, one that is more consistent with the social constructionist image of science. Before examining the various purposes for which this prop called science is used, let us first proceed through a brief review of how science became so central in environmental conflict.

The Authority of Science

In the economic and cultural context of the later twentieth century United States and, indeed, in much of the industrialized world, science is looked upon as a source of authority. This authority derives from a popular notion of the scientific endeavor. Science is conceived as a process that yields an objective, rational, politically neutral body of knowledge. Decisions consistent with scientific knowledge, therefore, command acceptance.

A principal feature of the popular conceptualization of the scientific enterprise is its strict methodological prescriptions. According to a philosophy of science dominant through the 1960s, known as logical positivist empiricism, the primary test of truth is the replicability of experimental findings. Hiskes and Hiskes (1986:10–11) write that logical positivist empiricism assumes that:

1. Data obtained through careful experiment and observation are objective;
2. There is one universally valid logic for science; and
3. Through rigorous application of logic to data, science gradually makes progress toward the ancient Greek ideal of theoria.

According to the logical positivist empiricist view, data are incontrovertible and unchanging. The observations of any two rational persons witnessing the same event would be identical. Data accumulated through the repetition of similar events eventually leads to the development of theory that integrates abstract concepts and generalizable principles to explain diverse phenomena. Logic is linear and one-directional. In short, this view implies that the products

of work undertaken through the scientific method are absolute and without ambiguity.

. . . [S]cientists and their spokespersons have aggressively fought to reaffirm and protect the image of a neutral science. Proponents of unconditional financial support for scientific research by the federal government have argued that the scientific community is, and ought to be allowed to remain, self-monitoring and autonomous. The scientific community has been called a priesthood, an estate, and a republic (Lapp 1965; Polanyi 1972; Price 1965) and scientists, accordingly, have been described as objective, disinterested, uncorruptible, and impartial (Wood 1964). Uniform standards of validating fact and the self-imposed discipline of the scientific method are offered as guarantees that science is a depersonalized and selfless quest for truth.

Four Roles for Science

If scientific work is viewed as completely outside the social and political bickering and battling that occurs among individuals and groups in society, then a powerful role for science in environmental conflict would be nearly unassailable. Based on the assumption that the scientific method does indeed ensure the political neutrality of knowledge thereby produced, stakeholders in environmental conflict have crafted four important roles for science. These are the roles of science as discoverer, mechanism of accountability, shield, and tool of persuasion.

Science as Discoverer

The role for science most easily associated with an idealized conceptualization of the scientific method is the role of discoverer. In this role, a scientist working in relative isolation from contemporary social and political skirmishes incidentally uncovers a condition the researcher, from her own personal value framework, deems worthy of wider discussion or public action. When Oregon State University student Eric Forsman chanced upon a spotted owl in the Pacific northwest in 1968, he had no intention that this and subsequent encounters would fuel a debate between protecting an endangered species or an endangered livelihood twenty years later. Rowland and Molina's discovery of the correlation between CFCs and the ozone hole over Antarctica was similarly not inspired by an ambition to change public policy. However, each event contributed significantly to the debates over logging in the Northwest and reductions in the use of ozone-depleting gases, respectively.

In most cases, science plays the role of discoverer or educator only at the earliest stages of, or even prior to, conflict development. The role of science as discoverer reflects an idealized image of a scientist's quest to understand conditions in the physical world. One need not look very far, however, to recognize

the critical effect that the researcher's personal value framework has on how that researcher interprets new information. Although biologists working for large timber companies would be unlikely to experience the same intimate moments of solitude with the forest as Forsman, had spotted owls crossed their paths in the late 1960s, it is doubtful that their responses would have been the same as his. Rare wildlife species simply are not a high priority for timber company employees.

Science as a Mechanism of Accountability

A second role for science might best be understood by looking back a half century to the New Deal period when Franklin D. Roosevelt established a number of independent government agencies like the Tennessee Valley Authority. These independent, specialized agencies were built on the assumption that certain types of decisions ought to (and could) be based on technical expertise, not politics. Congress reacted swiftly to try to ensure that decisions by such agencies were in fact based on non-partisan expertise and not politics by enacting the Administrative Procedures Act (APA) in 1946. The APA stipulates procedures for agency decision making, which essentially prescribes that agencies keep a record of their decision-making process and that decisions are consistent with a reading of that record. As agency decisions became more technical in nature (as with the regulation of new technologies and control of air and water pollution) and as new legislation awarded legal standing to citizen groups to challenge agency decisions, decision makers paid increasing attention to technical and scientific studies relevant to their decisions.

Since the 1970s, more than twenty new administrative agencies have been created, most having to do with environmental and health and safety regulation. Corresponding legislation have reinforced the need for decision makers to provide explicit technical documentation to support policy decisions. Statutes, such as the Occupational Safety and Health Act (OSHA), the Toxic Substances Control Act (TSCA), and Resource Conservation and Reclamation Act (RCRA) make explicit reference to the technical basis for decisions. Finally, judges have conceived their role as ensuring that agency decisions are reasonably consistent:

> [The] court has a supervisory function of review of agency decisions. This begins with enforcing the requirement of reasonable procedure, fair notice, and opportunity for the parties to present their case, and it includes examining the evidence and fact findings to see both that the evidentiary fact findings are supported by the record and that they provide a rational basis for inferences of ultimate fact. (Levanthal 1974:511)

Although decision making without the benefit of technical expertise in areas such as environmental policy would be foolhardy, a primary goal of these

decision-making prescriptions was accountability. As long as agency decision makers were constrained by the technical experts' interpretations of the physical conditions and alternative actions, Congress assumed that raw politics would be constrained.

Science as a Shield

Astute decision makers quickly recognized that by framing decisions around boundaries drawn by technical studies, they could build a rationale that would protect them from the political fallout of publicly unpopular decisions. By presenting such information as definitive with respect to policy decisions, the decision maker attempts to create the illusion that science is arbitrating between multiple policy viewpoints or decision alternatives. For example, a decision maker may claim that because certain soil hydrologists have agreed that a particular tract of land proposed for development meet criteria defining a wetland, a development permit must be denied. In effect, the decision maker is claiming that the scientific findings (i.e., the determination that the land is a wetland) preclude a decision to allow development and thus absolve him of responsibility and shield him from the wrath of unhappy constituents. As one writer noted with regard to Congressional deliberations regarding policies for protecting health and the environment, "turning the job of defining adequate standards over to the 'experts' relieves Congressmen [*sic*] of the burden of resolving difficult controversies" (Melnick 1983:251).

The political expediency of this tactic is obvious, but the logic is questionable. In practice, the decision-maker exercises considerable discretion in formulating a response to scientific reports. He may accept the findings and rule otherwise (for other specified reasons, such as economic hardship, for example), he may seek additional advice, or he may order additional study. Throughout his term in office, Ronald Reagan avoided dealing with the acid rain issue raised by groups in the northeastern United States and Canada. Rather than heeding experts who believed the available evidence indicated a causal relationships between smokestack emissions from the industrial mid-west and rising acidity levels and ailing forests further north, Reagan preferred to listen to those scientists who cautiously avoided affirming a connection. Deciding to adopt the decision alternative suggested by a scientific finding or to wait for further confirmation is a political act.

Science as a Tool of Persuasion

Once science is recognized as a source of authority for justifying decisions, it is a small step to see its power in persuading the polity of the legitimacy of one policy or decision alternative over others (Dickson 1984; Nelkin and Pollack 1981).

Like religion and the rule of the monarchy prior to the Age of Enlightenment, science is used in twentieth-century decision making as a primary source of legitimacy to gain political support:

> By invoking the authoritative canons of scientific reasoning and method, public authorities and others having a stake in technical issues seek to demonstrate the rationality of their position and thereby gain political support and acceptance. (Brickman 1984:108)

In this role, science can be used either to support advocated positions in environmental conflicts or "to prevent policy being made around a rival scientific conclusion" (Collingridge and Reeve 1986). Opponents of a proposal might attempt to prevent a decision by either presenting alternative scientific data or analysis or by questioning the assumptions or interpretations of scientific reports that support the proposal. One well-known example of this strategic use of science in regulatory decision making is the tobacco industry's effort to stall restrictions on cigarette smoking by attempting to discredit studies linking cigarette smoking to lung cancer. In nearly any environmental conflict today, participants routinely raise questions about the assumptions, data, and models used in analyses that support opposing viewpoints.

If science and politics are separate, the boundary between science and policy is blurry at best. Science can play the role of discoverer only at very early stages of an environmental conflict, to flag a concern for action. But how that concern is framed and whether it is acted upon is a political decision. Science as a mechanism of accountability similarly serves to moderate the abuse of delegated decision-making authority, but by no means eliminates administrative discretion.

Casting science in the role of a tool of persuasion or a shield is a politically motivated act on the part of the user (policy actor) to capitalize on the authority of science derived from its image as politically neutral. However, as quickly as one set of policy advocates attempt to appropriate science to support their preferred policy or decision alternative, opposition groups move to undermine their position by discrediting the scientific basis of that position. The politics that are imbedded in science are readily uncloaked.

Social Constructionism and Scientific Uncertainty

If scientific work was indeed as free of the idiosyncrasies of the investigator as the ideal described earlier would suggest, environmental conflict would not end, but the scope of the disputes would be narrowed considerably with each additional contribution from scientists with relevant expertise. Disputes would revolve around what to do in response to a given situation, not around defining

the conditions themselves. For example, if EPA knew absolutely that dioxin in concentrations below a given amount would not endanger marine life directly or indirectly, debate over the dredging of the New Jersey harbor might be narrowed to a discussion of dumping method, location, or timing.

However, much in the literature of the social studies of science suggests that scientific work is not free of political content. Irrespective of the rigidities of the scientific method, a multitude of discretionary judgments are made during the course of a scientific investigation by the researcher. Thomas Kuhn describes the progression of scientific inquiry as a temporally bound consensus among scientists. According to Kuhn, researchers perceive curves in the distribution of data points on a graph in patterns that fit pre-existing theory (Kuhn 1982). While researchers have identified discretionary judgments in laboratory research (Latour 1979), the predictive sciences relied on for illuminating conditions in environmental conflicts are fraught with even higher levels of discretion (Bacow 1980). For example, in predicting the potential impacts of the construction of a road through a forest, wildlife biologists would need to make assumptions about a seemingly endless list of items, including the geographic boundaries of the study area, the species to be studied, conditions in surrounding wooded lands, the migration patterns of animals under changed conditions, and the level of environmental devastation occurring during the road building period itself from the intrusion of heavy construction equipment. While these assumptions and others like them are to some extent constrained by conventions of practice, many cases are sufficiently unique to make such cross-references arguably uninformative.

The choice of assumptions, boundaries, and definitions of variables are replete with methodological uncertainties and indeterminacy (Klapp 1992; Wynne 1992). For example, the selection of a model to simulate meteorological conditions predicting air pollution plumes cannot be determined through any kind of scientific exercise, but is ultimately a judgment based on the researchers' assessment of the similarities between model parameters and real life conditions or the match between available data and the variables used in the model.

Wynne (1992) has further differentiated methodological uncertainty. He identifies ignorance as contributing to uncertainty in scientific analysis. Simply, scientists are unable to account for factors of which they are unaware. In contrast to the popular belief that scientific knowledge and method recognize and attempt to reduce uncertainties, Wynne (1992:115) argues:

> It is more accurate to say that scientific knowledge gives prominence to a restricted agenda of defined uncertainties—ones that are tractable—leaving invisible a range of other uncertainties, especially about the boundary conditions of applicability of the existing framework of knowledge to new situations.

Another type of uncertainty encountered in science has been described as statistical uncertainty. In theory, statistical uncertainty can be eventually reduced as more and more data are accumulated. However, in practice, decisions are made long before sufficient data are obtained.

Dealing with uncertainty requires a judgment on the part of researchers in the course of their work. How one selects methodologies, models, measuring devices, indeed even one's choice of scientific theory, is seldom rigidly defined by current practice. These discretionary elements are influenced by social and political factors such as the individual's institutional affiliations, source of research funds, and disciplinary training (Knorr-Cetina 1982). Viewed in this light, scientific work that carries the signature of the individual researcher and acceptance of scientific work by the scientific community more accurately represents a consensus among scientists, rather than objective fact.

An Alternative Role: Science as a Tool of Facilitation

In the highly contentious context of the 1980s, the art of utilizing scientific argumentation for furthering political objectives flourished. The authority of science was exploited by groups on multiple sides of any given debate, prolonging decisions on particular conflicts for several years in many cases and increasing expenses for government, private developers and industry, and community organizations. A sentiment was developing in the academic sphere that science in the role of arbiter in environmental conflict was a misuse of scientific work. Moreover, to sustain the image of science as authoritative with respect to decisions that were inherently political is a displacement of political power from elected politicians to the hands of an elite corps of scientific experts (Dickson 1984). Reports on Ronald Reagan's heavy-handed oversight of the selection of scientists to serve on advisory committees such as the Environmental Protection Agency's Science Advisory Board made such suspicions all the more disturbing (Ashford 1984).

The question remains, can science play a role in resolving environmental conflict? Over the past decade, an alternative role for science has been emerging as a by-product of decision-making innovations that include explicit negotiations among individuals and representatives of groups engaged in an environmental dispute. In one version of environmental mediation, the scientific and technical information necessary to understand current conditions and to identify possible options for action is one of the first topics on the agenda (Carpenter and Kennedy 1988; Crowfoot and Wondolleck 1990; Susskind and Cruikshank 1987). Almost from the start, the negotiating group discusses what kind of technical knowledge is pertinent. The more particular discretionary judgments encountered in scientific and technical investigations are openly discussed and subject to agreement (Ozawa and Susskind 1985). These judgments include

decisions about the kind of information needed, data collection techniques, analytical models and methodologies, how to deal with statistical and methodological uncertainty and, sometimes, the disciplinary training and institutional affiliation of the researcher. Finally, the interests and concerns of various groups with a stake in the decision are explicitly acknowledged and a period of time is set aside in the negotiations to address them. The outright recognition of competing interests serves as a signal to stakeholding groups (and the public) that such issues will be addressed in the decision-making process. With such assurance, stakeholders contending to dominate the decision process are less inclined to posture behind admittedly disputable technical argumentation, as they do in more adversarial procedures in which winning on the technical points likely means protecting their interests, and are more willing to focus on collectively accumulating and making sense of relevant data and analyses. Because the discretionary nature of assumptions is acknowledged, sensitivity analysis or the substitution of variables or values for specific variables is easily accommodated by the negotiating group, again, defusing potential disputes over technical aspects of the decision.

An early example of this approach was a 1986 rulemaking procedure conducted by the U.S. Environmental Protection Agency (EPA) (Ozawa 1991). In response to a lawsuit filed against the agency for failure to regulate carcinogenic polycyclic organic matter (POMs) under Section 112 of the Clean Air Act, the agency invited representatives from key stakeholding groups, including wood stove manufacturers, national and local environmental organizations, and various state agencies from four states to develop emission standards for wood-burning stoves, the third largest source of POMs. Operating under a strict deadline, the group successfully crafted a proposal that was supported by all participants.

This agreement was achieved through a carefully structured procedure. At the first meeting, the group agreed to defer discussion of specific political concerns until after a solid technical basis for the rules was jointly constructed. The group labored long hours to develop this foundation of technical knowledge. Data and existing studies were collected from all known sources and closely scrutinized by technical experts from the EPA, the industry, and the environmental organizations, independently and together as a group. The discretionary nature of research assumptions and the inevitable statistical and methodological uncertainties were uncovered and debated. For example, it was widely accepted that wood stoves equipped with a catalyst emit fewer particulates than non-catalyst models, but no data existed to indicate how quickly catalysts degrade. The relative performance of catalyst-equipped stoves over the long term was thus highly uncertain. The testing performance of all models, for that matter, was disputable since emission rates vary according to basic factors such as how users stack wood and the age, type, and wetness of wood.

Discussion of assumptions regarding testing procedures, degradation rates, and countless other factors accentuated the fact that the rules were, at their core, political, not technical, products. However, this realization did not lead participants to ignore the science, as some might fear, but rather encouraged them to look more soberly at what scientific evidence existed to guide their deliberations. . . .

The role of science in this regulatory negotiation comes closest to the traditional role of discoverer, described in an earlier section. Scientific knowledge was shared not simply to prove the superiority of one policy alternative over another, but to educate all participants about the status and quality of available information. Science in this regulatory negotiation went beyond the role of discoverer, however. By working together to construct a joint understanding of the technical aspects of the standard-setting task, groups with competing political interests were also learning to listen to another and to appreciate one another's talents, skills, and knowledge base. Discussing mundane issues such as the way most people stack wood or the dominant type of wood burned in particular regions of the country provided a relatively calm atmosphere conducive to dialogue. Importantly, those with specialized expertise were explicitly asked and reminded that their role was to educate, not intimidate, the group on technical issues. The meetings also provided an opportunity for informal discussions and the formation of coalitions that facilitated the exchange of interest-related information and development of a fuller understanding of and mutual respect for all legitimate claims. In this case, science provided an opportunity for participants to develop a constructive pattern of interaction.

Conclusion

This example suggests that an alternative role for science in environmental conflict may be crafted. However, the decision-making process must be deliberately structured to ensure the following conditions. First, access to scientific expertise and analysis must be open to all stakeholding parties. Second, the agenda for negotiations must clearly set aside a period for addressing explicitly political concerns in order to discourage participants from stubbornly posturing behind technical positions that they believe will afford them political gains. Finally, experts invited to participate in the decision-making process must commit to share scientific information in order to educate, not intimidate, the stakeholders. If these conditions are met, a discussion of relevant technical information can provide an opportunity for parties to gain a fuller understanding of both the technical and political dimensions of the dispute. Science can be used as a tool of facilitation.

. . . [N]egotiating the scientific basis for environmental decisions may represent a way to maintain dialogue and develop a constructive understanding of the multiple perspectives of a given environmental conflict.

Note

Ozawa, Connie P. 1996. "Science in Environmental Conflicts." *Sociological Perspectives* 39, no. 2: 219–31.

References

Ashford, Nicholas. 1984. "Advisory Committees in OSHA and EPA: Their Use in Regulatory Decision-making." *Science, Technology, and Social Values* 9: 72–82.

Bacow, Lawrence. 1980. "The Technical and Judgmental Dimensions of Impact Assessment." *Environmental Impact Assessment Review* 1: 109–124.

Brickman, Ronald. 1984. "Science and the Politics of Toxic Chemical Regulation: U.S. and European Contrasts." *Science, Technology, and Human Values* 9: 107–111.

Carpenter, Susan, and W. J. D. Kennedy. 1988. *Managing Public Disputes*. San Francisco, CA: Jossey-Bass.

Clean Air Act. 1967. U.S. Code 42.

Collingridge, David, and Colin Reeve. 1986. *Science Speaks to Power*. New York: St. Martin's Press.

Crowfoot, James E., and Julia M. Wondolleck. 1990. *Environmental Disputes: Community Involvement in Conflict Resolution*. Washington, DC: Island Press.

Dickson, David. 1984. *The New Politics of Science*. New York: Pantheon Books.

Hiskes, Anne L., and Richard P. Hiskes. 1986. *Science, Technology, and Policy Decisions*. Boulder, CO: Westview.

Klapp, Merrie G. 1992. *Bargaining with Uncertainty: Decisionmaking in Public Health, Technological Safety, and Environmental Quality*. New York: Auburn House.

Knorr-Cetina, Karin D. 1982. "Scientific Communities of Transepistemic Arenas of Research? A Critique for Quasi-Economic Models of Science." *Social Studies of Science* 12: 101–130.

Kuhn, Thomas. 1982. "Normal Measurement and Reasonable Judgment." Pp. 75–93 in *Science in Context*, edited by Barry Barnes and David Edge. Cambridge, MA: MIT Press.

Lapp, Ralph E. 1965. *The New Priesthood: The Scientific Elite and the Uses of Power*. New York: Harper & Row.

Latour, Bruno. 1979. *Life in the* Laboratory. Beverly Hills, CA: Sage.

Levanthal, Harold. 1974. "Environmental Decisionmaking and the Role of the Courts." *University of Pennsylvania Law Review* 122: 509–555.

Melnick, R. Shep. 1983. *Regulation and the Courts: The Case of the Clean Air Act*. Washington, DC: The Brookings Institution.

Nelkin, Dorothy, and Michael Pollack. 1981. *The Atom Besieged*. Cambridge, MA: MIT Press.

Ozawa, Connie P. 1991. *Recasting Science: Consensual Procedures in Public Policy Making*. Boulder, CO: Westview.

Ozawa, Connie P., and Lawrence E. Susskind. 1985. "Mediating Science-Intensive Policy Disputes." *Journal of Policy Analysis and Management* 5: 23–39.

Polanyi, Michael. 1972. "The Republic of Science: Its Political and Economic Theory." *Minerva* 1: 54–73.

Price, Don K. 1965. *The Scientific Estate.* Cambridge, MA: The Belknap Press of Harvard University.

Strum, Charles. 1993. "Dredging Stays Mired in a Debate Over Dioxin." *The New York Times*, Section B, p. 1.

Susskind, Lawrence, and Jeffrey Cruikshank. 1987. *Breaking the Impasse: Consensual Approaches to Resolving Public Disputes.* New York: Basic Books.

Wood, Robert C. 1964. "Scientists and Politics: The Rise of an Apolitical Elite." Pp. 41–72 in *Scientists and National Policy-Making*, edited by Robert Gilpin and Christopher Wright. New York: Columbia University Press.

Wynne, Brian. 1992. "Uncertainty and Environmental Learning: Reconceiving Science and Policy in the Preventive Paradigm." *Global Environmental Change* 2: 111–127.

16

An Ounce of Precaution

Nelta Edwards

This reading shows how standard scientific methods are limited when it comes to communities' need for information that would help them understand the level of threat posed by carcinogens in their local environments and enact policies to reduce those threats. The rules of scientific method are designed to be very conservative. Most importantly, to be considered noteworthy, a scientific study typically must show a statistically significant result, which can be very difficult to obtain with small numbers of cases (a small sample). For this reason, cancer clusters in small communities may be overlooked. Currently, it is up to communities to prove a substance is dangerous. Given the standard statistical method, that is difficult to do. Some national governments are thus moving toward a new model that emphasizes precaution, under which a substance needs to be proven safe before the public is exposed to it.

The Alaska village of Point Hope has a cancer rate that's 38 percent higher than the national average. Some 30 years ago, the U.S. Geological Service, under contract with the Atomic Energy Commission, conducted a radioactive experiment in a nearby hunting and fishing area.

People who lived along the Yellow Creek in rural Bell County, Kentucky, noticed obvious signs it was polluted—dead fish, tan-colored ooze, less wildlife. They thought it might be related to the residential and industrial waste that flowed from another town upstream. A Centers for Disease Control and Prevention study found the leukemia rates for those who lived along the creek were four times higher than the expected rate.

In the neighboring North Carolina communities of Milford Hills and Meadowbrook dozens of cancers were diagnosed among the 1,600 residents. Dr. Rick Weisler found a brain cancer rate 5.6 times greater than the statewide rate. Among children, the rate was 300 times the expected rate. Most of those diagnosed lived downwind of a collection of industrial facilities.

Studies conducted in each of these communities, and many others just like them around the globe, concluded the elevated rates were "not substantiated." When residents in communities like these learn about their high rates of cancer, common sense tells them something's wrong—it doesn't take an epidemiologist to draw connections between their health and the pollution in their midst. But when scientists tell them the difference is "not substantiated," "not scientifically verifiable," or "not statistically significant," it looks to residents like science is being used as some trickster's sleight of hand to hide what everyone can plainly see.

As more communities have questions about the health consequences of past and present pollution in their midst, it's more important than ever to understand the science behind the terminology. Sharing this understanding we can ask whether rates like these can be significant without being statistically significant, and when a precautionary approach might go a long way toward protecting community health.

Testing Hypotheses

Statistical significance refers to the outcome of scientific hypothesis testing. As social scientists are taught in their introductory statistics and methods courses, hypothesis testing involves two questions that are mirrors of each other. The null hypothesis is the statement of "no difference," while the research hypothesis states that there is a difference. Although it may sound backwards, scientists actually test the null hypothesis and from that make a conclusion about the research hypothesis.

In the United States today, about 450 people in every 100,000 will be diagnosed with cancer. For communities concerned about elevated rates of the disease, the null and research hypotheses would be stated something like this:

Null hypothesis: Community's cancer rate = 450/100,000
Research hypothesis: Community's cancer rate > 450/100,000

Researchers examine their data and either accept the null hypothesis or reject it. These are the only two choices. If the null hypothesis is rejected, then the researcher may conclude a difference exists between the local and national cancer rates. And that means the difference between the cancer rate in a community and the cancer rate nationally is statistically significant. If the null

TABLE 16.1. **Is the Difference Statistically Significant?**

Decision about the null hypothesis	*Reject the null*	**OR**	*Fail to reject the null*
	Yes. The difference is statistically significant.		No. The difference is not statistically significant.

hypothesis is not rejected, it means the difference between the local and national rate is not statistically significant (Table 16.1).

Of course, communities are probably more interested in the relationship between the cancer rates and exposure to suspected cancer-causing substances. That is, residents want to know whether people who were exposed are more likely to get cancer. However, without a statistically significant difference between the local and the national rate, there is little reason, at least by standard scientific practices, to investigate potential sources of pollution.

Indeed, the National Center for Environmental Health receives thousands of inquiries from concerned residents each year. But very few meet the criteria to show the local illness rate in question is statistically higher than the national rate. Thus, there is no reason to test for a relationship between (the non-elevated) cancer rate and exposure to pollution.

False Positives

So few investigations of community environmental concerns meet the criteria of statistical significance because hypothesis testing is actually set up to *not* find it. Scientific hypothesis testing has been designed to guard against the mistake of rejecting a true null hypothesis. If the null hypothesis is wrongly rejected, it means the research hypothesis is accepted when it should not have been—thus the term false positive.

The risk of a false positive is represented by alpha levels. Alpha levels are commonly set at .10, .05, .01, or .001. These represent the percent of time the researcher is willing to risk a false positive—either 10 percent, 5 percent, 1 percent, or one-tenth of 1 percent. By conventional standards, these alpha levels are quite conservative, making it difficult to reject the null hypothesis.

Researchers try to protect against false positives because the scientific method, in general, demands that they be very cautious when adding to the store of scientific knowledge. And that's what happens each time the null hypothesis is rejected.

For example, hundreds of different studies have tested the null hypothesis that the earth is not warming up. And, hundreds of studies have rejected that null hypothesis, thus building the scientific consensus that climate change is

indeed taking place. The use of a strict alpha keeps all but the most robust findings from being added to the store.

Studies that don't use these traditional alpha levels might be seen as lacking validity and equated with "junk science." Moreover, because almost everyone who does scientific research uses the .10, .05, .01, and .001 alpha levels, they are the established conventions. Researchers can compare their studies to other studies because they will most likely have used one of these four alpha levels.

Problem is, adding to the store and conducting comparisons in the name of scientific rigor is less important than investigating possible health consequences of environmental contaminants in communities. In fact, the conservative tendency of science to accept the null hypothesis may thwart community concerns and perhaps dangerously delay or prevent corrective action.

The Math

In addition to strict alphas, low incidence rates make finding statistical significance less likely. Although cancer is a dreaded illness, it's relatively rare, especially by sociological research standards. This is important because it's harder for a researcher to detect a significant difference with a rate of 450/100,000 (.45 percent) than with a rate of 45,000/100,000 (45 percent).

Small populations also make finding statistical significance difficult. While sociologists don't consider populations of 100 "small," public health researchers do. The issue is that "small" populations of 100, 500, or even 1,000 make finding statistical significance unlikely. Which is too bad for people in small communities like Point Hope, where the small population, combined with the low national incidence rate, made finding statistical significance unlikely.

The likelihood of finding statistical significance can be measured by something called statistical power. Statistical power measures the chance of detecting a meaningful difference, or effect, if one were to occur. Ideally, a statistical test should have a power of at least 0.80—so the statistical test has an 80 percent chance of finding an effect if one existed. A non-significant finding of a statistical test that had a power of .80 would be taken much more seriously than a non-significant result of a test that had a power of only .20.

Public health studies don't generally report the power of the statistical test. This isn't because researchers are trying to hide something, but rather because statistical power is generally something calculated before a study begins, when researchers have the opportunity to adjust the sample size. This would work if researchers were trying to figure out how many individuals they should randomly survey in the United States. However, researchers select a sample size based on the statistical power they would like to have, constrained by other factors such as of the cost of collecting large samples. In studies of potentially contaminated communities, the population of that town or neighborhood already sets the sample size.

The cancer rate in Point Hope was not statistically different from the national rate and was characterized as a "chance event." However, because of the small population, the cancer rate in Point Hope would have needed to be more than 400 percent higher than the national average to have an 80 percent chance of being statistically significant.

Table 16.2 provides an illustration of the relationship between sample size and the local cancer rates needed to get statistical significance. Given that the national cancer rate is about 450/100,000, we would expect most communities to have a cancer diagnosis of about this rate. For example, in a community with 100 residents we would expect less than one person (.45) to be diagnosed per year. However, the number of cases diagnosed would have to be 2.98 for 100 people before it reached statistical significance, a rate equal to 2,983/100,000. This rate is 6.63 times, or 563 percent higher than, the national average. Anything less than this would not be found statistically significant.

Looking at columns A, D, and/or E, it's clear that as the size of the community increases, differences in the number of cases diagnosed that are needed to reach statistical significance decreases. Even in a community or neighborhood with a population of 5,000, the number of cancer cases would have to be 1.57 times, or 57 percent higher than, the national rate to reach statistical significance.

However, look what happens when the population is very large—in a population of 1 million it only takes a 4 percent difference between the national and local rates to reach statistical significance. In smaller populations, the rate must be very high to find statistical significance, while in large populations the rate can be only slightly higher yet still be statistically significant.

Notice something else. In our community of 100, if three people are diagnosed with cancer in one year, which is likely to happen given all kinds of factors such as exposures, lifestyle, genetics, increased screening, or just pure chance, regardless of any local environmental problems, the rate of 3/100 (the same as 3,000 per 100,000) would be statistically significant. When comparing incidence of illness in small communities against their national rates, in small communities two or three cases can be the difference between statistical significance and non-significance. This is why health data are most often looked at over a longer period, using averages over five years, 10 years, or more.

Given the limitations of the use of statistical significance, it's curious that we've come to rely on it. David Ozonoff and Leslie Boden point out that public agencies seek to minimize public disruption, such as those caused by the disclosure of environmental hazards. A public uproar about pollution in a community means citizens may put businesses or the military on the spot for having caused the contamination in the first place, blame public agencies for allowing the pollution to continue, and demand that government agencies take responsibility for the cleanup.

TABLE 16.2. **Rates Needed to Reach Statistical Significance by Community Size with Alpha Level of .05 and Power Equal to .80.**

A	B	C	D	E
Community Size	Expected number of cases in community if equal to the national rate of 450/100,000	Number of cases needed to reach statistical significance (rate per 100,000)	Number of times higher than 450/100,000	Percent higher than 450/100,000
100	.45	2.98 (2,928/100,000)	6.63	563%
500	2.25	6.91 (1,392/100,000)	3.07	207%
1,000	4.5	10.72 (1072/100,000)	2.38	138%
3,000	13.5	23.61 (789/100,000)	1.74	75%
5,000	22.5	35.25 (705/100,000)	1.57	57%
1,000,000	4,500	4,660.00 (466/100,000)	1.04	4%

And cleanup costs money—the Department of Energy, for example, spent $6.2 million to remove the radioactive soil near Point Hope. Businesses paying to clean up their environmental messes are likely to pass their costs on to consumers, and irresponsible businesses may relocate to another state or even another country to avoid accountability. This would mean the loss of jobs and tax revenue for the local community. Likewise, any cleanup by the military would be at the (federal) taxpayers' expense.

The possibility of this kind of commotion and monetary expenditure means that public agencies are hesitant to confirm increased disease rates. Because statistical significance is difficult to attain in small communities, it keeps the lid on a can of worms. But it may end up protecting polluters instead of the public.

Taking a Stand

Statistical significance can't be used as the arbiter of truth in determining whether an increase in the local cancer rate has occurred, but there are other ways communities can determine whether they have a problem.

The European Union has dealt with this dilemma by using the "precautionary principle." It states that "when an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically," according to the Wingspread Statement on the Precautionary Principle. That is, they stop the pollution even if they don't have the scientific evidence to prove it's harmful.

Rather than allowing pollution to continue until the rates of disease reach statistical significance, the precautionary principle recommends a "better safe than sorry" approach. It doesn't rely on a single tool like statistical significance and is realistic about the ability to measure changes in human health. It isn't easy to figure out whether the number of illnesses in an area is elevated and whether the increase is related to a source of pollution—some people won't get sick until 10 years, 20 years, or even 30 years after exposure to a cancer-causing substance, for example. And, people are exposed to many potentially cancer-causing agents in a lifetime and some of these interact in ways that make them worse together than they may be separately. Individual factors such as diet, exercise, smoking, genetics, and even stress further complicate the effort to pinpoint the cause of an illness.

The precautionary principle accepts health data tentatively. It doesn't ignore the fact that people in disadvantaged communities have less access to medical care and other resources, and are therefore less likely to be diagnosed (and treated) for their illnesses, and are less likely to have their illnesses counted in public health surveillance studies. In this way the precautionary principle calls

for attending to issues of environmental justice. In the face of this complexity and uncertainty, the precautionary principle recommends prudence because it's difficult to nail down exactly how the pollution and the health effects are related.

This approach can be applied to significance testing by adopting procedures that would allow for more false positives. We could increase the alpha level to .30, for example. In the end, it's better to be wrong about the existence of an environmental hazard if communities can investigate a potential problem before they're exposed to health-damaging contaminants.

The precautionary principle shifts the burden of proof from the community to the suspected polluter—prove that what you're doing isn't dangerous in order to keep doing it—and this may sound obstructionist to business and industry. These leaders may characterize community members concerned about pollution as "Chicken Littles" who are ignorant of science and stand in the way of economic progress. Community members will have to weigh this pressure against residents' health.

If a health study in a community finds statistical significance, residents shouldn't panic. As illustrated above, statistical significance may reflect a small number of cases (just three in 100) in small populations or a slight increase over time in large populations. Statistical significance doesn't prove a health problem exists.

On the other hand, given the low likelihood of finding statistical significance in small communities, unless the local rate is very, very high, the lack of statistical significance certainly should not be used to shut down the discussion about the possibilities of environmental contamination.

Researchers and community members can use statistical significance as a tool to evaluate disease rates, but everyone needs to understand the limitations. Statistical significance is not a smoking gun. It doesn't provide absolute proof of harm, just as lack of it isn't a signal of safety. By employing the precautionary principle citizens will be able evaluate all the evidence available to them, including statistical significance, with the aim of making the best decision for the health and well-being of their communities. We may see, then, that an ounce of precaution is worth a pound of cure.

Note

Edwards, Nelta. 2008. "An Ounce of Precaution." *Contexts* 7(20): 26–30.

Risk Society and Contested Illness

The Case of Nuclear Weapons Workers

Sherry Cable, Thomas E. Shriver, and Tamara L. Mix

Sociologists sometimes refer to modern society as a "risk society"—one that is organized around hazards that people themselves create. In a risk society, the distribution of societal risks may become as important to quality of life as the distribution of wealth. Risk societies rely on complex production technologies; the management, policy making, and general understanding of these technologies require multiple specialized experts. The reliance on experts leads to both the unintentional and intentional restriction of citizens' access to information about environmental hazards. The ability of citizens to protect themselves from risks is related to their ability to access and understand information. This article explores these issues as they manifest at the Oak Ridge Nuclear Reservation, a key installation of the federal nuclear weapons complex. The authors examine the conditions under which managers and other institutional authorities withhold technical knowledge from the public and dispute workers' claims of environmental illness.

Contemporary societies consciously invite exposures to environmental hazards that pose unique risks to human health. Beck (1992, 1995, 1996) uses the term "risk society" to describe societies organized around the environmental hazards created by modern agricultural and industrial production technologies. Risks derive from hazards deliberately "induced and introduced by modernization itself" (Beck 1992:21) through technologies developed to generate increased capital accumulation. Since about 1945, production technologies have relied significantly on radioactive substances, heavy metals, and synthetic organic chemicals—substances scientifically demonstrated to be associated with specific human ailments (Cable, Hastings, and Mix 2002; Commoner 1972; Schnaiberg 1980).

A society's reliance on risky and complex production technologies elevates experts to prominence in private and public decision-making arenas. It also restricts citizens' access to information about environmental hazards. Information restriction occurs, often unintentionally, because technologies require multiple specialized experts who create abstract knowledge systems that are incomprehensible to the majority of citizens (Giddens 1991). Intentionally restricted access, on the other hand, derives from private and public institutions' close control over scientific knowledge related to economic production. Private institutions, such as corporations, guard knowledge as a proprietary commodity, and the state withholds certain information for ideological and security reasons. Without full access to information, citizens cannot assess specific risks and make informed decisions about where they work and live, nor are they prepared to protect themselves from the risks they cannot avoid.

Without resources to protect themselves from exposures, people inevitably get sick. How does the risk society respond to claims that illnesses are caused by the production technologies that define the age? Research shows that individuals who attribute their symptoms to environmental exposures and turn for aid to their physicians, employers, and political leaders frequently receive little support. Instead, they find themselves embroiled in public conflict. We refer to illnesses that "engender major scientific disputes and extensive public debates over environmental causes" (Brown et al. 2003:213) as contested environmental illnesses. . . .

In this article, we build on the risk society thesis to advance understanding of authorities' contestations of disease claims linked to risky production materials. We draw on documents, observations, and in-depth interviews with 124 residents, workers, and activists in East Tennessee to investigate the public dispute over the environmental illness claims of nuclear weapons workers. Attention centers on Oak Ridge Nuclear Reservation, a key installation of the

federal nuclear weapons complex. Under what conditions do institutional authorities contest environmental illness claims of known diseases? Which authorities contest illness claims? And how is institutional power exercised to withhold technical knowledge from the public? Such questions, which make up the core of our analyses, contribute to sociological scholarship on environment, illness, and workplace power dynamics, but also to broader social scientific concerns pertaining to knowledge and open, democratic discourse.

Risk Society and Contested Environmental Illnesses

Contemporary Ecological Hazards

. . . Since the 1990s, "risk society" is the tag most commonly used for reference to postwar societal changes (Beck 1992, 1995, 1996; Eder 1996; Gare 1995; Giddens 1990, 1999; Habermas 2001; Jameson 1991). Beck (1992) argues that contemporary societies' wealth is inextricably linked to environmental hazards—surplus capital is complemented by surplus dangers to human health. He writes: "In the risk society, the unknown and unintended consequences [of production] come to be a dominant force in history and society" (p. 22). Fearing such consequences, citizens often question the premier roles of science and technology in directing economic expansion. Giddens (1999) illuminates the nature of unintended consequences by stressing the differences between industrial societies' natural, acts-of-the-gods risks, such as flood and famine, and the risk society's decidedly anthropogenic, deliberately assumed risks, such as exposures to radiation and synthetic pesticides. Risk analysts depict societies as dominated by knowledgeable experts whose technological choices carry ecological threats that are deliberately borne for the anticipated benefits of increased capital accumulation. But the risks are not equally distributed in society. Politically powerful private-sector groups who make technological decisions advocated by the experts in their hire reap significant benefits, yet the costs—adverse health effects—disproportionately affect the general public. . . .

The most extensive production technologies of the risk society are those associated with the Cold War's nuclear arms race and with the petrochemical industry. The nuclear arms race increased reliance on production technologies that use materials associated with serious human health problems, such as uranium, mercury, cyanide, nickel, chromium, and beryllium. The petrochemical industry's postwar expansion replaced many naturally occurring materials used in agriculture and manufacturing with synthetic organic compounds. Fabricated as artificial combinations of amino acids, petrochemicals have no corresponding enzymes to help them biodegrade. Consequently, they accumulate in food webs, where they pose constant threats to life. The emergent technologies of

genetic engineering and nanotechnology continue the risk society's trend of introducing unnatural substances to the natural environment.

Ubiquitous health threats inevitably bring illnesses—eventually. Because contemporary risks have a long latency period, technologies' toxic byproducts sleep as ticking timebombs in many communities. The first bombs began exploding in the 1980s when citizens confronted health threats in their workplaces and communities (Bullard 2000; Cable and Cable 1995; Cole and Foster 2001; Nelkin and Brown 1984). Many people now complain of illnesses that they attribute to hazardous exposures. Symptoms include multiple chemical sensitivities, immune system deficiencies, tremors, chronic fatigue, memory loss, unexplained rashes, chronic headaches, tumors, and clinical depression. These illnesses are now so frequently reported that researchers refer to them as "environmental" illnesses—a commonality portending that, in the near future, the defining characteristic of risk societies may well be widespread environmental illnesses. . . .

Analytic Frame and the Case of Nuclear Weapons Workers

Risk societies are accompanied by citizens' claims of environmental exposure–induced illnesses, as well as contestations of those claims by corporate, government, and medical authorities. These authorities often prioritize organizational needs over citizens' needs in the service of profit, power, and ideology. Contestation denies the ill access to needed services and benefits. . . .

. . . One of the three original Manhattan Project sites, the Oak Ridge facility produced the enriched uranium that fueled the Hiroshima bomb. Throughout the subsequent Cold War, workers continued to handle hazardous materials as they developed the hydrogen bomb, enriched uranium to weapons- and commercial-grade levels, researched the use of radioisotopes, and manufactured components for nuclear weapons systems.

This case is itself opportune for three significant reasons. First, the nuclear weapons industry is emblematic of the risk society's production technologies that use hazardous substances. The chief production substances used at the Oak Ridge Nuclear Reservation were mercury, cyanide, uranium, and beryllium.

Second, Oak Ridge workers' claimed illnesses are known diseases. Medical experts have scientifically established links between exposures to weapons production materials and adverse health effects. Exposures to mercury, particularly in vapor form, are associated with tremors, respiratory problems, emotional instability, sleeplessness, memory loss, muscle weakness, headaches, and numbness. Acute and chronic cyanide exposures may cause headaches, palpitations, convulsions, skin disorders, nasal irritation, and tremors. Radioactive exposures are associated with malignant effects such as cancers of the bone, liver, thyroid, and lung, and with nonmalignant effects such as degenerative changes and

impaired function of bone marrow, kidneys, lungs, and the eyes. Beryllium is associated with life-threatening respiratory problems, including lung cancer. Institutional acknowledgment of these known associations between exposures and specific diseases is manifested in federal regulations for worker safety.

Third, records of hazardous exposures, which can be used to demonstrate the exposure-illness link for a particular individual, are more likely to be maintained for workers than for the general public. The public's protection from exposures consists of Environmental Protection Agency (EPA) regulations on toxic emissions that establish standards for air, water, and land quality. Emissions records are required of organizations, but exposure records for members of the public are not. In contrast, workers are protected from exposures by the Occupational Safety and Health Administration (OSHA). OSHA regulations establish limits on workers' hazardous exposures and also impose requirements for worker safety that include regular monitoring of workers' exposures and maintaining accurate individual exposure records. Exposure records constitute a database for connecting individuals' exposures to their illnesses.

We use the following questions to guide our case study analysis: What was the institutional context for nuclear weapons workers' hazardous exposures and claims of known illnesses? Without the ambiguous climate created by the etiological uncertainty of presumed diseases, what was the basis for authorities' contestation of workers' claims of known illnesses? What powers specific to the contesting institutions were used to dispute illness claims, and what particular tactics did authorities use to contest workers' claims of known diseases?

Data and Research Strategy

We collected data in a multiyear effort through in-depth interviews, document analysis, and observation. Our primary data source is indepth interviews with 124 respondents. . . .

. . .The sample is predominantly white, evenly split in terms of gender, and 29 percent lived in Oak Ridge since at least early childhood. The bulk of the respondents are employed as professionals (30.6 percent), technicians (25 percent), and laborers (15.3 percent). Because of the way we selected respondents, the majority believe that exposures to weapons production materials had caused illnesses. . . . Over half of the respondents work at the Reservation, and 25 respondents (20.2 percent) claim illnesses from exposures to weapons production materials.

. . . Nearly all [the ill respondents] are white, and 65 percent are female . . . 64 percent lived in Oak Ridge since at least early childhood, and 32 percent spent adulthood as Oak Ridge residents. One ill respondent is a lifelong resident of nearby Knoxville, but his father worked for decades at the Reservation. The respondent himself had been a Reservation employee for

three years. Ill respondents worked predominantly as technicians (44 percent) and laborers (24 percent). Most (96 percent) were either Reservation workers (76 percent) or lived with Reservation workers as children or spouses (20 percent). All 25 ill respondents report that their illness claims were contested.

We checked interview data for verification against documents including local and regional newspapers (*The Oak Ridger*, the *Knoxville News-Sentinel*, and the *Nashville Tennessean*), local historical accounts of Oak Ridge, documents obtained from the Department of Energy (DOE) Reading Room and through Freedom of Information Act requests, State of Tennessee public documents, and personal correspondence between physicians and patients and among activists. Additionally, we engaged in observation at various government-sponsored and activist-sponsored public meetings in venues such as the American Museum of Science and Energy and the Oak Ridge Visitors' Bureau.

The Institutional Context of Workers' Contested Illness Claims

The Oak Ridge Nuclear Reservation is a part of the nuclear weapons production complex in which the DOE supervises the design, construction, assembly, and disassembly of nuclear warheads at 17 major sites in 13 states (Ehrlich and Birks 1990). Conforming to the principle that the government must not compete with private enterprise, the sites are managed by more than 70 corporations, including Union Carbide, General Electric, Westinghouse, Martin Marietta, Lockheed, and Monsanto. Employing about 12,000 workers, the Oak Ridge Reservation maintains the nation's largest stock of fissile materials. The central institutional context for the contested illness claims of nuclear weapons workers is the DOE. But the DOE delegates authority to its Oak Ridge Office (ORO) for supervision of local operations in coordination with corporate management authorities. Consequently, both the federal and the local organizational contexts are critical factors in Reservation workers' exposures and illness claims.

The DOE and the Federal Nuclear Weapons Complex

The Manhattan Project was initiated in 1942 as one of three research and production facilities constructed by the U.S. Army to produce the world's first atomic bomb. National security demanded that project operations remain secret. All employees, from physicists to janitors, worked under a security system known as compartmentalization. Originally established to limit interaction among scientists, the system was refined in wartime to restrict the flow of all information to a "need-to-know" basis. Workers were prohibited from discussing any aspect of their jobs on penalty of forfeiting their security clearances. Revocation of security clearance meant that the worker was suspended without

due process pending an investigation; conviction would bring imprisonment. As a result, most workers remained as uninformed about the Manhattan Project's mission as the public—until the second bomb exploded over Nagasaki. The government then released the Smyth Report, a semi-technical account of the scientific developments that culminated in the military use of atomic energy.

The motives of key actors for releasing the Smyth Report varied, revealing a fundamental contradiction that remains unresolved: the withholding of information from citizens by a democratic government. Author and physicist Smyth's motivation was shared information. In the report's summary, he states that the further development and use of atomic bombs should be determined in a public process:

> In a free country like ours, such questions should be debated by the people and decisions must be made by the people through their representatives. . . . The people of the country must be informed if they are to discharge their responsibilities wisely. (Smyth 1945:13.7–8)

Smyth's objective was in sharp contrast to pronouncements by Secretary of War Henry Stimson and Manhattan Project Director General Leslie Groves. Stimson (1945) hoped that the report would "backfire reckless statements by independent scientists after the demonstration of the bomb." He said, "If we could be sure that these could be controlled and avoided, all of us would much prefer not to issue such a paper." In the foreword to the report, Groves emphasized the need for strict limits on the release of information because of national security requirements, and he warned that public requests for further information were inappropriate and violators would be subject to the Espionage Act.

Secrecy prevailed; the Cold War began as the heated war ended. Political tensions with the USSR heightened security concerns, which were manifested in the dramatic enlargement of the weapons complex in pursuit of a superior nuclear arsenal. Stringent secrecy norms imposed at weapons production sites exceeded wartime restrictions on information flow to the point of contradicting the constitutional imperative to preserve an open democratic government safeguarded by checks and balances. The 1946 Atomic Energy Act, which transferred control of nuclear weapons production from military to civilian authorities via the Atomic Energy Commission (AEC), contradicted constitutional mandates by authorizing the agency to function with only minimal congressional surveillance. The act, "prevented the American people and their elected representatives from participating in atomic policy making. It also created an echelon of decision makers who were, in the main, accountable only to themselves" (Udall 1994:174).

Kinsella and Mullen (2007:74) describe contradiction in government responsibilities as a paradox: "Citizens must be informed participants in atomic

matters, while national security limits their access to information." The AEC embodied the paradox and initiated the government's perennial dilemma of simultaneously promoting and regulating nuclear energy. Kinsella and Mullen describe the government's control of information as the deliberate attempt to constrain public knowledge about nuclear matters so as to contain democratic public discourse. They label these efforts "discursive containment" (Kinsella 2001; Kinsella and Mullen 2007).

Congress periodically challenges discursive containment, but with mixed results. Legislators perceived that the 1946 Administrative Procedures Act, originally designed to open government to the public, was routinely manipulated by the executive branch to withhold information, rather than to distribute it (Rosenbloom 2003). They passed the 1966 Freedom of Information Act (FOIA), mandating that federal agencies provide information about their activities to the public upon request. But the FOIA's first exemption prohibits agencies from providing information in records authorized as secret in the interest of national defense or foreign policy (5 U.S.C. 552 [b] [1] 2002). Legislators again challenged the principle of secrecy when criticisms that the AEC favored research and development over safety and regulation led them to pass the 1974 Energy Reorganization Act. It replaced the AEC with two new agencies: the Nuclear Regulatory Commission, charged with regulating commercial nuclear energy matters, and the Energy Research and Development Administration (ERDA), designed to promote nuclear energy. In 1977, ERDA's responsibilities were transferred to the newly established DOE, which is now responsible for nuclear weapons production facilities.

In the 1980s, residents of communities hosting weapons facilities challenged nuclear secrecy . . .

. . . The federal government avoided a crisis with the 1993 announcement of DOE's new "openness policy." In accordance with this policy, the DOE declassified and released volumes of highly technical information—so technical that the EPA subsequently developed the Technical Assistance Program to provide grants that enable communities to hire expert help in interpreting DOE documents. But the massively increased flow of technical information failed to produce a more informed public. This failure is seen in the Final Report of the United States Senate Commission on Protecting and Reducing Government Secrecy (1997). The commission concluded that secrecy is a form of government regulation, that excessive secrecy has significant consequences for the national interest when policy makers are not fully informed, and that the government is not held accountable for its actions.

DOE officials maintained discursive containment while appearing to address criticisms about the public's right to know. Kinsella and Mullen (2007) point to the need for technological expertise in interpreting information as critical to continued discursive containment. By shifting the emphasis from the

provision of information to the need for expert interpretation of the information, DOE officials limited the range of voices that could legitimately speak about hazardous exposures . . . .

The ORO [Oak Ridge Office] and Corporate Management

The Oak Ridge Nuclear Reservation consists of three large facilities. K-25 is a gaseous diffusion plant for uranium enrichment (closed in 1985), X-10 is a national research laboratory, and Y-12 fabricates warhead components. During the war, the plants and the town were managed by the U.S. Army. The entire site was enclosed by barbed-wire fencing and the gates were guarded by armed soldiers. Only at the war's end was it revealed that the Reservation had produced the enriched uranium for the Hiroshima bomb. The Reservation's postwar mission changed little because the subsequent nuclear arms race demanded increased production. In 1946, when control of the plants and the town was transferred to the AEC, agency authorities wanted to relinquish control of the town and urged residents to incorporate. The residents agreed in 1959 only after the federal government promised to subsidize town revenues (Cable, Shriver, and Hastings 1999). The AEC managed the Reservation until the 1974 creation of the shortlived Energy Research and Development Administration, which was eliminated with the 1977 establishment of the DOE. Local supervision was implemented through DOE's Oak Ridge Office and contracted corporate management. Weapons production remains the town's sole economic base.

In 1983, rumors of a secret government study to investigate mercury releases from Y-12 led a local journalist to file a FOIA request. The report he received documented management's 1977 discovery of significant off-site mercury contamination. The journalist's published stories forced DOE officials to acknowledge that 2.4 million pounds of mercury had been unintentionally released from Y-12 between 1950 and 1977. A subsequent congressional investigation concluded that the DOE "released incomplete and misleading information about mercury to the public" and had "used national security as a convenient shield behind which the non-sensitive but politically volatile data on the quantity of mercury releases could be buried and obscured" (Cable et al. 1999).

In 1989, the Reservation was placed on the EPA's Superfund list. More than 700 separate contaminated sites, totaling 5,000 acres, were identified. The list included 247 buildings, some the size of auto plants, contaminated with radiation and other toxic substances; 56 waste burial grounds, contaminated with solvents, lubricants, chemicals, uranium, mercury, strontium, thorium, tritium, and substances still classified as secret; and 52 settlement ponds with chemicals, metals, and PCBs (Thomas, Frank, and Paine 1997).

A handful of residents began claiming illness from exposures to the known hazards and formed a citizens' organization. Mobilization was hampered by

members' periodic health setbacks and harsh criticisms from neighbors. The ill citizens were particularly overwhelmed by the flow of documents released by the DOE. Respondents described the difficulties in collecting, reading, and interpreting the highly technical information. Documents were shipped from site to site on a tight timetable, and each load remained in place only briefly. Activists were forced to photocopy the documents quickly and examine them later. The documents were housed in the public library, which had regulations prohibiting their removal from library premises and stringently restricted patrons' use of the sole photocopier.

Workers increasingly claimed exposure-induced illnesses in the mid-1990s. In 1995, ORO created a cyanide working group as part of a study by the National Institute of Occupational Safety and Health. Group members met regularly, on site and on the clock, for discussions led by Reservation physicians. Although discouraged from meeting alone off site, many members did so, and in 1996 the support group morphed into an activist organization: the Coalition for a Healthy Environment. . . .

The Contestation of Nuclear Workers' Illness Claims

Workers' long-time silence about hazardous exposures and illnesses should not be construed as ignorance—workers were keenly aware that they were exposed to hazards and sometimes knew which substances they were exposed to. When the institutional and organizational context changed enough to allow public voicing of concerns, workers spoke out about their illnesses. But their claims of known diseases, although associated with ORO-documented exposures to hazardous substances, were contested by government, corporate, and medical authorities.

Workers' Exposures to Risky Technologies

Respondents offered graphic descriptions of their exposure experiences. An African American woman with multiple cancers, who moved to Oak Ridge in 1944, described her wartime exposures on a job cleaning up radioactive materials at shift's end:

> We had to wear meters all the time. And we had to have goggles over our eyes and over our ears and over our mouths. And you had to go out every time the bell rang and catch air for about 10 minutes. And I would forget to go out! They would comeback and I'd be done stayed overtime—that's what I believe made me sick. One time I see this man come in there to pick up his tube [respirator] without his goggles on—without his eyes covered up. Blood come out of his eyes, nose, mouth, ears—everywhere!

> He didn't live—he died on his way there [to the hospital]. That hot stuff eat him up.

Postwar improvements increased worker safety, but exposures remained routine. A female machinist who began work in 1974 and is now plagued with memory lapses, thyroid problems, and extreme fatigue emphasized management's forceful control: "They told you what to do, you did it, and that was it." She described an example of her exposures:

> We would have to go down to the burial ground do some jobs there. That's when we would see the uranium burning up out of the ground. There would be areas that looked like little lava pits! I mean, [it was] just oozing up . . . it looked like a heavy cream oozing up out of the ground. I said, "What's all that?" and they said, "That's all the junk that we buried here for years."

. . .

Perhaps the most striking example showing the routine nature of hazardous exposures was related by a female whose exposures occurred after the implementation of rigid compliance rules associated with the Reservation's listing as a Superfund site. As stipulated by EPA requirements, all hazardous wastes stored on the Reservation had to be sampled, analyzed, and characterized for proper disposal. The severely ill worker described her job as a trained hazardous waste sampler:

> It wasn't anything for us to do 700 samples in a 16-day period just two people for the whole plant! We would get requests like, "It looks like ice cream salt," but it was actually something that had been used in an experiment. We didn't know what it was . . . we were given orders to go sample and, after we took it to Analytical Chemistry and they had a chance to analyze, then we would know what was in it. To keep from having a big hassle, a lot of times they would tell us, "This is only distilled water—I just have to have it checked because I have to," and then it would come back [from chemical analysis] as tritium or whatever in it.

Workers described a broad range of symptoms including thyroid problems, chronic fatigue, rashes, memory loss, dizziness, respiratory problems, and vision and hearing loss. . . .

A worker whose position in the plant's fire department took him into nearly all of the Reservation's buildings described his deteriorating condition from cyanide exposures:

> I couldn't drive my own vehicle. When it got to that point and I couldn't drive, I had to have help with a lot of things. I couldn't remember how to get back home. I started having to have somebody drive me from that point on.

. . .

Ill workers resented not being adequately informed about occupational risks. The hazardous waste sampler quietly stated: "We didn't know what we were dealing with—we were just a sampling tool. We were more or less expendable."

Contestation Tactics and Corporate Management

Although DOE supervision of Reservation production activities was implemented through ORO, corporations contracted for on-site management were directly responsible for staffing, managing, and supervising Reservation workers. Consequently, workers' illness claims were contested by corporate management authorities who used three tactics: denial of individual exposures, refusal to allow access to health records, and reassignment to unfavorable job tasks.

Corporate management contested illness claims by denying that a worker was exposed to the substance as claimed. A pollution prevention technician who worked for two years in one of the most heavily polluted K-25 buildings tested positive for cyanide poisoning. She regularly "rationalized away" her health problems before recognizing them in a written description of cyanide poisoning. When she spoke with her plant supervisors, expecting their support, she was stunned at their denial that cyanide was even present in her work environment. She exclaimed:

> The managers were saying there was no cyanide out there! I write monthly reports to DOE, and I've got at least three or four projects that have got "cyanide" in the title! Don't tell me there is no cyanide out there!

. . .

Even claims based on substantiated evidence of links between an individual's specific exposures and subsequent illness were subject to denial by the management. A Y-12 machinist, whose 1993 diagnosis of beryllium disease was the fifth such Reservation case, reported that corporate manager Lockheed originally planned to contest his beryllium exposure case in court:

> Lockheed's attorneys were planning to contest the fact that exposure to beryllium could cause asthma, even though it was documented in my medical report by one of the world's experts on beryllium disease! It was

> a matter of record that that's what caused my problems, yet they were going to contest it!

Other claims were contested through management's refusal to permit workers access to their own on-site medical records. A security officer with heavy metal poisoning expressed his determination to force the release of information on medical tests ordered and performed on him at the Reservation:

> Me and my lawyer are currently filing a new FOIA—I want every record they got on me! I want to know what they did with every drop of blood that come out of me, or any other biological samples they may have taken from me. If they were aware that we were being exposed to this stuff—there's not much of a way that they could not have been aware of it. For years, I wondered why they didn't do the tests for heavy metals and things on us. You work in a uranium enrichment plant—why in the world would you not look for uranium?

Some respondents who were able to retrieve their medical records reported that information about their exposures was deleted or falsified. A respondent related an anecdote about a friend who requested his radiation exposure history when he learned that several of his work group members had died of cancer. The records were finally provided eight months after the request, and they indicated his employment for time periods in which he was not employed and showed no exposures for periods when he knew he was exposed.

In preemptive strikes against future illness claims, corporate authorities reassigned complaining workers to unfavorable tasks. A K-25 process operator who questioned management's procedural compliance was reassigned to the steam plant "because it was a whipping post—if you caused too much trouble over on the cascade or something, that's where you ended up because it was so nasty."

. . .

Contestation Tactics by Reservation Employed and Contract Physicians

Two sets of Oak Ridge physicians were distinguishable by their organizational contexts. One set consisted of physicians engaged by ORO to work at the Reservation, conducting workers' annual physical examinations, treating accidental exposures, and performing monitoring tasks such as administering blood tests and examining the dosimeters that measured individuals' radioactive exposures. The other set of physicians was made up of local, private-care physicians who were part of an unorthodox medical establishment in which the sole hospital, a nonprofit organization, wholly owned a for-profit subsidiary that con-

tracted with nearly all Oak Ridge physicians. The subsidiary owned the medical practices, including nursing and clerical staffs, office space, equipment, and phone and computer services, and hired the physicians on annually renewable contracts. The operations of both the nonprofit hospital and the for-profit subsidiary were overseen by a board of directors on which ORO and corporate management officials routinely served.

This structural setting was highly conducive for transforming independent medical authorities into captive professionals (Daniels 1969). . . . Reservation and contract physicians at Oak Ridge were likely pressured to adopt corporate management's norm of contesting workers' illness claims. Physicians contested claims through three tactics: failure to inform workers of their medical test results, discrediting of peers who legitimated workers' illness claims, and derogation of patients.

Reservation physicians contested illness claims by failing to inform workers of the test results. A laundry room supervisor described what happened when she received the results of her two subordinates' annual examinations, which showed high levels of cyanide:

> They [medical services] made it a point to tell me that I was not to let them know that there was a problem, because "we don't want to concern anybody—we don't want to upset anybody!" I was just to send the workers down to do theirs over and check it again. Management said, "Keep your mouth shut." Not in those words, but that's what they were telling me.

. . .

Workers described situations in which Reservation and contract physicians contested their illness claims by discrediting peers who legitimated them. A female mechanic, for example, was initially informed by Reservation physician Dr. A that her test results indicated cyanide poisoning, only to have his word repudiated by Reservation physician Dr. B:

> I got to feeling so bad that I went up to see Dr. [A] again, but they wouldn't let me see him. They gave me Dr. [B]. I said to him, "I need a cyanide urinalysis test." He said: "That's a bunch of bullshit! That is a crock! And we know who started it." And he pushed his head over to Dr. [A]'s office.

Dr. Bill Reid provides the most striking and well-documented example of contract physicians discrediting a peer. Reid, an oncologist, was actively recruited by the hospital's subsidiary in 1992. Concerned about high incidences of unusual symptoms among his patients and reasoning that the illnesses might be related to hazardous exposures at the Reservation, he contacted ORO authorities to request a list of his patients' most likely exposures. Reid tested and treated his

patients for conditions such as heavy metal poisoning. He described his patients' predicaments to us:

> Their symptoms are so vague that they just get written off. All the flags are up that would normally bring studies, bring clinical work. But they [ORO] have been about to kill anybody doing anything. Most of the people are dying long before they get cancer—of infections and other problems.

Although Reid's patients were gratified to receive sympathetic care that confirmed their own suspicions, his peers retaliated by discrediting him. They publicly vilified him as a drug addict and a medical incompetent, subjected him to a punitive peer review, suspended his hospital privileges, and warned at least one of his staff members that if she continued to work for Reid, she would never find employment again in the county. Reid was eventually vindicated in the peer review, but the subsidiary refused to renew his contract, and he was forced to leave Oak Ridge.

When workers were informed of abnormal medical test results, they were frequently blamed for their own symptoms by Reservation and contract physicians who attributed the negative results to workers' personal habits rather than occupational exposures. A materials handler applying for disability followed instructions to retrieve her medical records from her physician and deliver them to X-10's medical department. She described her exchange with the department's head:

> When I took them the medical results, he said, "Some of these are just a little bit out and—I tell you—heavy drinking can cause these tests to be abnormal." I told him that I don't drink. He said, "I'm just saying, heavy drinking on the weekends can cause these tests to be abnormal." I told him, I don't drink period! He said, "I'm just saying, heavy drinking can cause these test results. We have a lot of information, but not enough data we need more data!" He said it three times!

Many workers reported that their physicians summarily dismissed their questions about possible links between their illnesses and occupational exposures and treated them instead for depression and similar emotional disorders. A worker said quietly: "A lot of doctors don't believe me. It's like—'This guy is crazy! There's nothing wrong with him.' I've actually had the doctors label me psycho—'He's crazy!'" . . .

Discussion and Conclusions

Risk societies are characterized by multiple contradictions and by a lopsided concentration of power. They produce unprecedented wealth but pose known

unique hazards. They rely on the logic of science yet hold scientists captive to organizational and production goals. Risk societies are fueled by the informed, private determination of risks whose consequences are borne by the uninformed public. Power in risk societies is concentrated in the same institutions and organizations that reap the greatest rewards from the system: risk authorities retain the power to define risks, direct production technologies, control the dissemination of both scientific knowledge and personal data, and perpetuate—even accelerate—the risk society. The implications of the risk society for less powerful social actors appear bleak. The public is involuntarily exposed to singularly hazardous substances about which they are deliberately kept ignorant. When inevitable illness claims point to the cause as the very wellsprings of the risk society's wealth, their claims are forcefully rejected. Workers are on the front lines of this relatively powerless, exposed, and uninformed public. They are the risk society's canary in the coal mine. . . .

. . .

Corporate management authorities, Reservation-employed physicians, and contract physicians contested workers' illness claims using a combination of their own and federal resources. Corporate management used information control in tactical denials that an individual had been exposed to a specific hazard, and to refuse a worker's access to health records maintained by the corporation. They wielded power in tactical reassignments of troublesome workers to unfavorable tasks. Illness claims could not be legitimated without accurate exposure and health records, leaving the cause-effect question open and the discourse focused on alternative causal factors. The threat of unfavorable task reassignments kept workers from publicizing procedural violations related to hazardous exposures and consequently barred such information from public discourse.

Reservation and contract physicians drew on their resources of expert knowledge and scientific authority. Science applies "a standards setting logic, with scientifically based risk analyses which do not answer the new questions" (Mol and Spaargaren 1993:441), but which do sustain a kind of scientific mystique. Reservation and contract physicians tactically employed the mantle of expert knowledge to discredit peers who were sympathetic to workers' illness claims. They applied scientific authority in the derogation of ill workers. Reservation physicians held the additional resource of their superior position in the work bureaucracy. From this position, they could make the tactical decision not to inform workers of the results of their medical tests, denying critical information to ill workers.

Reservation authorities used their considerable powers to hide the truth about hazardous exposures, and they invoked the mystique of science to hide the truth in plain sight. The consequences were significant for exposed workers—life-threatening illnesses that might have been avoided—but the consequences for democratic society are even more profound. The exploitation of

authority to cloak knowledge of hazardous exposures with the robes of national security directly challenges democratic processes. Indeed, and despite the obvious contributions of our analyses to sociological scholarship on environment, illness, and workplace power dynamics, discursive containment goes far beyond nuclear matters—it is a feature of the risk society in general, not to mention a form of social control that violates democratic principles.

Curtailing public discourse bars citizens from deciding whether a specific risk is acceptable. It excludes citizens from participation in decision-making processes that impact their lives. It prevents the opportunity for an open democratic debate on the costs and benefits of risky technologies. Risk society and democracy, we believe, cannot coexist indefinitely. Cohen (1997) concurs, and envisions two possibilities for the future: democracy's demise or democracy's revitalization. Democracy's demise would occur with increasing reliance on risky production technologies and the global spread of risk societies, causing continued detonation of toxic time-bombs. In this scenario, ever larger segments of the population become ill, and authorities escalate social control tactics to deny illnesses related to risky production materials. Increasingly harsh social control erodes individual rights and alienates citizens until "democratic governance slips away" (Cohen 1997:108). In the revitalization of democracy scenario, in contrast, technical knowledge is shared and interpreted. Public debate on issues of significant social import is encouraged, generating "the possibility for the lay public to gain control over its technology" (Cohen 1997:108). With access to accurate information and open discourse to assess risks, citizens decide which risks they will not accept and can protect themselves from the risks they deem acceptable. . . .

With so much at stake, sociological investigations of contested illness claims, the power dynamics that undergird them, and the complex and changing nature of the risk society are critical.

Note

Cable, Sherry, Thomas Shriver, and Tamara Mix. 2008. "Risk Society and Contested Illness: The Case of Nuclear Weapons Workers." *American Sociological Review* 73: 380–401.

References

Beck, Ulrich. 1992. *Risk Society: Towards a New Modernity*. London, UK: Sage.

———.1995. *Ecological Enlightenment: Essays on the Politics of the Risk Society*. Atlantic Highlands, NJ: Humanities Press.

———.1996. "Risk Society and the Provident State." Pp. 27–43 in *Risk, Environment and Modernity: Towards a New Ecology*, edited by S. Lash, B. Szerszynski, and B. Wynne. London, UK: Sage.

Brown, Phil, Stephen Zavestoski, Meadow Linder, Sabrina McCormick, and Brian Mayer. 2003. "Chemicals and Casualties: The Search for Causes of Gulf War Illnesses." Pp. 213–36 in *Synthetic Planet: Chemical Politics and the Hazards of Modern Life*, edited by M. Casper. New York: Routledge.

Bullard, Robert D. 2000. *Dumping in Dixie: Race, Class, and Environmental Quality*. Boulder, CO: Westview Press.

Cable, Sherry and Charles Cable. 1995. *Environmental Problems/Grassroots Solutions: The Politics of Environmental Conflict*. New York: St. Martin's Press.

Cable, Sherry, Donald W. Hastings, and Tamara L. Mix. 2002. "Different Voices, Different Venues: Environmental Racism Claims by Activists, Researchers and Lawyers." *Human Ecology Review* 9:26–42.

Cable, Sherry, Thomas E. Shriver, and Donald W. Hastings. 1999. "The Silenced Majority: Quiescence and Government Social Control on the Oak Ridge Nuclear Reservation." *Research in Social Problems and Public Policy* 7:59–81.

Cohen, Maurie J. 1997. "Risk Society and Ecological Modernisation." *Futures* 29(2):105–19.

Cole, Luke W. and Sheila R. Foster. 2001. *From the Ground Up: Environmental Racism and the Rise of the Environmental Justice Movement*. New York: New York University Press.

Commoner, Barry. 1972. *The Closing Circle*. New York: Bantam Books.

Daniels, Arlene K. 1969. "The Captive Professional: Bureaucratic Limitations in the Practice of Military Psychiatry." *Journal of Health and Social Behavior* 10(4):255–63.

Eder, Klaus. 1996. *The Social Construction of Nature: A Sociology of Ecological Enlightenment*. London, UK: Sage.

Ehrlich, Anne H. and John W. Birks. 1990. *Hidden Dangers: Environmental Consequences of Preparing for War*. San Francisco, CA: Sierra Club Books.

Freudenburg, William R. 1993. "Risk and Recreancy: Weber, the Division of Labor, and the Rationality of Risk Perceptions." *Social Forces* 71:909–32.

Gare, Arran E. 1995. *Postmodernism and the Environmental Crisis*. London, UK: Routledge.

Giddens, Anthony. 1990. *The Consequences of Modernity*. Stanford, CA: Stanford University Press.

———. 1991. *Modernity and Self Identity: Self and Society in the Late Modern Age*. Stanford, CA: Stanford University Press.

———. 1999. "The Transition to a Society in Late Modernity: A Conversation with Anthony Giddens." *Sociologica* 14:201–18.

Habermas, Jurgen. 2001. *The Postnational Constellation: Political Essays*. Cambridge, MA: MIT Press.

Jameson, Frederic. 1991. *Postmodernism; or, The Cultural Logic of Late Capitalism*. London, UK: Verso.

Kinsella, William J. 2001. "Nuclear Boundaries: Material and Discursive Containment at the Hanford Nuclear Reservation." *Science as Culture* 10:163–94.

Kinsella, William J. and Jay Mullen. 2007. "Becoming Hanford Downwinders: Producing Community and Challenging Discursive Containment." Pp. 73–107 in *Nuclear Legacies: Communication, Controversy, and the US Nuclear Weapons Complex*, edited by B. C. Taylor, W. J. Kinsella, S. P. Depoe, and M. S. Metzler. Lanham, MD: Lexington Books.

Mol, Authur P. J. and Gert Spaargaren. 1993. "Environment, Modernity and the Risk-Society: The Apocalyptic Horizon of Environmental Reform." *International Sociology* 8:431-59.

Nelkin, Dorothy and Michael S. Brown. 1984. "Observations on Workers' Perceptions of Risk in Dangerous Trades." *Science, Technology and Human Values* 9:3–10.

Rosenbloom, David H. 2003. *Administrative Law for Public Managers*. Boulder, CO: Westview Press.

Schnaiberg, Allan. 1980. *The Environment: From Surplus to Scarcity*. New York: Oxford University Press.

Smyth, Henry DeWolf. 1945. "Atomic Energy for Military Purposes (The Smyth Report): The Official Report on the Development of the Atomic Bomb Under the Auspices of the United States Government." Washington, DC: National Science Digital Library. Retrieved August 18, 2007 (www.atomicarchive.com/Docs/SniythReport/index.shtml).

Stimson, Henry. 1945. Henry Lewis Stimson Papers. (Diaries and papers from reel 9 of the diary and reels 113 and 128 of the papers.) New Haven, CT: Yale University Library Manuscripts and Archives. Retrieved August 18, 2007 (www.library.yale.edu/un/papers/stimson.htm). Quoted from (www.doug-long.com/stimson.htm).

Thomas, Susan, Laura Frank, and Anne Paine. 1997. "Contamination Even Worse Than Feared." *The Tennessean*, August 17, p. A1.

Udall, Stewart L. 1994. *The Myths of August: A Personal Exploration of Our Tragic Cold War Love Affair with the Atom*. New York: Pantheon.

United States Senate Commission on Protecting and Reducing Government Secrecy. 1997. *Final Report of the Commission on Protecting and Reducing Government Secrecy*. Washington, DC: United States Government Printing Office. Retrieved August 18, 2007 (www.gpo.gov/ congress/commissions/secrecy/index.html).

Vyner, Henry M. 1988. *Invisible Trauma: The Psychological Effects of Invisible Environmental Contaminants*. Lexington, MA: Lexington Books.

Zavestoski, Stephen, Phil Brown, Meadow Linder, Sabrina McCormick, and Brian Mayer. 2002. "Science, Policy, Activism, and War: Defining the Health of Gulf War Veterans." *Science Technology, and Human Values* 27:171–205.

18

The Social Construction of Cancer

A Walk Upstream

Sandra Steingraber

Sandra Steingraber, a biologist, traces her own personal history with cancer to explore the links between cancer and environmental pollutants. In this excerpt from Steingraber's book, Living Downstream*, we see how, despite the growing body of scientific evidence that links cancer to environmental causes, popular and public education still promote a model of cancer that places responsibility on individual behaviors and genes. The development of a new cancer model depends on not only the generation of more scientific evidence but also the construction of a social reality that "sees" the connections between cancer and pollution. In addition, Steingraber calls for a new model of policy making based on the precautionary principle, whereby toxins would be reduced at the point of production and the burden of proof for showing that the product is safe would be placed on the manufacturer. Under the current system, producers of potentially hazardous substances are not called on to prove their safety; instead, the burden of proof is placed on citizens.*

In 1979, in between my sophomore and junior year in college, I was diagnosed with bladder cancer. Four years later, while a doctoral student in biology, I took the train from Ann Arbor, Michigan, to central Illinois for an

appointment with my original urologist. This particular appointment was destined to turn out fine: there were no recurrences. What I remember most clearly is my journey there by train.

Something about the landscape changes abruptly between northern and central Illinois. I am not sure what it is exactly, but it happens right around the little towns of Wilmington and Dwight. The horizon recedes, and the sky becomes larger. Distances increase, as though all objects are slowly moving away from each other. Lines become more sharply drawn. These changes always make me restless and when driving, I drive faster. But since I am in a train, I close the book I am reading and begin impatiently straightening the pages of a newspaper strewn over the adjacent seat.

That is when my eye catches the headline of a back-page article: Scientists Identify Gene Responsible for Human Bladder Cancer. Pulling the newspaper onto my lap, I stare out the window and become very still. It is only early evening, but the fields are already dark, a patchwork of lights quilted over and across them. They have always soothed me. I look for signs of snow. There are none. Finally, I read the article.

Researchers at the Massachusetts Institute of Technology, it seems, had extracted DNA from the cells of a human bladder tumor and used it to transform normal mouse cells into cancerous ones.[1] Through this process, they located the segment of DNA responsible for the transformation. By comparing this segment with its unmutated form in noncancerous human cells, they were able to pinpoint the exact alteration that had caused a respectable gene to go bad.

In this case, the mutation turned out to be a substitution of one unit of genetic material for another in a single rung of the DNA ladder. Namely, at some point during DNA replication, a double-ringed base called guanine was swapped for the single-ringed thymine. Like a typographical error in which one letter replaces another—*snow* instead of *show, block* instead of *black*—the message sent out by this gene was utterly changed. Instead of instructing the cell to manufacture the amino acid glycine, the altered gene now specified valine. (Nine years later, other researchers would determine that this substitution alters the structure of proteins involved in signal transduction—the crucial line of communication between the cell membrane and the nucleus that helps coordinate cell division.)

Guanine instead of thymine. Valine instead of glycine. I look away again—this time at my face superimposed over the landscape by the window's mirror. If, in fact, this mutation was involved in my cancer, when did it happen? Where was I? Why had it escaped repair? I had been betrayed. But by what?

Thirteen years later, I possess a bulging file of scientific articles documenting an array of genetic changes involved in bladder cancer.[2] Besides the oncogene just described, two tumor suppressor genes, p15 and p16, have also been

discovered to play a role. Their deletion is a common event in transitional cell carcinoma, the kind of cancer I had. Mutations of the famous p53 tumor suppressor gene, with guest-star appearances in so many different cancers, have been detected in more than half of invasive bladder tumors. Also associated with transitional cell carcinomas are surplus numbers of growth factor receptors. Their overexpression has been linked to the kinds of gross genetic injuries that appear near the end of the malignant process.

The nature of the transaction between these various genes and certain bladder carcinogens has likewise been worked out in the years since a newspaper article introduced me to the then-new concept of oncogenes. Consider, for example, that redoubtable class of bladder carcinogens called "aromatic amines"—present as contaminants in cigarette smoke; added to rubber during vulcanization; formulated as dyes for cloth, leather, and paper; used in printing and color photography; and featured in the manufacture of certain pharmaceuticals and pesticides.[3] Aniline, benzidine, naphthylamine, and o-toluidine are all members of this group. The first reports of excessive bladder cancers among workers in the aniline dye industry were published in 1895. More than a century later, we now know that anilines and other aromatic amines ply their wickedness by forming DNA adducts in the cells of the tissues lining the bladder, where they arrive as contaminants of urine.

We also now know that aromatic amines are gradually detoxified by the body through a process called "acetylation." Like all such processes, it is carried out by a special group of detoxifying enzymes whose actions are controlled and modified by a number of genes. People who are slow acetylators have low levels of these enzymes and are at greater risk of bladder cancer from exposure to aromatic amines. Members of this population can be readily identified because they bear significantly higher burdens of adducts than fast acetylators at the same exposure levels.[4] These genetically susceptible individuals hardly constitute a tiny minority: more than half of Americans and Europeans are estimated to be slow acetylators.

Very likely, I am one. You may be one, too.

We know a lot about bladder cancer.[5] Bladder carcinogens were among the earliest human carcinogens ever identified, and one of the first human oncogenes ever decoded was isolated from some unlucky fellow's bladder tumor. Sadly, all of our knowledge about genetic mutations, inherited risk factors, and enzymatic mechanisms has not been translated into an effective campaign to prevent the disease. The fact remains that the overall incidence rate of bladder cancer increased 10 percent between 1973 and 1991. Increases are especially dramatic among African Americans: among black men, bladder cancer incidence has risen 28 percent since 1973, and among black women, 34 percent. Somewhat less than half of all bladder cancers among men and one-third of all cases among women are thought to be attributable to cigarette smoking, which is the single

largest known risk factor for this disease.[6] The question thus still remains: What is causing bladder cancer in the rest of us, the majority of bladder cancer patients, for whom tobacco is not a factor?

I also possess another bulging file of scientific articles. These concern the continuing presence of known and suspected bladder carcinogens in rivers, groundwater, dump sites, and indoor air. For example, industries reporting to the Toxic Release Inventory disclosed environmental releases of the aromatic amine o-toluidine that totaled 14,625 pounds in 1992 alone.[7] Detected also in effluent from refineries and other manufacturing plants, o-toluidine exists as residues in the dyes of commercial textiles, which may, according to the *Seventh Annual Report on Carcinogens,* published by the U.S. Department of Health and Human Services, expose members of the general public who are consumers of these goods: "The presence of o-toluidine, even as a trace contaminant, would be a cause for concern."[8] A 1996 study investigated a sixfold excess of bladder cancer among workers exposed years earlier to o-toluidine and aniline in the rubber chemicals department of a manufacturing plant in upstate New York.[9] Levels of these contaminants are now well within their legal workplace limits, and yet blood and urine collected from current employees were found to contain substantial numbers of DNA adducts and detectable levels of o-toluidine and aniline. Another recent investigation revealed an eightfold excess of bladder cancer among workers employed in a Connecticut pharmaceuticals plant that manufactured a variety of aromatic amines.[10]

What my various file folders do not contain is a considered evaluation of all known and suspected bladder carcinogens—their sources, their possible interactions with each other, and our various routes of exposure to them. Trihalomethanes—common contaminants of chlorinated tap water—have been linked to bladder cancer, as has the dry-cleaning solvent and sometime-contaminant of drinking-water pipes, tetrachloroethylene. I possess individual reports on each of these topics. What I do not have is a comprehensive description of how all these substances behave in combination. What are the risks of multiple trace exposures? What happens when we drink trihalomethanes, absorb aromatic amines, and inhale tetrachloroethylene? Furthermore, what is the ecological fate of these substances once they are released into the environment? What happens when dyed cloth, colored paper, and leather goods are laundered, landfilled, or incinerated? And why, almost a century after some of them were so identified, do powerful bladder carcinogens such as amine dyes continue to be manufactured, imported, used, and released into the environment? However improved the record of effort to regulate them, why have they all not been replaced by safer substitutes? To my knowledge, these questions remain largely unaddressed by the cancer research community.

Biased Focus

Genes

Several obstacles, I believe, prevent us from addressing cancer's environmental roots. An obsession with genes and heredity is one.

Cancer research currently directs considerable attention to the study of inherited cancers.[11] Most immediately, this approach facilitates the development of genetic testing, which attempts to predict an individual's risk of succumbing to cancer, based on the presence or absence of certain genetic alterations.

Hereditary cancers, however, are the rare exception. Collectively, fewer than 10 percent of all malignancies are thought to involve inherited mutations.[12] Between 1 and 5 percent of colon cancers, for example, are of the hereditary variety, and only about 15 percent exhibit any sort of familial component.[13] The remaining 85 percent of colon cancers are officially classified as "sporadic," which essentially means that we don't know what causes them.[14] Breast cancer also shows little connection to heredity (probably between 5 and 10 percent).[15] Finding "cancer genes" is not going to prevent the great majority of cancers that develop.

Moreover, even when inherited mutations do play a role in the development of a particular cancer, environmental influences are inescapably involved as well. Genetic risks are not exclusive of environmental risks. Indeed, the direct consequence of some of these damaging mutations is that people become even more sensitive to environmental carcinogens. In the case of hereditary colon cancer, for example, what is passed down the generations is a faulty DNA repair gene.[16] Its human heirs are thereby rendered less capable of coping with environmental assaults on their genes or repairing the spontaneous mistakes that occur during normal cell division. These individuals thus become more likely to accumulate the series of acquired mutations needed for the formation of a colon tumor.

Cancer incidence rates are not rising because we are suddenly sprouting new cancer genes. Rare, heritable genes that predispose their hosts to cancer by creating special susceptibilities to the effects of carcinogens have undoubtedly been with us for a long time. The ill effects of some of these genes might well be diminished by lowering the burden of environmental carcinogens to which we are all exposed. In a world free of aromatic amines, for example, being born a slow acetylator would be a trivial issue, not a matter of grave consequence. The inheritance of a defective carcinogen-detoxifying gene would matter less in a culture that did not tolerate carcinogens in air, food, and water. By contrast, we cannot change our ancestors. Shining the spotlight on inheritance focuses us on the one piece of the puzzle we can do absolutely nothing about.

Lifestyle

Risks of lifestyle are also not independent of environmental risks. Yet, public education campaigns about cancer consistently accent the former and ignore the latter. I collect the colorful pamphlets on cancer that are made available in hospitals, clinics, and waiting rooms. When I was teaching introductory biology and also spending many hours in doctors' offices, I began to compare the descriptions of cancer in the tracts displayed in the racks above the magazines with the chapter on cancer provided in my students' textbook. Here are some of my findings.

On the topic of how many people get cancer, a pink and blue brochure published by the U.S. Department of Health and Human Services offers the following:

> Good News: Everyone does not get cancer. 2 out of 3 Americans never will get it.[17]

Whereas, according to *Human Genetics: A Modern Synthesis*:

> One of three Americans will develop some form of cancer in his or her lifetime, and one in five will die from it.[18]

(Since these materials were published, the proportion of Americans contracting cancer has risen from 30 to 40 percent.) On the topic of what causes cancer, the brochure states:

> In the past few years, scientists have identified many causes of cancer. Today it is known that about 80% of cancer cases are tied to the way people live their lives.

Whereas the textbook contends:

> As much as 90 percent of all forms of cancer is attributable to specific environmental factors.

In regard to prevention, the brochure emphasizes individual choice and responsibility:

> You can control many of the factors that cause cancer. This means you can help protect yourself from the possibility of getting cancer. You can decide how you're going to live your life—which habits you will keep and which ones you will change.

The genetics book presents a somewhat different vision:

> Because exposure to these environmental factors can, in principle, be controlled, most cancers could be prevented. . . . Reducing or eliminating exposures to environmental carcinogens would dramatically reduce the prevalence of cancer in the United States.

The textbook identifies some of these carcinogens, the routes of exposure, and the types of cancer that result. In contrast, the brochure emphasizes the importance of personal habits, such as sunbathing, that raise one's risk of contracting cancer. Thus, in my students' textbook, vinyl chloride is identified as a carcinogen to which workers making polyvinyl chloride (PVC) are exposed, whereas in the brochure, occupations that involve working with certain chemicals are called a risk factor. The textbook declares that "radiation is a carcinogen." The brochure advises us to "avoid unnecessary X-rays." Both emphasize the role of diet and tobacco.

In its ardent focus on lifestyle, the Good News brochure is typical of the educational pamphlets in my collection. By emphasizing personal habits rather than carcinogens, they present the cause of the disease as a problem of *behavior* rather than one of *exposure* to disease-causing agents. At its best, this perspective can offer us practical guidance and the reassurance that there are actions we as individuals can take to protect ourselves. (Not smoking, rightfully so, tops this list.) At its worst, the lifestyle approach to cancer is dismissive of hazards that lie beyond personal choice. A narrow focus on lifestyle—like a narrow focus on genetic mechanisms—obscures cancer's environmental roots. It presumes that the continuing contamination of our air, food, and water is an immutable fact of the human condition to which we must accommodate ourselves. When we are urged to "avoid carcinogens in the environment and workplace," this advice begs the question. Why must there be known carcinogens in our environment and at our job sites?

Cancer is certainly not the first disease to inspire this kind of message. In 1832, at the height of an epidemic, the New York City medical council announced that cholera's usual victims were those who were imprudent, intemperate, or prone to injury by the consumption of improper medicines.[19] Lists of cholera prevention tips were posted publicly. Their advice ranged from avoiding drafts and raw vegetables to abstaining from alcohol. Maintaining "regular" habits was also said to be protective. Decades later, improvements in public sanitation would bring cholera under control, and the pathogen responsible for the disease would finally be isolated by the bacteriologist Robert Koch in 1883. Of course, the behavioral changes urged by the 1832 handbills were not all without merit: uncooked produce, as it turned out, was an important route of exposure, but it was a fecal-borne bacteria—and not a salad-eating lifestyle—that was the cause.

The orthodoxy of lifestyle today finds its full expression in the public educational literature on breast cancer. Scores of cheerful pamphlets exhort women to exercise, lower the fat in their diets, perform breast self-examinations, ponder their family history, and receive regular mammograms. "Delayed childbirth" (after age twenty) is frequently mentioned as a risk factor. (I have never seen "prompt childbirth" in the accompanying list of cancer prevention tips—undoubtedly because such advice would be tantamount to advocating teenage pregnancy.)[20]

By itself, a lifestyle approach to preventing breast cancer is inadequate.[21] First, the majority of breast cancers cannot be explained by lifestyle factors, including reproductive history. We need to look elsewhere for the causes of these cancers. Second, mammography and breast self-examinations are tools of cancer detection, not acts of prevention. The popular refrain "Early detection is your best prevention!" is a non sequitur: Detecting cancer, no matter how early, negates the possibility of preventing cancer. At best, early detection may make cancer less fatal.

Finally, the adage that high-fat Western diets are the cause of breast cancer has not yet been supported by data.[22] Dietary fat has long been a centerpiece of study in the investigation of breast cancer risk. Yet, several long-term studies have indicated that dietary fat is unlikely to play a major role by itself.[23] Rather than continuing to focus single-mindedly on the absolute quantity of fat consumed, several researchers have called for a more refined, ecological approach to diet.[24] Two obvious starting points would be to assess the link between breast cancer and diets high in animal fat and to launch a definitive investigation into the extent to which various kinds of fats are contaminated by carcinogens. We already know with certainty that animal-based foods are our main route of exposure to organochlorine pesticides and dioxins.[25]

Even reproductive choices have environmental implications. Breasts, for example, do not complete their development until the last months of a woman's first full-term pregnancy. During this time, the latticework of mammary ducts and lobules differentiates into fully functioning secretory cells. This process of specialization permanently slows the rate of mitosis, dampens the response to growth-promoting estrogens, and renders DNA less vulnerable to damage. According to the leading hypothesis, a full-term pregnancy early in life protects against breast cancer precisely because it reduces a woman's vulnerability to carcinogens and other cancer promoters, such as estrogens.

One of the principal proponents of this hypothesis, the Harvard epidemiologist Nancy Krieger, has urged its further testing. She has also urged a redirection of breast cancer research toward environmental questions.[26] Investigators have repeatedly confirmed that reproductive history contributes to breast cancer risk. We need to know now, Krieger argues, whether women with similar reproductive histories but divergent exposure to carcinogens have marked dif-

ferences in breast cancer incidence. This need is made urgent by the results of animal studies showing that exposure to certain organochlorines hastens the onset of puberty.[27] Early first menstruation—along with late parenthood—is considered a risk factor for breast cancer in women.

Within the scientific community, grand arguments have ensued from the attempt to classify and quantify cancer deaths due to specific causes.[28] Traditionally, the final result of this task takes the visual form of a great cancer pie sliced to depict the relative importance of different risk factors. "Smoking" is always a big wedge, monopolizing about 30 percent of the circle. "Diet" is also a sizable helping. Depending on who's doing the apportioning, an array of other lifestyle factors—"alcohol," "reproductive and sexual behavior," and "sedentary way of life"—make up the remainder, along with "occupation" and "pollution."

The quarreling begins immediately. How do we account for malignancies, such as certain liver cancers, to which both drinking and job hazards contribute? Or lung and bladder cancers where both job hazards and smoking conspire? Should the effects of pesticides be tallied under "pollution" or under "diet"? What about pollution's indirect effects—such as hormonal disruption, inhibition of apoptosis (programmed death of damaged cells), and immune system suppression that act to augment the dangers of risk factors across the board? What about formaldehyde, which seems to bind with DNA in such a way that it prevents repair of damage induced by ionizing radiation, possibly raising the cancer risk from medical X-rays? Interactions between risk factors aside, how can the death toll from environmental factors be calculated at all when the vast majority of industrial chemicals in commerce have never been tested for their ability to cause cancer?

The futility of what the cancer historian Robert Proctor calls "the percentages game"[29] has not deterred public health agencies from using this kind of simplistic accounting to formulate cancer control policies and educational programs. Lifestyle is the bull's-eye of cancer prevention efforts, while targeting environmental factors, perceived as making a small contribution to the cancer problem, is seen as inefficient.[30] Moreover, the rationale continues, not enough is known about environmental risks to make specific recommendations. (On the other hand, incomplete and inconsistent evidence about the role of dietary fat in contributing to breast cancer does not appear to be an obstacle to advising women to change their diets.)

In my own home state, a recent county-by-county cancer report reproduced an old cancer pie chart published in 1981 that relegated environmental factors to a single, tiny slice and depicted tobacco and diet as major risk factors. The report concluded, "Many persons could reduce their chances of developing or dying from cancer by adopting healthier lifestyles and by visiting their physicians regularly for cancer-related checkups."[31] It never mentions or considers that Illinois is a leading producer of hazardous waste, a heavy user of pesticides, and home to

an above-average number of Superfund sites. Nor does this report correlate cancer statistics with Toxic Release Inventory data or attempt to determine whether cancer might follow industrial river valleys, rise in areas of high pesticide use, or cluster around contaminated wells.

Lifestyle and the environment are *not* independent categories that can be untwisted from each other: To talk about one is to talk about the other. A discussion about dietary habits is necessarily also a discussion about the food chain. To converse about childbirth and breast cancer is also to converse about changing the susceptibility to carcinogens in the breast. And to advise those of us at risk for bladder cancer to "void frequently" is to acknowledge the presence of carcinogens in the fluids passing through our bodies.

The Right to Know

During the last year of her life, Rachel Carson discussed before a U.S. Senate subcommittee her emerging ideas about the relationship between environmental contamination and human rights.[32] She urged recognition of an individual's right to know about poisons introduced into one's environment by others and the right to protection against them. These ideas are Carson's final legacy.[33]

The process of exploration that results from asserting our right to know about carcinogens in our environment is a different journey for every person. For all of us, however, I believe it necessarily entails a three-part inquiry. Like the Dickens character Ebenezer Scrooge, we must first look back at our past, then reassess our present situation, and finally summon the courage to imagine an alternative future.

We must begin retrospectively for two reasons. First, we carry in our bodies many carcinogens that are no longer produced and used domestically, but which linger in the environment and in human tissue. Appreciating how even today we remain in contact with banned chemicals such as polychlorinated biphenyls (PCBs) and DDT requires a historical understanding. Second, because cancer is a multicausal disease that unfolds over a period of decades, exposures during young adulthood, adolescence, childhood—and even prior to birth—are relevant to our present cancer risks. We need to discover what pesticides were sprayed in our neighborhoods and what sorts of household chemicals our parents stored under the kitchen sink. Reminiscing with neighbors, family members, and elders in the community where one grew up can be an eye-opening first step.

This part of the journey is, in essence, a search for our ecological roots. Just as awareness of our genealogical roots offers us a sense of heritage and cultural identity, our ecological roots provide a particular appreciation of who we are biologically. It means asking questions about the physical environment we have grown up in and the molecules of which are woven together with the strands of

DNA inherited from our genetic ancestors. After all, except for the original blueprint of our chromosomes, all the material that is us—from bone to blood to breast tissue—has come to us from the environment.

Going in search of our ecological roots has both intimate and far-flung dimensions. It means learning about the sources of our drinking water (past and present), about the prevailing winds that blow through our communities, and about the agricultural system that provides us food. It involves visiting grain fields, as well as cattle lots, orchards, pastures, and dairy farms. It demands curiosity about how pests in our apartment buildings are exterminated, how our clothing is cleaned, and how golf courses are maintained. It means asserting our right to know about any and all toxic ingredients in such products as household cleaners, paints, and cosmetics. It requires a determination to discover the location of underground storage tanks, how the land was used before a subdivision was built over it, what is being sprayed along the roadsides and rights-of-way, and what exactly goes on behind that barbed-wire fence at the end of the street. Acquiring a copy of the Toxic Release Inventory for one's home county, as well as a list of local hazardous waste sites is a simple place to begin.

In full possession of our ecological roots, we can begin to survey our present situation. This requires a human rights approach. Such an approach recognizes that the current system of regulating the use, release, and disposal of known and suspected carcinogens—rather than preventing their generation in the first place—is intolerable. So is the decision to allow untested chemicals free access to our bodies until they are finally assessed for carcinogenic properties. Both practices show reckless disregard for human life.

A human rights approach would also recognize that we do not all bear equal risks when carcinogens are allowed to circulate within our environment.[34] Workers who manufacture carcinogens are exposed to higher levels, as are those who live near the chemical graveyards that serve as their final resting place. Moreover, people are not uniformly vulnerable to the effects of environmental carcinogens. Individuals with genetic predispositions, infants whose detoxifying mechanisms are not yet fully developed, and those with significant prior exposures may all be affected more profoundly. Cancer may be a lottery, but each of us does not hold equal chances of "winning." When carcinogens are deliberately or accidentally introduced into the environment, some number of vulnerable persons are consigned to death. The impossibility of tabulating an exact body count does not alter this fact. A human rights approach to cancer strives, nonetheless, to make these deaths visible.

Suppose we assume for a moment that the most conservative estimate concerning the proportion of cancer deaths due to environmental causes is absolutely accurate. This estimate, put forth by those who dismiss environmental carcinogens as negligible, is 2 percent.[35] Though others have placed this number far higher,[36] let's assume for the sake of argument that this lowest value is

absolutely correct. Two percent means that 10,940 people in the United States die each year from environmentally caused cancers.[37] This is more than the number of women who die each year from hereditary breast cancer—an issue that has launched multimillion dollar research initiatives. This is more than the number of children and teenagers killed each year by firearms—an issue that is considered a matter of national shame. It is more than three times the number of nonsmokers estimated to die each year of lung cancer caused by exposure to secondhand smoke—a problem so serious it warranted sweeping changes in laws governing air quality in public spaces. It is the annual equivalent of wiping out a small city. It is thirty funerals every day.

None of these 10,940 Americans will die quick, painless deaths. They will be amputated, irradiated, and dosed with chemotherapy. They will expire privately in hospitals and hospices and be buried quietly. Photographs of their bodies will not appear in newspapers. We will not know who most of them are. Their anonymity, however, does not moderate this violence. These deaths are a form of homicide.[38]

According to the most recent tally, forty possible carcinogens appear in drinking water, sixty are released by industry into ambient air, and sixty-six are routinely sprayed on food crops as pesticides.[39] Whatever our past exposures, this is our current situation.

Guiding Principles for Reducing Toxics

After having carefully appraised the risks and losses that we have endured by tolerating this situation, we can begin to imagine a future in which our right to an environment free of such substances is respected. It is unlikely that we will ever rid our environment of all chemical carcinogens. However, as Rachel Carson herself observed, the elimination of a great number of them would reduce the carcinogenic burden we all bear and thus would prevent considerable suffering and loss of human life.[40] Three key principles can assist us in this effort.

One is the idea that public and private interests should act to prevent harm before it occurs. This is known as the *precautionary principle*, and it dictates that *indication* of harm, rather than *proof* of harm, should be the trigger for action—especially if delay might cause irreparable damage.[41] Central to the precautionary principle is the recognition that we have an obligation to protect human life. Our current methods of regulation, by contrast, appear governed by what some frustrated policymakers have called "the dead body approach": Wait until damage is proven before taking action.[42] It is a system tantamount to running an uncontrolled experiment using human subjects.

Closely related to the precautionary principle is the *principle of reverse onus*.[43] According to this edict, it is safety, rather than harm, that should neces-

sitate demonstration. This reversal essentially shifts the burden of proof from the public to those who produce, import, or use the substance in question. The principle of reverse onus requires that those who seek to introduce chemicals into our environment first show that what they propose to do is almost certainly not going to hurt anyone. This is already the standard we uphold for pharmaceuticals and yet for most industrial chemicals, no firm requirement for advance demonstration of safety exists. Chemicals are not citizens. They should not be presumed innocent unless proven guilty, especially when a verdict of guilt requires some of us to sicken and die in order to provide the necessary evidence.

Finally, all activities with potential public health consequences should be guided by the *principle of the least toxic alternative*, which presumes that toxic substances will not be used as long as there is another way of accomplishing the task.[44] This means choosing the least harmful way of solving problems—whether it be ridding fields of weeds, school cafeterias of cockroaches, dogs of fleas, woolens of stains, or drinking water of pathogens. Biologist Mary O'Brien advocates a system of assessment of alternatives in which facilities regularly evaluate the availability of alternatives to the use and release of toxic chemicals. Any departure from zero should be preceded by a finding of necessity. These efforts, in turn, should be coordinated with active attempts to develop and make available affordable, nontoxic alternatives for currently toxic processes and with systems of support for those making the transition—whether farmer, corner dry cleaner, hospital, or machine shop. The highest priority for transformation should be assigned to all processes that generate dioxin or require the use or release of any known human carcinogen such as benzene and vinyl chloride.

The principle of the least toxic alternative would move us away from protracted, unwinnable debates over how to quantify the cancer risks from each carcinogen released into the environment and where to set legal maximum limits for their presence in air, food, water, the workplace, and consumer goods. As O'Brien observed, "Our society proceeds on the assumption that toxic substances will be used and the only question is how much. Under the current system, toxic chemicals are used, discharged, incinerated, and buried without ever requiring a finding that these activities are necessary" (personal communication, M. O'Brien, 1997). The principle of the least toxic alternative looks toward the day when the availability of safer choices makes the deliberate and routine release of chemical carcinogens into the environment as reprehensible as the practice of slavery.

Notes

Steingraber, Sandra. 2000. "The Social Production of Cancer: A Walk Upstream." In *Reclaiming the Environmental Debate: The Politics of Health in a Toxic Culture*, ed. Richard Hofrichter. Cambridge: MIT Press.

1. R. A. Weinberg, "A Molecular Basis of Cancer," *Scientific American* (November 1983):126–42.

2. I. Orlow et al., "Deletion of the p16 and p15 Genes in Human Bladder Tumors," *Journal of the National Cancer Institute* 87 (1995):1524–29; S. H. Kroft and R. Oyasu, "Urinary Bladder Cancer: Mechanisms of Development and Progression," *Laboratory Investigation* 71 (1994):158–74; P. Lipponen and M. Eskelinen, "Expression of Epidermal Growth Factor Receptor in Bladder Cancer as Related to Established Prognostic Factors, Oncoprotein Expression and Long-Term Prognosis," *British Journal of Cancer* 69 (1994):1120–25.

3. D. Lin et al., "Analysis of 4-Aminobiphenyl-DNA Adducts in Human Urinary Bladder and Lung by Alkaline Hydrolysis and Negative Ion Gas Chromatography-Mass Spectrometry," *Environmental Health Perspectives* 102 (Suppl. 6) (1994):11–16; P. L. Skipper and S. R. Tannenbaum, "Molecular Dosimetry of Aromatic Amines in Human Populations," *Environmental Health Perspectives* 102 (Suppl. 6) (1994):17-21; S. M. Cohen and L. B. Ellwein, *Environmental Health Perspectives* 101 (Suppl. 5) (1994):111–14.

4. P. Vine and G. Ronco, "Interindividual Variation in Carcinogen Metabolism and Bladder Cancer Risk, "*Environmental Health Perspective* 98 (1992):95–99.

5. One researcher offers the following reflection on the bladder cancer situation in England: "The continued use of known carcinogenic substances in British industry for many years after their identification, the wide range of industries with a known or suspected increased risk of bladder cancer, and our ignorance of the carcinogenic potential of many materials used in current manufacturing should be a cause for continuing concern" (R. R. Hall, "Superficial Bladder Cancer," *British Medical Journal* [1994]:910–13).

6. D. T. Silverman, "Urinary Bladder," in *Cancer Risks and Rates*, NIH Pub. 96-691, A. Harras, ed. (Bethesda, Md.: National Cancer Institute, 1996, pp. 197–99). Routine screening for bladder cancer is not done. Thus earlier detection or improved diagnostic techniques are unlikely explanations for the recent increases in rates. R. A. Schulte et al. (eds.), "Bladder Cancer Screening in High Risk Groups," *Journal of Occupational Medicine* 32 (1990):787–845.

7. Environmental Protection Agency, 1992 *Toxic Chemicals Release Inventory: Public Data Release.* EPA 745-R-001 (Washington, D.C.: EPA, 1994, p. 79).

8. U.S. Department of Health and Human Services, *Seventh Annual Report on Carcinogens* (Research Triangle Park, N.C.: USDHHS, 1994, p. 389).

9. E. M. Ward et al., "Monitoring of Aromatic Amine Exposure in Workers at a Chemical Plant with a Known Bladder Cancer Excess," *Journal of the National Cancer Institute* 88 (1996):1046–52.

10. R. Ouellet-Hellstromt and J. D. Rench, "Bladder Cancer Incidence in Arylamine Workers," *Journal of Occupational and Environmental Medicine* 38 (1996):1239–47; J. D. Rench et al., *Cancer Incidence Study of Workers Handling Mono- and Di-arylamines Including Dichlorobenzidine, ortho-Toluidine, and ortho-Dianisidine* (Falls Church, Va.: SRA Technologies, 1995); "Study Finds Bladder Cancer Threat among Conn. Plant Workers," *Boston Globe,* September 21, 1995, p. 42.

11. Francis Collins, Richard Klausner, and Kenneth Olden, statement on cancer, genetics, and the environment before the Senate Committee on Labor and Human Resources, March 6, 1996 (U.S. Department of Health and Human Services press release).

12. National Cancer Institute, *Understanding Gene Testing,* NIH Pub. 96-3905 (Bethesda, Md.: NCI, 1995).

13. G. Marra and C. R. Boland, "Hereditary Nonpolyposis Colorectal Cancer: The Syndrome, the Genes, and Historical Perspectives," *Journal of the National Cancer Institute* 87 (1995):1114-25; N. Papadopoulos et al., "Mutation of a *mutL* Homolog in Hereditary Colon Cancer," *Science* 263 (1994):1625–29.

14. Bert Vogelstein, "Heredity and Environment in a Common Human Cancer," lecture at Harvard Univ. Medical School, May 3, 1995. In exploring the use of the term "sporadic" by cancer researchers, historian Robert Proctor observed, "The presumption is apparently that heredity is orderly, while environmental causation is chaotic, perhaps even indecipherable. . . . Genetics offers hope for new forms of therapy, but also seems to imply resignation with regard to the possibility of prevention." See R. N. Proctor, *Cancer Wars: How Politics Shapes What We Know and Don't Know about Cancer* (New York: Basic Books, 1995, p. 245).

15. Five to 10 percent is the estimate most often cited. A recent prospective cohort study of more than 100,000 women placed this figure even lower—at about 2.5 percent. See G. A. Colditz, "Family History, Age, and Risk of Breast Cancer: Prospective Data from the Nurses' Health Study," *Journal of the American Medical Association* 2 (70) (1993):338–43.

16. D. Holzman, "Mismatch Repair Genes Matched to Several New Roles in Cancer," *Journal of the National Cancer Institute* 88 (1996):950–51.

17. "Cancer Prevention" (pamphlet) (Bethesda, Md.: U.S. Department of Health and Human Services, n.d.).

18, G. Edlin, *Human Genetics. A Modern Synthesis*, 2d ed. (Boston: Jones & Bartlett, 1990). Quotations are from pages 184–204.

19. C. E. Rosenberg, *The Cholera Years: The United States in 1832, 1849, and 1866* (Chicago: Univ. of Chicago Press, 1962, pp. 1–60).

20. Some researchers argue that "delayed childbirth" among white women explains much of the elevated incidence of breast cancer in the northeastern states. See S. R. Sturgeon, "Geographic Variation in Mortality from Breast Cancer among White Women in the United States," *Journal of the National Cancer Institute* 87 (1995):1846–53.

21. M. P. Madigan, "Proportion of Breast Cancer Cases in the United States Explained by Well-Established Risk Factors," *Journal of the National Cancer Institute* 87 (1995):1681–85.

22. D. J. Hunter et al., "Cohort Studies of Fat Intake and the Risk of Breast Cancer—A Pooled Analysis," *New England Journal of Medicine* 334 (1996): 356–61; D. J. Hunter and W. C. Willett, "Diet, Body Size, and Breast Cancer," *Epidemiology Reviews* 15 (1993):110–32; E. Giovannucci et al., "A Comparison of Prospective and Retrospective Assessments of Diet in the Study of Breast Cancer," *American Journal of Epidemiology* 137 (1993):502–11. The role of dietary fat in creating breast cancer risk remains uncertain in part because the range of fat intake among the various groups of women studied has so far been relatively narrow.

23. As two leading researchers have observed, energy intake from fat has been declining as breast cancer has increased: Hunter and Willett, "Diet, Body."

24. Drs. Devra Lee Davis, Samuel Epstein, and Janette Sherman are among the researchers calling for a more ecological approach to diet. See S. S. Epstein, "Environmental and Occupational Pollutants Are Avoidable Causes of Breast Cancer," *International*

Journal of Health Services 24 (1994):145–50; and J. Sherman, *Chemical Exposure and Disease: Diagnostic and Investigative Techniques* (Princeton, N.J: Princeton Scientific Publishing, 1994, p. 83).

25. Consumption of animal fat (or meat) is most strongly linked to colon and prostate cancers. See W. C. Willett, "Diet and Nutrition," in *Cancer Epidemiology and Prevention*, 2d ed. D. Schottenfeld and J. F. Fraumeni, Jr., eds. (Oxford: Oxford Univ. Press, 1996, pp. 438–61).

26. N. Krieger, "Exposure, Susceptibility, and Breast Cancer Risk," *Breast Cancer Research and Treatment* 13 (1989):205–23.

27. This topic is currently under exploration by Dr. Mary Wolff, who is interested in all factors, including childhood diet and level of physical activity, that contribute to the onset of puberty in girls. M. S. Wolff, "Organochlorines and Breast Cancers," presentation at the American Public Health Association, New York, November 20, 1966. See L. M. Walters et al., "Purified Methoxychlor Stimulates the Reproductive Tract in Immature Female Mice," *Reproductive Toxicology* 7 (1993):599–606; P. L. Whitten et al., "A Phytoestrogen Diet Induces the Premature Anovulatory Syndrome in Lactionally Exposed Female Rats," *Biology of Reproduction* 49 (1993):1117–21; R. J. Gellert, "Uterotropic Activity of Polychlorinated Biphenyls and Induction of Precocious Reproductive Aging in Neonatally Treated Female Rats," *Environmental Research* 16 (1978):123–30.

28. See, for example, R. Doll and R. Peto, *The Causes of Cancer: Quantitative Estimates of Avoidable Risks of Cancer in the United States Today* (Oxford: Oxford Univ. Press, 1981); and a rebuttal by S. S. Epstein and J. B. Swartz, "Fallacies of Lifestyle Cancer Theories," *Nature* 2(89) (1981):127–30.

29. Described in Proctor, *Cancer Wars*, pp. 54–74. See also M. Kaidor and K. A. L'Abbe, "Interaction between Human Carcinogens," in *Complex Mixtures and Cancer Risk*, H. Vainio et al., eds., IARC Scientific Pub. 104 (Lyon, France: International Agency for Research on Cancer, 1990, pp. 35–43).

30. The American Cancer Society does not discuss environmental factors in its recent report on cancer prevention. See American Cancer Society, *Cancer Risk Report: Prevention and Control*, 1995 (Atlanta, Ga.: ACS, 1995). See also K. R. McLeroy, "An Ecological Perspective on Health Promotion Programs," *Health Education Quarterly* 15 (1988):351–77.

31. Illinois Department of Public Health, *Cancer Incidence in Illinois by County, 1985–87*, Supplemental Report (Springfield, Ill.: IDPH, 1990, pp. 7–8).

32. Rachel Carson on environmental human rights: Senate testimony hearings before the Subcommittee on Reorganization and International Organizations of the Committee on Government Operations, "Interagency Coordination in Environmental Hazards (Pesticides)," U.S. Senate, 88th Cong., 1st sess., June 4, 1962.

33. Carson, *Silent Spring* (Boston, Mass.: Houghton Mifflin, 1962, pp. 277–78.

34. R. Perera, "Uncovering New Clues to Cancer Risk," *Scientific American* (May 1996):54–62; S. Venitt, "Mechanisms of Carcinogenesis and Individual Susceptibility to Cancer," *Clinical Chemistry* 40 (1994):1421–25; G. W. Lucier, "Not Your Average Joe," (editorial), *Environmental Health Perspectives* 103 (1995):10.

35. Harvard Center for Cancer Prevention, "Harvard Report on Cancer Prevention," *Cancer Causes and Control* 7 (Suppl. 1) (1996):3–59; D. Trichopoulous et al., "What Causes Cancer?" *Scientific American* (September 1996):80–87.

36. Proctor, *Cancer Wars*.

37. 10,940 is 2 percent of 547,000, the projected figure for total cancer deaths in 1995. See American Cancer Society, *Cancer Facts and Figures—1995*, rev. (Atlanta, Ga.: ACS, 1995).

38. The environmental analysts Paul Merrell and Carol Van Strum have argued that the concept of acceptable risk is tolerable only because of the anonymity of its intended victims. See P. Merrell and C. Van Sturm, "Negligible Risk: Premeditated Murder?" *Journal of Pesticide Reform* 10 (1990):20–22. Likewise, the molecular biologist and physician John Gofman has argued, "If you pollute when you DO NOT KNOW if there is any safe dosage (threshold), you are performing improper experimentation on people without their informed consent. . . . If you pollute when you DO KNOW that there is no safe dose with respect to causing extra cases of deadly cancers, then you are committing premeditated random murder" (J. W. Gofman, memorandum to the U.S. Nuclear Regulatory Commission, May 21, 1994).

39. M. Eubanks, "Biomarkers: The Clues to Genetic Susceptibility," *Environmental Health Perspectives* 102 (1994):50–56.

40. Carson, *Silent Spring*, p. 248. See also M. J. Kane, "Promoting Political Rights to Protect the Environment," *Yale Journal of International Law* 18 (1993):389–411.

41. This principle was endorsed in 1987 by European environmental ministers in a meeting about the deterioration of the North Sea. [K. Geiser, "The Greening of Industry: Making the Transition to a Sustainable Economy," *Technology Review* (August/September 1991):65–72.] See also T. O'Riordan and J. Cameron (eds.), *Interpreting the Precautionary Principle* (London: Earthscan, 1994).

42. Devra Lee Davis, quoted in "Is There Cause for 'Environmental Optimism'?" *Environmental Science and Technology* 29 (1995):366–69.

43. This principle has been embraced by the International Joint Commission in their Eighth Biennial Report on Great Lakes Water Quality (Washington, D.C., and Ottawa, Ontario: International Joint Commission, 1996, pp. 15–17). See also discussions of proof in T. Colborn et al., *Our Stolen Future: Are We Threatening Our Fertility, Intelligence, and Survival?—A Scientific Detective Story* (New York: Dutton, 1996); and G. K. Durnil, *The Making of a Conservative Environmentalist: With Reflection on Government, Industry, Scientists, the Media, Education, Economic Growth, and the Sunsetting of Toxic Chemicals* (Bloomington: Indiana Univ. Press, 1995).

44. My ideas on this topic are inspired in part by those of biologist Mary O'Brien. See M. H. O'Brien, "Alternatives to Risk Assessment: The Example of Dioxin," *New Solutions: A Journal of Environmental and Health Policy* 3 (Winter 1993):39–42; and K. Geiser, "Protecting Reproductive Health and the Environment: Toxics Use Reduction," *Environmental Health Perspectives* 101 (Suppl. 2) (1993):221–25.

PART

Social Movements

American Environmentalism

The Role of Race, Class, and Gender in Shaping Activism 1820–1995

Dorceta E. Taylor

The pieces in this section address a central theme in sociology, social change or the transformationof society over time. One way change occurs is through collective action, such as the actions of social movement organizations. Social movement groups have historically affected many environment-related issues. Dorceta Taylor's contribution provides a sweeping history of the intersection of race, gender, and class with the rise of American environmentalism. Taylor argues that the white middle-class environmental movement failed to recognize and address the needs of working-class whites, people of color, and some middle-class communities. Taylor shows that though people of color, women, and other marginalized communities were largely excluded from participation in and benefits of traditional environmentalism, they did, nonetheless, make significant contributions to environmental change throughout the nineteenth and twentieth centuries. She concludes that the potential for bringing about a future that is both socially and environmentally just depends on the development of a more inclusive, culturally sensitive, and broad-based environmental agenda in the United States.

People's relationship to the environment has to be understood in the context of historical and contemporary class, race and gender relations. American environmentalism has been profoundly shaped by a unique set of social, political and economic factors arising from the period of conquest and subsequent industrialization. It can be argued that American environmental activism evolved over the last 175 years, and is characterized by four distinct periods of mobilization: the pre-movement era—1820s–1913, the post–Hetch Hetchy era—1914–1959, the post-Carson era—1960–1979, the post–Love Canal/Three Mile Island era—1980–present (Taylor, 1996). . . .

. . . This [essay] tries to explore how environmental activism is shaped by one's race, class position, gender, societal experiences, ideology, political power, and social networks.

The Pre-Movement Era (1820s–1913)

White, middle class, outdoor- and wilderness-oriented, elite males influenced by cultural nationalism or Romanticism and Transcendentalism began espousing pro-environmental ideas and started to publicize the natural wonders of the country during the first half of the 19th century. . . .

The work of these visionaries influenced successive generations of white middle class men to embrace outdoor pursuits and to undertake actions to preserve the environment. From the 1850s–1913, John James Audubon, George Perkins Marsh, Henry David Thoreau, and John Muir were the leading naturalists, ecologists and advocates of wilderness preservation. [These activists] called attention to the destruction and domination of nature, and advocated compassion for other species, the harmonious coexistence of humans and nature, government protection of wild lands, and a return to a simpler lifestyle. These activists were also influential in preserving some of the earliest national parks and forests. . . .

Because these men were financially secure, they were free to embark on outdoor expeditions at will. They sought out the wilderness as an antidote to the ills of the urban environment. They did not include issues relating to the workplace or the poor in their agenda. They were basically middle class activists procuring and preserving environmental amenities for middle class benefits and consumption.

What were the conditions of the working class throughout the period the middle class white males were exploring the wilderness and building the foundations of the early reform environmental movement? During the 1800s, the white working class worked in deplorable conditions. They worked long hours for little wages. The long hours and intensive labor practices combined to give the U.S. one of the highest industrial accident rates in the world. . . .

Housing conditions were abominable. Workers lived in crowded, unsafe, unsanitary, over-priced housing. Unemployed and homeless people lived in parks and undeveloped lots. . . . Twenty percent of the population of Boston and New

York City were said to be living in distress, and one in ten New Yorkers were buried in paupers graves in Potters Field (Dubofsky, 1996:27). The little free time workers had was spent in local pubs or in the streets. Because of overcrowding, private personal and family activities (like courtship, sexual encounters, drinking, and socializing) often spilled onto the streets. This rankled the middle class who set out to Americanize and acculturate immigrants and curb what they saw as morally bankrupt, uncivilized behavior. Not surprisingly, interactions between both groups grew increasingly tense (Rosenzweig, 1983, 1987; Peiss, 1986; Beveridge and Schuyler, 1983; Dickason, 1983). Some of these tensions were fought out around the issues of access to and utilization of urban open space.

Not all the middle class white males interested in the environment and open space issues concentrated their efforts on wilderness and wildlife. Some, like Andrew Jackson Downing, explored their recreational interests in the city. Downing sought to bring pastoral bliss to squalid cities like New York by building elaborate, European-inspired, picturesque parks in urban centers. . . . While the afore-mentioned wilderness-oriented activists separated their environmental activism, and recreation from those of urban dwellers and the working class, the urban park builders worked alongside the poor coming face to face with working class concerns. Though the park builders were often insensitive to working class concerns (Olmsted, for instance, fired his Central Park work crew who struck for better wages and working conditions, and dismissed those who missed work due to illness or injuries sustained on the job), they built parks where the middle and working classes interacted—even if on a limited basis (Beveridge and Schuyler, 1983; Roper, 1973; Gottlieb, 1993; Rosenzweig, 1983, 1987; Olmsted, 1860: November 13). These activities, and the extent to which they believed that one could find solace in urban green space, distinguished them from their wilderness-oriented counterparts.

. . . These parks provided free or cheap leisure for the working class and soon became the focal point of environmental and political activism. They were the sites of labor unrest, bread riots and political rallies (Peiss, 1986; Piven and Cloward, 1979:43–44; Beveridge and Schuyler, 1983:15; Olmsted, 1860: December 8; *New York Times*, 1857:6, 17, 21, 25). In addition, the working class pointing out the environmental inequalities they faced (lack of sanitation, clean water, public open space, overcrowding, ill health and diseases) organized and lobbied for neighborhood parks. The working class also influenced the design of these urban parks by lobbying for open space designed for more active recreation like ball fields (Rosenzweig, 1983, 1987).

During the 1800s and early 1900s, white middle class females found themselves in a peculiar position. On the one hand, they attended elite colleges; read extensively about Romanticism and Transcendentalism; ecology; botany; and natural history; and attended lectures on the environment; but on the other, they were not expected to act on their impulses to explore the wilderness (Muir, 1924). . . .

Nonetheless, some middle class white women broke this mold and were able to combine their interest in ecology, the environment, health, moral uplift-ment, cultural enlightenment, and civic improvement with political activism and a desire to help the poor.

. . . As crowding reached unbearable levels in the cities in the mid to late 1800s, the streets became the social and recreational space of the working class. Children roamed the streets and were often jailed for playing or loitering in the streets (Rosenzweig, 1983, 1987). During the Progressive Era (1880–1920s), upper-middle class women—the wives of wealthy industrialists—sought to remedy the situation by building small neighborhood playgrounds and "sand gardens." One prominent group involved in this effort was the Massachusetts Emergency and Hygiene Association (MEHA). Explicating the basic ideology of the male urban park builders, the female park builders and recreation planners believed that recreation would improve the health, moral and cultural outlook of the children. They believed that recreation should be provided in a structured environment, because their efforts to acculturate working class children was the most effective means of improving the lives of the working class. They occupied a niche ignored by the male park builders who focused on grandiose urban parks or park systems designed with a bias towards passive recreation. . . .

People of color lived in inhumane conditions in the U.S. during the 1800s and the early 1900s. When Jamestown was established in 1607, an estimated 1–18 million Native Americans lived in the U.S.; however, by 1890 when the last of the Native American wars ended, there were about 250,000 surviving Native Americans (Stiffam and Lane, 1992:23–28; Wax, 1971:17; McNickle, 1973). Under the 1830 Indian Removal Act, Native Americans were driven from their land and forced onto desolate reservations. They lost their traditional hunting, gathering and fishing grounds, and sacred sites. About 20,000 Indians died on the trek west (Lurie, 1982:131–144; Josephy, 1968; Debo, 1970). Native Americans, forced to live in some of the most inhospitable areas of the country (Lenarcic, 1982:137–139), used some of their traditional knowledge and practices to develop resource management techniques to sustain themselves on the reservations. . . . As DeLoria (1994:4) argues, from the 1890s to the 1960s Indians were the "Vanishing Americans" because most people thought Native Americans had been exterminated.

By the early 1800s, the northern states began to industrialize, but the southern states remained largely agrarian. Slavery had been in place for about two hundred years and African American labor was used to exploit the resources of the south. . . .

The system of sharecropping further reinforced the inequality of African Americans. By 1910, more than half of all employed African Americans worked in agriculture (Geschwender, 1978:169). . . . As the first wave of African Americans started working in the urban centers of the North, they were recruited as strike

breakers and were offered the most dangerous factory jobs. Because of rigid segregation, they lived in the most dilapidated, crowded, unsanitary and unsafe housing. They earned less wages and paid higher rents than whites (Hurley, 1995; Morris, 1984: Tuttle, 1980; Dubofsky, 1996:12).

In the first half of the 1800s, territory (which later became Texas, New Mexico, Arizona, and California) was appropriated from Mexicans living in the southwest. The area had a regional economy based on farming and herding; an elite class of wealthy Mexican landowners dominated the affairs of the region (Cortes, 1980:697–719). . . .

The construction of the railroads and the expansion of agriculture stimulated demand for low-wage Mexican labor. Mexican workers were employed chiefly in the cultivation, harvesting, and packaging of fruits, vegetables and cotton in California and sugar beets in Colorado and California. At the turn of the century Mexican workers were used in the sugar-beet industry of central California to curb the demands of Japanese workers and in Colorado to help control German and Russian workers. They also worked in New Mexico and Arizona in copper, lead and coal mines (Jiobu, 1988:21–22; Dubofsky, 1996:3). Until the 1920s, movement across the border between Mexico and the U.S. was informal and largely unrestricted. Throughout the century, Mexican Americans have been offered some of the worst jobs for little wages. They are often paid less to do the same jobs as Anglos. This split labor market has been further divided by gender; Mexican American women are assigned worse jobs than men and received lower wages (Takaki, 1993:318–319; Dubofsky, 1996:13). Mexican Americans often toiled in "factories in the fields" where about 2,000 men, women and children worked in 100+ degree-heat, had no drinking water, shared 8 outdoor toilets, and slept among the insects and vermin (Dubofsky, 1996:24).

From the 1820s onwards, the Chinese and later the Japanese and Filipinos, migrated as laborers to help in the opening and exploitation of the West—in the Gold Rush, mining, railroad construction, farming, fisheries, sugar plantations, and factories. For example, in 1860, in Butte County, California (gold mining area), there were 2,200 Chinese (Jiobu, 1988:34). In the immigration were young men traveling without wives, or other family members. Asians worked long hours under dangerous working conditions. They were subject to severe discrimination and quite often were stripped of some of the basic rights accorded the white working class (Friday, 1994:2–7, 51; Lenarcic, 1982:140; Carlson, 1992:67–84; Anderson and Lueck, 1992:147–166). Chinese were hired to do menial tasks and as the claims played out, white gold miners sold their old claims to Chinese miners. As the California Gold Rush ran its course, the percentage of Chinese miners steadily increased from one percent of all miners in 1850 to more than 50 percent in 1920 (Jiobu, 1988:34).

In 1862 when Congress authorized the construction of the transcontinental railroad, Central Pacific had labor problems. There was not a large pool

of white laborers in the Pacific region who were willing to work on the railroads, so Central Pacific recruited Chinese laborers from the gold fields, farms, cities, and from China. Most were acquired through labor contracting firms. At $35 per month (minus the cost of food and housing), Chinese laborers were paid two-thirds of what white laborers earned. With the hiring of Chinese, whites moved up the occupational ladder to hold whites-only jobs such as foremen, supervisors, and skilled craftsmen. The Chinese were left to tunnel through the mountains, dig through dangerously deep snow banks, and dangle in baskets along sheer cliff faces while they planted explosives. Many Chinese lost their lives building the tracks across the sierras (Jiobu, 1988:34–35). . . .

Because of the conquest and domination of people of color, at some points men and women of color from the respective racial groups shared common environmental experiences. However, they were separated spatially and occupationally at times, thereby having very different experiences. For instance, Native American men and women were moved onto reservations together and African American men and women were enslaved and subjected to the same kind of work conditions. However, in the late 1800s and early 1900s the African American men would migrate to distant cities or rural areas to work in factories and mines, etc. Similarly, Latinos would also migrate long distances for jobs leaving Latinas behind.

Asian families were also torn apart because of immigration rules—young men migrated in search of jobs leaving their families behind in Asia (Almquist, 1979:430–450; Kitano, 1980:563; Chan, 1991:66; Duleep, 1988:24). Employers in the West played a role in splitting up families. They preferred to hire single men because it cost less to feed, clothe and house one male worker than whole families. . . .

The Post–Hetch Hetchy Era (1914–1959)

The Hetch Hetchy controversy was the catalyst that resulted in the formation of the environmental movement. The controversy, which was at its most intense from 1910 to 1913, arose when the city of San Francisco proposed a dam on the Toulumne River (Hetch Hetchy) Valley in Yosemite. According to some, Hetch Hetchy was as spectacular as the Yosemite Valley which was already designated a national park. The opponents of the Hetch Hetchy dam, John Muir and the Sierra Club, claimed the land should be preserved and not used in a utilitarian manner. It should be left untouched for future generations. The proponents of the dam, the City of San Francisco, Gifford Pinchot (the founder of the U.S. Forest Service) and many Western Congresspersons, argued that Muir and his colleagues were being selfish. They argued that the land should be conserved or used wisely or sustainably. They argued that the good of the many (providing water for a parched city) should prevail over the good of a few (saving land for itself and for future generations). The controversy, therefore, pitted the preservationists against the conservationists (Nash, 1982).

The controversy thrust environmental issues onto the public stage. For the first time, citizens who were not a part of the small elite group of preservationists, conservationists and outdoor enthusiasts got involved in environmental debate by writing letters, newspaper articles and participating in public debates (Bramwell, 1989; Fleming, 1972; Fox, 1985; Nash, 1982; Oelschlaeger, 1991; Paehlke, 1989; Pepper, 1986; Taylor, 1992). White, middle class wilderness-oriented activists, realizing that they needed to organize and coordinate their efforts more effectively, formed numerous environmental groups focused on protecting wilderness, wildlife, outdoor recreation, habitat restoration, and water pollution (as it affected fish, waterfowl and habitats). For the most part, these environmental groups were segregated by race and class.

It is not surprising that a movement sprang out of one of the first major public environmental controversies. A study of 1,053 organizations listed in the 1993 and 1994 Conservation Directory and the 1992 Gale Environmental Sourcebook (National Wildlife Federation, 1993; Hill and Piccirelli, 1992), shows that by the turn of the century many of the elements of what would become the environmental movement were already in place. A substantial number of the organizations were formed before or during the time of Hetch Hetchy. Seventy-eight national and regional organizations existed by 1913, and in the decade after the Hetch Hetchy decision, 43 new environmental organizations were formed. Overall, 214 organizations were formed in the post–Hetch Hetchy period (1914–1959). Prior to Hetch Hetchy these institutions and organizations did not coordinate their activities extensively, but Hetch Hetchy focused attention on one issue and that allowed for the necessary coordination and communication—so vital to movement building—to take place.

From the turn of the century onwards, middle class women who were formerly confined to home, urban and/or community activism, began embarking on strenuous outdoor expeditions in greater numbers than ever before. Though women joined and participated actively in organizations like the Sierra Club, males dominated the leadership and the agenda of these organizations. The agenda centered on wilderness and wildlife preservation, hunting, fishing, bird-watching, hiking, and mountaineering. From 1914 to 1959, men, many of whom were businessmen or had significant business ties, sought to consolidate this agenda by establishing and reinforcing contacts with government, influential policy groups and industry. They decided to espouse a brand of environmentalism that sought to make small incremental changes or reforms in the existing system by working with both government and industry. This laid the groundwork for reform environmentalism (McCloskey, 1992:77–82). However, by the 1930s, the newly formed movement began to stagnate as the political activities and issues being tackled failed to capture the imagination of large sectors of the population. This period of malaise continued through the 1940s (Bramwell, 1989; Fleming, 1972; Fox, 1985; Nash, 1982; Oelschlaeger, 1991; Paehlke, 1989; Pepper, 1986; Taylor, 1992; Gottlieb, 1993).

During this time period, middle class white women still maintained their interest in natural history, garden clubs, local ecology, but they shifted the focus of other aspects of their activism. Groups like MEHA placed less emphasis on playground construction and supervision as these tasks were turned over to cities and other government entities with the capital and human resources to fund and operate them more effectively. In addition, with a reduction in immigration, improved living and working conditions, and with many immigrant groups forming their own ethnic organizations and social networks, there was less need for the acculturation, morality and hygiene lessons from the upper class. As the Progressive Era drew to a close, some of the concerns (worker rights) addressed by activists of the era were being tackled by labor unions.

From the 1920s onwards, the urban agenda of park building continued with city and state governments being responsible for building, maintaining and supervising these parks, and setting the standards for the equipment found in them. The concern for health and sanitation evolved into concerns over environmental quality and quality of life issues. Again, city and state governments having taken over the role of providing basic services, citizens' groups adopted the role of monitoring the government's performance and lobbying for improved or expanded services. These issues transcended the urban domain, and became a part of the suburban and rural agenda also.

While Hetch Hetchy motivated middle class whites to join reform environmental organizations, Taylorism impelled the working class to unionize. Between 1880 and 1920, employers introduced Taylorism (scientific management or Fordism) to the factories. As a result, assembly lines moved faster, workers lost control over their work, the owners got richer, and the workers saw little material benefits for their increased output. Union rolls swelled: from 1897 to 1904, union membership rose from 447,000 to 2,073,000. . . . (Dubofsky, 1996:94–95, 102–103, 118–119). However, as workers pinned their hopes to the unions during the 1900s, some of the issues like hazard reduction in the workplace and community were downplayed at the expense of creating and maintaining jobs (especially during the Depression), securing wage increases and improving benefits. However, from 1914 to 1959, with or without the support of the union, workers expressed their discontent about poor working conditions by participating in organized and wildcat strikes, protests, and by demanding safety equipment on the job (Hurley, 1995). Again, there was considerable overlap in the interests of working class men and women. Since both groups toiled under dangerous conditions and lived in polluted communities, family and community health and safety concerns were salient.

By the early 1900s, unionized people of color began expressing their concerns about deplorable working conditions. They experienced on-the-job discrimination—they were stuck in the most dangerous, dirty and hazardous work sites with little or no chance of promotion, and for lower pay than whites. People

of color had unskilled jobs which meant they worked longer hours than skilled laborers (whites). In 1920, skilled laborers worked an average of 50.4 hours per week. In comparison, unskilled laborers worked an average of 53.7 hours per week (Dubofsky, 1996:24). So, by the early 1930s, people of color began to take strike action. For instance, African Americans in unionized factories and steel mills like Gary Works staged wildcat strikes/work stoppages to improve work conditions (Hurley, 1995).

To understand the position of workers of color and the likelihood that they would adopt pro-environmental positions, one has to understand the role of race and class in structuring their response. During the 1800s and early 1900s, oppression among whites vis-à-vis the work place and access to environmental amenities amounted to white-on-white class and ethnic oppression. That is, American born whites of northern European descent comprised the middle class that discriminated against the immigrant and/or Southern and Eastern Europeans. The latter group comprised a large portion of the working class. However, much harsher forms of (racial) discrimination distinguished whites from people of color. The white–nonwhite relationship, marked by enslavement, forced relocations, appropriation of land, internment and deportations, continued through the twentieth century with rigid occupational, educational and residential segregation.

This meant that while the white working class were able to start advocating a radical working class environmental agenda at the turn of the century, people of color saw their biggest problem in the community and in the workplace as racial oppression. This is not to say that they were unable to perceive other forms of discrimination—they did—but they had to overcome the racial oppression in the work place in order to relieve occupational discrimination (Hurley, 1995). When both the employers and the unions reinforced patterns of *de jure* and *de facto* discrimination and segregation, workers of color were left to their own devices or social networks to resolve their problems.

On the job workers of color had to deal with the class oppression of unsafe, hazardous work and the racial and gender oppression of being permanently assigned to such jobs for the lowest wages. People of color were quite aware that these jobs were the least likely to be cleaned up and made safe. The white worker, because of his or her race, knew that with time he or she would be moved to safer jobs. Workers of color knew such opportunities did not exist for them. The interlocking and multiple sources of oppression (racial, class and gender) led workers of color to support occupational safety improvements, but demand racial equality at the same time. . . .

The Post-Carson Era (1960–1979)

During the 1960s and 1970s, there was an unprecedented level of mobilization around environmental issues. The mobilization was spurred, in part, by [Rachel]

Carson who linked her concern for wildlife and nature with questions about the effects of pesticides on humans and wildlife. She used the injustice frame to question the immorality and danger of widespread spraying of pesticides, and argued that people had a right to a safe environment. She argued that if they were harmed by the deliberate acts of others, the victims had a right to compensation (Carson, 1962). Carson focused on home, community, nature, and the wilds. She linked urban and rural concerns, and publicized an issue that affected everyone in the country.

Carson's work led to an immense public outcry over pollution and chemical contamination that launched the birth of the modern environmental movement. Reform environmental organizations benefited from the mobilization. Membership skyrocketed in leading organizations like the Sierra Club, the National Audubon Society and the Wilderness Society in the 1960s. A study of eight of the major environmental organizations found that membership went from about 123,000 in 1960 to about three-quarters of a million members in 1969 (Fox, 1985:315). The mass mobilization drive resulted in cleaner air, rivers and lakes for many Americans. Towards the end of the decade many young and radical environmentalists—students, former civil rights activists and anti-nuclear activists—joined the movement (Zinger, Dalsemer and Magargle, 1972:381–383). Some of these youthful environmentalists joined the leading environmental organizations while others formed their own organizations. This brought new constituencies into the reform environmental movement. The concerns broadened to include more issues relating to the urban environment, community, home, and humans. More attention was paid to environmental hazards and industry was scrutinized more heavily.

The second surge of mobilization in the post-Carson era came in 1970, before and after Earth Day. Between 1970 and 1979 membership in the eight major environmental organizations mentioned above went from 892,100 to 1.583 million. More environmental groups were formed in the post-Carson era than at any other period in environmental history; 469 or 45 percent of the 1,053 environmental groups studied were formed between 1960 [and] 1979. However, the mobilization of the 1960s and 1970s was largely a white middle class mobilization. Surveys of the membership of leading environmental groups and of environmental activists nationwide in the late 1960s and early 1970s demonstrate this point. A 1969 national survey of 907 Sierra Club members indicated that the organization had a middle class membership. Seventy-four percent of the members had at least a college degree; 39 percent had advanced degrees. Ninety-five percent of the male respondents were professionals, and five percent occupied clerical and sales positions, were owners of small businesses or unskilled laborers. Fifty-eight percent of the respondents said their family incomes was over $12,000; 30 percent reported family incomes over $18,000 per year (Devall, 1970:123–126). . . .

. . . A 1972 study of 1,500 environmental volunteers nationwide showed that 98 percent of the members of the environmental organizations were white and

59 percent held a college or graduate degree. Forty-three percent held professional, scientific-technical, academic or managerial jobs. A half of the respondents had family incomes of more than $15,000, 26 percent had between $10,000 and $15,000 and the remainder earned less than $10,000 (Zinger, Dalsemer and Magargle, 1972). In general, studies find that environmentalists are highly educated, older, urban residents who are political independents. In addition, education, and to a lesser extent, income is associated with naturalistic values and environmental concern. (Harry, Gale and Hendee, 1969:246–254; Devall, 1970:123–126; Hendee, Gale and Harry, 1969:212–215; Buttel and Flinn, 1978:433–450, 1974:57–69; Cotgrove and Duff, 1980:333–351; Dillman and Christenson, 1972:237–256; Faich and Gale, 1971:270–287; Lowe, Pinhey and Grimes, 1980:423–445; Harry, 1971:301–309; Tognacci, et al., 1972:73–86; Wright, 1975; Martinson and Wilkening, 1975).

There was also a major ideological shift during the post-Carson era. During the 1960s and 1970s, the Romantic environmental paradigm gave way to a broader vision of environmentalism—the new environmental paradigm (NEP). Building on the basic ideological framework of the REP, the NEP expanded on the environmental dialogue and articulated a bold new vision that critiqued the development of high (large, complex, energy-intensive) technology like the nuclear industry, encouraged population control, pollution prevention, risk reduction, energy, recycling, environmental clean-ups and espoused post-materialist values (Inglehart, 1992).

During this era, the environmental movement enjoyed strong public support. Opinion polls show what could be described as a Carson effect and an Earth Day effect. There was a steady increase in concern over pollution through the latter part of the 1960s and a sharp increase in levels of concern in 1970. For instance, in 1965, 17 percent of the respondents in a Gallup survey said they wanted the government to devote most of its attention to reducing air and water pollution. However, by 1970, 53 percent of the respondents wanted the government to devote most of its time to these issues (Gallup, 1972:1939). Other polls showed that 46–60 percent of the respondents indicated they were "very concerned" about reducing water and air pollution, 50–61 percent of the respondents thought too little was being spent on the environment; 58 percent thought we must accept a slower rate of economic growth in order to protect the environment. In addition, most respondents were not willing to relax environmental standards to achieve economic growth, did not think that pollution control requirements had gone too far and did not think we had made enough progress on cleaning up the environment to start limiting the cost of pollution control (State of the Nation, 1972–1976; NORC, 1973–1980; ORC, 1977–1978). A distinction should be made between concern and support for the environment and environmental activism. Not all people who are concerned about the environment or support environmental actions become environmental activists (Taylor, 1989).

Though the environmental activities of the sixties and seventies heightened awareness of environmental issues among the working class, and though some joined outdoor recreation organizations like the Izaak Walton League, by and large, the working class did not flock to preservationist environmental organizations. They intensified their efforts to strengthen the traditional working class agenda. Pressuring and working through their unions and newly formed working class environmental organizations, they sought to improve working conditions, bring the issues of worker health and safety into the national consciousness, pushed for safety equipment, etc. Using the Occupational Safety and Health Administration's (OSHA) guidelines, they reported environmental violations, filed complaints and forced companies to comply with the regulations. In addition, they used collective bargaining strategies to ascertain general environmental improvements and to establish safety committees at the workplace. They negotiated the "right to refuse hazardous work" clauses, hazard pay and safety equipment as part of their union contracts (Hurley, 1995; Robinson, 1991).

The working class was also concerned about health of residents and the environment outside the factory gates. During this period working class environmental groups were formed to reduce pollution in the community. Focus was on air and water pollution, factory emissions and improved sanitation (illegal dumping, garbage removal). Even though the broadened emphasis of the reform environmental movement included a focus on reducing pollution, collaboration between middle and working class activists was still limited and strained. Because the middle and upper classes no longer lived in parts of the cities close to the sights, sounds and smell of the factories, middle class environmental groups did not lend much support to working class environmental struggles. The middle class focused on preventing the degradation of their communities and improving the environmental amenities close by.

The working class, having more free time and income at their disposal, intensified their interests in outdoor recreation pursuits like hunting, fishing, visits to parks, etc. Working class groups pushed for access to fishing and hunting grounds, improved quality of recreation sites, and larger number of parks, etc. Conflicts arose between the working and middle classes when the middle class tried to restrict the use of recreational areas in their communities to prevent overcrowding or use by the working class and people of color. In addition, as middle class communities passed zoning ordinances to restrict development, the middle class perceived these actions as efforts to preserve the environment while the working class and the unions viewed them as saving the environment at the expense of working people's jobs and livelihoods (Hurley, 1995).

However, towards the end of the post-Carson era, two major environmental disasters in lower middle class and working class communities precipitated an unprecedented level of activism and mobilization in these communities. The nuclear accident at Three Mile Island (TMI) and toxic contamination of Love

Canal came as a wake-up call to communities nationwide. Though they did not receive the media attention of TMI and Love Canal, many communities of color had similar problems. Prior to Love Canal, what people perceived as a local, isolated case of toxic contamination emerged as a national problem of immense proportions. This resulted in the formation of working class, grassroots environmental groups all over the country. While some of these groups organized to clean up the toxic contamination in their communities (reactive mode), like the middle class environmentalists before them, many of these groups became more proactive. They organized to halt the development of noxious or nuisance facilities or other locally unwanted land uses (LULUs). . . .

The Post–Three Mile Island/Love Canal Era (1980–Present)

Throughout the 1980s, white, middle class, reform environmentalism continued to dominate the environmental landscape. Environmental organizations grew increasingly big, bureaucratized, hierarchical and distant from local concerns and politics. They focused on national and international issues, lobbied Congress and business, and developed close ties with industry (through funding, negotiations and board representation). Grassroots organizing had long given way to direct-mail recruiting, and direct-action political strategies were rarely used. . . .

Males dominate the top leadership positions in reform environmental organizations. A 1992 nationwide study conducted by the Conservation Leadership Foundation found that of the 248 chief executive officers (CEOs) and top leaders surveyed, 79 percent of the respondents were male. Their mean age was 45 years, and 50 percent had a bachelor's degree, 28 percent a master's and 21 percent a doctorate (Snow, 1992:48–49). . . . The Conservation Leadership Foundation's national study of environmental volunteers also found that males dominated the voluntary sector of the reform environmental movement. . . . The profile of the reform sector in the 1990s is similar to profile of the membership of the organizations during the late 1960s–early 1970s. . . .

. . . [I]n 1992, wildlife, wilderness and waterway protection dominated reform organizations' agendas both in terms of the presumed importance of the issue and the percentage of the organization's resources that was spent on the issue. While 46 percent of organizations' budgets were spent on fish, wildlife, land preservation, and wilderness, and 16 percent on water conservation, only 8 percent of the budgets were being spent on toxic waste management and 4 percent on land use planning. This pattern of environmental perception, problem definition and spending was in place at a time when communities all over the country were struggling with environmental health issues, toxic contamination, urban sprawl, pollution, and solid waste disposal issues. There seemed to be a disconnect between the priorities of the reform environmental organizations many local communities.

Although the reform environmental agenda continued to dominate environmental politics, it was the emergence of many persistent, radical grassroots organizations that have profoundly changed the nature of the environmental movement during the 1980s. . . .

. . . [T]oxics have remained in the news and have continued to be a mobilizing factor because what people thought was the worst-case scenario when the story first captured national attention in the late 1970s turned out to be just the tip of the iceberg. In addition, many huge corporations—some long-time providers of jobs and supporters of local civic organizations and events—were found to be the source of the contamination. Many people felt that the trust or social compact between host communities and corporations was broken. People were further dismayed to find that the government, policy makers, scientists and other experts could not offer ready solutions or any solutions at all. In many instances nothing was done while the government, business, scientists remained bogged down in long delays due to legal or technical skirmishes. In some cases people discovered there were no safeguards to protect the balance of power and to ameliorate the situation (Habermas, 1975; Pusey, 1993:92–110; Ingram, 1987:155–160). Some of these radical groups participate in the environmental justice movement.

It was the image of a silent spring—a spring silent of bird song that motivated thousands of middle class whites to become active in the reform environmental movement in the 1960s. In the early 1990s, another image motivated people of color to form the environmental justice movement. They were aroused by the specter of toxic springs—springs so pervasive and deadly that no children sang. Soon after the publication of Carson's *Silent Spring*, middle class whites relocated to pristine areas, cleaned up and slowed or prevented the degradation of their communities. Long before the phenomenon known as NIMBYism (Not In My Backyard) was labeled, middle class residents skillfully used zoning laws, legal challenges and every other means available to them to control and maintain the integrity of the communities they lived in. Their success left developers and industry flustered; but only temporarily.

Because effective community resistance is costly, industry responded to the challenges of middle class white communities by identifying the paths of least resistance (Blumberg and Gottlieb, 1989; Cerrell Associates, 1984; Trimble, 1988). By the 1980s, working class white communities recognized that that path went through their communities also. As working class communities organized to stop the placement of LULUs in their neighborhoods, industry quickly adjusted to the new political reality. The path of least resistance became a expressway leading to the one remaining toxic frontier (in the U.S., that is)—people of color communities. By the 1990s, people of color communities were characterized by declining air and water quality, increasing toxic contamination, health problems, and declining quality of life. Since the 1970s there have been isolated efforts to mobilize communities of color around environmental issues; such efforts started to pay off during the late 1980s (Hurley, 1995). From 1987

through the early 1990s, the book read in people of color communities was *Toxic Waste and Race* (United Church of Christ, 1987). This study did for people of color and the environmental justice movement what *Silent Spring* did for middle class whites in the 1960s.

Toxic Waste and Race, other books and newspaper articles that began appearing shortly after this study was published, had an immediate impact. These publications made an explicit connection between race, class and the environment. Using the injustice frame, they articulated the issues in terms of civil and human rights, racism and discrimination. They identified the widespread perception that people of color communities were viewed as politically impotent and were either unwilling or unable to take control of and change the social and environmental conditions in their communities.

This framing was the obvious bridge that transformed the previous attempts of people of color to articulate their environmental concerns in a way that linked their past and present experiences in an effective manner. Environmental justice embodied all these concerns and experiences. The Environmental Justice Movement sought to: (1) recognize the past and present struggles of people of color; (2) find a way to unite in the various struggles; (3) organize campaigns around fairness and justice as themes that can interest a variety of people—these are also themes that all people of color had built a long history of community organizing around; (4) build a movement that linked occupational, community, economic, environmental, and social justice issues; (5) build broad class and racial coalitions; (6) strive for gender equity; (7) employ a combination of direct action and non-direct-action strategies; and (8) educate, organize and mobilize communities of color. Since many people of color still live, work and play in the same community, the environmental justice agenda made explicit connections between issues related to workplace and community, health, safety, environment, and quality of life. . . .

People of color environmental activism and the Environmental Justice Movement grew out of an awareness of the increasing environmental risk people of color faced and a dissatisfaction with the reform environmental agenda. The advent of the Environmental Justice Movement marks a radical departure from the traditional, reformist ways of perceiving, defining, organizing around, fighting, and discussing environmental issues; it challenges some of the most fundamental tenets of environmentalism that have been around since the 1800s. It questions some of the basic postulates, values and themes underlying reform environmentalism. The environmental justice movement also questions the ideological hegemony of reform environmentalism and the tendency to marginalize or dismiss other perceptions. In addition, environmental justice questions the racial and class homogeneity of the environmental movement, male dominance, racism in the movement (as manifested through publications, hiring practices, the composition and recruitment of the membership and the board), the relationship with industry, strained relationship with people of color

communities, and the practice of ignoring the environmental issues that plague people of color communities. . . .

Conclusion

As the above discussion shows, race, class and gender have profound impacts on a person's experiences, which in turn have significant impacts on political development, ideology, and activism. . . . The history of American environmentalism presented by most authors is really a history of white, middle class male environmental activism. The tendency to view all environmental activism through this lens has deprived us of a deeper understanding of the way in which class, race and gender relations structured environmental experiences and responses over time. . . .

. . . White working class grassroots and environmental groups differ from those of white middle class reform groups in the emphasis the former groups place on workplace and community experiences. So while occupational health and safety and jobs are still minor or non-existent parts of reform environmental organizations' agendas, they are major issues for white grassroots and people of color environmental justice groups. In addition, issues relating to toxics, the urban environment, and environmental risks and burdens are more prominent on the agendas of working class grassroots and environmental justice groups than on reform environmental organizations' agendas. Environmental justice groups differ from white working and middle class groups in their utilization of networks involved in past social justice struggles and religious groups. They use the injustice frame to identify and analyze racial, class and gender disparities, and emphasize improved quality of life, autonomy and self determination, human rights, and fairness.

The environmental movement is a powerful social movement, however, the movement faces enormous challenges in the future. Among the most urgent is the need to develop a more inclusive, culturally sensitive, broad-based environmental agenda that will appeal to many people and unite many sectors of the movement. To do this the movement has to re-evaluate its relationship with industry and the government, re-appraise its role and mission, and develop strategies to understand and improve race, class and gender relations.

Note

Taylor, Dorceta E. 1997. "American Environmentalism: The Role of Race, Class and Gender in Shaping Activism 1820–1995." *Race, Gender & Class* 5(1):16–62.

Bibliography

Anderson, T. L, & Lueck, D. (1992). "Agricultural Development and Land Tenure in Indian Country." In T. L. Anderson, ed., *Property Rights and Indian Economies.* Lanham, MD: Rowman & Littlefield Publishers.

Almquist, E. M. (1979). "Black Women and the Pursuit of Equality." In Jo Freeman, ed., *Women: A Feminist Perspective*. Palo Alto, CA: Mayfield.

Beveridge, C., & Schuyler, D. (1983). *The Papers of Frederick Law Olmsted*, Volume III, *Creating Central Park, 1857–1961*. Baltimore, MD: Johns Hopkins University Press.

Blumberg, L., & Gottlieb, R. (1989). *War on Waste: Can America Win Its Battle with Garbage?* Covelo, CA: Island Press.

Bramwell, A. (1989). *Ecology in the 20th Century: A History*. New Haven: Yale University Press.

Buttel, F. H., & Flinn, W. I. (1978). "Social Class and Mass Environmental Beliefs: A Reconsideration." *Environment and Behavior*, 10:433–450.

———. (1974). "The Structure and Support for the Environmental Movement, 1968–70." *Rural Sociology*, 39(1):56–69.

Carlson, L. A. (1992). "Learning to Farm: Indian Land Tenure and Farming before the Dawes Act." In T. L. Anderson, ed., *Property Rights and Indian Economies*. Lanham, MD: Rowman & Littlefield Publishers.

Carson, R. (1962). *Silent Spring*. New York: Houghton Mifflin.

Cerrel Associates, Inc. (1984). "Political Difficulties Facing Waste-to-Energy Conversion Plant Siting." J. Stephen Powell, Senior Associate, Waste-to-Energy Technical Information Series, Chapter 3a. California Waste Management Board, Los Angeles.

Chan, S. (1991). *Asian Americans: An Interpretive History*. Boston: Twayne.

Cortes, C. (1980). "Mexicans." In Stephen Thornstrom, ed., *Harvard Encyclopedia of Ethnic Groups*. Cambridge: Harvard University Press.

Cotgrove, S., & Duff, A. (1980). "Environmentalism, Middle-Class Radicalism and Politics." *Sociological Review*, 28(2):333–351.

Debo, A. (1970). *A History of the Indians in the United States*. Norman: University of Oklahoma Press.

Deloria, V. (1994). *God Is Red: A Native View of Religion*. Golden, CO: Fulcrum Press.

Devall, W. B. (1970). "Conservation: An Upper-Middle Class Social Movement. A Replication." *Journal of Leisure Research*, 2(2):123–126.

Dickason, J. G. (1983). "The Origin of the Playground: The Role of the Boston Women's Clubs, 1885–1890." *Leisure Sciences*, 8(1).

Dillman, D. A., & Christenson, J. A. (1972). "The Public Value for Pollution Control." In William Burch et al., eds., *Social Behavior, Natural Resources, and the Environment*. New York: Harper and Row.

Dubofsky, M. (1996). *Industrialism and the American Worker 1865–1920*, 3rd ed. Wheeling, IL: Harlan Davidson.

Duleep, H. O. (1988). *Economic Status of Americans of Asian Descent*. Washington, DC: U.S. Commission on Civil Rights.

Faich, R. G., & Gale, R. P. (1971). "The Environmental Movement: From Recreation to Politics." *Pacific Sociological Review*, 14(2):270–287.

Fleming, D. (1972). "Roots of the New Conservation Movement." *Perspectives in American History*, vol. 6. Cambridge: Belknap Press of Harvard University Press.

Fox, S. (1985). *The American Conservation Movement: John Muir and His Legacy*. Madison: University of Wisconsin Press.

Friday, C. (1994). *Organizing Asian American Labor: The Pacific Coast Canned-Salmon Industry, 1870–1942*. Philadelphia: Temple University Press.

Gallup Poll. (1972). *The Gallup Poll: Public Opinion 1935–1971*. New York: Random House.
Geschwender, J. A. (1978). *Racial Stratification in America*. Dubuque, IA: William C. Brown.
Gottlieb, R. (1993). *Forcing the Spring: The Transformation of the American Environmental Movement*. Covelo, CA: Island Press.
Habermas, J. (1975). *Legitimation Crisis*. Translated by Thomas McCarthy. Boston: Beacon Press. Original title: *Legitimationsprobleme im Spatkapitalismus*, Frankfurt: Suhrkamp (1973).
Harry, J. (1971). "Work and Leisure: Situational Attitudes." *Pacific Sociological Review*, 14(July): 301–309.
Harry, J., Gale, R., & Hendee, J. (1969). "Conservation: An Upper-Middle Class Social Movement." *Journal of Leisure Research*, 1(2):255–261.
Hendee, J. C., Gale, R. P., & Harry, J. (1969). "Conservation, Politics and Democracy." *Journal of Soil and Water Conservation*, 24(Nov–Dec):212–215.
Hill & Picirelli. (1992). *Gale Environmental Sourcebook*. Detroit: Gale Research.
Hurley, A. (1995). *Environmental Inequalities: Class, Race, and Industrial Pollution in Gary, Indiana, 1945–1980*. Chapel Hill, NC: University of North Carolina Press.
Inglehart, R. (1992). "Public Support for Environmental Protection: Objective Problems and Subjective Values." Paper presented at the annual meeting of the American Political Science Association, Chicago.
Ingram, D. (1987). *Habermas and the Dialectic of Reason*. New Haven: Yale University Press.
Jiobu, R. M. (1988). *Ethnicity and Assimilation: Blacks, Chinese, Filipinos, Japanese, Koreans, Mexicans, Vietnamese, and Whites*. Albany, NY: State University of New York Press.
Josephy, A. (1968). *The Indian Heritage of America*. New York: Knopf.
Kitano, H. H. (1980). "Japanese." In Stephen Thronstrom, ed., *Harvard Encyclopedia of Ethnic Groups*. Cambridge: Harvard University Press.
Lenarcic, R. J. (1982). "The Moon of Red Cherries: A Brief History of Indian Activism in the United States." In Gerald R. Baydo, ed., *The Evolution of Mass Culture in America, 1877 to the Present*. St. Louis: Forum Press.
Lowe, G. D., Pinhey, T. K., & Grimes, M. D. (1980). "Public Support for Environmental Protection: New Evidence from National Surveys." *Pacific Sociological Review*, 23 (October).
Lurie, N. O. (1982). "The American Indian: Historical Background." In Norman Yetman and C. Hoy Steele, eds., *Majority and Minority*, 3rd ed. Boston: Allyn and Bacon.
Martinson, O. B., & Wilkening, E. A. (1975). "A Scale to Measure Awareness of Environmental Problems: Structure and Correlates." Paper presented at the Annual Meeting of the Midwest Sociological Society, Chicago, April.
McCloskey, M. (1992). "Twenty Years of Change in the Environmental Movement: An Insider's View." In Riley E. Dunlap and Angela G. Mertig, eds., *American Environmentalism: The U.S. Environmental Movement, 1970–1990*. Philadelphia: Taylor & Francis.
McNickle, D. (1973). *Native American Tribalism: Indian Survivals and Renewal*. New York: Oxford University Press.

Morris, A. (1984). *The Origins of the Civil Rights Movement: Black Communities Organizing for Change.* New York: The Free Press.
Muir, J. (1924). *The Life and Letters of John Muir*, 2 vols. Baltimore, MD: Johns Hopkins University Press.
Nash, R. (1982). *Wilderness and the American Mind*, 3rd. ed. New Haven: Yale University Press.
National Opinion Research Center. (1973–1980). *General Social Survey*. Chicago: University of Chicago Press.
National Wildlife Federation. (1993). *Conservation Directory*, 38th. ed. Washington, D.C.: National Wildlife Federation.
New York Times. (1857). November 6, 17, 21, 25.
Oelschlaeger, M. (1991). *The Idea of Wilderness: From Prehistory to the Age of Ecology*. New Haven: Yale University Press.
Olmstead, F. L. (1860). Letter to Charles Loring Brace, December 8.
———. (1860). Letter to Board of Commissioners of the Central Park, November 13.
Opinion Research Corporation. (1978, September). *Public Opinion Index*. Vol. 36(17) & (18). N.p.
———. (1977). Vol. 35. N.p.
Paehlke, R. (1989). *Environmentalism and the Future of Progressive Politics.* New Haven: Yale University Press.
Peiss, K. (1986). *Cheap Amusements: Working Women and Leisure in Turn-of-the-Century New York.* Philadelphia: Temple University Press.
Pepper, D. (1986). *The Roots of Modern Environmentalism.* London: Croom & Helm, Ltd.
Piven, F. F., & Cloward, R. A. (1979). *Poor People's Movements: Why They Succeed How They Fail.* New York: Vintage Books.
Pusey, M. (1993). *Jurgen Habermas.* New York: Routledge.
Robinson, J. (1991). *Toil and Toxics: Workplace Struggles and Political Strategies for Occupational Health.* Berkeley: University of California Press.
Roper, L. W. (1973). *FLO: A Biography of Frederick Law Olmsted.* Baltimore, MD: Johns Hopkins University Press.
Rosenzweig, R. (1987). "Middle-Class Parks and Working-Class Play: The Struggle Over Recreational Space in Worcester, Massachusetts, 1870–1910." In Herbert G. Gutman and Donald H. Bell, eds., *The New England Working Class and the New Labor History*. Urbana: University of Illinois Press.
———. (1983). *Eight Hours for What we Will: Workers and Leisure in an Industrial City, 1870–1920.* Cambridge: Cambridge University Press.
Snow, D. (1992). *Inside the Environmental Movement: Meeting the Leadership Challenge.* Covelo, CA: Island Press.
"State of the Nation." (1972–1976). Poll conducted by Potomac Associates.
Stiffam, L. A., & Lane, P., Jr. (1992). "The Demography of Native North America: A Question of American Indian Survival." In M. A. Jaimes, ed., *The State of Native America: Genocide, Colonization and Resistance.* Boston: South End Press.
Takaki, R. (1993). *A Different Mirror: A History of Multicultural America.* Boston: Little Brown.
Taylor, D. E. (1996). "Mobilizing for Environmental Justice in Communities of Color: An Emerging Profile of People of Color Environmental Groups." In Burch et al., eds.,

Ecosystem Management: Adaptive Strategies for Natural Resources Organizations in the Twenty-First Century. Washington, D.C.: Taylor & Francis.

———. (1992). "Can the Environmental Movement Attract and Maintain the Support of Minorities." In Bunyan Bryant and Paul Mohai, eds., *Race and the Incidence of Environmental Hazards*, Boulder: Westview Press.

———. (1989). "Blacks and the Environment: Toward an Explanation of the Concern and Action Gap between Blacks and Whites." *Environment and Behavior*, 21(2): 175–205.

Tognacci, L. N., Weigel, R. H., Wideen, M. F., & Vernon, D. T. A. (1972). "Environmental Quality: How Universal Is Public Concern?" *Environment and Behavior*, 4 (March): 73–86.

Trimble, L. C. (1988). "What Do Citizens Want in Siting of Waste Management Facilities?" *Risk Analysis*, 8(3).

Tuttle, W. M., Jr. (1980). *Race Riot: Chicago in the Red Summer of 1919*. New York: Atheneum.

United Church of Christ. (1987). *Toxic Waste and Race*. New York: United Church of Christ.

Wax, M. (1971). *Indian Americans: Unity and Diversity*. Englewood Cliffs, NJ: Prentice Hall.

Wright, S. (1975). "Explaining Environmental Commitment: The Role of Social Class Variables." Paper presented at the Annual Meeting of the Midwest Sociological Society, Chicago, April.

Zinger, C. L., Dalsemer, R., & Magargle, H. (1972). "Environmental Volunteers in America." Prepared by the National Center for Voluntary Action for the Environmental Protection Agency, Grant # R801243, Office of Research and Monitoring.

20

Coalition Building between Native American and Environmental Organizations in Opposition to Development

The Case of the New Los Padres Dam Project

Mik Moore

In this article, Mik Moore draws on field observations, document reviews, and interviews to explore a coalition that formed between Native American and environmental groups to resist the New Los Padres Dam project, planned for the Carmel River, California. Moore demonstrates how change occurs when different cultures share information and how social movements can influence major policy decisions. First, he shows how traditional Native American philosophy (the

indigenist vision) influenced the belief systems, rhetoric, and practices of the environmental groups. Second, he explains how both Native American and environmental activists worked together to successfully educate the public and protest the proposed New Los Padres Dam.

In recent decades, Native American and environmental organizations have found considerable common ground in the shared goal of preserving wild and relatively wild areas from environmentally destructive development. In his study of native and environmentalist struggles against multinational corporations, Al Gedicks (1993) states:

> The integral connections between native survival and environmental protection have become apparent to even the most conservative environmental organizations. Now the assertion of native land rights takes place in the context of an environmental movement that is prepared to appreciate the knowledge native people have about their own environment and to accept native leadership in environmental battles. (p. 203)

Gedicks documents a number of coalitions between indigenous people's organizations and environmental groups, such as the struggle by Lake Superior Chippewa Indians and Wisconsin environmentalists to prevent Kennecott Copper Corporation from constructing a massive open-pit copper mine in Northern Wisconsin (Gedicks, 1993). More recently, Native American organizations and environmental groups are working closely together to protect Ward Valley, California, from becoming the site of a low level nuclear waste dump. Ward Valley is considered a sacred place by Native Americans, and the Colorado River Native Nations Alliance has been working together with non-native support groups and environmental justice organizations, such as the Indigenous Environmental Network, the Southwest Network for Economic and Environmental Justice, and the California Communities Against Toxics coalition, to prevent the opening of the radioactive dump there (Woodward, 1998). The coming together of Native American and environmental movements is also illustrated by the fact that the Sierra Club's (1996) magazine recently devoted an entire issue to Native Americans and environmental movements. . . .

In trying to describe and understand social movements, sociologists have drawn on the resource mobilization perspective, which focuses on the ability of organizations to make use of resources such as money, the availability of office space and communication equipment, access to professional organizing, administrative and legal expertise, political and media connections, and

other assets as the most significant factor in explaining the success of a social movement (Gamson, 1975; McCarthy & Zald, 1977; Tilly, 1979). Recently, the resource mobilization perspective has been criticized by authors drawing on European new social movement theory (see Habermas, 1981; Touraine, 1981, 1988) for failing to give enough attention to the role of ideas, beliefs, and counter-discursive language and behavior (Ingalsbee, 1996; McClurg-Mueller, 1992). Carol McClurg-Mueller (1992) has argued that the resource mobilization approach focused on institutional change at the expense of personal change and that to understand social movements, it is also necessary to understand the beliefs and meanings that are created and interpreted by individuals within the micromobilization context. In his study of Earth First! activism, Timothy Ingalsbee (1996) has illustrated that the character of this environmental movement cannot be captured by simply attending to the mobilization of monetary and material resources; symbolic resources, meaning "socially constructed cognitive frameworks" (p. 264), or beliefs and ideas that provide an explanatory vision that guides action and that are represented and communicated through counter-discursive symbolic means such as costume and theatrical direct actions, are also important. "The social-psychological aspects of movements are among the most sociologically interesting and qualitatively new elements of contemporary activism, particularly in radical movements such as Earth First!" (Ingalsbee, 1996, p. 264). Where do these symbolic meaning resources and ideational materials (Tarrow, 1992), which are so important for creating commitment and motivation among social movement activists, derive from, and how are they communicated and actualized within the micromobilization context, the face-to-face interactions between movement activists?

One source of symbolic resources for environmental movements today is the *indigenist* vision (Churchill, 1993, p. 441), the traditional belief systems and practices of the native peoples of America. In his article, "I am Indigenist," Native American writer and activist Ward Churchill (1993) defines himself as indigenist in outlook, meaning that he

> draws upon the traditions—the bodies of knowledge and corresponding codes of values—evolved over many thousands of years by native peoples the world over. This is the basis upon which I not only advance critiques of, but conceptualize alternatives to the present social, political, economic and philosophical status quo. (p. 403)

Although it may be contended that there are numerous and very different cultures within the indigenous peoples of America, Churchill responds that there is also much internal variety within Western civilization, and that the differences between indigenous peoples have been exaggerated and exploited by colonizers

as part of a strategy of domination. What characterizes the indigenist vision compared to the outlook associated with the dominant society? Churchill refers to the work of Mexican anthropologist, Guillermo Bonfil Batalla (1981), who writes:

> Fundamentally, the difference can be summed up in terms of [humanity's] relationship with the natural world. For the West . . . the concept of nature is that of an enemy to be overcome, with man as boss on a cosmic scale. . . . The converse is true in Indian civilization, where [humans are] part of an indivisible cosmos and fully aware of [their] harmonious relationship with the universal order of nature. (as cited in Churchill, 1993, p. 409)

Native American beliefs about the relationship to the natural world focus on connection and communication. The natural world is not seen as separate from the human world but as animate and related to humans. Winona La Duke talks about how the Chippewa have a philosophical value system—mino bimaatisiiwin—that guides relations with others, with plants, with animals, and with the ecosystem as a whole, based on principles of reciprocity. She has written that "'the resources' of the ecosystem, whether corn, rocks, or deer, are viewed as 'animate,' and as such gifts from the Creator. Thus one could not take life without a reciprocal offering" (cited in Gedicks, 1993, pp. x–xi). Because of this relationship to the natural world, it becomes, according to Arthur Versluis (1993), "a theatre of religious revelation. . . . Birds, animals, plants, stars, all can have a spiritual significance. Naturally the same is true of the landscape itself" (p. 67).

In the context of actions to protect the environment, the spiritual significance of the land is thus often a prime motivating factor of Native American resistance movements. In the Ward Valley case mentioned earlier, the area is seen as sacred because of its proximity to Spirit Mountain, the birthplace of the ancestors of the tribes in the Colorado River Native Nations Alliance, because the entire valley is a spirit path (along which spirits travel), and because it is home to the desert tortoise, which is revered as a brother. These beliefs may be seen as fanciful, irrational, childish, or crazy by members of the dominant society, but they are extremely important, deeply held, and passionately embraced by followers of the indigenist vision, beliefs for which in many cases they are prepared to die. With the increase of coalitions between environmental organizations and Native American groups to resist particular development or industrial projects that threaten wild lands, these beliefs and the practices through which they are communicated are taking on an increased significance as symbolic resources that provide psychological empowerment to movement activists, both native and non-native.

The opposition movement that was organized to a proposed large dam, the New Los Padres Dam, on the Carmel River in Monterey County, California,

is examined here as an example of this contemporary alliance building between Native American and environmental organizations in resistance to development projects and of the role of the indigenist vision and Native American leadership in such coalition movements.

Dam Construction and Environmental Racism

Dam construction projects have increasingly come to be seen both as major environmental despoilers and as threats to indigenous peoples and cultures and, therefore, have become the target of powerful opposition coalitions. At the same time, the building of large dams has been presented by their promoters and admirers as a miracle of modern engineering and also as a metaphor for the triumph of human society over the unpredictable forces of nature. Giant dams in themselves may be viewed as products of what Leslie Sklair (1994) calls *cultural-ideological transnational practices* in which a central assumption is that the domination and control of nature is an essential, even a spiritual, duty. This, of course, is more or less the complete antithesis of the indigenist vision described above. Patrick McCully (1996), who is campaigns director for the California-based International Rivers Network, part of an emerging international anti-dam movement, has identified several recurrent ideological themes in the arguments of dam-building corporations and government bureaucracies. These include the ideas that undammed rivers are wasted, that wild or turbulent rivers should be tamed, that rivers have no value unless they are controlled, and that dams are comparable to temples or other places of worship. Dam promoters see their projects as improving on an imperfect nature. Camille Dagenais, former head of the Canadian dam-building firm SNC, once stated, "In my view, nature is awful and what we do is cure it" (cited in McCully, 1996, p. 47). As McCully points out, "When a dam is given such a powerful symbolic role, its economic and technical rationale and potential negative impacts fade into insignificance in the decision-making process" (p. 237). However, the potential negative impacts of dams are considerable. Dams, far from being modern marvels, have a huge human and environmental cost. McCully estimates that 30 to 60 million people worldwide have been forced from their lands as a result of dam construction (McCully, 1996). There has also been a devastating impact on wildlife; for example, in the United States, dam construction is the main reason two-fifths of freshwater fish are endangered or extinct (McCully, 1996). . . .

This leads to a significant insight about the human cost of large dam construction. As Donald Worster (1983) puts it, "the domination of nature leads inescapably to the domination of some people by others" (p. 169). The giant dams that supposedly control wild and wasted rivers and put them to work for human society are usually devices for expropriating common resources from some users and turning them over to others. Patrick McCully (1996) writes:

> The domination of rivers is one of the clearest indications of the link between the control of nature and the control of people. Large dams are not built and operated by all the society but by an elite with bureaucratic, political or economic power. The dams give this elite the ability to direct water for their own benefit, depriving the previous users of some or all of their access to riverine resources. (p. 24)

Certainly, in the case of the New Los Padres Dam Project, a key issue raised by its opponents was the question of who would truly benefit from the project—the community as a whole or a small group of developers and other business interests, at the expense of the further loss of common riverine resources in particular places that were of outstanding significance for the descendants of the indigenous population of the area, the Esselen. . . .

. . . [T]he New Los Padres Dam was first proposed in 1989 as a solution to long-term water problems on the Monterey Peninsula in California. As soon as they became aware of it, the indigenous peoples of the area, the Esselen, began a passionate and outraged resistance and together with predominantly White environmental organizations, formed an effective coalition opposing the dam project. This coalition was ultimately successful in at least temporarily derailing the large dam proposal; the story of the alliance, and in particular, the role of the indigenist vision and Native American leadership in the alliance, is the focus of the research reported here.

The New Los Padres Dam Project

California, including the Monterey Bay area, experienced one of the most prolonged droughts in recent history during the years 1987 through 1992. During this period, mandatory water rationing was introduced on the Monterey Peninsula. In addition, because of overpumping of groundwater from the Carmel River basin by the Cal-Am Water Company, the primary water supplier in the area, the Carmel River dried up in the summer and fall, even during wet years, resulting in damage to the riparian environment and to the steelhead fish run. In response to this situation, the Monterey Peninsula Water Management District (the water district), which is the elected local regulatory agency legislated to manage water resources and promote water conservation, defined its mission as developing a long-term water-supply project that would provide an adequate water supply in drought years and that would restore year-round streamflow to the Carmel River to repair the environmental damage that had occurred. A number of water-supply alternatives were looked at, including a small seawater desalination plant. On June 8, 1993, voters rejected the proposed desalination plant, and the Water District focused its energies on planning and promoting a new dam on the Carmel River. . . .

In 1994, a large number of state and federal agencies expressed support for the dam. In February, the Environmental Protection Agency declared that it was the least environmentally damaging practical alternative. In May, the six cities in the water district passed unanimous resolutions supporting permits for the project. In November, the California Department of Fish and Game testified in favor of the project at hearings at the State Water Resources Control Board, largely because they believed that it would benefit the steelhead fish run in the Carmel River. In December, the California Coastal Commission voted unanimously to certify that the project complies with the Coastal Zone Management Act. In 1995, with permit approval from the Army Corps of Engineers, approval from the State Water Resources Control Board, and completion of Section 106 of the National Historic Preservation Act process, all the New Los Padres Dam required was approval by the voters of Measure C on the November 8, 1995 ballot, which would authorize funding for the dam. Throughout 1995, opposition efforts were therefore focused on building up resistance to the dam with the goal of achieving a rejection of Measure C by the voters in November.

The New Los Padres Dam Project was the stated mission of the Monterey Peninsula Water Management District and was also obviously strongly supported by the Cal-Am Water Company. In addition, prodevelopment and growth interests, both in the area and from outside, contributed funding to the campaign to convince voters to approve the dam in the November election. The biggest spender in the period leading up to the election was a real estate interest group called Issues Mobilization Political Action Committee, based in Los Angeles, whereas local support came from a large construction company (which would probably be involved in building roads and other support structures around the dam), local real estate interests, and the hotel industry. By October 21, the last reporting period to the Monterey County Elections Department prior to the election, supporters had outspent opponents by 2 to 1, collecting $107,215, whereas the opposition alliance had raised $41,255, the largest amount coming from the local chapter of the Sierra Club (Wolf, 1995). Who were the groups and individuals who organized the opposition to this large dam project, what was the nature of their alliance, and what kind of ideational materials did they draw on to mobilize resistance to the New Los Padres Dam Project? These questions were addressed in the research reported here.

Methods

The data employed here were collected in an 18-month period of fieldwork on the New Los Padres Dam controversy, which began in the fall of 1994. Three main sources of data were used: (a) archival and documentary materials, (b) in-depth

interviews with 12 people involved in the dam dispute and/or the Native American cultural renewal movement, and (c) observation and participant observation of relevant community events and actions. . . .

The research data were . . . gathered in a number of settings, using a number of methods, and although there are important stories to tell about gaining access and building trust, the focus of this article is more what John Van Maanen (1988) would describe as a realist tale in which the field-worker "simply vanishes behind a steady descriptive narrative" (p. 46). This is so because I think the struggle against the New Los Padres Dam is an important story to tell because of what it says about the role of Native American beliefs and leadership in environmental battles today. . . .

Opposition to the Dam

At the time of the arrival of the Spanish Empire in the Monterey Bay area in 1769, the Esselen inhabited the mountainous area, now known as the Ventana Wilderness, on the fringes of which the dam was to be constructed. Esselen village and burial sites exist on the land that would be inundated by the New Los Padres Dam reservoir, and radiocarbon dating at sites elsewhere in the Ventana Wilderness indicates they were occupied at least 4,630 years ago (Breschini & Haversat, 1993). Genealogical research by the archaeologists . . . confirmed that descendants of Esselen who were at the Carmel Mission still reside in the region, and one of their spokespersons, Tom Little Bear Nason, told me that they numbered 80 people (T. L. B. Nason, personal communication, February 23, 1995). "We are small, but we're coming back," he said a number of times at public meetings. The Esselen were represented by two organizations, both of which were recognized by the water district in their efforts to fulfill requirements for the 404 Permit and Section 106 of the National Historic Preservation Act. The Esselen tribe of Monterey County had close associations with the immediate neighborhood of the dam because some of their most prominent members, the Nason family, owned a 500-acre homestead of mostly mountain land a few miles upstream of the dam site. When they first began to communicate their opposition to the dam to the Water District and the Army Corps of Engineers, their tribal chairperson was Fred Nason, who died in 1993, at which time Tom Little Bear Nason took on that position. Another grouping, the Esselen nation, affiliated with the United Tribal Families of the Central Coast of California, was chaired by Loretta Escobar-Wyer. Both organizations protested against the construction of the dam and both for the same basic reason, that it would inundate places sacred and in other ways significant to the Esselen, but there were some differences of approach and emphasis.

Neither organization was federally recognized as an Indian Tribe, and lack of federal recognition was an important issue for both groupings and for other

tribes on the central coast of California, which predated the dam project. Historically, the lack of recognition is connected to the fact that for a long time, many central coast tribes were believed by official and academic opinion to have become extinct. . . . The influence of the American Indian Movement (AIM) in the area was to help initiate a cultural revitalization process among central coast tribes, which included a push for federal recognition and deliberate actions to renew and rediscover traditional tribal cultures. Not only the Esselen, but also other central coast tribes such as the Ohlone, Rumsen, Salinan, and Mutsen are all active in this cultural revitalization movement, and there is considerable coordination of activities and cooperation between tribal leaders (for example, on March 25, 1995, tribal leaders from these groups gathered together to discuss several issues local Native Americans were facing, including the New Los Padres Dam). The opposition to the dam was thus a part of this broader cultural renewal effort that involved the other local tribes and their applications for federal recognition, which had been bogged down in federal bureaucracy since 1978. One of the differences between the Esselen tribe of Monterey County and the Esselen nation was that the Esselen tribe, chaired by Nason, seemed to place less value on federal recognition, "We don't want to have a Tribal Council. Its all about protecting the land. . . . We don't need a piece of paper" (T. L. B. Nason, personal communication, December 29, 1995). . . .

The Esselen groups as activists in the anti-dam movement were also joined by many non-native supporters who participated in the Esselen organized anti-dam actions. Such non-native supporters are also significant in other Native American environmental actions, such as the occupation of Ward Valley. In the course of this research, I interviewed some of the non-native supporters about their reasons for their involvement with Native American activities. Their reasoning illustrated the significance of Native American symbolic resources as motivating ideas and meaningful cognitive frameworks for activists. One activist, Elizabeth Williams (personal communication, October 15, 1995), described that when she heard Native American leaders speak, "I thought, this is how I always felt, oh yeah, this is home." . . .

The status of non-native supporters of Native American organizations and actions is controversial. For some, they represent the frivolous appropriation of Native American culture. Nason mentioned how AIM leaders were saying, "They took our land. Now they want our religion," and went on to say, "I've argued against that. The prophecies tell us that the Red, Black, Yellow, and White nations will come together" (T. L. B. Nason, personal communication, December 29, 1995). In central coast of California cultural renewal activities and in the struggle against the New Los Padres Dam project, a strategy of deliberately reaching out to non-natives is being followed. Anne Marie Sayers (personal communication, November 3, 1995), prominent Costanoan/Mutsun tribal leader, stated at a Native American organized anti-dam gathering, "We are allowing people to

become aware of our existence. We educate people of our existence. We are all Native Americans, now let us unite and become one earth and one people."

Esselen groups, with their non-native supporters and environmental and neighbourhood organizations, formed an effective coalition that defeated the proposed New Los Padres Dam. However, the arguments of the predominantly environmentalist groups and the Native American groups differed in important respects. Whereas the Esselen were opposed to building a dam in this particular place because of the threat to their sacred sites, the environmental groups were opposed to any dam, on the grounds that increasing the water supply would lead to more development and growth on the Monterey Peninsula. What were some of the pivotal issues in the struggle against the New Los Padres Dam Project? One of the most fundamental disputes was the issue of growth.

Key Issues for the New Los Padres Dam Opposition Movement

Environmental Dam or Developers' Dam?

The water district . . . concluded that there was no alternative solution to the peninsula's water problems other than the construction of the dam. The features of the dam that they chose to emphasize in public meetings and communications to the media were that it would provide a secure water supply in times of drought and that it would be environmentally beneficial. When I met with Henrietta Stern, senior planner for the water district, she emphasized to me a number of times that it was an environmental dam. "The key is restoring stream flow in the Carmel River," she told me (H. Stern, personal communication, January 18, 1995). In an article published in a local newspaper, Stern (1994) made this argument about the benefits of the dam:

> How will the dam affect the environment? The NLP project would provide year-round stream flow to the Carmel River Lagoon [at the mouth of the river] in 75 percent of water years. It would benefit about 24 miles of riverbank vegetation and wildlife, steelhead habitat, recreational and aesthetic resources, and the Carmel River Lagoon in nearly all years. (p. 6)

However, the environmental benefits of the dam were simply not believed by the Sierra Club and Citizens for Alternative Waters Solutions (CAWS) activists, and they sought to publicly discredit them. In an interview with Gruber, chair of the Sierra Club's New Los Padres Dam subcommittee, he told me: "We're calling it the *developers' dam.* It'll lead to 14,000 new homes being built. In the drought years, they'll suck up the extra water that is supposed to restore the river. Every development around here is called an environmental

development" (D. Gruber, personal communication, October 12, 1995). This last comment referred to the fact that in the Monterey Bay area, controlled-growth advocates and elected representatives had been so successful in restricting development projects that such projects needed to be packaged in ways that made them more palatable to the public. Presenting them as environmental was one strategy; a similar maneuver, used elsewhere, was presenting them as promoting the performing arts (see Whitt, 1987). Richard Gendron (1996) has explored this approach in neighboring Santa Cruz County, which he described as "the developer's canny tactic of using an arts-based growth strategy as a means of . . . driving a wedge into a progressive coalition that has successfully opposed every large-scale development in the previous 20 years" (p. 551). The Sierra Club and CAWS activists were not deceived by such canny tactics and focused on the growth potential of the dam. For them, it was unquestionably not an environmental dam. . . .

[. . .] Sierra Club and CAWS campaigners emphasized that the water district's own Environmental Impact Report made clear the dam's potential for growth. In that report, it states, "If the long-term water supply project is not built, growth that is now planned for the peninsula would be constrained . . . it is clear that expansion of the water supply system would remove one obstacle to district growth" (Monterey Peninsula Water Management District, 1994a, chap. 19, p. 1). The additional water supply would make possible "roughly a 20 percent increase in housing, population and water demand" (Monterey Peninsula Water Management District, 1994a, chap. 19, p. 5). . . . On the basis of this analysis, the Sierra Club strategy in mobilizing opposition to the project was to emphasize the growth potential of the dam. The success of this strategy is illustrated by the fact that the latest dam proposal for the Carmel River (following the rejection of the New Los Padres Dam by voters) is being presented by the water district as the no-growth dam. . . .

The Sacred Sites of the Esselen

For the Esselen, the pivotal issue pertaining to the New Los Padres Dam was the destruction of their sacred places by the reservoir and dam construction. Sierra Club and CAWS activists certainly shared this concern, but for them it was one of a number of issues. For the Esselen, it was unquestionably the predominant one. In their arguments to the water district, the Army Corps of Engineers, other official agencies, and the general public, they did not oppose building a new dam per se; they opposed building it at this site, because this site was in an area that had been occupied by the Esselen for thousands of years and included numerous sites, locations, and objects of deep significance for the Esselen. Because of this, Esselen leaders argued that it was "local Esselen Native Americans who are and will always be the ones most affected by the proposed New Los Padres Reservoir

project development" (Nason, 1993, cited in Monterey Peninsula Water Management District, 1994b, p. 161).

Although the term *environmental racism* was never used by the Esselen, their comments on the dam project clearly indicated that they viewed it as another example of the disrespect and disregard for Native American rights that they had so long experienced in their contacts with the dominant White society. Escobar-Wyer, chairwoman of the Esselen nation, writing to the Army Corps of Engineers, eloquently set the dam project in the context of the history of dominant society/Native American relations and argued that it created an opportunity to reverse the pattern of mistreatment, build trust between Native Americans and the dominant society, and "gain a true balance of respect" (cited in Monterey Peninsula Water Management District, 1994b, p. 162). She urged the Army Corps of Engineers to deny the 404 permit, because "in doing so trust may gain a foothold and a difficult journey of bridging two worlds can begin" (L. Escobar-Wyer, 1994, cited in Monterey Peninsula Water Management District, 1994b, p. 162). However, in the matter of the sacred sites, the Esselen nation's chairwoman believed that the water district and other agencies had ignored, disregarded, and in other ways shown lack of respect for the Esselen's testimony about the significance of the threatened places. Commenting on the Final Environmental Impact Report (EIR), she stated that it "does nothing to guarantee Indian people that they will be dealt with fairly and enjoy rights under the U.S. Constitution" and that "the lack of response and professionalism by the lead authors of this EIR demonstrates a classic example of a process of continued American Apartheidie, tokenistic and disenfranchisement policies as practiced by Federal agencies" (L. Escobar-Wyer, 1994, cited in Monterey Peninsula Water Management District, 1994c, letter no. 13).

The process of bridging two worlds ran into problems because of fundamental differences between the indigenist vision and the dominant worldview of western society. Learning from nature and from a spirit world that inhabited the natural environment are precious and deeply meaningful elements of the indigenist viewpoint that inspired and motivated Esselen-led actions to defeat the dam project. Escobar-Wyer, in an interview with the press, asked, "Why can't people relate to the spirituality of this massive structure that is Earth? It is where we learn the essentials of life. It is sacred to us" (Cone, 1994, p. A16). Because Native Americans on the central coast of California are in a process of renewing their traditional culture, the traditionally inhabited places, plant-gathering and hunting areas, ceremonial sites, and sacred places have taken on a supreme importance because they constitute a link to that culture and also to ancestral spirits who can communicate that culture to descendants today in ways not easily grasped by the Western mind. When I first arrived to talk to Nason about the threatened sacred sites, he told me that he would give me information. Then, he looked at me and said, "You'll also get information from the ancestors. They will come through you. You will feel it" (T. L. B. Nason, personal communica-

tion, March 4, 1995). After I had spent a day conversing with Little Bear and participating in a sweat-lodge ceremony, I set off to drive home, but no matter what I did, I could not get my car to start, which was unusual for this extremely reliable vehicle. I camped out for the night and called on Little Bear in the morning and told him the story. "The ancestors wouldn't let you go," he laughed. "They wanted you to sleep on the ground." It was clear to me that for Little Bear and for other Native Americans I encountered in the course of this research, there was an indigenist vision that emphasized connectedness with a communicative and animate natural environment (and thus, for Little Bear, I was learning not just from what he said, but by being on the land). The leader of the Humaya dancers, while dancing at one of the Native American–organized actions opposing the dam project, paused while dancing to inform the audience, "We learned our language through the birds. There's many secret things that we know. . . . Look to the trees, look to the Heavens, your culture's there, it has always been there." Because the culture was viewed as being discoverable in the rocks, trees, bluffs, birds, flowers, and animals of the Carmel River, it followed that Esselen activists would vehemently oppose a dam project that would irrevocably cut off access to these cultural resources. Anne McGowan (1993), the attorney representing the Esselen tribe of Monterey County, wrote to the water district to point out: "The Esselen are opposed to mitigation measures, because they believe the NLP dam should not be built; the dam will destroy irreplaceable burial sites, sacred ceremonial areas and hunting and gathering areas critical to the revival of Esselen Native American culture" (cited in Monterey Peninsula Water Management District, 1994b, p. 125). . . .

For the Esselen, there were many specific sites that had particular significance; one of the most important was the birthing rock, a prominent, freestanding natural rock monolith in the flood plain of the Carmel River, a place where traditionally Esselen women had gone to give birth and where ceremonies and dances were still held. This was located in what the dam engineers designated as the borrow area, from which rock would be quarried and crushed to provide construction material for the dam. Polomo Brennan told me how at a meeting at the dam site, one of the engineers, in earshot of Esselen representatives, had pointed to the birthing rock as a good source of construction material (J. Polomo Brennan, personal communication, March 4, 1995). He told this story to illustrate the insensitivity of the dam builders to Native American sentiments and went on to add:

> I'll make my last stand at the birthing rock. That's not going to happen in my lifetime. That's utter sacrilege. The fish altar [another sacred site] would also go. They say it'll be covered with water and so it'll be protected, but that's like saying if the Sistine Chapel were flooded, you could visit it using scuba gear. (J. Polomo Brennan, personal communication, March 4, 1995)

Close to the birthing rock was another place that the Esselen held to be especially sacred, which they called the baby burial area. In addition to a large number of specific sites, the entire course of the Carmel River was viewed as sacred by the Esselen, a spirit trail, along which the spirits of the dead travel on their way to the Western gate, the door to the land of the dead. Nason spoke of how there were many spirits along the river and as a result, "people have powerful visions and dreams here" (T. L. B. Nason, personal communication, March 4, 1995). The construction of the dam would block the path of the spirits and destroy a spiritual connection of supreme significance for the Esselen.

The Esselen believed that the water district did not have a full understanding of or respect for their sacred places. They noted that the Final Environmental Impact Report had devoted more pages to animal and plant life than to Native American cultural resources. It seemed to them that the steelhead fish were given more attention than the beliefs of the Esselen. . . . Although the water district argued that the Esselen's loss of cultural resources could be mitigated by standard procedures (for example, bedrock mortars could be removed to another site; an Esselen Cultural Center could be established), Esselen activists believed otherwise. "It's not mitigatable," Nason told me. Polomo Brennan (1994) wrote to the Army Corps of Engineers,

> The desecration, through total destruction, of two sacred sites below and under the dam is impossible to mitigate. . . . The cumulative impact of destruction, desecration, inundation, blinding, burial, translocation and other mitigation measures is the catastrophic loss of resources of immense spiritual importance to the Esselen people. (cited in Monterey Peninsula Water Management District, 1994b, p. 149)

The Opposition Movement to the New Los Padres Dam: Strategies and Alliances

Opposition to the New Los Padres Dam project gathered momentum as more and more official agencies gave the project their approval during 1994 and 1995, and the only significant hurdle remaining was the November 8 election in which voters would decide on a bond measure to provide funding for the dam. The various opposition groups and individuals adopted a number of strategies, working both together and independently to mobilize public opinion against the project.

David Brower

One of the earliest oppositional events was a public meeting in November 1994, organized by the environmental activist, Mapstead. Mapstead was known per-

sonally to Nason and, a year later, was working with him to lead a sacred hike and ride up the Carmel River. Mapstead along with many other non-native activists participated in a medicine circle preceding the hike that included Native American ceremonies. The public meeting about the dam was addressed by David Brower. Brower has played a highly visible role in the anti-dam movement in the United States and in the environmental movement in general. McCully calls him "probably the second most influential figure of the twentieth-century environmental movement" (McCully, 1996, p. 283). Brower, as executive director of the Sierra Club, was a central figure in the opposition to Bureau of Reclamation proposals for dams on rivers in the Colorado Basin, beginning with resistance to the Echo Park Dam, planned for the Green River in the 1950s (Gottlieb, 1993, p. 41; McCully, 1996, pp. 283–285; Reisner, 1993, pp. 284–285). Indeed, Gottlieb (1993) calls the Echo Park Dam fight a turning point for environmentalism. At the meeting, which was widely advertised and well-attended, Brower set opposition to the New Los Padres Dam in the context of a broader philosophy questioning the value of economic growth. "How do we handle growth? What does it cost? How can we control it? We need to do a cost-benefit analysis of growth. Growth isn't all that great if it costs more than we can afford." When Brower stated emphatically in a sonorous voice, "No more growth," the audience broke into sustained and enthusiastic applause. "We don't have to grow any more. We get more growth and then we'll need more water," he continued. Brower's talk raised fundamental questions that went far beyond the dam issue to tackle the sustainability of human society's current economic relationship with the environment. "The earth cannot sustain what we've been doing," stated Brower. Bron Taylor (1995) has identified "the rejection of economic growth and industrialization as desirable social goals" to be a common denominator of ecological resistance movements (p. 340), and this was certainly a strong theme in Brower's thinking and, to a major extent, in the Sierra Club's campaign against the dam, which constantly attacked the growth potential of the project. Questioning the sustainability of industrial society because of its devastating impact on the planet's ecosystems was also a theme of the indigenist vision, although expressed in more animate terms. "Mother Earth is sick and she needs healing" was a statement I commonly heard at Native American actions or, as Costanoan/Mutsun tribal leader Anne Marie Sayers put it at one of these events, "Everything comes from the Mother, and she's tired and weak."

Sierra Club and CAWS Strategies

The compatibility of Native American and environmental thinking enabled extensive cooperation and sharing of personnel between the groups in opposition to the dam to take place. Gruber, who chaired the Sierra Club's subcommittee, told me about how he worked together with Nason during 1995 to

conduct tours of the proposed dam site for members of the Sierra Club and other interested members of the general public. Usually, such tours involved a medicine circle at the birthing rock during which Nason or other Esselen representatives would talk about the meaning of the place for the Esselen. Gruber told me, "Native American thinking and ecology are similar. Their philosophy matches ecological thinking" (D. Gruber, personal communication, February 16, 1996). The similarity for Gruber was based partly on the need to go beyond purely rational, scientific arguments to directly experience the land and view the sacred sites. "You can argue back and forth at the rational level," he told me, "but it comes down to emotions; you know it's not right at an emotional level" (D. Gruber, personal communication, October 12, 1995). . . .

Only a tiny minority of the Monterey Peninsula population ever made it to the dam site. To reach the majority, the Sierra Club spent $5,000 on a publicity campaign including advertising, mailing to the general public, organizing forums, and addressing public meetings. The purpose of this campaign, according to Gruber, was to "present ideas and quality-of-life issues. It was a matter of what do you want for life around here?' (D. Gruber, personal communication, February 16, 1996). The information about the dam that they tried to communicate was that it was not about solving environmental issues, but rather about growth. Many people who were Sierra Club members were also members of Citizens For Alternative Water Solutions (CAWS), and both organizations presented ideas to the public that challenged the water district's claims for the dam and proposed different ways to deal with the water problems on the Peninsula. CAWS was also linked to the Esselen through Polomo Brennan, who was both a campaigner and spokesperson for the citizens' action group as well as the Esselen's tribal engineer. One of the strategies of CAWS, as their name implies, was to propose various methods through which the water district could augment the water supply without building the dam. On a public radio discussion program aired just prior to the November election, Polomo Brennan pointed out (personal communication, November 2, 1995), "If we looked at retrofitting toilets, if we looked at dredging, . . . and if we looked at desalination, we would create something of the order of 15,000 acre feet of available water for whatever purposes is needed, for drought reserve, certainly." At the same time, CAWS argued that the dam would provide water for unplanned environmentally damaging growth, increase consumers' water bills by 30 percent over 4 years, degrade the quality of life, irreparably harm several world-class vineyards, and permanently end Esselen culture and religion through flooding. The Sierra Club campaign made similar kinds of arguments, not only focusing on the negative impact of the dam on the environment and quality of life on the Monterey Peninsula, but also proposing alternative solutions to the water issues. Sierra Club activist Mitteldorf (1995), writing in the local chapter's newsletter, *The Ventana*, proposed specific methods through which the water supply could be

increased, including many ideas also promoted by CAWS, such as dredging the existing reservoir, building a small desalination plant to operate in drought years, and requiring dual-plumbing systems that would enable dwellings to make use of rainwater that currently runs off through storm drains. Another activist, Larigner, linked the local dam issue to the broader problems of a high water-consumption society in a relatively arid area (almost no rain falls in the Monterey Peninsula between April and October), which have been addressed by such water theorists as Reisner (1993) and Bowden (1977). . . . This approach, similar to Brower's, moved beyond discussing specific problems with the New Los Padres Dam to a critique of an unsustainable society dependent on continual growth, achieved only at the expense of unacceptable environmental depredation. The notion that Mother Nature would call this society to account has obvious parallels with what I have been describing as the indigenist vision.

In the publicity campaign organized by the Sierra Club, such philosophies informed activists but were not in the forefront of the ideas presented to the general public. This campaign, which ran through 1994 and 1995 up to the November election, involved the organization of forums and public meetings (such as a debate on the dam in August 1995 at Monterey's Navy Postgraduate School), mailing information to Sierra Club members and to the general public, display ads in the local print media, including a series of what Gruber called mosquito ads, which ran in *The Monterey County Herald* (the biggest local circulation daily) for 30 days before the ballot. These ads were short and to the point, such as "Would John Muir vote for the developers' dam?" "Quarter billion $ developers' dam = 100 dollar water bills: We can't afford them!" and "Developers' dam, environmental disaster." Both the Sierra Club and CAWS focused on the excessive development and growth issues. In reviewing the campaign, Gruber told me, "Growth is equivalent to a change in the quality of life, and people didn't like it" (D. Gruber, personal communication, February 16, 1996). CAWS ran an ad in *The Monterey County Herald* on the Saturday before the vote, which emphasized the negative impact of growth. Beside a photo of congested traffic, copy declared, "Traffic is bad enough already. The growth allowed by the dam will make it even worse. . . . GROWTH. It's what the dam is all about" (*Monterey County Herald*, 1995, p. A9).

Esselen Strategies and Actions

For both Esselen organizations, the first line of resistance to the dam project was to communicate to the water district, the Army Corps of Engineers, and other official agencies their opposition to the dam project. This was done through meetings, some which took place in Sacramento, and through formal letters, many of which, for the Esselen tribe, came from their attorney, McGowan. Settlement meetings with the water district were held as early as 1992, hearings

were conducted with the Army Corps of Engineers and with the State Water Resources Control Board in Sacramento, and letters were written during 1993 and 1994 in response to the draft and final Environmental Impact reports and the report prepared by Archaeological Consulting. Commenting on these lengthy bureaucratic procedures, Nason told me: "They want us to go Western. Join the White world and go to meetings and sit on committees. I've done that. I've got burnt out on that. I'm going native now. I don't want to get sucked in" (T. L. B. Nason, personal communication, March 4,1995). He also pointed out to me that there was a huge inequality of resources between the water district and the Esselen tribe; the water district had spent $10 million researching and promoting the project, whereas the Esselen did not have access to that level of financial resources (T. L. B. Nason, personal communication, February 23, 1995). McGowan also pointed out to me the relative poverty of the Esselen. To attend hearings in Sacramento was not easy for them, as it involved taking time off work, finding low-cost accommodation and food in the city, and crowding into a van to save on transportation costs (A. McGowan, personal communication, February 21, 1995). As a result, Esselen leaders placed a great value on their traditional ways, including various ceremonies in which they prayed to spirits and ancestors for help. "It's all we have, the spirits, the ancestors. We have no other help," Nason told me (T. L. B. Nason, personal communication, March 4, 1995). Going native was seen as an effective tactic in dealing with a powerful, well-funded bureaucracy, partly because the Esselen were not wealthy but also because cultural renewal was so important to them, and cultural renewal involved the use of traditional methods. . . . All Esselen actions that I attended involved prayer and traditional ceremony, and these customs were the behavioral expression of a philosophy that emphasized interconnectedness with an animate and communicative universe. Their practice reaffirmed the importance and validity of the indigenist vision within a dominant society that questioned the relevance and even the sanity of Native American views. . . .

During the weekend before the crucial November 8th election, the Esselen tribe organized a string of public actions including a prayer ceremony at the mouth of the Carmel River attended by local spiritual leaders, both native and non-native, a reception and Native American feast, a gathering attended by traditional Native American dancers and addressed by many local Native American leaders, a sacred ride and hike along the lower 15 miles of the Carmel River, a pilgrimage to the birthing rock and the baby burial area, and a prayer circle and storytelling around a campfire, followed by sweat-lodge ceremonies. These events were attended by many of the activists in the struggle against the New Los Padres Dam, including Polomo Brennan and other CAWS members, Mapstead, and Sierra Club members; they were also attended by activists in the Native American cultural revitalization process from the Ohlone, Western Shoshone, Rumsen, Pomo, Mutsun, and Salinan tribes.

At the feast held on November 3rd, a Sierra Club member showed slides of the area of the Carmel River threatened by the dam, to which Nason provided a commentary. These were not massively attended events; for example, there were 60 or 70 people present at the feast and about 50 hikers and horse riders on the sacred hike, but they included many of the most active leaders and exemplified the cooperation between Native American and environmental groups that had characterized opposition to the New Los Padres Dam. They were also important as an opportunity for Native Americans to share their traditional beliefs, which they saw as the solution not only to the issue of the dam, but also to the much larger scale problem of the sustainability of human society on an environmentally degrading planet. . . .

Discussion and Conclusions

In the November 8, 1995, election the measure approving funding for the dam was voted down by a margin of 57 percent to 43 percent. Gruber's assessment of the meaning of the election result was that it was a "referendum on growth" and that it indicated that people on the Monterey Peninsula valued "a relatively small and uncrowded civilization, with wild areas close by" (Gruber, 1995b, p. 5). The cost of the dam and its potential for increasing the monthly water bill was significant, and he also believed that concern for the Esselen sacred sites swayed voters against the dam. "People were concerned about racism, about running over the Indians once again" (D. Gruber, personal communication, February 16, 1996). However, whereas the Native American issues were certainly not the only or even the major issues that decided the vote, for many of the activists and leaders of the opposition movement, Native American beliefs and methods were important, particularly as symbolic resources that could be drawn on in constructing psychologically empowering cognitive frameworks that provide a counter to the dominant rationality of development and growth represented by the water district. . . . Gruber, as has been mentioned, thought it important to take people to the dam site. "If you can take a few key people up there, they can reconvey the meaning of the place" (D. Gruber, personal communication, February 16, 1996). This was not a strategy for reaching the mass of the electorate but for affecting the thinking and actions of key activists. Organized trips to the dam site involved Esselen-led prayer circles at the birthing rock in which Esselen representatives offered prayers to the four directions and purified participants with the smoke of burning sage. Such traditional ceremonies functioned as symbolic actions in the way Ingalsbee (1996) has described, operating as a micromobilization context defined by McClurg-Mueller (1992) as a "context in which face-to-face interaction is the social setting from which meanings, critical to the interpretation of collective identities, grievances, and opportunities are created, interpreted and transformed" (p. 2). Prayer circles at the birthing rock helped

construct its meaning as a highly valuable sacred place imbued with significance and memory and symbolically moved the birthing rock from a context (the dominant technocratic world-view) in which it could be merely seen as a source of crushed rock in the borrow area of the New Los Padres Dam. Native American actions frequently used symbolic means that conveyed the indigenist vision to participants. For example, on the November 4, 1995, sacred hike up the Carmel River, Nason asked participants (including Mapstead, Polomo Brennan—the CAWS activist—Sierra Club members, and other non-native supporters of the Esselen) to "make an offering of a piece of yourself, such as some hair from your head, to Mother Earth, especially at places that have been desecrated." These symbolic methods play a role in changing both personal and collective consciousness by providing an alternative cognitive framework to dominant discourses, in this case, the indigenist vision with its emphasis on relationship with, rather than domination of, nature. A more detailed understanding of the way Native American symbolic practices construct and transform meanings for participants, native and non-native, in environmental actions and their significance in mobilization efforts would certainly benefit from further empirical research. . . .

[. . .] The contention here is that Esselen actions that employed the indigenist vision played a very significant role, which is hard to quantify, in mobilizing activists against the New Los Padres Dam. Native American beliefs may not have been the most crucial factor for voters in the election, but they were certainly influential for key activists. . . .

[. . .] John Bellamy Foster (1994), in his economic history of environmental degradation, points out:

> We must begin by recognizing that the crisis of earth is not a crisis of nature but a crisis of society. The chief causes of environmental destruction . . . are social and historical, rooted in the productive relations, technological imperatives, and historically conditioned demographic trends that characterize the dominant system. (p. 12)

It follows that an end to environmental destruction comes with a transformation of society. Touraine (1981), often credited as an originator of new social movement theory, has asked "which social movement in post-industrial society will occupy the central role held by the workers' movement in industrial society?" (p. 95) and has suggested that the ecological movement "might easily provide the mould in which the main struggles that will later stir through history are to be formed" (p. 24). As Churchill (1993) points out, "indigenism stands in diametrical opposition to the totality of what might be termed 'Eurocentric business as usual'" (p. 407), and so provides a potent vision of a sustainable society based on a different value system. The role of this vision in contemporary coalitions between Native American and environmental groups opposing various

kinds of development projects could usefully be explored further, and it is hoped that this research constitutes a starting point. Such coalitions, because they simultaneously address issues of environmental depredation and racism, may well have the potential for fundamental social transformation.

Note

Moore, Mik. 1998. "Coalition Building between Native American and Environmental Organizations in Opposition to Development: The Case of the New Los Padres Dam Project." *Organization and Environment* 11, no. 3: 287–313.

References

Adler, P. A., & Adler, P. (1987). *Membership roles in field research.* Newbury Park, CA: Sage.

Berkman, R. L., & Viscusi, W. K. (1973). *Damming the West.* New York: Grossman.

Bowden, C. (1977). *Killing the hidden waters.* Austin: University of Texas Press.

Breschini, G. S., & Haversat, T. (1993). *An overview of the Esselen Indians of central Monterey County, California.* Salinas, CA: Coyote.

Bullard, R. D. (1990). *Dumping in Dixie: Race, class and environmental quality.* Boulder, CO: Westview.

Bullard, R. D. (1993). *Confronting environmental racism.* Boston: South End.

Churchill, W. (1993). *Struggle for the land: Indigenous resistance to genocide, ecocide and expropriation in contemporary North America.* Monroe, Maine: Common Courage.

Cicourel, A. (1964). *Method and measurement in sociology.* London: Macmillan.

Cone, T. (1994, July 14). Dam threatens smallest tribe's sacred places. *San Jose Mercury News*, pp. A 1, A 16, A 17.

Foster, J. B. (1994). *The vulnerable planet: A short economic history of the environment.* New York: Monthly Review Press.

Gamson, W. A. (1975). *The strategy of social protest.* Homewood, IL: Dorsey.

Gedicks, A. (1993). *The new resource wars: Native and environmental struggles against multinational corporations.* Boston: South End.

Gendron, R. (1996). Arts and craft: Implementing an arts-based development strategy in a "controlled growth" county. *Sociological Perspectives*, 39(4), 539–555.

Gottlieb, R. (1993). *Forcing the spring.* Covelo, CA: Island.

Gruber, D. (1995a, November). Dam yardstick. *The Ventana*, 34(8), p, 28.

Gruber, D. (1995b, December/January). We win one! *The Ventana*, 34(9), p. 5.

Habermas, J. (1981). New social movements. *Telos*, 49, 33–37.

Holstein, J. A., & Gubrium, J. R. (1994). Phenomenology, ethnomethodology and interpretive practice. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative social research* (pp. 262–268). Thousand Oaks, CA: Sage.

Ingalsbee, T. (1996). Earth First! activism: Ecological postmodern praxis in radical environmentalist identities. *Sociological Perspectives*, 39(2), 263–276.

Kroeber, A. L. (1925). *Handbook of the Indians of California: Bulletin 78.* Washington: Bureau of American Ethnology.

La Duke, W. (1996). Like tributaries to a river. *Sierra*, 81(6), 38–45.

Langner, M. (1995a, November). The dam. *The Ventana*, 34(8), pp. 4–5, 20.
Langner, M. (1995b, August/September). Voters to decide on "the dam." *The Ventana*, 34(6), p. 7, 22.
May, T. (1997). *Social research: Issues, methods and process.* Philadelphia: Open University Press.
McCarthy, J. D., & Zald, M. N. (1977). Resource mobilization and social movements: A partial theory. *American Journal of Sociology*, 82(6), 1212–1241.
McClurg-Mueller, C. (1992). Building social movement theory. In A. Morris & C. McClurg Mueller (Eds.), *Frontiers in social movement theory.* New Haven: Yale University Press.
McCully, P. (1996). *Silenced rivers: The ecology and politics of large dams.* London: Zed.
McCutcheon, S. (1991). *Electric rivers: The story of the James Bay Project.* Montreal: Black Rose.
Merton, R., & Kendall, P. (1946). The focused interview. *American Journal of Sociology*, 51, 541–557.
Mitteldorf, A. (1995, October). Dam it! Is that the solution? *The Ventana*, 34(7), p. 7.
Monterey County Herald. (1995, November 4). p. A9.
Monterey Peninsula Water Management District. (1994a). *Monterey Peninsula water supply project: Final EIRIEIS.* Monterey, CA: Author.
Monterey Peninsula Water Management District. (1994b). 404 *Permit Application.* Monterey, CA: Author.
Monterey Peninsula Water Management District. (1994c). *Comments on the Final EIRIEIS.* Monterey, CA: Author.
Pinderhughes, R. (1996). The impact of race on environmental quality: An empirical and theoretical discussion. *Sociological Perspectives*, 39(2), 231–248.
Redclift, M., & Woodgate, G. (1994). Sociology and the environment. In M. Redclift & T. Benton (Eds.), *Social theory and the global environment.* London: Routledge.
Reisner, M. (1993). *Cadillac desert: The American West and its disappearing water.* New York: Penguin.
Renzetti, C. M., & Lee, R. M. (1993). *Researching sensitive topics.* Newbury Park, CA: Sage.
Sierra Club. (1996). *Sierra*, 81(6).
Sklair, L. (1994). Global society and global environmental change. In M. Redclift & T. Benton (Eds.), *Social theory and the global environment* (pp. 205–221). London: Routledge.
Stern, H. (1994, April 21). MPWMD planner provides look at the new dam. *The Carmel Pine Cone*, p. 6.
Tarrow, S. (1992). Mentalities, political cultures, and collective action frames: Constructing meanings through action. In A. D. Morris & C. McClurg-Mueller (Eds.), *Frontiers in social movement theory* (pp. 175–188). New Haven: Yale University Press.
Taylor, B. (Ed.). (1995). *Ecological resistance movements: The global emergence of radical and popular environmentalism.* Albany, NY: SUNY.
Tilly, C. (1979). *From mobilization to revolution.* Reading, MA: Addison-Wesley.
Touraine, A. (1981). *The voice and the eye: An analysis of social movements.* New York: Cambridge University Press.

Touraine, A. (1988). *Return of the actor: Social theory in postindustrial society.* Minneapolis: University of Minnesota Press.

United Church of Christ Commission for Racial Justice. (1987). *Toxic wastes and race in the United States: A national report on the racial and socio-economic characteristics of communities with hazardous waste sites.* New York: United Church of Christ.

Van Maanen, J. (1988). *Tales of the field: On writing ethnography.* Chicago: University of Chicago Press.

Versluis, A. (1993). *The elements of Native American traditions.* Rockport, MA: Element.

Verhovek, S. H. (1992, January 12). Power struggle. *New York Times Magazine*, 20–23.

Whitt, J. A. (1987). Mozart in the metropolis: The arts coalition and the urban growth machine. *Urban Affairs Quarterly*, 23, 15–36.

Wolf, P. (1995, November 2). Dam supporters outspend opponents 2–1 in campaign. *The Carmel Pine Cone*, p. 5.

Woodward, T. (1998, January). The struggle to save Ward Valley. *RESIST Newsletter*, 6–7.

Worster, D. (1983). Water and the flow of power. *The Ecologist*, 13(5), 168–174.

21

"People Want to Protect Themselves a Little Bit"

Emotions, Denial, and Social Movement Nonparticipation

Kari Marie Norgaard

Citizen action is an important way to bring about change. As the Taylor and Moore pieces in this section illustrate, community activism and social movements have shaped many environment-related issues over the past century. In this selection, Kari Marie Norgaard looks at the failure of a community in Norway to take action on an important issue—global climate change. Norgaard asks why, given that Norway's weather (significantly, reduced snowfall) has already been measurably affected by climate change and given Norwegians' relatively high level of knowledge about this issue, do many Norwegians avoid participation in social action? Norgaard argues that part of the answer lies in the negative emotions—feelings of fear, guilt, helplessness, and so forth—that this issue elicits. Her case study documents how community members engage in collective avoiding of the topic because it makes them unhappy or uncomfortable. Collectively, they seek to distance themselves from the problem. While Norgaard focuses on climate change,

her argument may be useful in thinking about many different environment-related problems.

. . . Global climate change is arguably the single most significant environmental issue of our time. Scientific reports indicate that global warming will have widespread ecological consequences over the coming decades including changes in ecosystems, weather patterns, and sea level rise (IPCC 2001). Impacts on human society are predicted to be widespread and potentially catastrophic as water shortages, decreased agricultural productivity, extreme weather events, and the spread of diseases take their toll. Potential outcomes for Norway include increased seasonal flooding, decreased winter snows and the loss of the gulf stream that currently maintains moderate winter temperatures, thereby providing both fish and a livable climate to the northern region. In Norway public support for the environmental movement as well as public awareness of, and belief in, the phenomenon of global warming have been relatively high. In Bygdaby[1] the weather was noticeably warmer and drier than in the past. Yet, in spite of the fact that people were clearly aware of global warming as a phenomenon, everyday life went on as though global warming, and its associated risks, was not a possibility. Despite the apparent heaviness and seriousness of the issue, it was not discussed in the local newspaper, or the strategy meetings of local political, volunteer or environmental meetings I attended. Aside from casual comments about the weather, everyday life went on as though global warming, and its associated risks—did not exist. Instead, global warming was an abstract concept, that was not integrated into everyday life. Mothers listened to news of unusual flooding as they drove their children to school. Families watched evening news coverage of failing Hague climate talks followed by American made sit-coms. Few people even seemed to spend much time thinking about it. It did not appear to be a common topic of either political or private conversation. How did people manage to outwardly ignore such significant risks? Why did such seemingly serious problems draw so little response?

The people of Bygdaby are not unique. Despite the extreme seriousness of global warming, the pattern of meager public response in the way of social movement activity, behavioral changes or public pressure on governments exists worldwide.[2] Public apathy on global warming has been identified as a significant concern by environmental sociologists (e.g., Kempton et al. 1995, Dunlap 1998, Rosa 2001, Brechin 2003). Existing literature emphasizes the notion (either explicitly or implicitly) that information is the limiting factor in public non-response. Yet the people I met were generally well informed about global warming. They expressed concern frequently, yet this concern did not translate into action.

Over time I noticed that conversations about global warming were emotionally charged and punctuated with awkward pauses. The people I spent time with and interviewed raised a number of emotional concerns including fear of the future and guilt over their own actions. During an interview, Eirik described the complexity of the issue:

> We go on vacation and we go shopping, and my partner drives to work every day. And I drive often up here to my office myself. We feel that we must do it to make things work on a practical level, but we have a guilty conscience, a bit of a guilty conscience.

. . . It became further apparent that community members had a variety of tactics for normalizing these awkward moments and uncomfortable feelings—what Arlie Hochschild calls practices of emotion management (1979, 1983, 1990). This paper describes how the presence and management of unpleasant and troubling emotions associated with global warming worked to prevent social movement participation in this rural Norwegian community.

In Bygdaby the possibility of global warming was both deeply disturbing and almost completely invisible, simultaneously unimaginable and common knowledge. The people I spoke with *did* believe global warming was happening, expressed concern about it, yet lived their lives as though they did not know. . . .

Methods: An Ethnography of the Invisible

The observations in this paper are based on one year of field research including 46 interviews, media analysis, and eight months of participant observation. The people I spent time with lived in a rural community of about 14,000 inhabitants in western Norway. Because my research question concerned why people were *not* more actively engaged with the issue of global warming, gathering information required a number of strategies to minimize the tendency for people to begin talking about global warming because it was a topic they knew I found interesting. I kept the specific focus of my research vague, telling people that my work was on issues such as "political participation" and "how people think about global issues." . . . As a participant observer I attended to the kinds of things people talked about, how issues were framed, and especially noted topics that were not discussed. I watched regional television news and read the local and national newspapers. I paid particular attention to beliefs, emotions and cultures of talk with respect to global warming, i.e., whether it was discussed, if so how it came up, how people seemed to feel talking about it. . . . I interviewed as wide a variety of people as I could find. Those I interviewed ranged in age from 19 to early 70s. Respondents were from a variety of occupations, and from six of the nine active local political parties.[3] . . .

. . . I attempted to minimize the degree to which respondents felt a moral pressure to provide a particular answer by first listening to see whether global warming was volunteered as an issue. If global warming was not raised (as it often was not), I asked what people thought about the recent weather (which was widely described as abnormal), and followed with more specific questions such as when they first began thinking about global warming and whether they spoke about global warming with family or friends.[4]

Why Norway?

Despite the salience of my questions to the situation in all Western nations, a case study set in Norway is particularly useful. Anyone who begins to talk about movement non-participation, denial and political action in the U.S. immediately encounters a host of relevant questions: "Do people really know the information?" "Is global warming really happening? I thought it was still controversial." "Do people really have enough time and money to spare that we can consider it denial that they are not acting?" "People in the U.S. are apathetic in general, why would it be any different on this issue?" Each of these are valid questions that complicate an analysis like mine. Yet each of these factors is either absent or minimized in Norway: Norway has one of the highest levels of GDP of any nation and a fifty year history of welfare state policies that has redistributed this wealth amongst the people (UNDP 2004). In terms of political activity, Norwegians again are exemplary. High percentages of Norwegians vote and are active in local politics.[5] When it comes to information and knowledge, Norwegians are a highly educated public. Norway and Japan are tied for the highest level of newspaper readership in the world.[6] Furthermore, in contrast to the situation in the U.S. (Gelbspan 2004), Norwegian media did raise the issue of global warming in their coverage of the unusual weather, and described potential future weather scenarios and impacts. Although there were certainly skeptics about global warming in Bygdaby, such skepticism is much less than in the United States where large counter campaigns have been waged by industry (McCright and Dunlap 2000, 2003). Finally, Norwegians have been proud of their relationships to nature, environmentalism and leadership on global environmental issues including global warming (Eriksen 1993, 1996). If any nation can find the ability to respond to this problem, it must be in such a place as this, where the population is educated, cared for, politicized and environmentally engaged.

Research in Norway is also unique due to the particularly strong contradiction between professed values and the nation's political economy. In Norway there is strong identification with humanitarian values and a heightened concern for the environment (Reed and Rothenberg 1993). Yet as the world's sixth largest oil producer, Norway is one of the nations of the world that has benefited

most from oil production. The presence of high levels of wealth, political activity, education, idealism and environmental values together with a petroleum based economy made the contradiction between knowledge and action particularly visible in Norway.

"Bygdaby" was selected because its size allowed me access to a wide cross section of the community, and the fact that residents spoke a dialect I was able to understand. The presence of a nearby lake (that failed to freeze) and ski area (that opened late) were not conditions I selected for, but ones that nonetheless added to the visibility and salience of global warming for community members.[7]

The Winter of 2000–2001 in Bygdaby

Global warming was clearly salient for Norwegians on both the local and national levels during the time period of my research. A number of unusual weather events took place in the fall and winter that year. Most tangible was the very late snowfall and warmer winter temperatures in Bygdaby. Temperatures for the community as reported by the local newspaper showed that average temperature in the Bygdaby region on the whole was warmer than in the past.[8] In fact, as of January 2001 the winter of 2000 was recorded as the second warmest in the past 130 years. Additionally, snowfalls arrived some two months late (mid- to late January as opposed to November). As a result of these conditions, the ski area opened late, with both recreational and economic effects on the community, and the ice on the lake failed to freeze sufficiently to allow ice fishing, once a frequent activity. In fact, not only did the local ski season start late, the downhill ski area opened with 100% artificial snow—a completely unprecedented event.[9] A woman who was walking on the lake drowned when the ice cracked and she fell through, although this sort of accident could have happened in the spring of any year when the ice normally broke up.

The topic of global warming was also very visible in the media. In addition to weather events, a number of national and international political events brought global warming to Bygdabyingar's minds. In November, several thousand miles to the South, the nations of the world held climate meetings at the Hague. Both the King and Prime Minister mentioned global warming in their New Year's Day speeches. Three weeks later on January 22, 2001, the United Nations Intergovernmental Panel on Climate Change released a new report on climate. In March U.S. President George Bush declared that following the Kyoto Protocol was not in the economic interests of the United States and flatly rejected it. Each of these events received significant attention in the regional and national press. . . . Indeed I was continually impressed with the level of up to date information that people had regarding global warming. Here is an excerpt from a focus group that I conducted with five female students in their late teens the week after the climate talks at the Hague failed. Note that these young

women are aware of the failed talks, are familiar with (and critical of) the fact that Norway is required to decrease carbon dioxide emissions 5% by the year 2008, and that they feel that global warming is a real issue, observable in their immediate surroundings:

Kari: What have you heard about global warming?

Siri: I have heard about the conference, I became a bit afraid when they didn't reach agreement. . .

Trudi: Our Minister of Environment! In 2008 we will decrease our emissions by five percent (General laugher)

Mette: That will help!

Kari: And is it something that you feel is really happening, or . . . (Several speaking at once)

Mette: Now it is incredible, five degrees Celsius is, you know, really strange . . . mmm, Ja-

Siri : (Interrupting) There should be snow [now].

Trudi: It comes in much closer for us. It is here . . . You notice it. You know, its getting worse and worse . . . Last year there was snow at this time of year. And actually that is the way it should have been for quite some time now.[10]

. . .

A Series of Troubling Emotions

Although the sense that people fail to respond to global warming because they are too poorly informed (Read et al. 1994, Kempton et al. 1995, Dunlap 1998, Bord et al. 1998, Brechin 2003), too greedy or too individualistic, suffer from incorrect mental models (Bostrom et al. 1994) or faulty decision making processes (Halford and Sheehan 1991), underlies much of the research in environmental sociology, the people I spoke with expressed feelings of deep concern and caring and a significant degree of ambivalence about the issue of global warming. People in Bygdaby told me many reasons why it was difficult to think about this issue. In the words of one man, who held his hands in front of his eyes as he spoke, "people want to protect themselves a bit." Community members described fears associated with loss of ontological security, feelings of helplessness, guilt and the associated emotion of fear of "being a bad person" . . . .

Not only were these emotions unpleasant in themselves, the feelings that thinking about global warming raised went against local emotion norms. . . . Emotion norms in Bygdaby (and Norway generally) emphasized the importance of maintaining control (beholde kontroll) and toughness (å være tøff), and for young people, being cool (kult)—especially in public spaces. Adults, especially men and public figures, faced pressures to be knowledgeable and intelligent. In some settings, especially for educators, there was an emotion norm of maintaining optimism. Educators described balancing personal doubts and deep feelings of powerlessness with the task of sending a hopeful message to students. When I spoke with Arne, a teacher at the local agricultural school:

> I am unfortunately pessimistic. I just have to say it. But I'm not like that towards the students. *You know, I must be optimistic when I speak with the students.*

Note that Arne's use of the phrase "you know" highlights the sense that this reality, the need to be optimistic with students, is taken for granted, incontestable. . . .

Risk, Modern Life and Fears Regarding Ontological Security

> Automobile and plane crashes, toxic chemical spills and explosions, nuclear accidents, food contamination, genetic manipulation, the spread of AIDS, global climate change, ozone depletion, species extinction and the persistence of nuclear weapons arsenals: the list goes on. Risks abound and people are increasingly aware that no one is entirely safe from the hazards of modern living. Risk reminds us of our dependency, interdependency and vulnerability (Jaeger et al. 2001, 13).

One day in mid-December my husband and I, disappointed with the lack of snow in Bygdaby, decided to take the train a few hours away to a neighboring community. The temperature was about minus five and the sun was shining brightly on the bare fields surrounding our house as we loaded our skis into the taxi and headed down the road to the train. "Do you like to ski?" I asked our driver? "Oh yes, but I don't do much of that anymore," he replied. "When I was a kid we would have skis on from the first thing in the morning to the end of the day. There was so much more snow back then. When you think of how much has changed in my fifty years it is very scary."

Global warming threatens biological conditions, economic prospects and social structure (IPCC 2001). At the deepest level, large scale environmental problems such as global warming threaten people's sense of the continuity of

life, what Anthony Giddens calls ontological security (1984, 1991). What will Norwegian winters be like without snow? What will happen to farms in the community in the next generation? . . .

Feelings of Helplessness—"You have to focus on something you can do"

> I think that there are a lot of people who feel that no matter what I do I can't do anything about that anyway.

As Hege Marie, a student in her late teens described, a second emotion that the topic of global warming evoked was helplessness. The problem seemed so large and involved the cooperation of people in so many different countries. Governments were unable to reach agreement. Perhaps entire economic structures would have to change. Thus it is not surprising that rather than feeling that there was much that could be done, Liv, a woman in her late sixties, pronounced that, "we must take it as it comes," and Gurid told me, "you have to focus on something you can do or else you become completely hopeless."[11]

Fear of Guilt

Thinking about global warming was also difficult because it raised feelings of guilt. Members of the community told me they were aware of how their actions contributed to the problem and they felt guilty about it.

> So many times I have a guilty conscience because I know that I should do something, or do it less. But at the same time there is the social pressure. And I want for my children and for my wife to be able to experience the same positive things that are normal in their community of friends and in this society. It is very . . . I think it is a bit problematic. I feel that I could do more, but it would be at the expense of, it would create a more difficult relationship between me and my children or my partner. It really isn't easy.

Guilt was also connected to the sense of global warming as an issue of global inequity: Norwegian wealth and high standard of living are intimately tied to the production of oil. Given their high newspaper readership and level of knowledge about the rest of the world, community members were well aware of these circumstances. This understanding contrasted sharply with the deeply ingrained Norwegian values of equality and egalitarianism (Jonassen 1983, Kiel 1993), thus raising feelings of guilt.

Fear of "Being a Bad Person"—Identity: Self and National Images

Another source of concern that comes with awareness of global warming is the threat it implies for individual and national self concepts. . . .

Norwegian public self-image includes a strong self-identification of being environmentally aware and humanitarian (Eriksen 1993, 1996). Norwegians have been proud of their past international leadership on a number of environmental issues including global warming. Stereotypical characterization of Norwegians describes a simple, nature loving people who are concerned with equality and human rights (Eriksen 1993, 1996). Yet Norway has increased production of oil and gas threefold in the last ten years. Expansion of oil production in the 1990's contributed significantly to the already high standard of living, making Norway one of the countries in the world that has most benefited from fossil fuels. In 2001 Norway was the world's sixth largest oil producer and the world's second largest oil exporter after Saudi Arabia (MoPE 2002). Information about global warming—such as Norway's inability to reach Kyoto reduction quotas, increasing carbon dioxide emissions and government expansions of oil development—makes for an acute contradiction between the traditional Norwegian values and self-image and the present day economic situation in which high electricity use, increasing consumption and wealth from North Sea oil make Norway one of the larger per capita contributors to the problem of global warming. . . . For Norwegians, information on global warming not only contradicts their sense of being environmentally responsible. As a problem generated by wealthy nations for which people in poor nations disproportionately suffer, knowledge of global warming also challenges Bygdabyingar's sense of themselves as egalitarian and socially just. . . .

A Cultural Took Kit of Emotion Management Strategies

If the emotions of fear, guilt, hopelessness or "fear of being a bad person" worked against social change in Bygdaby, how might this have happened? In Bygdaby there were active, observable moments which, although fleeting, pointed to the role of emotions in the generation of non-participation as an active process—what Nina Eliasoph calls the *production* of apathy (1998). If what a person feels is different from what they want to or are supposed to feel they may engage in some level of *emotional management* (Hochschild 1979, 1983, 1990, Thoits 1996). While the act of modifying, suppressing or emphasizing an emotion is carried out by individuals, emotions are being managed to fit social expectations, which in turn often reproduce larger political and economic conditions. . . . In the case of global warming in Bygdaby, emotions that were uncomfortable to individuals were also uncomfortable because they violated norms of social interaction in the community. And at least some

of these emotion norms in turn normalized Norway's economic position as a significant producer of oil.

. . . In Bygdaby people managed the unpleasant emotions described in the previous section by avoiding thinking about them, by shifting attention to positive self-representations, and—especially in terms of the emotion of guilt—by framing them in ways that minimized their potency. When it came to the strategy of framing and of shifting attention to positive self-representations, community members had available a set of "stock" social narratives upon which to draw, many of which were generated by the national government and conveyed to the public through the media. . . .

Ann Swidler uses the metaphor of "tools in a tool kit" to describe the set of resources available to people in a given culture for solving problems (1986). Using this metaphor I will briefly describe how these culturally available strategies served as tools that were used to achieve selective attention and perspectival selectivity—and thereby to manage thinking in such a way as to manage emotions.

Selective Attention

Selective attention can be used to decide what to think about or not to think about, screening out for example painful information about problems for which one does not have solutions (e.g., "I don't really know what to do, so I just don't think about that"). Strategies of emotion management in the form of selective attention were primarily aimed at managing the emotions of fear and helplessness. Here I describe the techniques of controlling exposure to information, focusing on something you can do and not thinking too far into the future.

"We Can't Dig Ourselves into Depression, Right?": Controlling Exposure to Information

. . . Community members described feelings of uncertainty as being easily evoked by too much information, thus adhering to the emotion norms of maintaining optimism and control required managing exposure to information on global warming. Educators and activists in particular had to be careful not to become overwhelmed in order to continue their work:

> No, but you can't—you know I feel that in a way the philosophy of all this is happening so fast. *I do as much as I can,* and *we can't focus on what's painful.* We don't go in and have meetings and talk about how gruesome everything is. We talk about how it is and *can't dig ourselves down into depression, right?*

Another activist described how she reads very little of the details, that it is in fact "better not to know everything." People were aware that there was the potential that global warming would radically alter life within the next decades, and

when they thought about it they felt worried, yet they did not go about their days wondering what things would be like for their children, whether these could be the last years farming could take place in Bygdaby, or whether their grandchildren would be able to ski on real snow. They spent their days thinking about more local, manageable topics. Mari described how, "you have the knowledge, but you live in a completely different world." . . .

"I don't allow myself to think so far ahead"

> There is a lot of unrest in the country. There is a lot that is negative. Then I become like—yeah, pfff! But when someone has something that they are working on, in relation to that you are trying to influence—then its like, okay to be optimistic after all. But I think that this can just explode around us, and so it is well that *I don't allow myself to think so far ahead.*

The most effective way to manage unpleasant emotions was to turn your attention to something else, as Lise, a young mother describes in the above passage, or by focusing attention onto something positive, as she also describes. . . .

Focusing on Something You Can Do

Similar to the strategies of controlling exposure to unpleasant information and not thinking too far ahead was the strategy of focusing on something that you could do. . . . Peter, a local politician, describes how global warming is a theme that "everyone is interested in" but which does not receive attention on the local level because there "isn't so much that you can do."

> Yes, it is of course a theme that everyone is interested in, but locally it isn't discussed much because . . . well climate change, you know there isn't so much you can do with it on a local level, but of course everyone sees that something must be done . . .

Peter's comments are similar to the earlier passage with Lise who describes both the need for optimism and the underlying hopelessness that global warming raised.

Perspectival Selectivity

Unpleasant emotions of guilt and those associated with a "spoiled identity" could be managed through the cognitive strategy of perspectival selectivity. Perspectival selectivity, "refers to the angle of vision that one brings to bear on certain events" (Rosenberg 1991, 134). Euphemisms, technical jargon and word changing are used to dispute the meanings of events such as when military gen-

erals speak of "collateral damage" rather than the killing of citizens. Stanley Cohen writes, "Officials do not claim that 'nothing happened' but what happened is not what you think it is, not what it looks like, not what you call it" (2001: 7). Here I describe two "stock" social narratives that were frequently used to change the angle of vision one might bring to the facts about Norway's role in the problem of global warming.

"Amerika" as a Tension Point

Bygdabyingar knew an amazing number of facts about the U.S. References to the U.S. appeared in numerous conversations I participated in and overheard while in Bygdaby. I use the Norwegian spelling of the word to indicate that I am talking about a stereotypical Norwegian view of the U.S., what Steinar Bryn calls Mythic America (Bryn 1994). There are many stereotypical images of the U.S. in Norway, but to me what is most interesting is not the images themselves but how they were used.

Stories about "Amerika" were often told in strategic moments to deflect Norwegian responsibility and shortcomings and to support notions of Norwegian exceptionalism (we may not be the best, but we aren't anything as bad as they are). For example, in late April of 2001 U.S. President Bush made the infamous statement that he would not sign the Kyoto Protocol[12] on the grounds that it was, "not in the U.S. economic interests." Many Bygdabyingar took the opportunity to tell me of their criticism of this position. Bush's comment was widely repeated and discussed in the Norwegian press and in public commentary. Here the statement was used in a motivational speech by a local young woman on May 1, 2001:

> The Kyoto agreement is about cutting carbon dioxide emissions by 5 percent. And even that ridiculous pace was too much for the climate-hooligan George W. Bush in the United States. The head of the USA's environmental protection department said that "We have no interest in meeting the conditions of the agreement." Well, that may be so. But it is other countries that will be hit the hardest from climate change . . .

Yet despite widespread criticism of the United States for taking such a position, this is essentially the same move that the Norwegian government made in dropping national emissions targets, increasing oil development, taking a leading role in the development of the carbon trading schemes known as the Kyoto and Clean Development Mechanism and shifting the focus from a national to an international agenda (Hovden and Lindseth 2002). In this context, criticizing the poor climate record of the U.S. directs attention away from Norway's shifting behavior, sending the message that at home things are not that bad. . . .

"Norway Is a Little Land"

A second narrative, "Norway is a little land" deflected troubling information and emotions connected to Norway's role in global warming with the subtext that, "we are so few, it doesn't really matter what we do anyway." While it often conveyed a genuine sense of powerlessness, this discourse also worked to let people off the hook, creating the sense of "why bother." During a conversation about his opposition to Norway joining the European Union, Joar, a Bygdabyingar in his early 50s explained how this emphasis on Norway's size, while in some sense true, is also a strategic construction:

Kari: But what kind of a role do you think that Norway should take internationally?

Joar: *Well, we are of course a very small country, almost without meaning*, if you think economically we are completely uninteresting.

Kari: But Norway has lots of oil compared with other countries.

Joar: Yeah, yeah, okay. We are in fact almost at the level of Saudi Arabia. *But it [is] of course an advantage to be meaningless.* It doesn't really matter for us to argue, *they don't bother to get mad at us, because we are so meaningless.* And in that connection, we are a bit you know, peaceful, right. We have been involved in both the Middle East and . . . (here he refers to the Oslo Accords and his second example is not spoken, just given as a gesture of the hand for emphasis).

Note that as the conversation continues he uses Norway's small economy as the example of why it "is meaningless." When I asked him about Norway's oil, he suddenly "remembers" the fact that Norway is, after Saudi Arabia, the second largest oil exporter in the world. Then he explains the strategic advantage of being "meaningless," that other countries don't bother to get upset with Norway. At the end of the passage he adds to the construction of Norway as a nation not worth getting upset with by drawing on the sense of Norway as a "peaceful nation" (referring to the peace prize) and their involvement in the Oslo Accords. In being small, meaningless and peaceful, he is constructing in our conversation a sense of Norwegian innocence that is very prevalent.

The phrase "Norway is a little land" gives the sense that they are doing "their part" and turns blame back onto those who are "worse," especially the United States, as described earlier. It serves to imply that, "the problem isn't really us. We, in fact, are innocent."[13] . . .

Discussion: Emotions, Emotion Management and the "Production of Apathy"

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Non-response to the possibility of global warming may seem "natural" or "self-evident"—from a social movement or social problem perspective not all potential issues get translated into political action. Yet with a closer view we can understand non-response as a *social process*. Things *could have been* different. Community members could have written letters to the local paper articulating global warming as a political issue, they could have brought the issue up in one of the many public forums, made attempts to plan for the possibility of what the future weather scenarios might bring, put pressure on local and national leaders, decreased their automobile use, asked for national subsidies to cover the economic impacts of the warm winter, or engaged their neighbors, children, and political leaders in discussions about what climate change might mean for their community in the next ten and twenty years. Indeed in other parts of the world things *were* different. The severe flooding in England that fall was linked to global warming by at least some of the impacted residents. People from affected communities in England traveled to the climate talks at the Hague to protest. More recently, three cities in the United States have initiated a lawsuit against the federal government over global warming. Bygdabyingar could have made a similar move—rallied around the lack of snow and its economic and cultural impacts on some level, any level, be it local, national or international. But they did not.

Most of the emotions Bygdabyingar felt in conjunction with information on global warming: fear, guilt and concern over individual and collective identity could have motivated social action. Perhaps in some cases these emotions did generate actions, but they did not generate many. . . .

. . . [E]motions of fear and helplessness contradicted emotion norms of being optimistic and maintaining control. These emotions were particularly managed through the use of selective attention: controlling one's exposure to information, not thinking too far into the future and focusing on something that could be done. Although the range of emotion management techniques appeared to be used across the community, I found these strategies used with more frequency by educators, men and public figures. The emotion of guilt and the fear of being a bad person or desire to view oneself and the collective community in positive light contrasted not only with specific local emotion norms surrounding patriotism, but also the general social psychological need to view oneself in a positive light (i.e., manage identity). Guilt and identity were managed through the use of perspectival selectivity: by emphasizing Norway's small population size and that no matter what they did, Norwegians were not as bad as the "Amerikans."

Conclusion: Emotions, Denial and Social Movement Nonparticipation

Emotions can be a source of information (Hochschild 1983) and an impetus for social action (Jasper 1997, 1998, Polletta 1998), but my observations in Bygdaby suggest that the desire to avoid unpleasant emotions and the practice of emotion management can also work against social movement participation. Although not normally applied to environmental issues, research on the sociology of emotions is highly relevant to understanding community member's reactions to global warming. While current work in environmental sociology has emphasized the "information deficit model" (Buckeley 2000), my ethnographic and interview data from a rural Norwegian community do not support this interpretation. Instead this research indicates community members had sufficient information about the issue but avoided thinking about global warming at least in part because doing so raised fears of ontological security, emotions of helplessness and guilt and was a threat to individual and collective senses of identity. Rather than experience these unpleasant emotions, people used a number of strategies including emotion management to hold information about global warming at arm's length.

Emotions played a key role in denial, providing much of the reason why people preferred not to think about global warming. Furthermore, the management of unpleasant and "unacceptable" emotions was a central aspect of the process of denial, which in this community was carried out through the use of a cultural stock of strategies and social narratives that were employed to achieve selective attention and perspectival selectivity. Thus movement non-participation in response to the issue of global warming did not simply happen, but was actively produced as community members kept the issue of global warming at a distance via a cultural tool kit of emotion management techniques.

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Notes

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1. I have changed the names of all people and places. "Bygdaby" is a term used to describe the size of the community, a place somewhere between *bygd* (rural district) and *by* (a city).

2. While there is significant scientific consensus, we can not *prove* that global warming is happening, or that specific weather patterns are in fact global warming. Yet given the *seriousness* of predicted outcomes, it makes sense to ask, why is the public so apathetic?

3. With 21 parties nationally, the political spectrum in Norway is very broad. While I did not interview community members associated with every active party, the six par-

ties included were the largest and most significant (accounting for 37 of the 43 seats held in the county council) and reflect a wide range of the political spectrum.

4. Despite downplaying my interest in global warming, the possibility that people told me what they felt they should say is ever present. Nonetheless, between the use of general observations and downplaying my interest, I believe I was fairly successful in avoiding this situation.

5. Levels of political alienation in Norway are lower than in most other Western democratic nations. High levels of political activity in Bygdaby follow the larger national pattern of political engagement from voting to participation in local political parties, involvement with grassroots organization and in the streets protest. Voter turnout in the local election of 1999 was 60%. National voter turnout in Storting (National Parliament) elections was 78% in the 1997 election and has been around the 80% level since the 1970s. Bygdabyingar were actively engaged with issues from opposition to the European Union and racism to land zoning and the local labor market. There were also local volunteer organizations, involved in everything from human rights to opposition to the European Union. In addition to the formal political system, politics happened in the streets. During my eight-month stay in the community residents took to the streets with signs and songs to recognize Crystal Night, to picket over the closing of a local slaughterhouse and to march in a parade for the 1st of May.

6. Norway and Japan were tied for the highest level of newspaper readership in the world (*World Press Trends 2000*, World Association of Newspapers, Paris, France).

7. Although there are relatively strong rural-urban and regional differences within Norway, I expect readers familiar with other regions of the country will recognize the features of life I describe. National-level discourses, such as "Amerika as a tension point" and "Norway is a little land" are equally applicable nationwide, while emotion norms and management strategies connected to sense of place and traditional practices are likely more variable.

8. The average temperature in the Bygdaby region was 1.5 degrees Celsius warmer than the 30-year average.

9. When the resort did open on December 26th it was with a single run of 100% artificial snow. No snow had fallen naturally. Skiers found themselves on a tiny corridor of "snow" between exposed rocks and trees. That year the resort owner invested $1.8 million U.S. in snow making equipment and another $170,000 U.S. on electricity and labor to create the artificial snow. The process required the installation of about 4.5 miles of water lines in order to pump water some 1,500 feet up the mountainside! It took people working around the clock for 14 days to produce snow for the one ski run.

10. This interview was on the 28th of November. Bygdaby did not get snow until mid-January.

11. Given that global warming exists whether or not people pay attention to it, this reaction is actually a fear of *experiencing* powerlessness. Social psychologists describe perception as influenced by the needs people have to feel good about themselves and to feel that they can affect the world around them.

12. The Kyoto Protocol to the United Nations Framework Convention on Climate Change.

13. Both the narratives about "Amerika" and "Norway is a little land" clearly hold truth. The United States has refused to sign the Kyoto protocol and used its political

power to thwart carbon dioxide emission reductions. And given the size and complexity of global warming, what Norwegians do or don't do may be relatively insignificant. While their plausibility lends to the effectiveness of these tools, it does not change the fact that such narratives are used in a strategic manner for the negotiation of information and the management of guilt.

References

Bostrom, Ann, M. Granger Morgan, Baruch Fischoff, and Daniel Read. 1994. "What Do People Know About Global Climate Change? I: Mental Models" *Risk Analysis* 14(6): 959–970.

Bord, Richard, Ann Fisher, and Robert O'Connor. 1998. "Public Perceptions of Global Warming: United States and International Perspectives." *Climate Research* 11(1):75–84.

Brechin, Steven. 2003. "Comparative Public Opinion and Knowledge on Global Climatic Change and the Kyoto Protocol: The U.S. versus the World?" *International Journal of Sociology and Social Policy* 23(10): 106–134.

Bryn, Steinar. 1994. *The Americanization of Norwegian Culture*. Doctoral Dissertation, Department of Philosophy, University of Minnesota.

Buckeley, Harriet. 2000. "Common Knowledge? Public Understanding of Climate Change in Newcastle, Australia." *Public Understanding of Science* 9: 313–333.

Cohen, Stanley. 2001. *States of Denial: Knowing About Atrocities and Suffering*. Polity Press, 2001.

Dunlap, Riley. 1998. "Lay Perceptions of Global Risk: Public Views of Global Warming in Cross National Context." *International Sociology* 13(4): 473–498.

Eliasoph, Nina. 1998. *Avoiding Politics: How Americans Produce Apathy in Everyday Life*. Cambridge: Cambridge University Press.

Eriksen, Thomas Hylland. 1993. "Being Norwegian in a Shrinking World." Pp. 11–38 in Anne Cohel Kiel (ed.), *Continuity and Change: Aspects of Contemporary Norway*. Oslo: Scandinavia University Press.

———. 1996. *Norwegians and Nature*. From Official Government website. Retrieved May 10, 2006. www.dep.no/odin/english/p30008168/history/032005-990490/dok-bu.html.

Gelbspan, Ross. 2004. *How Politicians, Big Oil and Coal, Journalists, and Activists Are Fueling the Climate Crisis—And What We Can Do to Avert Disaster*. Basic Books.

Giddens, Anthony. 1991. *Modernity and Self Identity: Self and Society in the Late Modern Age*. Cambridge: Polity Press.

———. 1984. *The Constitution of Society*. Cambridge: Polity Press.

Halford, Grame, and Peter Sheehan 1991. "Human Responses to Environmental Changes." *International Journal of Psychology* 269(5): 599–611.

Hochschild, Arlie 1990. "Ideology and Emotion Management: A Perspective and Path for Future Research." Pp. 108–203 in Kemper, T. D. (ed.), *Research Agendas in the Sociology of Emotions*. Albany: State University of New York Press.

———. 1983. *The Managed Heart: The Commercialization of Human Feeling*. University of California Press.

———. 1979. "Emotion Work, Feeling Rules and Social Structure." *American Journal of Sociology* 85: 551–575.

Hovden, Eivind, and Gard Lindseth. 2002. "Norwegian Climate Policy 1989–2002." Pp. 143–168 in William Lafferty, Morton Nordskog, and Hilde Annette Aakre (eds.), *Realizing Rio in Norway: Evaluative Studies of Sustainable Development.* University of Oslo.

IPCC (Intergovernmental Panel on Climate Change). 2001. *Climate Change 2001: Synthesis Report.* Cambridge: Cambridge University Press for the IPCC.

Jaeger, Carlo, Ortwin Renn, Eugene Rosa, and Thomas Webler. 2001. *Risk, Uncertainty and Rational Action.* London: Earthscan.

Jasper, James M. 1998. "The Emotions of Protest: Affective and Reactive Emotions in and Around Social Movements." *Sociological Forum* 13(3): 397–424.

———. 1997. *The Art of Moral Protest.* University of Chicago Press.

Jonassen, C. 1983. *Value Systems and Personality in a Western Civilization: Norwegians in Europe and America.* Columbus: Ohio State University Press.

Kempton, Willet, James S. Bister, and Jennifer A. Hartley. 1995. *Environmental Values in American Culture.* Cambridge, Mass: MIT Press.

Kiel, Anne Cohel. 1993. *Continuity and Change: Aspects of Contemporary Norway.* Oslo: Scandinavia University Press.

McCright, Aaron M., and Riley E. Dunlap. 2003. "Defeating Kyoto: The Conservative Movement's Impact on U.S. Climate Change Policy." *Social Problems* 50(3): 348–373.

———. 2000. "Challenging Global Warming as a Social Problem: An Analysis of the Conservative Movement's Counter-Claims." *Social Problems* 47 (4):499–522.

MoPE (Norwegian Ministry of Petroleum and Energy). 2002. *Environment 2002: The Norwegian Petroleum Sector Fact Sheet* Oslo. Oilje og energidepartmentet.

Polletta, Francesca. 1998. "It Was Like a Fever . . . Narrative and Identity in Collective Action." *Social Problems* 45: 137–159.

Read, Daniel, Ann Bostrom, M. Granger Morgan, Baruch Fischoff, and Tom Smuts. 1994. "What Do People Know About Global Climate Change? II Survey Studies of Educated Lay People." *Risk Analysis* 14: 971–982.

Reed, Peter, and David Rothenberg. 1993. *Wisdom in the Open Air: The Norwegian Roots of Deep Ecology.* Minneapolis: University of Minnesota Press.

Rosa, Eugene. 2001. "Global Climate Change: Background and Sociological Contributions." *Society and Natural Resources* (14)6: 491–499.

Rosenberg, Morris. 1991. "Self-processes and Emotional Experiences." Pp. 123–142 in Judith Howard and Peter Callero (eds.), *The Self-Society Dynamic: Cognition, Emotion and Action.* Cambridge University Press.

Swidler, Anne. 1986. "Culture in Action." *American Sociological Review.* 51: 273–286.

Thoits, Peggy. 1989. "The Sociology of Emotions." *Annual Review of Sociology* 15: 317–342.

———. 1996. "Managing the Emotions of Others." *Symbolic Interaction* 19: 85–109.

United Nations Development Programme (UNDP). *United Nations Human Development Report 2004: Cultural Liberty in Today's Diverse World.* Data on Norway. Retrieved May 10, 2006. hdr.undp.org/reports/global/2004/.

PART

Thinking about Change/ Working for Change

Individualization

Plant a Tree, Buy a Bike, Save the World?

Michael Maniates

The excerpts in the previous section addressed one important mechanism of change, namely, social movement activism. This final section of our reader consists of five pieces that present a variety of ways of thinking about and accomplishing social change, from individual-level action to more coordinated efforts at the regional, national, and global levels. In this first selection, Michael Maniates, a political scientist, argues that U.S. environmentalism has become increasingly limited by a model focusing on individual action, where people act mainly as consumers rather than as citizens working to change social and political structures. Maniates points out, as one example, that encouraging consumers to choose more efficient cars deflects attention away from the reality that the structure of the transportation system (based on the needs of the automobile) is inherently polluting, resource inefficient, and destructive. Sustainability requires a much deeper level of change in which citizens are offered a true choice between automobile travel and mass transit. This type of progress is only possible with collective action that demands, for instance, that mass transit systems be awarded the same level of government support and subsidy that is presently showered on the automotive industry. Maniates concludes by suggesting that we break out of the individualist approach and search for ways we might foster genuine sustainability by working together to create institutional level, systemic change.

> "But now," says the Once-ler, "now that you're here, the word of the Lorax seems perfectly clear. UNLESS someone like you cares a whole awful lot, nothing is going to get better. It's not. SO . . . catch?" calls the Once-ler. He lets something fall. "It's a Truffula seed. It's the last one of all! You're in charge of the last of the Truffula seeds. And Truffula Trees are what everyone needs. Plant a new Truffula. Treat it with care. Give it clean water. And feed it fresh air. Grow a forest. Protect it from axes that hack. Then the Lorax and all of his friends may come back."
>
> —Dr. Seuss[1]

> Most people are eagerly groping for some medium, some way in which they can bridge the gap between their morals and their practices.
>
> —Saul Alinsky[2]

One of the most successful modern-day children's stories is *The Lorax*, Dr. Seuss's tale of a shortsighted and voracious industrialist who clear cuts vast tracks of Truffula trees to produce "Thneeds" for unquenchable consumer markets. The Lorax, who "speaks for the trees" and the many animals who make the Truffula forest their home, politely but persistently challenges the industrialist, a Mr. Once-ler, by pointing out again and again the terrible toll his business practices are taking on the natural landscape. The Once-ler remains largely deaf to the Lorax's protestations. "I'm just meeting consumer demand," says the Once-ler, "if I didn't, someone else would." When, finally, the last Truffula tree is cut and the landscape is reduced to rubble, the Once-ler—now out of business and apparently penniless—realizes the error of his ways. Years later, holed up in the ruins of his factory amidst a desolate landscape, he recounts his foolishness to a passing boy and charges him with replanting the forest.

The Lorax is fabulously popular. Most of the college students with whom I work—and not just the ones who consider themselves environmentalists—know it well and speak of it fondly. My children read it in school. The 30-minute animated version of the book often finds its way onto television. The tale has become a beloved organizing touchstone for environmentalists. In years past, for example, the EcoHouse on my campus has aired it as part of its Earth Day observations, as did the local television station. A casual search through the standard library databases reveals over 80 essays or articles in the past decade that bear on or draw from the book. A more determined search of popular newspapers and magazines would undoubtedly reveal additional examples of shared affection for the story.

All this for a tale that is, well, both dismal and depressing. The Once-ler is a stereotypical rapacious businessman. He succeeds in enriching himself by laying ruin to the landscape. The Lorax fails miserably in his efforts to challenge the interlocking processes of industrial capitalism and consumerism that turn his Eden into a wasteland. The animals of the story are forced to flee to uncertain futures. At the end of the day the Lorax's only satisfaction is the privilege of being able to say "I told you so," but this—and the Once-ler's slide into poverty—has to be small consolation. The conclusion sees a small boy with no evident training in forestry or community organizing entrusted with the last seed of a critical species. He's told to "plant a new Truffula. Treat it with care. Give it clean water. And feed it fresh air. Grow a forest. Protect it from axes that hack. Then the Lorax and all of his friends may come back." His chances of success are by no means high.

So why the amazing popularity of *The Lorax*? Why do so many deem it "the environmental book for children"—and, seemingly, for grown-ups too—"by which all others must be judged?"[3] One reason is its overarching message of environmental stewardship and faith in the restorative powers of the young. The book recounts a foolish tragedy that can be reversed only by a new and, one hopes, more enlightened generation. Surely another reason is the comfortable way the book (easily trivialized by adults as children's literature) permits us to look squarely at a set of profoundly uncomfortable dynamics we know to be operating but find difficult to confront—consumerism, the concentration of economic power, the mindless degradation of the environment, the seeming inability of science (represented by the fact-spouting Lorax himself) and objective fact to slow the damage. The systematic undermining of environmental systems fundamental to human well-being is scary stuff, though no more so than one's own sense of personal impotence in the face of such destruction. Seuss's clever rhyming schemes and engaging illustrations, wrapped around the twentieth-century tale of economic expansion and environmental degradation, provide safe passage through a topic we know is out there but would rather avoid.

There is another reason, though, why the book is so loved. By ending with the charge to plant a tree, *The Lorax* echoes and amplifies an increasingly dominant, largely American response to the contemporary environmental crisis. This response half-consciously understands environmental degradation as the product of individual shortcomings (the Once-ler's greed, for example), best countered by action that is staunchly individual and typically consumer based (buy a tree and plant it!). It embraces the notion that knotty issues of consumption, consumerism, power, and responsibility can be resolved neatly and cleanly through enlightened, uncoordinated consumer choice. Education is a critical ingredient in this view—smart consumers will make choices, it is thought, with the larger public good in mind. Accordingly, this dominant response emphasizes (like the Lorax himself) the need to speak politely, and individually, armed only with facts.

For the lack of a better term, call this response the *individualization of responsibility*. When responsibility for environmental problems is individualized, there is little room to ponder institutions, the nature and exercise of political power, or ways of collectively changing the distribution of power and influence in society—to, in other words, "think institutionally," as UC Berkeley sociologist Robert Bellah says.[4] Instead, the serious work of confronting the threatening socioenvironmental processes that *The Lorax* so ably illuminates falls to individuals, acting alone, usually as consumers. We are individualizing responsibility when we agonize over the "paper-or-plastic" choice at the checkout counter, knowing somehow that neither is right given larger institutions and social structures. We think aloud with the neighbor over the back fence about whether we should buy the new Honda or Toyota hybrid-engine automobile now or wait a few years until they work the kinks out. What we really wish for, though, is clean, efficient, and effective public transportation of the sort we read about in science fiction novels when we were young—but we cannot vote for it with our consumer dollars since, for reasons rooted in power and politics, it is not for sale. So we ponder the "energy stickers" on the ultraefficient appliances at Sears, we diligently compost our kitchen waste, we try to ignore the high initial cost and buy a few compact-fluorescent lightbulbs. We read spirited reports in the *New York Times Magazine* on the pros and cons of recycling while sipping our coffee,[5] carefully study the merits of this and that environmental group so as to properly decide on the destination of our small annual donation, and meticulously sort our recyclables. And now an increasing number of us are confronted by opportunistic green-power providers who urge us to "save the planet" by buying their "green electricity"—while doing little to actually increase the quantity of electricity generated from renewable resources.[6]

The Lorax is not why the individualization of responsibility dominates the contours of contemporary American environmentalism. Several forces, described later in this chapter, are to blame. They include the historical baggage of mainstream environmentalism, the core tenets of liberalism, the dynamic ability of capitalism to commodify dissent, and the relatively recent rise of global environmental threats to human prosperity. Seuss's book simply has been swept up and adopted by these forces. Were he alive, Seuss would probably be surprised by the near deification of his little book. And his central character, a Lorax who politely sought to hold a corporate CEO accountable, surely would be appalled that his story is being used to justify individual acts of planting trees as the primary response to the threat of global climate change.[7]

Mark Dowie, a journalist and sometimes historian of the American environmental movement, writes about our "environmental imagination," by which he means our collective ability to imagine and pursue a variety of productive responses (from individual action to community organization to whole-scale institutional change) to the environmental problems before us.[8] My claim in this chap-

ter is that an accelerating individualization of responsibility in the United States is narrowing, in dangerous ways, our "environmental imagination" and undermining our capacity to react effectively to environmental threats to human well-being. Those troubled by overconsumption, consumerism, and commodification should not and cannot ignore this narrowing. Confronting the consumption problem demands, after all, the sort of institutional thinking that the individualization of responsibility patently undermines. It calls too for individuals to understand themselves as citizens in a participatory democracy first, working together to change broader polity, and larger social institutions, and as consumers second. By contrast, the individualization of responsibility, because it characterizes environmental problems as the consequence of destructive consumer choice, asks that individuals imagine themselves as consumers first and citizens second. Grappling with the consumption problem, moreover, means engaging in conversation both broad and deep about consumerism and frugality and ways of fostering the capacity for restraint. But when responsibility for environmental ills is individualized, space for such conversation becomes constricted. The individually responsible consumer is encouraged to purchase a vast array of "green" or "ecofriendly" products on the premise that the more such products are purchased and consumed, the healthier the planet's ecological processes will become. "Living lightly on the planet" and "reducing your environmental impact" becomes, paradoxically, a consumer-product growth industry.[9]

Skeptics may reasonably question if the individualization of responsibility is so omnipresent as to warrant such concern. As the next section of this chapter shows, it is: the depoliticization of environmental degradation is in full swing across a variety of fronts and shows little sign of abating. The chapter continues with a review of the forces driving this individualization; in particular, it implicates the rise of global environmental problems and the construction of an individualized politics around them. How might these forces be countered? How can the politics of individualization be transcended? How might our environmental imagination be expanded? I wrestle with these questions in the final section of this chapter by focusing on the IPAT formula—a dominant conceptual lens within the field of environmental policy and politics, which argues that environmental impact = population x affluence x technology.

A Dangerous Narrowing?

A few years back Peter Montague, editor of the Internet-distributed *Rachel's Environmental and Health Weekly*, took the Environmental Defense Fund (EDF)[10] to task for its annual calendar, which this powerful and effective organization widely distributes to its more than 300,000 members and many nonmembers too. What drew Montague's ire was the final page of EDFs 1996 calendar, which details a ten-point program to "save the Earth" (EDF's phrase):

1. Visit and help support our national parks
2. Recycle newspapers, glass, plastic, and aluminum
3. Conserve energy and use energy-efficient lighting
4. Keep tires properly inflated to improve gas mileage and extend tire life
5. Plant trees
6. Organize a Christmas tree recycling program in your community
7. Find an alternative to chemical pesticides for your lawn
8. Purchase only brands of tuna marked "dolphin-safe"
9. Organize a community group to clean up a local stream, highway, park, or beach
10. Become a member of EDF.

Montague's reaction was terse and pointed:

> What I notice here is the complete absence of any ideas commensurate with the size and nature of the problems faced by the world's environment. I'm not against recycling Christmas trees—if you MUST have one—but who can believe that recycling Christmas trees—or supporting EDF as it works overtime to amend and re-amend the Clean Air Act—is part of any serious effort to "save the Earth?" I am forced to conclude once again that the mainstream environmental movement in the U.S. has run out of ideas and has no worthy vision.[11]

Shortly after reading Montague's disturbing and, for me, surprising rejection of ten sensible measures to protect the environment (many of which I myself practice), I walked into an introductory course on environmental problems that I often team-teach with colleagues in the environmental science department. The course, like many taught at the undergraduate level, strives to integrate the natural and social sciences, challenging students to consider not only the physical cause-and-effect relationships that manifest themselves as environmental degradation, but also to think critically about the struggles for power and influence that underlie most environmental problems. That day, near the end of a very productive semester, my colleague divided the class of about 45 students into smaller "issue groups" (energy, water, agriculture, and so on) and asked each group to develop a rank-order list of "responses" or "solutions" to environmental threats specific to that issue. He then brought the class back together, had each group report in, and tabulated their varied "solutions." From this group of 45, the fourth most recommended solution to mounting environmental degradation was to ride a bike rather than drive a car. Number 3 on the list was to recycle. The second most preferred action was "plant a tree," and the top response was, again, "plant a tree" (the mechanics of tabulating student

preference across the issue groups permitted a singularly strong preference to occupy two slots).

When we asked our students—who were among the brightest and best prepared of the many we had worked with over the years—why, after 13 weeks of intensive study of environmental problems, they were so reluctant to consider as "solutions" broader changes in policy and institutions, they shrugged. Sure, we remember studying these kinds of approaches in class, they said, but such measures were, well, fuzzy, mysterious, messy, and "idealistic."[12]

The end of the day came soon enough and I began my walk home, a pleasant half-mile stroll. The next day was "garbage day" and my neighbors were dutifully placing their recyclables, carefully washed and sorted, on the curbside. I waved hello and we chatted about the weird weather and all that talk about "global climate change." I made my way through my own front door to find my daughters camped out in front of the television, absorbed in a rare predinner video. The evening's selection, a gift from a doting aunt, was from the popular "Wee Sing" series. Entitled Under the Sea, the production chronicles the adventures of a small boy and his grandmother as they interact with a variety of sea creatures on the ocean floor. Dramatic tension is provided by the mysterious sickness of Ottie, a baby otter meant to tug at the heartstrings of all but the most jaded viewers. The story's climax comes when the entire cast discovers a large pile of garbage on the coral reef, a favorite playground of Ottie, and then engages in a group clean-up of the site while singing a song extolling the virtues of recycling and condemning the lazy, shortsighted tendencies of "those humans."[13] My daughters were enthralled by the video: its message about the need to take personal responsibility for the environment resonated clearly with all that they were then learning about the environment, in preschool and kindergarten respectively.

As I reflect now on these past events, I wonder if they are getting the wrong message, ubiquitous as it has become. Consider the following:

- Despite repeated and often highly public criticism of the "10 simple things to save the planet" focus of its calendars, the EDF pushes forward undaunted. Its 2000–2001 calendar again offers "10 tips to help our planet," which again revolve around individual consumer action: recycle, use energy-efficient lighting, avoid the purchase of products that come from endangered species.
- A colleague recently received a small box in the mail with an attached sticker that read "Environmental Solutions—Not Just Problems." Inside was a peat pot filled with soil in which was growing a pine-tree seedling, together with a piece of paper about 2 inches square that said "Rather than sensationalize the problems in our world, Environmental Science provides your students with the tools to develop their own opinions and

focus on solutions. Keeping with this theme, you and your students can decide where to best plant the enclosed seedling and watch it grow throughout the year." The package was a promotion for one of the most widely used undergraduate environmental-science textbooks.

- These days, my students argue that the best way to reverse environmental degradation is to educate children now in school. When pressed, they explain that only a sea change in the choices individual consumers are making will staunch the ecological bleeding we are now facing—and it is too late to make much of a dent in the consumer preferences of young adults like themselves.
- The biggest environmental issue to hit our community in the last decade has been the threatened demise, for lack of funding, of "drop-off" centers for recycled products. Primary-school students have distributed their artwork around the theme of "Save the Planet—Recycle" (presumably with their teachers' encouragement). Letters to the editor speak gravely of myriad assaults on the planet and the importance of "buying green" and recycling if we are to stop the destruction. And this is not a phenomenon limited to small-town America, a friend visiting Harvard University recently forwarded a flyer, posted over one of the student copy machines, with a line drawing of planet earth and the slogan "Recycle and Do Your Part to Save the Planet." Recycling is a prime example of the individualization of responsibility.
- Despite the criticism by some academics of the mega-hit *50 Simple Things You Can Do to Save the Earth* (a small book outlining 50 "easy" lifestyle changes in service of sustainability), publications sounding the same theme proliferate.[14]
- My daughters (now in first and fourth grade), like so many children their age, remain alert to environmental issues. A favorite book of the younger one is *The Berenstein Bears Don't Pollute*, which speaks to the need to recycle and consume environmentally friendly products. The older one has been drawn to computer games, books, and movies (e.g., *Free Willy*) that pin the blame for degraded habitat, the loss of bio-diversity, and the spread of environmental toxins on Once-ler-like failings (shortsightedness, greed, materialism) of humans in general.

In our struggle to bridge the gap between our morals and our practices, we stay busy—but busy doing what we are most familiar and comfortable with: consuming our way (we hope) to a better America and a better world. When confronted by environmental ills—ills many confess to caring deeply about—Americans seem capable of understanding themselves almost solely as consumers who must buy "environmentally sound" products (and then recycle them), rather than as citizens who might come together and develop political

clout sufficient to alter institutional arrangements that drive a pervasive consumerism.[15] The relentless ability of contemporary capitalism to commodify dissent and sell it back to dissenters is surely one explanation for the elevation of consumer over citizen.[16] But another factor, no doubt, is the growing suspicion of and unfamiliarity with processes of citizen-based political action among masses of North Americans. The interplay of state and market after World War II has whittled the obligations of citizenship down to the singular and highly individualized act of voting in important elections. The increasing fragmentation and mobility of everyday life undermines our sense of neighborhood and community, separating us from the small arenas in which we might practice and refine our abilities as citizens. We build shopping malls but let community playgrounds deteriorate and migrate to sales but ignore school-board meetings. Modern-day advances in entertainment and communication increasingly find us sitting alone in front of a screen, making it all seem fine. We do our political bit in the election booth, then get back to "normal."[17]

Given our deepening alienation from traditional understandings of active citizenship, together with the growing allure of consumption-as-social-action, it is little wonder that at a time when our capacity to imagine an array of ways to build a just and ecologically resilient future must expand, it is in fact narrowing. At a moment when we should be vigorously exploring multiple paths to sustainability, we are obsessing over the cobblestones of but one path. This collective obsessing over an array of "green consumption" choices and opportunities to recycle is noisy and vigorous, and thus comes to resemble the foundations of meaningful social action. But it is not, not in any real and lasting way that might alter institutional arrangements and make possible radically new ways of living that seem required.

Environmentalism and the Flight from Politics

The individualization of responsibility for environmental ills and the piecemeal, counterproductive actions it produces have not gone unnoticed by analysts of contemporary environmental politics. Over a decade ago, for example, social ecologist Murray Bookchin vigorously argued that:

> It is inaccurate and unfair to coerce people into believing that they are personally responsible for present-day ecological disasters because they consume too much or proliferate too readily. This privatization of the environmental crisis, like the New Age cults that focus on personal problems rather than on social dislocations, has reduced many environmental movements to utter ineffectiveness and threatens to diminish their credibility with the public. If "simple living" and militant recycling are the main solutions to the environmental crisis, the crisis will certainly continue and intensify.[18]

More recently, Paul Hawken, the cofounder of the environmentally conscious Smith and Hawken garden-supply company and widely published analyst of "ecocommerce," confessed that

> it [is] clear to me . . . that there [is] no way to "there" from here, that all companies are essentially proscribed from becoming ecologically sound, and that awards to institutions that had ventured to the environmental margins only underlined the fact that commerce and sustainability were antithetical by design, not by intention. Management is being told that if it wakes up and genuflects, pronouncing its amendes honorable, substituting paper for polystyrene, we will be on the path to an environmentally sound world. *Nothing could be farther from the truth. The problem isn't with half measures, but the illusion they foster that subtle course corrections can guide us to the good life that will include a "conserved nature" and cozy shopping malls.*[19]

Bookchin and Hawken are reacting, in large measure, to a 1980s transformation in how Americans understand and attack environmental problems. The 1980s was a decade in which reenergized, politically conservative forces in the United States promoted the rhetoric of returning power and responsibility to the individual, while simultaneously curtailing the role of government in an economy that was increasingly characterized as innately self-regulating and efficient. Within this context, responsibility for creating and fixing environmental problems was radically reassigned, from government, corporations, and the environmentally shortsighted policies they were thought to have together fostered, to individual consumers and their decisions in the marketplace.

This shift was altogether consistent with then-President Reagan's doctrine of personal responsibility, corporate initiative, and limited government.[20] The new conventional wisdom rejected environmental regulations that would coerce the powerful to behave responsibly toward the environment and slap them hard if they did not. Instead, an alternative environmental politics of "win-win," zero-coercion scenarios flourished, in which a technological innovation here or an innocuous change in policy there would, it was argued, produce real reductions in environmental degradation and higher corporate profits. This "win-win" approach continues to dominate American environmental politics, and a vast range of environmentally friendly, economically attractive technologies, from compact fluorescent lights to ultra fuel-efficient automobiles, are showcased as political-economic means toward a conflict-free transition to a future that works. These kinds of technologies make environmental sense, to be sure, and they typically make economic sense as well, once one accounts for the full range of costs and benefits involved. However, they often fail to make "political sense,"

insofar as their wide diffusion would drive a redistribution of political or economic power.

As cleaner and leaner (i.e., more efficient) technologies surfaced in the 1980s as the solution to pressing environmental ills, responsibility for the environmental crisis necessarily became increasingly individualized. The new technologies, it was thought, would take root and flourish only if consumers purchased them directly or sought out products produced by them. A theory of social change that embraced the image of consumers voting with their pocketbook soon took root. Almost overnight, the burden for fundamental change in American patterns of consumption and production shifted from government (which was to be trimmed) and corporations (which were cast as victims of government meddling and willing servants to consumer sovereignty— . . .), onto the backs of individual consumers.

Scholars of environmentalism, however, caution us against too enthusiastically fixing blame for the individualization of responsibility on the Reagan years. Tendencies toward individualization run deep in American environmentalism; Ronald Reagan merely was adept at tapping into them. Some analysts, for instance, note that mainstream environmentalism has technocratic, managerial roots and thus has always been a polite movement more interested in fine-tuning industrial society than in challenging its core tenets.[21] Environmentalism's essential brand of social change—that which can be had by tinkering at the margins and not hurting anyone's feelings—makes it a movement that tends naturally toward easy, personalized "solutions."

Others pin the blame for the individualization of responsibility on the bureaucratic calcification of mainstream, "inside-the-Beltway" environmental groups.[22] Buffeted by backlash in the 1980s, laboring hard to fend off challenges to existing environmental regulations in the 1990s, and unsure about how to react to widespread voter apathy in the 2000s, mainstream environmental groups in the United States have consolidated and "hunkered down." To survive as nonprofit organizations without government financing (as is common in other countries), these U.S. NGOs have had to avoid any costly confrontation with real power while simultaneously appearing to the public as if they are vigorously attacking environmental ills. The result: 10 easy steps to save the planet of the sort proffered each year by the Environmental Defense Fund.

Other scholars draw attention to the classical liberal underpinnings of environmentalism that bias environmentalism toward timid calls for personal responsibility and green consumerism.[23] As Paul Wapner, a professor at American University, notes:

> Liberal environmentalism is so compatible with contemporary material and cultural currents that it implicitly supports the very things that it

> should be criticizing. Its technocratic, scientistic, and even economistic character gives credence to a society that measures the quality of life fundamentally in terms of economic growth, control over nature, and the maximization of sheer efficiency in everything we do. By working to show that environmental protection need not compromise these maxims, liberal environmentalism fails to raise deeper issues that more fundamentally engage the dynamics of environmental degradation.[24]

And yet mainstream environmentalism has not always advanced an individualized consumerist strategy for redressing environmental ills. Even during the turn of the last century, a time of zealous rediscovery of the wonders of efficiency and scientific management, "the dynamics of conservation," observes famed environmental historian Samuel P. Hays, "with its tension between the centralizing tendencies of system and expertise on the one hand and the decentralization of localism on the other," fueled healthy debate over the causes of and cures for environmental ills.[25] Throughout the twentieth century, in fact, mainstream environmentalism has demonstrated an ability to foster multiple and simultaneous interpretations of where we are and where we should be heading.

But that ability has, today, clearly become impaired. Although public support for things environmental has never been greater, it is so because the public increasingly understands environmentalism as an individual, rational, cleanly apolitical process that can deliver a future that works without raising voices or mobilizing constituencies. As individual consumers and recyclers we are supplied with ample and easy means of "doing our bit"—green consumerism and militant recycling becomes the order of the day. The result, though, is often dissonant and sometimes bizarre: consumers wearing "save the earth" T-shirts, for example, speak passionately against recent rises in gasoline prices when approached by television news crews; shoppers drive all over town in their gasoline-guzzling SUVs in search of organic lettuce or shade-grown coffee; and diligent recyclers expend far more fossil-fuel energy on the hot water spent to meticulously clean a tin can than is saved by its recycling.

Despite these jarring contradictions, the technocratic, sanitary, and individualized framing of environmentalism prevails, largely because it is continually reinforced. Consider, for example, recent millennial issues[26] of *Time* and *Newsweek* that look to life in the future. They paint a picture of smart appliances, computer-guided automobiles, clean neighborhoods, ecofriendly energy systems, and happy citizens. How do we get to this future? Not through bold political leadership or citizen-based debate within enabling democratic institutions—but rather via consumer choice: informed, decentralized, apolitical, individualized. Corporations will build a better mousetrap, consumers will buy it,

and society will be transformed for the better. A struggle-free ecorevolution awaits, one made possible by the combination of technological innovation and consumer choice with a conscience.

The "better mousetrap theory of social change" so prevalent in these popular news magazines was coined by Langdon Winner, a political science professor and expert on technological politics, who first introduced the term in an essay on the demise of the appropriate technology movement of the 1970s:

> A person would build a solar house or put up a windmill, not only because he or she found it personally agreeable, but because the thing was to serve as a beacon to the world, a demonstration model to inspire emulation. If enough folks built for renewable energy, so it was assumed, there would be no need for the nation to construct a system of nuclear power plants. People would, in effect, vote on the shape of the future through their consumer/builder choices. This notion of social change provided the underlying rationale for the amazing emphasis on do-it-yourself manuals, catalogues, demonstration sites, information sharing, and "networking," that characterized appropriate technology during its heyday. Once people discovered what was available to them, they would send away for the blueprints and build the better mousetrap themselves. As successful grassroots efforts spread, those involved in similar projects were expected to stay in touch with each other and begin forming little communities, slowly reshaping society through a growing aggregation of small-scale social and technical transformations. Radical social change would catch on like disposable diapers, Cuisinarts, or some other popular consumer item.

Like the militant recyclers and dead-serious green consumers of today, appropriate technologists of the 1970s were the standard-bearers for the individualization of responsibility. The difference between then and now is that appropriate technology lurked at the fringes of a 1970s American environmental politics more worried about corporate accountability than consumer choice. Today, green consumption, recycling, and Cuisinart social change occupy the heart of U.S. ecopolitics. Both then and now, such individualization is alarming, for as Winner notes:

> The inadequacies of such ideas are obvious. Appropriate technologists were unwilling to face squarely the facts of organized social and political power. Fascinated by dreams of a spontaneous, grass-roots revolution, they avoided any deep-seeking analysis of the institutions that control the direction of technological and economic development. In this

> happy self-confidence they did not bother to devise strategies that might have helped them overcome obvious sources of resistance. The same judgment that Marx and Engels passed on the utopians of the nineteenth century apply just as well to the appropriate technologists of the 1970s: they were lovely visionaries, naive about the forces that confronted them.[27]

Though the inadequacies of these ideas is clear to Winner, they remain obscure to the millions of American environmentalists who would plant a tree, ride a bike, or recycle a jar in the hope of saving the world. The newfound public awareness of global environmental problems may be largely to blame. Shocking images of a "hole" in the ozone layer in the late 1980s, ubiquitous videos on rainforest destruction, media coverage of global climate change and the warming of the poles: all this and more have brought the public to a new state of awareness and concern about the "health of the planet." What, though, is the public to do with this concern? Academic discussion and debate about global environmental threats focuses on distant international negotiations, complicated science fraught with uncertainty that seems to bedevil even the scientists, and nasty global politics. This is no place for the "normal" citizen. Environmental groups often encourage people to act, but recommended action on global environmental ills is limited to making a donation, writing a letter, or—yes—buying an environmentally friendly product. The message on all fronts seems to be "Act . . . but don't get in the way." Confronted by a set of global problems that clearly matter and seeing no clear way to attack them, it is easy to imagine the lay public gravitating to individualistic, consumer-oriented measures. And it is easy to understand how environmental groups would promote such measures; these measures do, after all, meet the public's need for some way to feel as if it is making a difference, and they sell.

Ironically, those laboring to highlight global environmental ills, in the hope that an aroused public would organize and embark on collective, political action, aided and abetted this process of individualization. They paved the way for the likes of Rainforest Crunch ice cream ("buy it and a portion of the proceeds will go to save the rainforests") because they were insufficiently attentive to a fundamental social arithmetic: heightened concern about any social ill, erupting at a time of erosion of public confidence in political institutions and citizen capacities to effect change, will prompt masses of people to act, but in that one arena of their lives where they command the most power and feel the most competent—the sphere of consumption.

Of course, the public has had some help working through this particular arithmetic. A privatization and individualization of responsibility for environmental problems shifts blame from state elites and powerful producer groups to more amorphous culprits like "human nature" or "all of us." State

elites and the core corporations on which they depend to drive economic growth stand to benefit from spreading the blame and cranking the rotary of consumption.[28] And crank they will. One example of this dynamic, though not one rooted per se in global ecology, is found in a reading of the history of efforts in the United States in the 1970s to implement a nationwide system of beverage- and food-container reuse, a policy that would have assigned the responsibility for resolving the "solid waste crisis" to the container industry. The container industry spent tens of millions of dollars to defeat key "bottle bill" referendums in California and Colorado, and then vigorously advanced recycling—not reuse—as a more practical alternative. Recycling, by stressing the individual's act of disposal, not the producer's acts of packaging, processing, and distributing, fixes primary responsibility on individuals and local governments. It gives life to a "Wee Sing" diagnosis of environmental ills (see note 13) that places human laziness and ignorance center stage. The bottling industry was successful in holding out its "solution" as the most practical and realistic, and the state went along.[29]

The same dynamic now permeates mainstream discussions of global environmental ills. Pratap Chatterjee and Matthias Finger, seasoned observers of global environmental politics, highlight the rise of a "New Age Environmentalism" that fixes responsibility on all of us equally and, in the process, cloaks important dimensions of power and culpability.[30] They point, for example, to international meetings like the 1992 Earth Summit that cultivate a power-obscuring language of "all of us needing to work together to solve global problems." In the same vein, academics like Gustavo Esteva and Suri Prakash lament how the slogan "think globally, act locally" has been shaped by global environmentalism to support a consumer-driven, privatized response to transboundary environmental ills. In practice, thinking globally and acting locally means feeling bad and guilty about far-off and megaenvironmental destruction, and then traveling down to the corner store to find a "green" product whose purchase will somehow empower somebody, somewhere, to do good.[31] Mainstream conversations about global sustainability advance the "international conference" as the most meaningful venue for global environmental problem solving. It is here that those interests best able to organize at the international level—states and transnational corporations—hold the advantage in the battle to shape the conversation of sustainability and craft the rules of the game. And it is precisely these actors who benefit by moving mass publics toward private, individual, well-intentioned consumer choice as the vehicle for achieving "sustainability."

It is more than coincidental that as our collective perception of environmental problems has become more global, our prevailing way of framing environmental problem solving has become more individualized. In the end, individualizing responsibility does not work—you cannot plant a tree to save

the world—and as citizens and consumers slowly come to discover this fact their cynicism about social change will only grow: "You mean after 15 years of washing out these crummy jars and recycling them, environmental problems are still getting worse—geesh, what's the use?" Individualization, by implying that any action beyond the private and the consumptive is irrelevant, insulates people from the empowering experiences and political lessons of collective struggle for social change and reinforces corrosive myths about the difficulties of public life.[32] By legitimating notions of consumer sovereignty and a self-balancing and autonomous market (with a well-informed "hidden hand"), it also diverts attention from political arenas that matter. In this way, individualization is both a symptom and a source of waning citizen capacities to participate meaningfully in processes of social change. If consumption, in all its complexity, is to be confronted, the forces that systematically individualize responsibility for environmental degradation must be challenged.

IPAT, and Beyond

But how? One approach would focus on undermining the dominant frameworks of thinking and talking that make the individualization of responsibility appear so natural and "commonsense." Among other things, this means taking on "IPAT."

At first glance it would seem that advocates of a consumption angle on environmental degradation should naturally embrace IPAT (impact = population x affluence x technology). The "formula" argues, after all, that one cannot make sense of, much less tackle, environmental problems unless one takes into account all three of the proximate causes of environmental degradation. Population growth, resource-intensive and highly polluting technologies, and affluence (that is, levels of consumption) together conspire to undermine critical ecological processes on which human well-being depends. Focusing on one or two of these three factors, IPAT tells us, will ultimately disappoint.

IPAT is a powerful conceptual framework, and those who would argue the importance of including consumption in the environmental degradation equation have not been reluctant to invoke it. They note, correctly so, that the "A" in IPAT has for too long been neglected in environmental debates and policy action.[33] However, although IPAT provides intellectual justification for positioning consumption center stage, it also comes with an underlying set of assumptions—assumptions that reinforce an ineffectual Loraxian flight from politics.

A closer look at IPAT shows that the formula distributes widely all culpability for the environmental crisis (akin to the earlier-mentioned "New Age

Environmentalism"). Population size, consumption levels, and technology choice are all to blame. Responsibility for environmental degradation nicely splits, moreover, between the so-called developed and developing world: if only the developing world could get its population under control and the developed world could tame its overconsumption and each could adopt green technologies, all would be well. Such a formulation is, on its face, eminently reasonable, which explains why IPAT stands as such a tempting platform from which advocates of a consumption perspective might press their case.

In practice, however, IPAT amplifies and privileges an "everything is connected to everything else" biophysical, ecosystem-management understanding of environmental problems, one that obscures the exercise of power while systematically disempowering citizen actors. When everything is connected to everything else, knowing how or when or even why to intervene becomes difficult; such "system complexity" seems to overwhelm any possibility of planned, coordinated, effective intervention.[34] Additionally, there is little room in IPAT's calculus for questions of agency, institutions, political power, or collective action. Donella Meadows, a systems analyst and coauthor of *The Limits to Growth*, the 1972 study that drew the world's attention to the social and environmental threats posed by exponential growth, had long advocated IPAT. But the more her work incorporated the human dimension, including issues of domination and distribution, the more she questioned the formulation. After a 1995 conference on global environmental policy, she had a revelation:

> I didn't realize how politically correct [IPAT] had become, until a few months ago when I watched a panel of five women challenge it and enrage an auditorium full of environmentalists, including me. IPAT is a bloodless, misleading, cop-out explanation for the world's ills, they said. It points the finger of blame at all the wrong places. It leads one to hold poor women responsible for population growth without asking who is putting what pressures on those women to cause them to have so many babies. It lays a guilt trip on Western consumers, while ignoring the forces that whip up their desire for ever more consumption. It implies that the people of the East, who were oppressed by totalitarian leaders for generations, now somehow have to clean up those leaders' messes.

And then, in ways that echo Langdon Winner's assessment of the better-mousetrap theory of social change, Meadows concludes that

> IPAT is just what one would expect from physical scientists, said one of its critics. It counts what's countable. It makes rational sense. But it ignores the manipulation, the oppression, the profits. It ignores a factor that [natural] scientists have a hard time quantifying and therefore don't like to talk

> about: economic and political power. IPAT may be physically indisputable. But it is politically naive.[35]

. . . [I]nquiry into consumption quickly bumps up against tough issues: consumerism, "manufactured needs," limits, global inequity, the specter of coercion, competing and sometimes conflicting understandings of human happiness. Dealing with these topics . . . demands a practiced capacity to talk about power, privilege, prosperity, and larger possibilities. IPAT, despite it usefulness, at best fails to foster this ability; at worst, it actively undermines it. When accomplished anthropologist Clifford Geertz remarked that we are still "far more comfortable talking about technology than talking about power,"[36] he surely had conceptual frameworks like IPAT in mind.

Proponents of a consumption angle on environmental degradation must cultivate alternatives to IPAT and conventional development models that focus on, rather than divert attention from, politically charged elements of commercial relations. Formulas like IPAT are handy in that they focus attention on key elements of a problem. In that spirit, then, I propose a variation: "IWAC," which is environmental Impact = quality of Work x meaningful consumption Alternatives x political Creativity. If ideas have power, and if acronyms package ideas, then alternative formulations like IWAC could prove useful in shaking the environmentally inclined out of their slumber of individualization. And this could only be good for those who worry about consumption.

Take "work," for example. IPAT systematically ignores work while IWAC embraces it. As *Atlantic Monthly* senior editor Jack Beatty notes, "radical talk" about work—questions about job security, worker satisfaction, downsizing, overtime, and corporate responsibility—is coming back into public discourse.[37] People who might otherwise imagine themselves as apolitical care about the state of work, and they do talk about it. IWAC taps into this concern, linking it to larger concerns about environmental degradation by suggesting that consumerist impulses are linked to the routinization of work and, more generally, to the degree of worker powerlessness within the workplace. The more powerless one feels at work, the more one is inclined to assert power as a consumer.[38] The "W" in IWAC provides a conceptual space for asking difficult questions about consumption and affluence. It holds out the possibility of going beyond a critique of the "cultivation of needs" by advertisers to ask about social forces (like the deadening quality of the workplace) that make citizens so susceptible to this "cultivation."[39] Tying together two issues that matter to mass publics—the nature of work and the quality of the environment—via something like IWAC could help revitalize public debate and challenge the political timidity of mainstream environmentalism.

Likewise, the "A" in IWAC, "alternatives," expands IPAT's "T" in new directions by suggesting that the public's failure to embrace sustainable technolo-

gies has more to do with institutional structures that restrict the aggressive development and wide dissemination of sustainable technologies than with errant consumer choice. The marketplace, for instance, presents us with red cars and blue ones, and calls this consumer choice, when what sustainability truly demands is a choice between automobiles and mass transit systems that enjoy a level of government support and subsidy that is presently showered on the automotive industry.[40] With "alternatives," spirited conversation can coalesce around questions like: Do consumers confront real or merely cosmetic choice?[41] Is absence of choice the consequence of an autonomous and distant set of market mechanisms? Or is the self-interested exercise of political and economic power at work? And how would one begin to find out? In raising these uncomfortable questions, IWAC focuses attention on claims that the direction and pace of technological development is far from autonomous and is almost always political.[42] Breaking down the widely held belief (which is reinforced by IPAT) that technical choice is "neutral" and "autonomous" could open the floodgates to full and vigorous debate over the nature and design of technological choice. Once the veil of neutrality is lifted, rich local discourse can, and sometimes does, follow.[43]

And then there is the issue of public imagination and collective creativity, represented by the "C" in IWAC. Imagination is not a word one often sees in reflections on environmental politics; it lies among such terms as *love*, *caring*, *kindness*, and *meaning* that raise eyebrows when introduced into political discourse and policy analysis.[44] This despite the work of scholars like political scientist Karen Litfin that readily shows how ideas, images, categories, phrases and examples structure our collective imagination about what is proper and what is possible. Ideas and images, in other words, and those who package and broker them, wield considerable power.[45] Susan Griffin, an environmental philosopher, argues the same point from a different disciplinary vantage point when she writes that:

> Like artistic and literary movements, social movements are driven by imagination. . . . Every important social movement reconfigures the world in the imagination. What was obscure comes forward, lies are revealed, memory shaken, new delineation drawn over the old maps: it is from this new way of seeing the present that hope emerges for the future. . . . Let us begin to imagine the worlds we would like to inhabit, the long lives we will share, and the many futures in our hands.[46]

Griffin is no new age spiritualist. She is closer to rough-and-tumble neighborhood activist Saul Alinsky than ecopsychologists like Roszak, Gomes, and Kanner.[47] Alarmed by the political implications of our collective sense of limited possibility and daunting complexity, she is quick to dispense with claims so

prevalent in the environmental movement that a "healed mind" and "individual ecological living" will spawn an ecological revolution. Her argument, like Litfin's, bears restating: ideas and the images that convey them have power; and though subtle, such power can and is exercised to channel ideas into separate tracks labeled "realistic" and "idealistic." Once labeled, what is taken to be impossible or impractical—"idealistic," in other words—can no longer serve as a staging ground for struggle.

Conclusion

IWAC is more illustrative than prescriptive. It highlights how prevailing conceptualizations of the "environmental crisis" drive us toward an individualization of responsibility that legitimizes existing dynamics of consumption and production. The globalization of environmental problems—dominated by natural-science diagnoses of global environmental threats that ignore critical elements of power and institutions—accelerates this individualization, which has deep roots in American political culture. To the extent that commonplace language and handy conceptual frameworks have power, in that they shape our view of the world and tag some policy measures as proper and others as far-fetched, IWAC stands as an example of how one might go about propagating an alternative understanding of why we have environmental ills, and what we ought to be doing about them.

A proverbial fork in the road looms large for those who would seek to cement consumption into the environmental agenda. One path of easy walking leads to a future where "consumption" in its environmentally undesirable forms—"overconsumption," "commodification," and "consumerism"—has found a place in environmental debates. Environmental groups will work hard to "educate" the citizenry about the need to buy green and consume less and, by accident or design, the pronounced asymmetry of responsibility for and power over environmental problems will remain obscure. Consumption, ironically, could continue to expand as the privatization of the environmental crisis encourages upwardly spiraling consumption, so long as this consumption is "green."[48] This is the path of business as usual. The other road, a rocky one, winds toward a future where environmentally concerned citizens come to understand, by virtue of spirited debate and animated conversation, the "consumption problem." They would see that their individual consumption choices are environmentally important, but that their control over these choices is constrained, shaped, and framed by institutions and political forces that can be remade only through collective citizen action, as opposed to individual consumer behavior. This future world will not be easy to reach. Getting there means challenging the dominant view—the production, technological, efficiency-oriented perspective that infuses contemporary definitions of

progress—and requires linking explorations of consumption to politically charged issues that challenge the political imagination. Walking this path means becoming attentive to the underlying forces that narrow our understanding of the possible.

To many, an environmentalism of "plant a tree, save the world" appears to be apolitical and nonconfrontational, and thus ripe for success. Such an approach is anything but, insofar as it works to constrain our imagination about what is possible and what is worth working toward. It is time for those who hope for renewed and rich discussion about "the consumption problem" to come to grips with this narrowing of the collective imagination and the growing individualization of responsibility that drives it, and to grapple intently with ways of reversing the tide.

Notes

Maniates, Michael. 2002. "Individualization: Plant a Tree, Buy a Bike, Save the World?" Pp. 43–66 in Thomas Princen, Michael Maniates and Ken Conca (eds.), *Confronting Consumption*. Cambridge, MA: The MIT Press.

1. Theodore Seuss Geisel (Dr. Seuss), *The Lorax* (New York: Random House, 1971).
2. Saul Alinksy, *Reveille for Radicals* (New York: Vintage Books, 1969), p. 94.
3. Jonathan Larsen, "Holy Seuss!" *Amicus Journal* vol. 20 no. 2 (Summer 1998): 39.
4. See in particular the "Introduction: We Live Through Institutions" in Robert Bellah, Richard Madsen, William Sullivan, Ann Swidler, and Steven Tipton, *The Good Society* (New York: Alfred A. Knopf, 1991).
5. For example, John Tierney, "Recycling Is Garbage," *New York Times Magazine* (June 30, 1996): 24–30, 48–53.
6. Green Mountain Energy (greenmountain.com), for example, aggressively markets "clean" and "green" energy at premium prices to consumers in states with deregulated electricity markets. Green Mountain urges customers to become part of a "renewables revolution" by buying its "green" electricity, but critics argue that Green Mountain is only repackaging existing power (principally hydroelectricity) and that only a small portion of its electricity comes from new renewables, predominantly from polluting combustion sources like biomass combustion and landfill gas (see www.boycottgreenmountain.com/). Green Mountain, which has entered into collaboration with BP Petroleum and Amoco, blunts such criticism by pointing to ambitious plans to build additional renewable energy capacity and entering into alliances with major environmental groups like Environmental Defense.
7. See for example "Plant Trees in Dr. Seuss's Honor," *Instructor: Primary Edition* vol. 108 no. 1 (August 1998): 9.
8. Mark Dowie, *Losing Ground: American Environmentalism at the Close of the Twentieth Century* (Cambridge, MA: MIT Press, 1996).
9. Real Goods (at www.realgoods.com) offers an example: it markets cute contraptions, upscale consumer goods, and renewable energy systems that it says promote "the transition to a sustainable society." But one strains to imagine its gadget-heavy cat-

alog (solar-powered radios, reconfigured showerheads, and "healthy, recycled, tasteful furnishings for your natural home") as anything approaching "anticonsumerist" or "pro-frugality."

10. The Environmental Defense Fund has since undergone a name change to "Environmental Defense."

11. Peter Montague, "1996 Review: More Straight Talk," *Rachel's Environmental and Health Weekly* (December 19, 1996, no. 525), at www.rachel.org

12. At work here is a fundamental suspicion of collective action and a shift toward less ambiguous, "quick-payback" community-service and "service-learning" initiatives. On students' suspicion of politics as conventionally practiced, see Ted Halstead, "A Politics for Generation X," *Atlantic Monthly*, vol. 284 no. 2 (August 1999): 33–42; Paul Loeb, *Generation at the Crossroads* (New Brunswick, NJ: Rutgers University Press, 1994); Rene Sanchez, "College Freshmen Have the Blahs, Survey Indicates," *Washington Post* (January 12, 1998): 1. On the attractiveness of community service and service learning to students yearning to make a difference, see Halstead, "A Politics for Generation X," and Janet Eyler and Dwight Giles, *Where's the Learning in Service Learning?* (San Francisco: Jossey-Bass, 1999). For a mild corrective to the claim that undergraduates are predisposed against collective activism for institutional reform, see Arthur Levine and Jeanette S. Cureton, *When Hope and Fear Collide: A Portrait of Today's College Student* (San Francisco: Jossey-Bass, 1998). For a stronger counterargument see Liza Featherstone, "The New Student Movement," *The Nation*, vol. 270 no. 19 (May 15, 2000): 11–15.

13. The words to "The Pollution Solution" go like this:

> All of this mess on the ocean floor could have been avoided if we thought about it more. 'Cuz sometimes folks are lazy, and sometimes we forget that if you don't pick up your garbage, this is what we get. And I think there's something that we can do, and the answer's in a song I'll sing for you. CHORUS: The solution to pollution is to think before you act. Re-use, recycle, remember to say, it's a beautiful world, let's keep it that way. Here's a bottle. That's made of glass. Here's a can. That's made of tin. Here's a box made from cardboard. We can use it all again. (Repeat Chorus.) Metal, paper, plastic, a whole lot of stuff. Save it, don't toss it, the earth has had enough! We're all in this together, so let's all lend a hand and recycle all we can. (Repeat Chorus.) Just stop before you drop it. Think before you act. The earth is not a garbage can, and that's a fact. We're all in this together, so let's all lend a hand and recycle all we can. (Repeat Chorus.) It's a beautiful world, let's all keep it that way. Re-use, recycle, remember to say, it's a beautiful world, let's keep it that way.

14. See The Earthworks Group, *50 Simple Things You Can Do to Save the Earth* (Berkeley, CA: Earthworks Press, 1989). The failings of a "50 Simple Things" approach to social change are discussed by J. Robert Hunter, *Simple Things Won't Save the Earth* (Austin: University of Texas Press, 1997). Nevertheless, guidebooks to "easy" social change through small modifications in consumer choice continue to see publication. See, for example, Judith Getis, *You Can Make a Difference*, 2nd ed. (Boston: WCB McGraw-Hill, 1999), which like so many such guides appeals to the reader's sense of political disempowerment.

15. For more on the distinction between consumer and citizen within the context of environmental struggles and processes of consumerism and commodification see Daniel Coleman, *Ecopolitics: Building a Green Society* (New Brunswick, NJ: Rutgers University Press, 1994). An analysis of the forces driving "environmental consumerism" as the pri-

mary popular response to a perceived environmental crisis is provided by Toby Smith, *The Myth of Green Marketing: Tending Our Goats at the Edge of Apocalypse* (Toronto: University of Toronto Press, 1998).

16. For a lively review of the commodification of dissent, see Thomas Frank, *The Conquest of Cool* (Chicago: University of Chicago Press, 1997) and Thomas Frank and Matt Weiland, eds., *Commodify Your Dissent: Salvos from the Baffler* (New York: Norton, 1997).

17. Benjamin Barber, "Democracy at Risk: American Culture in a Global Culture," *World Policy Journal*, vol. 15 no. 2 (Summer 1998): 29–41; John Freie, *Counterfeit Community: The Exploitation of Our Longing for Connectedness* (Lanham, MD: Rowman & Littlefield, 1998); Christopher Lasch, *The Revolt of the Elites and the Betrayal of Democracy* (New York: Norton, 1995); Richard Norgaard, *Development Betrayed* (New York: Routledge, 1994); Robert Putnam, *Bowling Alone: The Collapse and Revival of American Community* (New York: Simon and Schuster, 2000); Michael Sandel, *Democracy's Discontent* (Cambridge, MA: Belknap Press, 1996).

18. Murray Bookchin, "Death of a Small Planet," *The Progressive* (August 1989): 22, emphasis in the original.

19. Paul Hawken, *The Ecology of Commerce* (New York: Harper Business, 1993), p. xii, emphasis added.

20. A good entry point into the discussion of the "Reagan years" as they relate to a growing distrust of government and declining faith in individual capacity to "make a difference" is Garry Wills, "It's His Party," *New York Times Magazine* (August 11, 1996): 31–37, 52–59.

21. For example, Mark Dowie, *Losing Ground*; and Robert Gottlieb, *Forcing the Spring: The Transformation of the American Environmental Movement* (Washington, DC: Island Press, 1995).

22. For instance, Kirtpatrick Sale, *The Green Revolution: The American Environment Movement 1962–1992* (New York: Hill and Wang, 1993); Robert Mitchell, Angela G. Mertig, and Riley E. Dunlap, "Twenty Years of Environmental Mobilization: Trends among National Environmental Organizations," in Riley E. Dunlap and Angela G. Mertig, eds., *American Environmentalism: The U.S. Environmental Movement, 1970–1990* (Philadelphia: Taylor and Francis, 1992), pp. 11–26.

23. Especially useful is Matthew Cahn's *Environmental Deceptions: The Tension between Liberalism and Environmental Policymaking in the United States* (Albany: State University of New York Press, 1995).

24. Paul Wapner, "Toward a Meaningful Ecological Politics," *Tikkun* vol. 11 no. 3 (May/June 1996): 21–22, emphasis in the original.

25. Samuel P. Hays, *Conservation and the Gospel of Efficiency* (New York: Atheneum, 1980).

26. *Time*, for example, ran a five-part "Visions of the 21st Century" series covering the following topics: Health and the Environment (vol. 154 no. 19, November 8, 1999); How We Will Live (vol. 155 no. 7, February 21, 2000); Science (vol. 155 no. 14, April 10, 2000); Our World, Our Work (vol. 155 no. 21, May 22, 2000); and Technology (vol. 155 no. 25, June 19, 2000). Each delivered a large dose of technological utopianism.

27. Langdon Winner, *The Whale and the Reactor* (Chicago: University of Chicago Press, 1986), pp. 79–80.

28. See for example Robert Reich, *The Work of Nations* (New York: Knopf, 1991).

29. From 1997 interviews by the author with individuals who worked as "bottle bill" activists in Colorado and California during the late 1970s and early 1980s (Ross Pumfrey and William Shireman, who led the California initiative process at different times, and Terrence Bensel, an activist in Colorado). Simon Fairlie provides a similar account for the United Kingdom in "Long Distance, Short Life: Why Big Business Favours Recycling," *The Ecologist* vol. 22 no. 5 (September/ October 1992): 276–283.

30. Pratap Chatterjee and Matthias Finger, *The Earth Brokers* (New York: Routledge, 1994).

31. Gustavo Esteva and Madhu Suri Prakash, "From Global to Local Thinking," *The Ecologist* vol. 24 no. 5 (September/October 1994): 162–163.

32. These myths (e.g., "public life involves ugly conflict," "power is a dirty word," or "public life is what someone else—a celebrity or big shot—has") are well articulated by Frances Moore Lappe and Paul DuBois, *The Quickening of America* (San Francisco: Jossey-Bass, 1994).

33. See for example Robert Kates, "Population and Consumption: What We Know, What We Need to Know," *Environment* vol. 42 no. 3 (April 2000): 1019; John Holdren, "Environmental Degradation: Population, Affluence, Technology, and Sociopolitical Factors," *Environment* vol. 42 no. 6 (July/August 2000): 4–5.

34. Robert Costanza and Laura Cornwell, "The 4P Approach to Dealing with Scientific Uncertainty," *Environment* vol. 34 no. 9 (November 1992): 12–20, 42.

35. Donella Meadows, "Who Causes Environmental Pollution?" *International Society of Ecological Economics Newsletter* (July 1995): 1, 8.

36. Clifford Geertz, "Plenary Session," *Daedalus* (A World to Make: Development in Perspective) vol. 118 no. 1 (Winter 1989): 238.

37. Jack Beatty, "The Year of Talking Radically," *Atlantic Monthly* vol. 277 no. 6 (June 1996): 20.

38. Though only to a point. Pronounced or continuous workplace frustration can, under some conditions, lead to workplace withdrawal and radical frugality . . . .

39. For discussions of the connections between workplace satisfaction and inclination toward consumerist behaviors, see Murray Bookchin, *Toward an Ecological Society* (Montreal: Black Rose Books, 1980); Andre Gorz, *Ecology as Politics* (Boston: South End Press, 1980); Thomas Princen, "Consumption, Work, and Ecological Constraint," paper presented at the annual meeting of the International Studies Association, 1997; Jeremy Rifkin, *The End of Work* (New York: Putnam, 1995); Juliet Schor, *The Overspent American: Upscaling, Downshifting, and the New Consumer* (New York: HarperCollins, 1999); Juliet Schor, Joshua Cohen (ed.), and Joel Rogers (ed.), *Do Americans Shop Too Much?* (Boston: Beacon Press, 2000). For an illustration of the environmentalist characterization of the "cultivation of needs," see Alan Durning, *How Much Is Enough?* (New York: Norton, 1992).

40. See for example David Roodman, *Paying the Piper: Subsidies, Politics, and the Environment*, Worldwatch Paper 133 (Washington, DC: Worldwatch Institute, 1996).

41. A question driven home by the discussion on renewable energy options in Nancy Cole and P. J. Skerrett, *Renewables Are Ready* (White River Junction, VT: Chelsea Green Publishing Company, 1995).

42. See for example John K. Galbraith, *The New Industrial State*, 4th ed. (Boston: Houghton Mifflin, 1985); David Noble, *Forces of Production: A Social History of Industrial Automation* (New York: Oxford University Press, 1986); Langdon Winner, *Autonomous Technology: Technics-out-of-Control as a Theme in Political Thought* (Cambridge, MA: MIT Press, 1977).

43. See for example Richard Sclove, Madeleine Scammell, and Breena Holland, *Community-Based Research in the United States: An Introductory Reconnaissance Including Twelve Organizational Case Studies and Comparison with the Dutch Science Shops and with the Mainstream American Research System* (Amherst, MA: Loka Institute, July 1998); Langdon Winner, "Citizen Virtues in a Technological Order," in Andrew Feenberg and Alastair Hannay, eds., *The Politics of Knowledge* (Bloomington: University of Indiana Press, 1995).

44. See Paul Wapner, "Toward a Meaningful Ecological Politics."

45. Karen Litfin, *Ozone Discourses* (New York: Columbia University Press, 1994).

46. Susan Griffin, "To Love the Marigold: The Politics of Imagination," *Whole Earth Review* no. 89 (Spring 1996): 65, 67.

47. Saul Alinsky, *Reveille for Radicals*; Theodore Roszak, Mary E. Gomes, and Allen D. Kanner, *Ecopsychology* (San Francisco: Sierra Club Books, 1995).

48. Christopher Plant and Judith Plant, eds., *Green Business: Hope or Hoax?* (Philadelphia: New Society Publishers, 1991); Toby Smith, *The Myth of Green Marketing.* Green-marketing consultants are not shy about trumpeting the profits awaiting firms that recast their product lines as environmentally beneficial. See Patrick Carson and Julia Moulden, *Green Is Gold: Business Talking to Business about the Environmental Revolution* (New York: Harper Business, 1991); Jacquelyn Ottman, *Green Marketing: Opportunities for Innovation in the New Marketing Age*, 2nd ed. (Lincolnwood, IL: WC/Contemporary Publishing Company, 1997); Walter Coddington, *Environmental Marketing: Positive Strategies for Reaching the Green Consumer* (New York: McGraw-Hill, 1993).

Cleaning the Closet
Toward a New Fashion Ethic

Juliet Schor

The manufacture of cloth and clothing is a major source of social injustice and environmental degradation. Far too often, clothing is made in sweatshops under abominable working conditions. This has been publicized by the antisweatshop movement. What some people do not realize, however, is that clothing production has significant environmental consequences. Schor develops three principles for "a new kind of clothing consumer": (1) emphasizing quality over quantity, (2) a return to small-scale enterprises, and (3) a movement toward socially just and environmentally responsible production practices.

I love clothes—shopping for them, buying them, wearing them. I like good-quality fabrics, such as wool or linen. I cultivate long-term relationships with favorite items, such as sweaters and scarves. I delight in a beautifully tailored suit, everything perfectly in place. And I love to find a bargain.

I confess these sartorial passions with some trepidation. Love of clothes is hardly a well-regarded trait by my friends in the environmental, simplicity, feminist, labor, and social justice movements. And for some good reasons. Much of what we now wear comes from foreign sweatshops. Textile production, with its toxic dyes, often poisons the environment. Fashion is a sexist business, which objectifies and degrades women. Young people adopt a must-have imperative for the latest trendy label. Adults have problems too: The typical compulsive shopper, deep in credit-card debt, has been supporting a shopping habit focused mainly on clothes,

shoes, and accessories. Even a cursory look at the making, marketing, wearing, and discarding of clothes reveals that the entire business has become deeply problematic. But my friends have other objections that I find less compelling. Many believe that clothes are trivial—not worth spending time or effort on. Some feel they are irreversibly tainted by the excessive importance society has placed on them, or the power of the greedy behemoths that dominate the industry.

One school of thought—call it "minimalist"—takes a purely utilitarian stance. Clothes should be functional and comfortable, but beyond that, attention to them is misplaced. The minimalist credo goes like this: Buy as few clothes as possible, or better yet, avoid new altogether, because there are so many used garments around. Make sure your garments don't call too much attention to themselves. Shun labels and "designers." Purchase only products whose labor conditions and environmental effects can be verified.

This ethic has gained its share of adherents in recent years. A growing number of young people critique their generation's slavish devotion to Abercrombie, North Face, and Calvin, preferring the thrift-shop aesthetic. Simplifiers advocate secondhand stores, clothes swapping parties, and yard sales. The market for organic clothing, despite its generally inferior design and high prices, is expanding. No Logo has developed its own cachet.

Clothing minimalism is certainly a morally satisfying position. But most people do not and will not find minimalism appealing, and not because they are shallow or fashion addicted. Rather, minimalism fails because it does not recognize the centrality of clothing to human culture, relationships, aesthetic desires, and identity. Ultimately, minimalism lacks a positive vision of the role of clothing and appearance in human societies.

But what could that positive vision be? First, it will affirm the cultural importance of clothing, rather than trivialize it. It will embrace the consumer who buys conscientiously and sustainably, but who also has a prized and beautiful wardrobe hanging in her closet. It will recognize that apparel production, which after all has historically been the vanguard industry of economic development, should provide secure employment for millions of women and men in poor countries, a creative outlet for designers and consumers, and a technological staging ground for cutting-edge environmental practices. A "clean-clothes" movement has begun in Europe. Can we transform it into a "clean and beautiful clothes" movement here in the United States? If so, it holds the potential to become a model for a wider revolution in consumer practices. For if we can work it out with a commodity as socially and economically complex as clothing, we can do it with anything.

Clothes by the Pound

For an introduction to the insanity of the industry, a good place to start is a used-clothing outlet. I chose the Garment District, a hip, department-style warehouse

in East Cambridge, Massachusetts. Inside, it's chockfull of every retro and contempo style one could imagine. Outside, huge eighteen-wheeler trucks deposit giant, tightly wrapped bales of clothing, gleaned from charities, merchandisers, and consumers. These clothes sell for a dollar a pound, and seventy-five cents on Friday. That's a price not too much above beans or rice.

Over the fourteen years that the Garment District has been in business, the wholesale price of used clothing has dropped precipitously, by 80 percent in the last five years alone, according to one source. Renee Weeper, director of retail services at Goodwill International, reports that prices in the salvage market dropped to two to three cents per pound by late 1999 and are now in the seven to eight cent range. In this supply-and-demand oriented "aftermarket," the price decline has been caused by an enormous increase in the quantity of discarded clothing. Throughout the 1990s, donations to Goodwill increased by 10 percent or more each year.

And what of the clothing that is not resold to consumers? The Garment District sells its surpluses to "shoddy mills," which grind up the clothes for car-seat stuffing and other "post-consumer" uses. Or they send it into the global used-clothing market, where it is sold by brokers or given away by charitable foundations. Ironically, the influx of cheap and free clothing in Africa, under the guise of "humanitarian aid," has undermined local producers and created more poverty. And that's not the only irony—the excess clothing that ends up in Africa, the Caribbean, or Asia, probably also started out there.

The Point of Production: Sweated Labor and the Poisoned Landscape

Textiles have become the vanguard industry in the emergence of a new global sweatshop, where women—who comprise 70 percent of the labor force—work for starvation wages, making the T-shirts, jeans, dresses, caps, and athletic shoes eagerly purchased by U.S. consumers. The brutal exploitation of labor and natural resources is at the heart of why clothes have become so cheap.

Consider the case of Bangladesh—which by late 2001 was the fourth largest apparel exporter to the United States. The country, with a per capita income under $1,500 per year, a 71 percent female illiteracy rate, and 56 percent of its children under age five suffering from malnourishment, is one of the world's poorest. While proponents of corporate globalization claim the process is lifting people out of poverty, a recent study by the National Labor Committee reveals otherwise. Wages among Bangladesh's 1.6 million apparel workers range from eight cents per hour for helpers to a high of eighteen cents for sewers. Workers are forced to work long hours and are often cheated of their overtime. When demand is high, they work twenty-hour shifts and are allowed only a few hours of sleep under their sewing machines in the dead of night. The workers,

most of whom are between sixteen and twenty-five years old, report constant headaches, vomiting, and other illnesses. Even the "highest" wage rates meet less than half the basic survival requirements, with the result being that malnutrition, sickness, and premature aging are common. Ironically, apparel workers cannot afford to buy clothing for themselves—a group of Bangladeshi women factory workers who recently toured the United States report getting only one new garment every two years. The university caps they sew sell for more than seventeen dollars here; their share is a mere 11.6 cents per cap.

These conditions are not atypical. Disney exploits its Haitian workers who make Mickey Mouse shirts for twenty-eight cents an hour. Wal-Mart, which controls 15 percent of the U.S. market and is the world's largest clothing retailer, has Chinese factories that pay as little as thirteen cents per hour, with the norm below twenty-five cents. High-priced designers also exploit cheap labor—Ralph Lauren and Ellen Tracy pay fourteen to twenty cents, Liz Claiborne twenty-eight cents. Nike, despite years of pressure by activists, continues to exploit its Asian workforce. At the Wellco and Yuen Uren factories where its shoes are made, the company was paying only sixteen to nineteen cents per hour, requiring up to eighty-four hours per week including forced overtime, and employing child labor. A recent estimate for a Nike jacket found that the workers received an astounding one half of a percent of its sale price; a study of European jeans found a mere 1 percent went to workers. By contrast, "brand profit" accounts for about 25 percent of the price.

But low wages are only part of the horror of the global sweatshop. Many factories and worker dormitories lack fire exits and are overcrowded and unhealthy. Workers sewing Tommy, Gap, and Ralph Lauren clothes have been found locked inside the factories. They are routinely harassed—sexually and physically—by their supervisors. The Bangladeshi workers report that beatings are common and that they are forbidden to speak inside the factory. Permission to go to the bathroom is severely curtailed, many are forced to work while ill, and companies typically fire those who become pregnant. Unions are bitterly resisted, with terminations, physical harm, and intimidation by employers. The retailers who contract with local factories have tried to build a wall between themselves and their subcontractors, but this is little more than a callous ruse.

Manufacturers are also exploiting the natural environment. While clothing is not typically thought of as a "dirty" product, like an SUV, plastics, or meat, a closer look reveals that this clean image is undeserved. From raw material production through dyeing and finishing, to transport and disposal, the apparel, footwear, and accessories industries are responsible for significant environmental degradation. Consider cotton, which makes up about half of global textile production. Cotton cultivation is fertilizer-, herbicide-, and pesticide-intensive, endangering both the natural environment and agricultural workers. The crop comprises only 3 percent of global acreage, but accounts for 25 percent of world

insecticide use. In some cases, the crop is sprayed up to ten times per season with dangerous chemicals, including, among others, Lorsban, Bladex, Kelthane, Dibrom, Metaphos, and Parathion. The toxicity of these chemicals ranges from moderate to high and has been shown to cause a variety of human health problems, such as brain and fetal damage, cancer, kidney and liver damage, as well as harm to birds, fish, bees, and other animals. Not surprisingly, farm workers suffer from more chemical-related illnesses than any other occupational group. Chemical run-off into the nation's drinking water has also been extensive—Aldicarb, an acutely toxic pesticide, has been found in the drinking water of sixteen states. Conventional cultivation also depletes the soil and requires large quantities of irrigation water.

Additional hazards arise from chemical-based dyeing and finishing of cloth. The most common chemical dye, used in textiles and leathers, is the so-called azo-dye, which is now believed to be carcinogenic and has been banned in Germany. Formaldehyde, pentachloraphenol, and heavy metals remain in use despite their toxicity. A little-known aspect of these toxins is their human health impact on both workers and consumers. One German study found that 30 percent of children in that country suffer from textile-related allergies, most of which are triggered by dyes. An estimated 70 percent of textile effluents and 20 percent of dyestuffs are still dumped into water supplies by factories. In South India, where the (highly toxic) tanning industry grew rapidly in the 1990s, local water supplies have been devastatingly polluted by large quantities of poisonous wastes. The various stages of textile production (from spinning, weaving, and knitting to dyeing and finishing) also require enormous energy and water use. For example, one hundred liters of water are needed to process one kilogram (2.2 pounds) of textiles.

Environmental effects can also be more indirect. The consumer rage for cheap cashmere has led to unsustainable expansion of herds in Mongolia and, subsequently, to overgrazing, desertification, and ecological collapse. The growth of new fabrics, such as the wood-based tencel, is contributing to deforestation in Southeast Asia.

Environmental impact does not end at the point of production. The globalization of the industry has led to increased pollution through long-distance transport. And eventually, the products enter the waste stream. Clothing, footwear, and accessories are a staple of municipal landfills.

Superfluity, Novelty, and Exclusivity: Hallmarks of the Clothing Industry

At the core of the disposal problem lie two developments: Clothes are cheap and Americans are buying them in record numbers. Since 1991, the price of apparel and footwear has fallen, especially women's clothing, with the drop especially

pronounced after 1999. (This was most likely due to declining wages in Asia, caused by the Asian financial crisis.) It is no surprise that as clothes got artificially cheaper, Americans began accumulating more of them. Indeed, when prices are low, the pressure on manufacturers and retailers to sell more becomes intense. In 2000 alone the United States imported 12.65 billion pieces of apparel, narrowly defined (i.e., not including hats, scarves, etc.). It produced another 5.3 billion domestically. That's roughly 47.7 pieces per person per year. (Women and girls rates are higher; men and boys lower.) From Bangladesh alone we imported 1.168 *billion* square meters of cloth. That's a lot of caps.

Paradoxically, the system of low prices and high volume is anchored at the top by outrageously priced merchandise. At the high end, thousand-dollar handbags, dresses running to the many thousands, even undergarments costing a hundred dollars are the rule. A look at the nation's distribution of wealth provides one clue to why high-priced clothing is flying off the shelves: The top 10 percent of the population now own a record 71 percent of the nation's total net worth, and 78 percent of all financial wealth. (The top one percent alone own 38 and 47 percent of net worth and financial wealth.) The existence of such an upscale apparel market is a troubling symptom of a world in which some people have far too much money and far too little moral or social accountability in terms of what they do with it.

But the high-priced venues serve another purpose as well. Designer merchandise becomes available at discount stores at a fraction of its top retail price. This affordable exclusivity is part of what keeps middle-class consumers enmeshed in the system. Clothes cascade through a chain of retail outlets, prices falling at each stage. The system has led many consumers to purchase almost mindlessly when confronted with irresistible "bargain basement" prices of highly regarded designers and to spend much more on clothes than they intend or even realize. Eventually even the desirable designer merchandise ends up being sold for rock-bottom prices—on the web one can find surplus clothing sites selling clothes at a fraction of their retail prices. I found $5,000 designer dresses going for $1,000, women's coats that retail at $129 available for $22 each; men's down jackets for $12. I found Hilfiger, DKNY, Victoria's Secret. Brand-new "high-quality mixed clothing" can be had for twenty-two cents a pound.

The core features of contemporary fashion—fast-moving style, novelty, and exclusivity—also contribute to spending. A seasonal fashion cycle based on climactic needs has been replaced by a shorter timeline, in which the "new" may only last for two months, or even weeks, as in the extreme cases of athletic shoes. The exclusivity that is relentlessly pushed by marketers also contributes to high levels of spending—the product is valued *because* it is expensive. As it becomes more affordable, its value declines. Similarly, when the consumer aspires to be a fashion pioneer, she seeks rarity. The impacts of these core features of the fashion industry are profound. Many middle- and lower-middle class youth are

working long hours to buy clothes. For poor youth, with limited access to money and jobs, the designer imperative has been linked to dropping out of school (because of an inadequate wardrobe), stealing, dealing, even violence. Failing to keep up with the dizzying pace of fashion innovation undermines self-esteem and social status.

But it is not only fashion-orientation that accounts for the enormous volume of clothing that is sold in this country. Shopping for clothes, footwear, and apparel have become habits, even addictions, especially for women. Just something to do because we do it. People shop on their lunch hours, on the weekend, through catalogs, or in the mall. They spend vacations at outlet malls. Americans typically have something in mind they want to buy, and, for women that something is often clothing. In my interviews of professional women who subsequently downshifted, a common refrain was the enormous superfluity of their closets. It's clear we need to get our relationship to clothes under control.

Why Clothes Do Matter

To create sustainable, humane, and satisfying apparel, footwear, and accessories industries, we need to understand the functions of these products. Their utilitarian features are obvious. We need garments to cover our bodies, hiking shoes to climb a mountain, a watch to tell time. But this is just the beginning of what clothing really *does.* Throughout history, clothing has been at the center of how human beings interact. Not always with humane purposes, of course. Clothing and footwear have long identified rank and social position. Before the nineteenth century, European governments passed sumptuary laws that regulated dress, particularly to control those of low status. Intense conflict was waged over whether one could wear a wig, choose a certain color, or sport a particular fashion style. Not surprisingly, clothing was equally central to struggles against those very inequities. Working people often asserted their social rights by choosing dress that elites deemed them unworthy of wearing. Clothing has been key to both the repression of social groups and their struggles for human dignity and justice. (Closer to home, consider how incomplete any account of the political challenges of the 1960s would be without attention to blue jeans, tie-dyed shirts, and long hair.)

Clothing has also been at the heart of gender conflicts. As early-twentieth-century American women attempted to break free of patriarchal strictures, they rejected corsets and confining dresses. In the twenties, they defied convention with cigarettes and short skirts. In the 1970s, the women's movement rejected the fashion system and created its own sartorial sensibility. Clothing has historically also been an important site of intergenerational bonding and learning between women, along with hair care and other beauty rituals. I am quite sure that I got my love of clothes from my mother. Being a good shopper, especially in the complex world of women's clothing, requires finely honed skills, which are passed on from generation to generation.

What we wear is important to the way we experience our sexuality. Our age. Our ethnicity. It allows us to show respect for others (by dressing specially for a social occasion) or to signal community (through shared garments or styles). Finally, clothing can be part of the aesthetic of everyday life. There is genuine pleasure to be gained from a well-made, well-fitting garment. Or from a piece of clothing that embodies beautiful design, craftspersonship, or artistry. Throughout history, human beings have exercised their creativity through clothing, footwear, and accessories.

In sum, dressing and adorning are a vital part of the human experience. This is why any attempt to push them into a minimalist, utilitarian box will fail. Clothes embody far more than our physical bodies; they are also a measure of our basic values and culture. So, while we may not all take great pleasure in what we wear, we should all recognize that clothes do matter. They are about as far from trivial as any consumer good can be. Which means that a new fashion ethic will be about affirming social and human values, the commitments of daily life, and our hopes and aspirations for a different kind of world.

Principles for a New Kind of Clothing Consumer

1. Quality Over Quantity. Moving from Cheap and Plentiful to Rarer and More Valuable

In the past, clothing cost more, and its use was far more ecologically responsible. Only the rich bought more clothes than they wore, in contrast to current habits. Expensive clothing was worn sparingly when newly acquired. In some places, as a garment wore out, it cascaded through a social hierarchy of uses, from esteemed social occasions to the everyday public, and eventually to the most mundane private and domestic uses. Clothing was cleaned far less frequently than today, thereby extending its useful life. Women had the skills to make clothes, and even as ready-made garments became more common, to restructure and upgrade them. Style could be attained through "refashioning" garments, rather than discarding them and buying new ones. Such refashioning could also involve new ownership. Historian Nell McKendrick has identified the origins of the eighteenth-century consumer revolution in Britain with the trickle-down from elites to servants, as maids took their mistresses' cast-off dresses and turned them into newly stylish outfits. Thus, basic principles of ecology and frugality were maintained—take only what you need, use it until it is no longer useable, repair rather than replace, refashion to provide variety.

The history of clothing practices provides guidance for fashioning a new aesthetic whose central principles are to emphasize quality over quantity, longevity over novelty, and versatility over specialization. For example, if we reject the need to keep up with fashion and can be satisfied with a smaller wardrobe, we can spend more per garment, as consumers do in Western Europe.

The impact on the earth is less, and it contributes to longevity, because better clothes last longer by not skimping on tailoring or quality and quantity of yardage. Consumers are better off because high-quality clothing is more comfortable and looks better.

Ultimately we could begin to think of clothing purchases as long-term commitments, in which we take responsibility for seeing each garment through its natural life. That doesn't mean we couldn't ever divest ourselves, but that if we grew tired of a useful garment we'd find it a new home with a loving owner, kind of like with pets. Of course, to facilitate such a change, consumers would need to reject the reigning imperative of variety in clothes, especially as it pertains to the workplace and for social occasions. Just because you wore that dress to last year's holiday party doesn't mean you can't show up in it again.

With such an aesthetic, consumers would demand a shift toward more timeless design, away from fast-moving trends. Clothes could become more versatile in terms of what they can be used for, their ability to fit differently shaped bodies and to be altered. Consider the Indian sari, a simple, rectangular piece of cloth that is fitted around the body. It accommodates weight gain and loss, pregnancy, growth, and shrinkage. Couldn't designers come up with analogous concepts appropriate to Western tastes? Pants with waistbands that are flattering but also can be adjusted through double-button systems or through tailoring. Basic pieces that can be complemented by layering and accessories. Expensive, classic clothes already have some of these qualities—extra fabric for letting out and the capability to remain flattering after they have been altered.

Striving for longevity through versatility facilitates what we might call an ecological or true materialism. The cultural critic Raymond Williams has noted that we are not truly materialist because we fail to invest deep or sacred meanings in material goods. Instead, our materialism connotes an unbounded desire to acquire, followed by a throwaway mentality. True materialism could become part of a new ecological consciousness. Paying more per piece could also support a new structure of labor costs. Workers would work less, produce fewer but higher-quality items, and be paid more per hour. Such a change would help make ecologically clean technologies economically feasible.

Finally, paying more for clothes does not mean adopting the premise of social exclusivity. In luxury retailing, much of the appeal of the product is its prohibitive price or the fact that only elites have the social conditioning necessary to pull off wearing it. An alternative aesthetic would value democracy and egalitarianism through the fashioning of garments that are high-quality but affordable.

2. Small and Beautiful: Creative Clothing for Local Customers

The aesthetic aspect of clothing is and will continue to be important. But the values represented by the fashion industry are unacceptable. Despite decades of

feminist criticism, the industry continues to objectify women—and increasingly men—through demeaning, violent, and gratuitously sexualized images and practices. In the late nineties we got "heroin chic," glamorizing drug abuse and poverty. Now it's teen and "tween" styles, with bare midriffs, tightly fitting T-shirts, and sexually explicit sayings emblazoned on the garments. Furthermore, the industry is comprised of megacorporations employing a small number of mostly male designers. They, in turn, produce a monolithic fashion landscape—massive numbers of copycat garments. Suddenly all that's available are square-toed shoes, or short-handled handbags, or hip huggers.

An alternative vision starts from the recognition that many young people, especially young women, yearn to be fashion designers, producing garments that are artistic, interesting, funky, visionary, and useable. And consumers are increasingly desirous of that type of individualized clothing. The industry could return to its roots in small-scale enterprises, run by the designers themselves. The British cultural analyst Angela McRobble has envisioned such a shift, calling for small apparel firms located in neighborhoods, operating almost like corner stores. They would cater to a local clientele whose tastes and needs they come to know. These face-to-face relationships between female designers and the immigrant women who labor in domestic-apparel production also have the potential to reduce the exploitation that currently characterizes the industry. Instead of driving to a mall with its cookie-cutter stores, one might walk to a converted factory housing three or four designers with workshops-cum-show rooms. The consumer could also become active in the creative process, helping to fashion an interesting or unique look for him or herself. If she didn't see what she wanted, it could be made to order, so that fit, color, and style were just right. Such a system would yield substantial savings in the areas of transport, branding, advertising, and marketing as well as a dramatic reduction in overproduction. Those savings could be used to pay decent wages, install environmentally sustainable production technologies, fund better quality materials, and support designers.

Such a vision could be realized through a combination of activist pressure, consumer mobilization, and government policies. The federal government could offer special subsidies for training and education for designers and enterprise loans to small business owners. Local governments could support apparel manufacturers through tax incentives and marketing initiatives.

3. Clean Clothes: Guaranteeing Social Justice and Environmental Responsibility

Relocalization is an important part of a movement toward a just and sustainable apparel industry. But it must go hand in hand with improvements in wages and working conditions in factories and small production units abroad. Such reform is essential to relocalizing on a global scale, because it will be the foundation for

creating purchasing power in India, China, Bangladesh, and other southern countries. For now, the north must continue importing in order to provide employment for impoverished foreign workers. But as wages rise abroad, these workers can produce for their own domestic markets.

One of the most important social movements of the past decade has been the coalition of labor, student, and religious activists opposing the exploitation of garment workers around the globe. The Gap, Nike, Kmart, and others have been exposed and embarrassed by their labor practices. Students have demanded that their college's insignia clothing not be produced by sweated labor, and more than ninety institutions have complied. Most American consumers now believe that the workers who make their clothing should be paid decently, and surveys indicate they are willing to pay somewhat more to achieve that goal.

To date, however, the industry response has been inadequate. While some progress has been made, far more energy has gone into winning the PR battle than has been devoted to substantive reform. Companies remain opposed to free association in unions, which is the only true long-term solution to abuse. Nevertheless, the principle of what Europeans call "clean clothes" is making headway. In Europe, major clothing retailers have committed themselves to codes of conduct that ensure reasonable working conditions, free association, and other labor rights. For example, the British chain Marks and Spencer has joined the Ethical Trading Initiative, which is a government-sponsored initiative bringing together nongovernmental organizations (NGOs), unions, and businesses. Next, another British chain, works with Oxfam on ethical trading.

Indeed, the successes of the European clean-clothes movement are worth looking at, particularly for extending beyond labor rights into environmental impacts. In 1996, the Dutch company C&A instituted rigorous controls over its suppliers—monitoring more than one thousand production units annually—to guarantee labor conditions and environmental impacts. It uses the Eco-Tex label for environmental certification, and many of its own brands sport it. Marks and Spencer has begun an organic cotton design project with the Royal College of Art.

The German company Otto Versand, the largest mail-order business in the world, has perhaps gone farthest in terms of environmental sustainability. It has reduced paper use in its catalogs and packaging; its mail-order facility uses wind and solar power; and it is moving to incorporate sustainability throughout its product lines. Otto subsidizes the production of organic cotton in Turkey and India, and last year offered 250,000 organic cotton products. The company has reduced the use of harmful chemicals in textiles and has certified that 65 percent of its clothing passes a strict "skin-test" for dangerous substances. In the late 1990s, Otto worked with Century Textiles (India's largest textile exporter), to phase out azo-dyes. The company has also introduced its Future Collection, which is oriented to production ecology through conservation of energy and

water resources. To encourage consumers to adopt a long-term perspective, they offer a three-year replacement guarantee for all their clothes.

To be sure, the shift to just and ecologically sustainable clothing is not simple. The price of organic clothing is currently high, putting it out of reach for many consumers. But activist pressure can help solve this problem, as the European successes are showing. And the U.S. market is already increasing. Nike and The Gap have begun to use some organic cotton. If one or two major U.S. companies commit to a substantial program of organic cotton use, demand will grow and prices will fall. And even a high-priced company such as Patagonia has made some accommodations for affordability—all its clothes carry a no-questions-asked indefinite replacement guarantee and the company operates a number of discount outlets.

The successes of the European campaigns suggest that comparable progress is possible on this side of the Atlantic as well. For example, Eileen Fisher, a high-end women's retailer, has signed on to SA 8000, an international social and environmental standard. U.S. manufacturers and retailers are sensitive to the need to maintain their public image. If we can educate consumers and mobilize activists, we can "clean" the American closet. Doing so would be a substantial step toward a sustainable, but also fashionable, planet.

Note

Schor, Juliet. 2002. "Cleaning the Closet: Toward a New Fashion Ethic." In *Sustainable Planet: Solutions for the Twenty-first Century*, ed. Juliet Schor and Betsy Taylor. Boston: Beacon.

Greetings from the Non-Barcode People

Michael Pollan

Most food in the United States is produced, distributed, and consumed within the framework of an industrial model that emphasizes quantity over quality and that depends on consumers' lack of interest in and awareness about the origin of the food they purchase (if they knew, they would probably not be pleased). Polyface Farm, described in this chapter from journalist Michael Pollan's book, The Omnivore's Dilemma: A Natural History of Four Meals, *is one example of the many ways that people are imagining and creating models of non-industrial agriculture. Often, such models depend not only on alternative production techniques but also on different models of distribution and of consumer behavior; for one thing, consumers need to care about the quality of their food.*

1. Wednesday Afternoon

What had brought me to Polyface in the first place . . . was Joel's refusal to FedEx me a steak. I was given to understand that his concept of sustainability was not limited to agricultural technique or processing method, but extended the entire length of the food chain. Joel is no more likely to sell his grass-finished beef to Whole Foods (let alone Wal-Mart) than he would be to feed his cows grain, chicken manure, or Rumensin; as far as he's concerned, it is all of the same industrial piece. So Polyface does not ship long distance, does not sell into supermarkets, and does not wholesale its food. All three hundred chickens we'd

processed Wednesday morning would be eaten within a few dozen miles or, at the most, half a day's drive, of the farm. Originally I assumed Joel's motive for keeping his food chain so short was strictly environmental—to save on the prodigious quantities of fossil fuel Americans burn moving their food around the country and, increasingly today, the world. But it turns out Joel aims to save a whole lot more than energy.

A chicken—or steak, or ham, or carton of eggs—can find its way from Polyface Farm to an eater's plate by five possible routes: direct sales at the farm store, farmer's markets, metropolitan buying clubs, a handful of small shops in Staunton, and Joel's brother Art's panel truck, which makes deliveries to area restaurants every Thursday. Each of these outlets seems quite modest in itself, yet taken together they comprise the arteries of a burgeoning local food economy that Joel believes is indispensable to the survival of his kind of agriculture (and community), not to mention to the reform of the entire global food system.

In Joel's view, that reformation begins with people going to the trouble and expense of buying directly from farmers they know, "relationship marketing," as he calls it. He believes the only meaningful guarantee of integrity is when buyers and sellers can look one another in the eye, something few of us ever take the trouble to do. "Don't you find it odd that people will put more work into choosing their mechanic or house contractor than they will into choosing the person who grows their food?"

Joel often speaks of his farming as his ministry, and certainly his four hundred or so regular customers hear plenty of preaching. Each spring he sends out a long, feisty, single-spaced letter that could convince even a fast-food junkie that buying a pastured broiler from Polyface Farm qualifies as an act of social, environmental, nutritional, and political redemption.

"Greetings from the non-Barcode people," began one recent missive, before it launched into a high-flying jeremiad against our "disconnected multi-national global corporate techno-glitzy food system" with its "industrial fecal factory concentration camp farms." (The dangerous pileup of modifiers is a hallmark of Joel's rhetorical style.) He darkly warns that the government "and their big-food-system fraternity-mates" are exploiting worries about bioterrorism to regulate small food producers out of business, and beseeches his customers "to stand with Polyface during these paranoid, hysterical days." Like any good jeremiad, this one eventually transits from despair to hope, noting that the "yearning in the human soul to smell a flower, pet a pig and enjoy food with a face has never been stronger" before moving into a matter-of-fact discussion of this year's prices and the paramount importance of sending in your order blanks and showing up to collect your chickens on time.

I'd met several of Polyface's four hundred parishioners Wednesday afternoon, and then again on Friday, as they came to collect the fresh chickens they'd

reserved. It was a remarkably diverse group of people: a schoolteacher, several retirees, a young mom with her towheaded twins, a mechanic, an opera singer, a furniture maker, a woman who worked in a metal fabrication plant in Staunton. They were paying a premium over supermarket prices for Polyface food, and in many cases driving more than an hour, over a daunting (though gorgeous) tangle of county roads to come get it. But no one would ever mistake these people for the well-heeled urban foodies generally thought to be the market for organic or artisanal food. There was plenty of polyester in this crowd and a lot more Chevrolets than Volvos in the parking lot.

So what exactly had they come all the way out here to the farm to buy? Here are some of the comments I jotted down:

"This is the chicken I remember from my childhood. It actually tastes like chicken."

"I just don't trust the meat in the supermarket anymore."

"These eggs just jump up and slap you in the face!"

"You're not going to find fresher chickens anywhere."

"All this meat comes from happy animals—I know because I've seen them."

"I drive 150 miles one way in order to get clean meat for my family."

"It's very simple: I trust the Salatins more than I trust the Wal-Mart. And I like the idea of keeping my money right here in town."

I was hearing, in other words, the same stew of food fears and food pleasures (and memories) that has driven the growth of the organic food industry over the past twenty years—that and the satisfaction many Polyface customers dearly take in spending a little time on a farm porch chatting with the Salatins, and taking a beautiful drive in the country to get here. For some people, reconnecting with the source of their food is a powerful idea. For the farmer, these on-farm sales allow him to recapture the ninety-two cents of a consumer's food dollar that now typically winds up in the pockets of processors, middlemen, and retailers.

Later that afternoon, Joel and I took a long drive down to Moneta, at the southern end of the Shenandoah Valley. He was eager for me to meet Bev Eggleston, whose one-man marketing company, EcoFriendly Foods, is a second route along which Polyface food finds its way to eaters. Eggleston, a former herb and livestock farmer who discovered he had a greater gift for marketing food than producing it, sells Polyface meat and eggs from his booths at farmer's markets in the Washington, D.C., area. On the drive, Joel and I talk about the growing local-food movement, the challenges it faces, and the whole sticky issue of price. I asked Joel how he answers the charge that because food like his is more expensive it is inherently elitist.

"I don't accept the premise. First off, those weren't any elitists you met on the farm this morning. We sell to all kinds of people. Second, whenever I hear people say clean food is expensive, I tell them it's actually the cheapest food you can buy. That always gets their attention. Then I explain that with our food all

of the costs are figured into the price. Society is not bearing the cost of water pollution, of antibiotic resistance, of food-borne illnesses, of crop subsidies, of subsidized oil and water—of all the hidden costs to the environment and the taxpayer that make cheap food seem cheap. No thinking person will tell you they don't care about all that. I tell them the choice is simple: You can buy honestly priced food or you can buy irresponsibly priced food."

He reminded me that his meat would be considerably cheaper than it is if not for government regulations and the resulting high cost of processing—at least a dollar cheaper per pound. "If we could just level the playing field—take away the regulations, the subsidies, and factor in the health care and environmental cleanup costs of cheap food—we could compete on price with anyone."

It's true that cheap industrial food is heavily subsidized in many ways such that its price in the supermarket does not reflect its real cost. But until the rules that govern our food system change, organic or sustainable food is going to cost more at the register, more than some people can afford. Yet for the great majority of us the story is not quite so simple. As a society we Americans spend only a fraction of our disposable income feeding ourselves—about a tenth, down from a fifth in the 1950s. Americans today spend less on food, as a percentage of disposable income, than any other industrialized nation, and probably less than any people in the history of the world. This suggests that there are many of us who could afford to spend more on food if we chose to. After all, it isn't only the elite who in recent years have found an extra fifty or one hundred dollars each month to spend on cell phones (now owned by more than half the U.S. population, children included) or television, which close to 90 percent of all U.S. households now pay for. Another formerly free good that more than half of us happily pay for today is water. So is the unwillingness to pay more for food really a matter of affordability or priority?

As things stand, artisanal producers like Joel compete not on price but quality, which, oddly enough, is still a somewhat novel idea when it comes to food. "When someone drives up to the farm in a BMW and asks me why our eggs cost more . . . . well, first I try not to get mad. Frankly, any city person who doesn't think I deserve a white-collar salary as a farmer doesn't deserve my special food. Let them eat E. coli: But I don't say that. Instead, I take him outside and point at his car. 'Sir, you clearly understand quality and are willing to pay for it. Well, food is no different: You get what you pay for.'

"Why is it that we exempt food, of all things, from that rule? Industrial agriculture, because it depends on standardization, has bombarded us with the message that all pork is pork, all chicken is chicken, eggs eggs, even though we all know that can't really be true. But it's downright un-American to suggest that one egg might be nutritionally superior to another." Joel recited the slogan of his local supermarket chain: "'We pile it high and sell it cheap.' What other business would ever sell its products that way?"

When you think about it, it is odd that something as important to our health and general well-being as food is so often sold strictly on the basis of price. The value of relationship marketing is that it allows many kinds of information besides price to travel up and down the food chain: stories as well as numbers, qualities as well as quantities, values rather than "value." And as soon as that happens people begin to make different kinds of buying decisions, motivated by criteria other than price. But instead of stories about how it was produced accompanying our food, we get bar codes as inscrutable as the industrial food chain itself, and a fair symbol of its almost total opacity.

Not that a bar code needs to be so obscure or reductive. Supermarkets in Denmark have experimented with adding a second bar code to packages of meat that when scanned at a kiosk in the store brings up on a monitor images of the farm where the meat was raised, as well as detailed information on the particular animal's genetics, feed, medications, slaughter date, etc. Most of the meat in our supermarkets simply couldn't withstand that degree of transparency; if the bar code on the typical package of pork chops summoned images of the CAFO [concentrated animal feeding operation] it came from, and information on the pig's diet and drug regimen, who could bring themselves to buy it? Our food system depends on consumers' not knowing much about it beyond the price disclosed by the checkout scanner. Cheapness and ignorance are mutually reinforcing. And it's a short way from not knowing who's at the other end of your food chain to not caring—to the carelessness of both producers and consumers. Of course, the global economy couldn't very well function without this wall of ignorance and the indifference it breeds. This is why the rules of world trade explicitly prohibit products from telling even the simplest stories—"dolphin safe," "humanely slaughtered," etc.—about how they were produced.

For his part, Joel would just as soon build local economies in which bar codes are unnecessary rather than attempt to enhance them—to use technology or labeling schemes to make the industrial food chain we have more transparent. I realized with a bit of a jolt that his pastoral, or agrarian, outlook doesn't adequately deal with the fact that so many of us now live in big cities far removed from the places where our food is grown and from opportunities for relationship marketing. When I asked how a place like NewYork City fit into his vision of a local food economy he startled me with his answer: "Why do we have to have a NewYork City? What good is it?"

If there was a dark side to Joel's vision of the postindustrial food chain, I realized, it was the deep antipathy to cities that has so often shadowed rural populism in this country. Though when I pressed him, pointing out that New York City, den of pestilence and iniquity though it might be, was probably here to stay and would need to eat, he allowed that farmer's markets and CSAs—"community supported agriculture," schemes in which customers "subscribe" to a farm, paying a few hundred dollars at the start of the growing season in

exchange for a weekly box of produce through the summer—might be a good way for urbanites to connect with distant farmers. For my own part, this taut little exchange made me appreciate what a deep gulf of culture and experience separates me from Joel—and yet at the same time, what a sturdy bridge caring about food can sometimes provide.

(Sometimes, but not always, for the antipathy of city and country still runs deep—and in both directions.) I once encouraged a food writer from a big city newspaper to pay a visit to Polyface. The day she got back she telephoned me, all in a lather about the alien beings she'd had to spend the day with in Swoope: "*You never warned me he had a Jesus fish on his front door*!"

When Joel and I arrived at Bev's office that afternoon, we were greeted by an intense, wiry, blue-eyed fellow in his forties wearing shorts and a Polyface baseball cap, and talking a mile a minute. Joel had explained on the way down that Bev was at the moment operating under excruciating financial pressure: He had mortgaged his family's farm to build a small meat-processing plant. Bev's experience at the farmer's markets had convinced him of the growing demand for pastured meat, but supply was limited by the shortage of small processing plants willing to work with the state's grass farmers. So he'd decided to build one himself.

Bev was nearing the end of his financial rope while the USDA dillydallied on the approvals he needed to open. Yet when he'd finally secured the necessary permits, hired a crew, and begun killing animals, the USDA abruptly pulled its inspector, effectively shutting him down. They explained that Bev wasn't processing enough animals fast enough to justify the inspector's time—in other words, he wasn't sufficiently industrial, which of course was precisely the point of the whole venture. I realized Joel had wanted me to see Bev's predicament as proof of his contention that the government is putting obstacles in the path of an alternative food system.

Remarkably under the circumstances, Bev—whose business card gives his full name as Beverly P. Eggleston IV—had not lost his sense of humor or weakness for bad puns and high-velocity patter. When I told him what I'd been up to on the farm all week he cautioned me that "trying to follow Joel around will give you carpool tunnels and oldtimer's disease." Joel thinks Bev is the funniest man alive. He also fervently wants him to succeed and has been advancing him thousands of dollars' worth of Polyface product to help float him while he does battle with the bureaucrats.

After Bev took us on a tour through the shiny new processing facility, a million dollars' worth of stainless steel and white tile built to exacting USDA specifications and sitting idle, we repaired to the trailer home parked out back, where Bev appeared to be living on potato chips and caffeinated soda. Every weekend he drives the three hundred miles up to Washington with a truckload of product from Joel and other grass farmers from all over Virginia. I asked him about sell-

ing pastured meats at farmer's markets, about exactly what it took to get people to pay the extra money.

"What I sell them on is where they're coming from," Bev explained. "There's a whole wheel of reasons to work with, and you've got three seconds to figure out what their issue is. Animal cruelty? Pesticides? Nutrition? Taste?" Joel had told me Bev is a born salesman ("He could sell a hat rack to a moose"), and it wasn't hard to imagine him working the Saturday crowd, hitting the adjacent chords of fear and pleasure and health, all the while barbecuing free samples and unspooling his high-speed shtick. "This is food for folks whose faces itch when the wool's being pulled over their eyes," Bev said, giving me a taste of his spiel. "Instead of mad cow disease, we've got glad cows at ease."

Not many farmers can do this; indeed, many farmers become farmers precisely so they don't have to do any such thing. They'd much prefer to work with animals or plants rather than human strangers, and for these farmers direct relationship marketing isn't an option, which is why they're happy to have someone like Bev work the farmer's markets for them, even if that means giving him a cut on top of the 6 percent the farmer's market already takes from every dollar of sales. It's still a vastly better deal than wholesaling commodities.

Sitting around the trailer's tiny kitchen table drinking sodas, Bev and Joel talked about the economics of selling food locally. Joel said the farmer's market was his least profitable outlet, which is why he had stopped doing them himself a few years ago. All the same, farmer's markets have blossomed in recent years, their number increasing from 1,755 a decade ago to 3,137 at last count. Joel was even higher on metropolitan buying clubs, a scheme with which I was not familiar. A group of families gets together to place a big order once or twice a month; a lead person organizes everything, and offers her home as a pickup site, usually in exchange for free product. The size of the order makes it worth the farmer's while to deliver, in Joel's case sometimes as far as Virginia Beach or Bethesda—half a day's drive. Metropolitan buying clubs represent the fastest-growing segment of Joel's market.

Who were these consumers? In Joel's case mostly young mothers concerned about the health of their children, many of them drawn from the homeschooling community ("People who have already opted out once") or from an organization called the Weston Price Foundation. Dr. Weston Price was a dentist who in the 1930s began to wonder why isolated "primitive" tribes had so much better teeth and general good health than people living in industrialized countries. He traveled all over the world researching the diets of the healthiest, longest-lived populations, and found certain common denominators in their diets: They ate lots of meat and fats from wild or pastured animals; unpasteurized dairy products; unprocessed whole grains; and foods preserved by fermentation. Today the foundation, which is run by a nutrition expert and cookbook author named Sally Fallon, promotes these traditional

diets in books and conferences, as well as on its Web site, where Joel is one of the producers often cited.

"The beauty of the Internet is that it allows like-minded people to find their tribes, and then for the tribes to find their way to us"—all without the expense of marketing or a storefront. Eatwild.com, a site that promotes the benefits of pastured meat and dairy, is another route by which consumers find their way to Polyface. "It's never been easier for people to opt out."

"Opting out" is a key term for Joel, who believes that it would be a fatal mistake to "try to sell a connected, holistic, ensouled product through a Western, reductionist, Wall Street sales scheme"—by which (I think) he means selling to Whole Foods. As far as both Joel and Bev are concerned there isn't a world of difference between Whole Foods and Wal-Mart. Both are part of an increasingly globalized economy that turns anything it touches into a commodity, reaching its tentacles wherever in the world a food can be produced most cheaply, and then transporting it wherever it can be sold most dearly.

Late in our conversation, Joel asked Bev and me if we'd seen a recent column by Allan Nation in *Stockman Grass Farmer* about "artisanal economics." Drawing on the theories of Harvard Business School professor Michael Porter, Nation had distinguished between industrial and artisanal enterprises to demonstrate why attempts to blend the two modes seldom succeed. Industrial farmers are in the business of selling commodities, he explained, a business where the only viable competitive strategy is to be the-least-cost producer. The classic way any industrial producer lowers the costs of his product is by substituting capital—new technologies and fossil fuel energy—for skilled labor and then stepping up production, exploiting the economies of scale to compensate for shrinking profit margins. In a commodity business a producer must sell ever more cheaply and grow ever bigger or be crushed by a competitor who does.

Nation contrasted this industrial model with its polar opposite, what he calls "artisanal production," where the competitive strategy is based on selling something special rather than being the least-cost producer of a commodity. Stressing that "productivity and profits are two entirely different concepts," Nation suggests that even a small producer can be profitable so long as he's selling an exceptional product and keeping his expenses down.Yet this artisanal model works only so long as it doesn't attempt to imitate the industrial model in any respect. It must not try to replace skilled labor with capital; it must not grow for the sake of growth; it should not strive for uniformity in its products but rather make a virtue of variation and seasonality; it shouldn't invest capital to reach national markets but rather should focus on local markets, relying on reputation and word of mouth rather than on advertising; and lastly, it should rely as much as possible on free solar energy rather than costly fossil fuels.

"The biggest problem with alternative agriculture today," Nation writes, "is that it seeks to incorporate bits and pieces of the industrial model and bits and

pieces of the artisanal model. This will not work . . . . In the middle of the road, you get the worst of both worlds."

Nation's column had helped Joel understand why his broiler business was more profitable than his beef or pork business. Since he could process the chickens himself, the product was artisanal from start to finish; his beef and pork, on the other hand, had to pass through an industrial processing plant, adding to his costs and shrinking his margins.

No one needed to spell it out, but the Porter/Nation theory also helped explain Bev's current predicament. He had built an artisanal meat plant, designed to custom-process pastured livestock humanely and scrupulously, no more than a few dozen animals a day. But his artisanal enterprise was being forced to conform to a USDA regulatory system that is based on an industrial model—indeed, that was created in response to the industrial abuses Upton Sinclair chronicled in *The Jungle*. The federal regulatory regime is expressly designed for a large slaughterhouse operated by unskilled and indifferent workers killing and cutting as many as four hundred feedlot animals an hour. The volume of such an operation can easily cover the costs of things like a dedicated restroom for the inspector, or elaborate machinery to steam clean (or irradiate) carcasses presumed to carry E. coli. The specifications and costly technologies implicitly assume that the animals being processed have been living in filth and eating corn rather than grass. The industrial packing plant where number 534 met his end can take a steer from knocker to boxed beef for about fifty dollars a head; it would cost nearly ten times as much to process him in a custom facility like this. The industrial and artisanal economies clash right here in Bev's packing plant, and sadly, it's not hard to guess which one will ultimately prevail.

2. Thursday Morning

I woke to the sound of Joel's brother Art's panel truck noisily backing up to the salesroom door. The clock said 5:45 A.M. Thursday is delivery day, and Art likes to start staging orders and organizing his truck before any of the other farmers he makes deliveries for shows up. I threw on some clothes and dashed out to meet him. Art is five years older than Joel and, on first impression, a very different sort of character; not nearly so sunny or expansive, more grounded in the world as it is and, perhaps as a result, prone to flashes of crankiness I've never observed in Joel. But then, Art works in a less pastoral world, one in which he has to contend with city traffic and overzealous meter maids as well as the occasional temperamental chef. Compared to his brother's revolutionary zeal, Art seems to have passed the point of believing that this world, or for that matter the human soul, is ever going to be substantially different than we find it.

Every Thursday Art mounts a scrupulously planned military operation to supply Charlottesville's white-tablecloth restaurants with pastured meat and

eggs from Polyface, as well as produce, dairy products, and mushrooms from a half dozen other small producers in the Shenandoah Valley. He phones his farmers on Monday night to find out what they've got, faxes his chefs an order list Tuesday morning, sells and writes orders all day Tuesday, Tuesday night faxes them to the farmers so they can harvest Wednesday, and then meet up with Art in the Polyface parking lot shortly after dawn on Thursday.

I spent the better part of Thursday riding shotgun in Art's panel truck, an old orange Dodge Caravan with a cranky compressor on the roof and a sign on the side that says ON DELIVERY FROM POLYFACE INC. FOLLOW ME TO THE BEST RESTAURANTS IN TOWN. Which seemed to be more or less the case: Most of Charlottesville's best chefs buy from Polyface, primarily chickens and eggs, but also lots of pork and as many rabbits as Daniel can raise. We made most of our deliveries after lunch, when the kitchens were prepping dinner and relatively quiet. After Art nailed down a quasi-legal parking spot, I'd help him haul in plastic totes the size of laundry baskets laden with meat and produce. The chefs had uniformly high praise for the quality of Polyface produce, and clearly felt good about supporting a local farm, which many of them had visited on one of the Chef Appreciation Days that Polyface holds each summer. I could have filled a notebook with their encomiums. A few:

"Okay, a happier chicken, great, but frankly for me it's all about the taste, which is just so different this is a chickenier chicken."

"Art's chickens just taste cleaner, like the chicken I remember when I was a kid. I try to buy from people who are in my community and stand by their food. Don Tyson, on the other hand, stands behind a bunch of lawyers."

"Oh, those beautiful eggs! The difference is night and day—the color and richness and fat content. There's just no comparison. I always have to adjust my recipes for these eggs—you never need as many as they call for."

Between stops, Art mentioned that Joel's eggs usually gave him his foot in the door when trying to land a new account. We stopped in at one such prospect, a newly opened restaurant called the Filling Station. Art introduced himself and presented the chef with a brochure and a dozen eggs. The chef cracked one into a saucepan; instead of spreading out flabbily the egg stood up nice and tall in the pan. Joel refers to this as "muscle tone." When he first began selling eggs to chefs, he'd crack one right into the palm of his hand, and then flip the yolk back and forth from one hand to another to demonstrate its integrity. The Filling Station chef called his staff over to admire the vibrant orange color of the yolk. Art explained that it was the grass diet that gave the eggs their color, indicating lots of beta-carotene. I don't think I'd ever seen an egg yolk rivet so many people for so long. Art beamed; he was in.

At one restaurant, the chef inquired if Art could find him some game birds; maybe in the fall, Art offered. Later, back in the truck, Art launched into a little

diatribe about seasonality—one of the stiffest challenges facing the development of a local food economy.

"We have to battle the idea that you can have anything you want any time you want it. Like 'spring lamb.' What the hell does that mean? That's not its natural cycle. You want lambs to hit the ground when the grass is lush, in April. They won't be ready for eight to ten months after that—not till early winter. But the market's become totally out of sync with nature. We should eat red meat when it's cold, but people want chicken in the winter, when we don't have it."

A global food market, which brings us New Zealand lamb in the spring, Chilean asparagus in December, and fresh tomatoes the year round, has smudged the bright colors of the seasonal food calendar we all once knew by heart. But for local food chains to succeed, people will have to relearn what it means to eat according to the seasons. This is especially true in the case of pastured animals, which can be harvested only after they've had several months on rapidly growing grass. Feeding animals corn in CAFOs has accustomed us to a year-round supply of fresh meats, many of which we forget were once eaten as seasonally as tomatoes or sweet corn: People would eat most of their beef and pork in late fall or winter, when the animals were fat, and eat chicken in the summer.

Joel told me that when he first began selling eggs to chefs, he found himself apologizing for their pallid hue in winter; the yolks would lose their rich orange color when the chickens came in off the pasture in November. Then he met a chef who told him not to worry about it. The chef explained that in cooking school in Switzerland he'd been taught recipes that specifically called for April eggs, August eggs, and December eggs. Some seasons produce better yolks, others better whites, and chefs would adjust their menus accordingly.

Both Joel and Art evinced the deepest respect for their chefs, who not only seldom argued price and wrote checks right on the spot, but clearly appreciated their work and, very often, acknowledged it right on their menus: "Polyface Farm Chicken" is something I saw on menus and specials boards all over Charlottesville.

This informal alliance of small farmers and local chefs is something you find in many cities these days. Indeed, ever since Alice Waters opened Chez Panisse in Berkeley in 1973, chefs have been instrumental in helping rebuild local food economies all over America. Waters made a point of sourcing much of her food from local organic growers, cooked only what was in season, and shone the bright light of glamour on the farmers, turning many of them into menu celebrities. Chefs like Waters have also done much to educate the public about the virtues of local agriculture, the pleasures of eating by the season, and the superior qualities of exceptionally fresh food grown with care and without chemicals. The Roman writer Livy once warned that when a society's chefs come to be regarded as consequential figures, it is a sure sign that society is well down

the road to decadence. Livy's rule might have held up until the 1960s in America, but clearly no longer. Who would ever have guessed before then that America's chefs would be leading a movement to save small farmers and reform America's food system?

To talk to the chefs, customers, and farmers working together in this one corner of the country to rebuild a local food chain is to appreciate that it is a movement, and not merely a market. Or rather it is a novel hybrid, a market as movement, for at its heart is a new conception of what it means to be a consumer—an attempt to redeem that ugly word, with its dismal colorings of selfishness and subtraction. Many of the Polyface customers I met (though by no means all of them) had come to see their decision to buy a chicken from a local farmer rather than from Wal-Mart as a kind of civic act, even a form of protest. A protest of what exactly is harder to pin down, and each person might put it a little differently, but the customers I met at Polyface had gone to some trouble and expense to opt out—of the supermarket, of the fast-food nation, and, standing behind that, of a globalized industrial agriculture. Their talk of distrusting Wal-Mart, resenting the abuse of animals in farm factories, insisting on knowing who was growing their food, and wanting to keep their food dollars in town—all this suggested that for many of these people spending a little more for a dozen eggs was a decision inflected by a politics, however tentative or inchoate.

Shortly before I traveled to Virginia I'd read an essay by Wendell Berry called "The Whole Horse" in which he argued that reversing the damage done to local economies and the land by the juggernaut of world trade would take nothing less than "a revolt of local small producers and local consumers against the global industrialism of the corporation." He detected the stirrings of such a rebellion in the rise of local food systems, and the growing market "for good, fresh, trustworthy food, food from producers known and trusted by consumers." Berry would have us believe that what I was seeing in the Polyface salesroom represented a local uprising in a gathering worldwide rebellion against what he calls "the total economy."

Why should food, of all things, be the linchpin of that rebellion? Perhaps because food is a powerful metaphor for a great many of the values to which people feel globalization poses a threat, including the distinctiveness of local cultures and identities, the survival of local landscapes, and biodiversity. When José Bové, the French antiglobalization activist (and Roquefort farmer), wanted to make his stand against globalization, he drove his tractor through the plate glass not of a bank or insurance company, but of a McDonald's. Indeed, the most powerful protests against globalization to date have all revolved around food: I'm thinking of the movement against genetically modified crops, the campaign against patented seeds in India (which a few years ago brought four hundred thousand Indians into the streets to protest WTO intellectual property

rules), and Slow Food, the Italian-born international movement that seeks to defend traditional food cultures against the global tide of homogenization.

Even for people who find the logic of globalization otherwise compelling, the globalization of food often stops them short. That logic treats food as a commodity like any other, and that simply doesn't square with people's beliefs or experience. Once the last barrier to free trade comes down, and the last program of government support for farmers ends, our food will come from wherever in the world it can be produced most cheaply. The iron law of competitive advantage dictates that if another country can grow something more efficiently—whether because its land or labor is cheaper or its environmental laws more lax—we will no longer grow it here. What's more, under the global economic dispensation, this is an outcome to be wished for, since it will free our land for more productive uses—more houses, say. Since land in the United States is relatively expensive, and our tolerance for agricultural pollution and animal cruelty is wearing thin, in the future all our food may come from elsewhere. This argument has been made by, among others, economist Steven Blank, in a book rather bloodlessly titled *The End of Agriculture in the American Portfolio*.

And why *should* a nation produce its own food when others can produce it more cheaply? A dozen reasons leap to mind, but most of them the Steven Blanks of the world—and they are legion—are quick to dismiss as sentimental. I'm thinking of the sense of security that comes from knowing that your community, or country, can feed itself; the beauty of an agricultural landscape; the outlook and kinds of local knowledge that farmers bring to a community; the satisfactions of buying food from a farmer you know rather than the supermarket; the locally inflected flavor of a raw-milk cheese or honey. All those things—all those pastoral values—globalization proposes to sacrifice in the name of efficiency and economic growth.

Though you do begin to wonder who is truly the realist in this debate, and who the romantic. We live, as Berry has written (in an essay called "The Total Economy"), in an era of "sentimental economics," since the promise of global capitalism, much like the promise of communism before it, ultimately demands an act of faith: that if we permit the destruction of certain things we value here and now we will achieve a greater happiness and prosperity at some unspecified future time. As Lenin put it, in a sentiment the WTO endorses in its rulings every day, you have to break a few eggs to make an omelet.

Perhaps it is no accident that sentimental communism foundered precisely on the issue of food. The Soviets sacrificed millions of small farms and farmers to the dream of a collectivized industrial agriculture that never managed to do what a food system has to do: feed the nation. By the time of its collapse, more than half of the food consumed in the Soviet Union was being produced by small farmers and home gardeners operating without official sanction, on private plots tucked away in the overlooked corners and cracks of the crumbling

Soviet monolith. George Naylor, speaking from deep inside the American monolith, might be onto something when, during our conversations about industrial agriculture, he likened the rise of alternative food chains in America to "the last days of Soviet agriculture. The centralized food system wasn't serving the people's needs, so they went around it. The rise of farmer's markets and CSAs is sending the same signal today." Of course the problems of our food system are very different if anything, it produces too much food, not too little, or too much of the wrong food. But there's no question that it is failing many consumers and producers, which is why they are finding creative ways around it.

So much about life in a global economy feels as though it has passed beyond the individual's control—what happens to our jobs, to the prices at the gas station, to the vote in the legislature. But somehow food still feels a little different. We can still decide, every day, what we're going to put into our bodies, what sort of food chain we want to participate in. We can, in other words, reject the industrial omelet on offer and decide to eat another. This might not sound like a big deal, but it could be the beginnings of one. Already the desire on the part of consumers to put something different into their bodies has created an $11 billion market in organic food. That marketplace was built by consumers and farmers working informally together outside the system, with exactly no help from the government.

Today the total economy, astounding in its ability to absorb every challenge, is well on its way to transforming organic from a reform movement into an industry—another flavor in the global supermarket. It took capitalism less than a quarter century to turn even something as ephemeral as bagged salads of cut and washed organic mesclun, of all things, into a cheap international commodity retailed in a new organic supermarket. Whether this is a good or bad thing people will disagree.

Joel Salatin and his customers want to be somewhere that that juggernaut can't go, and it may be that by elevating local above organic, they have found exactly that place. By definition local is a hard thing to sell in a global marketplace. Local food, as opposed to organic, implies a new economy as well as a new agriculture—new social and economic relationships as well as new ecological ones. It's a lot more complicated.

Of course, just because food is local doesn't necessarily mean it will be organic or even sustainable. There's nothing to stop a local farmer from using chemicals or abusing animals—except the gaze or good word of his customers. Instead of looking at labels, the local food customer will look at the farm for himself, or look the farmer in the eye and ask him about how he grows his crops or treats his animals. That said, there are good reasons to think a genuinely local agriculture will tend to be a more sustainable agriculture. For one thing, it is much less likely to rely on monoculture, the original sin from which almost every other problem of our food system flows. A farmer dependent on a local

market will, perforce, need to grow a wide variety of things rather than specialize in the one or two plants or animals that the national market (organic or otherwise) would ask from him.

The supermarket wants all its lettuce from the Salinas Valley, all its apples from Washington State, and all its corn from Iowa. (At least until the day it decides it wants all its corn from Argentina, all its apples from China, and all its lettuce from Mexico.) People in Iowa can eat only so much corn and soybeans themselves. So when Iowans decide to eat locally, rather than from the supermarket, their farmers will quickly learn to grow a few other things besides. And when they do, they'll probably find that they can give up most of their fertilizers and pesticides, since a diversified farm will produce much of its own fertility and its own pest control.

Shopping in the organic supermarket underwrites important values on the farm; shopping locally underwrites a whole set of other values as well. That's because farms produce a lot more than food; they also produce a kind of landscape and a kind of community. Whether Polyface's customers spend their food dollars here in Swoope or in the Whole Foods in Charlottesville will have a large bearing on whether this lovely valley—this undulating checkerboard of fields and forests—will endure, or whether the total economy will find a "higher use" for it. "Eat your view!" is a bumper sticker often seen in Europe these days; as it implies, the decision to eat locally is an act of conservation, too, one that is probably more effective (and sustainable) than writing checks to environmental organizations.

"Eat your view!" takes work, however. To participate in a local food economy requires considerably more effort than shopping at the Whole Foods. You won't find anything microwaveable at the farmer's market or in your CSA box, and you won't find a tomato in December. The local food shopper will need to put some work into sourcing his food: into learning who grows the best lamb in his area, or the best sweet corn. And then he will have to become reacquainted with his kitchen. Much of the appeal of the industrial food chain is its convenience; it offers busy people a way to delegate their cooking (and food preservation) to others. At the other end of the industrial food chain that begins in a cornfield in Iowa sits an industrial eater at a table. (Or, increasingly, in a car.) The achievement of the industrial food system over the past half century has been to transform most of us into precisely that creature.

All of which is to say that a successful local food economy implies not only a new kind of food producer, but a new kind of eater as well, one who regards finding, preparing, and preserving food as one of the pleasures of life rather than a chore. One whose sense of taste has ruined him for a Big Mac, and whose sense of place has ruined him for shopping for groceries at Wal-Mart. This is the consumer who understands or remembers that, in Wendell Berry's memorable phrase, "eating is an agricultural act." He might have added that it's a political act as well.

This is precisely the mission that Slow Food has set for itself—to remind a generation of industrial eaters of their connections to farmers and farms, and to the plants and animals we depend on. The movement, which began in 1989 as a protest against the opening of a McDonald's in Rome, recognizes that the best way to fight industrial eating is by simply recalling people to the infinitely superior pleasures of traditional foods enjoyed communally. The consumer becomes, in founder Carlo Petrini's phrase, a "coproducer"—his eating contributes to the survival of landscapes and species and traditional foods that would otherwise succumb to the fast-food ideal of "one world, one taste." Even connoisseurship can have a politics, Slow Food wagers, since an eater in closer touch with his senses will find less pleasure in a box of Chicken McNuggets than in a pastured chicken or a rare breed of pig. It's all very Italian (and decidedly un-American): to insist that doing the right thing is the most pleasurable thing, and that the act of consumption might be an act of addition rather than subtraction.

On my last day on the farm, a soft June Friday afternoon, Joel and I sat talking at a picnic table behind the house while a steady stream of customers dropped by to pick up their chickens. I asked him if he believed the industrial food chain would ever be overturned by an informal, improvised movement made up of farmer's markets, box schemes, metropolitan buying clubs, slow-foodies, and artisanal meat-processing plants like Bev Eggleston's. Even if you count the organic supermarket, the entire market for all alternative foods remains but a flea on the colossus of the industrial food economy, with its numberless fast-food outlets and supermarkets backed by infinite horizons of corn and soybeans.

"We don't have to beat them," Joel patiently explained. "I'm not even sure we should try. We don't need a law against McDonald's or a law against slaughterhouse abuse—we ask for too much salvation by legislation. All we need to do is empower individuals with the right philosophy and the right information to opt out en masse.

"And make no mistake: It's happening. The mainstream is splitting into smaller and smaller groups of like-minded people. It's a little like Luther nailing his ninety-five theses up at Wittenberg. Back then it was the printing press that allowed the Protestants to break off and form their own communities; now it's the Internet, splintering us into tribes that want to go their own way."

Of course! Joel saw himself as more of a Luther than a Lenin; the goal wasn't to blow up the Church, but simply to step around it. Protestantism also comes in many denominations, as I suspect will the future of food. Deciding whether that future should more closely resemble Joel's radically local vision or Whole Foods' industrial organic matters less than assuring that thriving alternatives exist; feeding the cities may require a different sort of food chain than feeding the countryside. We may need a great many different alternative food

chains, organic and local, biodynamic and slow, and others yet undreamed of. As in the fields, nature provides the best model for the marketplace, and nature never puts all her eggs in one basket. The great virtue of a diversified food economy, like a diverse pasture or farm, is its ability to withstand any shock. The important thing is that there be multiple food chains, so that when any one of them fails—when the oil runs out, when mad cow or other food-borne diseases become epidemic, when the pesticides no longer work, when drought strikes and plagues come and soils blow away—we'll still have a way to feed ourselves. It is because some of those failures are already in view that the salesroom at Polyface Farm is buzzing with activity this afternoon, and why farmer's markets in towns and cities all across America are buzzing this afternoon, too.

"An alternative food system is rising up on the margins," Joel continued. "One day Frank Perdue and Don Tyson are going to wake up and find that their world has changed. It won't happen overnight, but it will happen, just as it did for those Catholic priests who came to church one Sunday morning only to find that, my goodness, there aren't as many people in the pews today. Where in the world has everybody gone?"

Note

Pollan, Michael. 2006. "The Market." Pp. 240–261 in *The Omnivore's Dilemma: A Natural History of Four Meals.* New York: Penguin.

Healing the Rift
Metabolic Restoration in Cuban Agriculture

Rebecca Clausen

In this piece, Rebecca Clausen shows how Cuba transformed its agricultural system for the better. Cuba, a socialist state since 1959, experienced close trade relations with the former Soviet Union, which provided Cuban agriculture with machinery, oil, and chemical inputs. With the collapse of the Soviet Union in 1990 the country entered a severe economic crisis, often referred to as "the Special Period," which was characterized by critical food and energy shortages. In response to the crisis, the Cuban people and their government launched a series of initiatives that transformed the country's farming practices from a resource intensive industrial model that produced primarily mono-crops for export to a sustainable model based on lower resource use and higher mental and physical labor inputs that produced a diversity of crops for local consumption. The result is an extraordinarily successful model of organic agriculture that other regions across the globe are seeking to replicate. Karl Marx developed the concept of a "metabolic rift" to explain what can go wrong when people become too distant from the land that supports them; using the case of Cuba, Clausen shows how the rift can be repaired.

As John Bellamy Foster explained in "The Ecology of Destruction" (*Monthly Review*, February 2007), Marx explored the ecological contradictions of capitalist society as they were revealed in the nineteenth century with the help of the two concepts of metabolic rift and metabolic restoration. The metabolic rift describes how the logic of accumulation severs basic processes of natural reproduction leading to the deterioration of ecological sustainability. Moreover, "by destroying the circumstances surrounding that metabolism," Marx went on to argue, "it [capitalist production] compels its systematic restoration as a regulating law of social reproduction"—a restoration, however, that can only be fully achieved outside of capitalist relations of production.[1]

Recent developments in Cuban agroecology offer concrete examples of how the rift can be healed, not simply with different techniques but with a transformation of the socio-metabolic relations of food production. Numerous scholars have described the scientific achievements of Cuban organic agriculture. However, the success of Cuban organic agriculture and the potential for it to influence other Latin American and Caribbean nations must be understood not simply as the application of new agricultural technology, but rather as an example of social transformation in its entirety. As Richard Levins notes, "To understand Cuban agricultural development it is first necessary to look at it closely in the richness of detail. . . . Then we have to step back and squint to capture the truly novel pathway of development as a whole that Cuba is pioneering."[2]

"Land Is the Treasure, Labor Is the Key"

Marx's concept of metabolism is rooted in his understanding of the labor process. Labor is a process by which humans mediate, regulate, and control the material exchange between themselves and nature. Land, the earth (and the ecological cycles that define it), and labor, which *is* the metabolic relation between human beings and nature, constitute the two original sources of all wealth. During a trip to Cuba with a group of agricultural researchers late last year I watched a horse-drawn cart transport organic produce from an urban garden of raised beds to the community stand nearby. I noticed a phrase painted on the wall of a storage building: "La tierra es un tesora y el trabajo es su llave," land is the treasure, labor is the key. Witnessing a cooperatively run farm grow and deliver organic produce for its community provided a visual representation of Marx's concept of metabolism. Land, providing the essential raw materials, is treated as a "treasure," one that must not be exploited for short-term gain, but rather replenished through rational and planned application of ecological principles to agriculture (agroecology). And labor, being the physical embodiment of a "key," can access the land's rich qualities to provide healthy subsistence food, equally distributed to the local community.

Marx has two meanings for the term metabolism. One referred to the regulatory processes that govern the complex interchange between humans and nature, specifically with regard to nutrient cycles. The second holds a wider, social meaning describing the institutional norms governing the division of labor and distribution of wealth. The analysis of the metabolic rift addresses both of these meanings. In the ecological sense, Marx notes that capitalist agriculture ceases to be "self-sustaining" since it can "no longer find the natural conditions of its own production within itself"[3] Rather, nutrients must be acquired through long distance trade and separate industries outside of the agricultural sphere. This creates a rift in the natural cycles of soil fertility and waste accumulation.

In the wider, social meaning of metabolism, a rift is created between humanity and the natural world due to the relation of wage labor and capital. Private property in the earth's resources, the division between mental/manual labor, and the antagonistic split between town and country illustrate the metabolic rift on a social level. In capitalism the rift is manifest in many ways, such as the primacy of corporate speculation in real estate, the loss of autonomy of subsistence farmers to the knowledge of "expert" technicians, and the demographic transition from rural farms to urban centers.

"This Is Beautiful Work"

In Cuba I was fortunate to speak with many of the farmers who worked on the *organiponicos.* I was frustrated that my elementary Spanish did not allow for a sophisticated conversation, but I was able to formulate a basic question. "Do you like this work?" I asked a farmer who had been showing me around the urban plots. Without hesitation, the farmer warmly replied, "este es trabajo bonito," this is beautiful work. Through further translation and site visits to four provinces throughout Cuba, I learned how the transformation of food production serves a practical function in Cuba; it supplies nutritious calories without the use of petroleum products, an essential ingredient in most global agribusiness food production.

The Cuban agricultural model reconnects the natural cycle of nutrients, and grounds human labor in the countryside with productive labor in the cities. The transformation of socio-metabolic relations allows biodiversity to act as a resource for food production, such as providing habitat for beneficial insects, rather than a challenge to overcome. New models of ownership and distribution allow for participatory decision making at all levels of cultivation, harvest, and consumption. A new type of labor relationship is introduced, one in which indigenous farmers interact with trained agronomists to best fit a crop to the natural environment, climate, and geography. And in opposition to the skeptics who question whether this model "can only happen in Castro's Cuba," farmers

described the recent experiences of traveling to other Latin American and Caribbean nations to disseminate this new model of food production.

Reestablishing the Spatial Relations of Nutrient Cycles

Cuban agriculture has been lauded for its application of rational science to achieve organic agriculture.[4] Accolades have come from international organizations such as those that voted to give the Cuban Grupo de Agricultura Organica the Alternative Nobel Prize for "developing organic farming methods." The success lies partly in discovery of new methods, but also in transmitting the new information for local implementation. The 280 successful Centers for Production of Entomophages and Entomopathogens (CREEs) are a testament to the potential for rational organization of a national program for biological pest control by production of organisms that attack insect pests of crops.[5] State-sponsored research that develops natural pesticides and bio-fertilizers is crucial to creating an alternative to conventional agriculture; however, it is not the fulcrum upon which metabolic restoration pivots. In order to understand the healing of the metabolic rift in relation to ecological processes, one must understand the spatial reorganization of nutrient cycling.

The ecological understanding of metabolic rift is premised on the spatial relations of physical processes regulating nutrient cycling. The separation of people from the land (rural to urban migration) creates a rift in the metabolism of nature-society relations since nutrients are transported away from the productive crops and farms where they originated, and accumulate as waste products in distant population centers. To replenish the biostructure of the depleted soil, capitalist agriculturalists must obtain nutrients through appropriation (i.e., the historic guano trade) or artificial industrial production (i.e., contemporary synthetic nitrogen) to be continuously applied to farmland. This system of food production severs the natural process of nutrient cycling, and introduces new ecological contradictions associated with the energy requirements for long distance trade in fertilizers while at the same time nutrients accumulate in the sewage of the cities. In a similar manner, the separation of agricultural animals from the cropland that produces their feeds creates a metabolic rift by interrupting the material exchange between grain feeds/livestock and livestock manure/grain feeds. As Foster and Magdoff note, "This breakdown of the physical connection between the animals and the land producing their feeds has worsened the depletion of nutrients and organic matter from soils producing crops."[6] The resulting consequence is the intensification of fertilizer application required to grow grains to meet an increasing demand for concentrated livestock production. The separation of humans, livestock, and crops breaks the return flow of nutrients to the land.

Cuban agriculture over the past thirteen years has worked to reestablish the spatial relationships between nutrient cycles and material exchanges. A key principle of Cuba's agroecology is the optimization of local resources and promotion of within-farm synergisms through plant-animal combinations.[7] The improved spatial integration of plants, animals, and humans can reduce the need for long-distance trade and replenish the fertility of the soil through nearby nutrient sources. Local socioeconomic circumstance and biophysical constraints dictate the type of spatial arrangement of nutrient cycles that are possible. During my visits to Cuban farms I witnessed how farming practices can sustainably cycle nutrients from either local sources or from on-site synergisms. Local resources are used to promote nutrient cycling, with methods for on-site integrations. Each of these methods attempts to fundamentally alter the spatial relations of nutrient cycling and waste assimilation in food production.

Worms, Cows, and Sugarcane

The essential factor required by all farmers for successful food production is nutrient-rich soil. Before the Special Period, Cuba relied on imported, synthetic fertilizers to achieve agricultural productivity. Today, organized systems that unite human labor, animal and crop byproducts, and natural decomposition provide the essential nutrients for sustainable food production. The pathway that leads to replenished fertility and health of the soil does not require long distance trade or intensive energy inputs, rather it relies on the functions of biodiversity and ecological efficiency.

During a visit to a cooperatively run farm in East Havana, a farmer knelt down beside one of many long, rectangular concrete rows that served as high-density housing for the California red worm. He scooped his palm beneath the dark rich top layer of soil to reveal a small sample of the 10,000–50,000 worms that inhabited that particular square meter of biomass. In commercial-scale production, the worms can produce 2,500 to 3,500 cubic meters of humus from 9,000 cubic meters of organic material (a cubic meter is approximately the same volume as a cubic yard).[8] Vermiculture, the method of using worm casings for soil fertilizer, is carried out on the farm so that workers can monitor daily the temperature and moisture of the worm habitat, and apply the nutrient-rich supplement to the crops at the correct time. Vermiculture in itself is not a revolutionary technique, however in Cuba it represents the final stage in an integrated process that reorganizes the use of local products to grow food.

The farmer explained how the worms can produce humus faster by using animal waste rather than vegetable waste, so he routinely obtains cow manure from a nearby farm. The cow manure is itself a product of local nutrient recycling, considering the feed inputs used to nourish the cows are the by-products

of local crops. Although Cuban research centers realized decades ago that cattle could be well nourished by forage grasses, legumes, and crop residues, the prevalence and accessibility of cheap, imported cattle grain from Soviet nations left the benefits unexamined before the Special Period. A change in the material conditions of feed availability, however, allowed for closer inspection of the most sustainable uses of local resources. Cuban researchers learned that by-products from the sugarcane fields provided biological enrichment to cattle diets, and began using these "waste products" as the primary supplements for cattle feed.[9] By-products from the sugarcane harvests include bagasse, molasses, and *cachaza,* as well as fresh cane residues such as the tops of cane stalks. Sugarcane as cattle fodder offers alternative solutions for both metabolizable energy and for protein supply. As two researchers into Cuban agroecology state: "The experiences of various countries over the last 15 years have demonstrated an economic advantage to using sugarcane as the main energy source for cattle feeding in beef and milk production. These systems are of special relevance for tropical countries during the dry season, the optimum season for the sugarcane harvest, and in turn, the most critical one for pasture and forage availability."[10]

As the farmer conveyed this cascading path of nutrients from sugar-cane fields to cattle troughs, from cow manure to worm bins, from worm casings to organic agriculture plots, I began to see how the nutrients within this one province of Cuba were connected through the metabolic actions of the plants and animals. This particular flow of nutrients (sugarcane, cow, worm, crop) delivered to local organic farms is not standard across all of Cuba because other regions have different resources available that can be substituted. For example, in Matanzas—the primary citrus producing province in central Cuba—orange rinds are fermented into silage to serve as cattle feed.[11] Substituting local resources based on availability minimizes transportation energy expenditures and makes ecologically efficient use of nearby nutrients, thereby altering the spatial relationships of conventional agriculture's fertilizer and waste disposal systems.

Another Pasture Is Possible

As we drove down the lane to the "Indio Hatuey" Experiment Station I noticed a fenced and forested landscape on both sides of the road. My naïve assumption that this was some kind of a wood fiber plantation reflects the narrow range of delineated possibilities I've been trained to identify as *either* forest *or* pasture. Specialized production that produces a particular landscape is the standard model for intensive agriculture, and it represents one in which metabolic interactions between species are intentionally and intensively denied. The artistic sign at the entrance of the Pasture and Forage Experimental Station depicting

cattle grazing in trees and tall grasses, surrounded by a symbolic beaker of science, was my first introduction to the sustainable silvopastoral systems.

"Welcome on behalf of the workers," said Mildrey Soca Perez, the director of research at the station. The presentation began with a description of the holistic and interdisciplinary objectives of this experimental station, followed by a discussion of the ecological efficiency associated with livestock-crop integration. Before the Special Period, Cuba relied on an intensive production model for cattle grazing to secure milk and protein for the population. The Special Period triggered a search for alternative means of livestock production using local resources. Knowledge was reconstructed from small farmers who had preserved traditional mixed systems of land use. The spatial reorganization of crop growth and livestock production yielded mutual benefits of nutrient fertilization and waste assimilation. In hindsight, Cuban researchers from the Pasture and Forage Institute recognize that "the separation of crop and livestock production that took place was wasteful of energy and nutrients."[12] As the cows emerged from the forest trees and the researcher described the energy transfers between cows, tree leaves, and grasses, I began to see the ways in which this integration was another concrete example of restoring the rift that had occurred between constituent elements of our food production systems.

The Indio Hatuey farm raises cattle in fields planted with the tree *Leucaena leucocephala.* Cows eat the leaves and branches of this short and heavily forked tree, and workers regularly prune the trees so that the branches are accessible to the cattle. The cows also graze on the grasses in the trees' understory. Leucaena trees fix nitrogen, thereby replenishing the soil that nourishes the grasses.

In addition, the cow manure helps boost the soil fertility for the trees and grasses. The utilization of organic compost on specialized monoculture systems and/or on large-scale production units has high transport and application costs, and specific labor and equipment requirements. Cuban researchers have found, however, that "when the scale of the system is kept smaller, and the degree of integration high, using these techniques is much easier, and in fact becomes a functional necessity of the system, while guaranteeing nutrient recycling.[13]

The leucaena trees provide shade for the cows, thereby reducing heat stress and increasing productivity. To ensure ample photosynthesis for the grasses, the trees are planted in rows extending East-West to maximize the sunlight reaching the ground. The leucaena tree roots prevent erosion by maintaining the integrity of the soil structure, and special attention is given to the cow-tree ratio to ensure that soil compaction does not result. The researchers at Indio Hatuey station found that this system of grazing resulted in 3,000–5,000 liters milk/hectare/year with increased quality in terms of fat and protein content. In addition, the silvopastoral methods reduced the fluctuations of milk production between the rainy and dry seasons and increased the reproduction rates of the cows.

Silvopastoral methods do not only apply to cattle grazing and milk production, as these types of integrated systems are being researched for sheep, goats, pigs, and rabbits. The Indio Hatuey station also conducts research on grazing horses in orange orchards. The horses clear weeds from the orchard floor, reducing the need for herbicides, and provide manure fertilizer to maintain soil fertility. From an economic viewpoint, the orange/horse integrated system yielded a profit that was 388 Cuban pesos/hectare/year higher than the orange monoculture without animals.[14] In each of these cases, the spatial relations of food production are researched and managed to maximize nutrient cycling and adapt the production system to biogeochemical features of the landscape.

On-farm experience in integrated livestock production is demonstrating the potential and viability of widespread conversion to crop/livestock systems. This transformation has implications that go beyond the technological-productive sphere. Rather, these changes directly or indirectly influence the economic, social, and cultural conditions of the small-farming families by reinforcing their ability to sustain themselves through local production. The Cuban farmers and researchers who explained the processes of local and on-site nutrient cycling helped me to see the many hands of workers that allowed this process to continue. New labor relationships, new decision-making structures, and new land and food distribution patterns not only allow for Cubans to subsist on healthier food in an ecologically sustainable manner. These structural changes have fundamentally altered society's metabolism.

Reestablishing the Labor Relations of Food Production Systems

As noted, Marx used the concept of metabolic regulation in a wider, social meaning to "describe the complex, dynamic, interdependent set of needs and relations brought into being and constantly reproduced in alienated form under capitalism."[15] The needs and relations of social metabolism are regulated by the institutional norms governing the division of labor and distribution of wealth. The limitation of human freedom caused by the social metabolic rift provided Marx with a concrete way of expressing the notion of the alienation of nature. This second meaning of metabolism goes beyond the physical laws of nutrient exchanges and addresses the transformation in labor relations and property tenure that must accompany ecological changes if long-term sustainability is to result.

Cuba's conventional agriculture, dependent on fossil fuels and mechanization, was carried out on large state-owned farms that controlled 63 percent of the arable land. By the end of the 1980s, state-owned sugar plantations covered three times more farmland than did food crops, making it necessary for Cuba to import 60 percent of its food, all from the Soviet bloc. The severe food crisis resulting from the Soviet collapse and the stringent U.S. economic blockade took

a physical toll on the Cuban population, as the average Cuban lost twenty pounds and undernourishment jumped from less than 5 percent to over 20 percent during the 1990s.[16] The agrarian reforms, which transformed land tenure and distribution outlets, were the key to recovering from the food crisis.

In September 1993, the Cuban government restructured the state farms as cooperatives owned and managed by the workers. The new programs transformed 41.2 percent of state farm land into 2,007 new cooperatives, with membership totaling 122,000 people.[17] The cooperative owns the crops, and members are compensated based on productivity rather than a wage contract. In addition to being monetarily paid, the associated producers agree to provide meals to workers and personal gardening space for growing and harvesting family provisions. This change in land tenure has not only allowed for better application of organic farming methods, it has reconnected the worker to the land. This reconnection occurs both figuratively, as seen in the worker's description of the farming job as "trabajo bonito," but also geographically. The design of Cuba's agricultural systems is taking into account the need to stabilize rural populations and reverse the rural-urban migration. Cuban agronomists at the Pasture and Forage Research Institute understand that this can only be achieved by rearranging productive structures and investing in developing rural areas, giving farming a more economical and social foundation.[18]

In addition to the cooperatively owned farms, the Cuban government has turned over approximately 170,000 hectares of land to private farmers. This reflects Marx's view that "a rational agriculture needs either small farmers working for themselves or the control of the associated producers."[19] The government retains title to the land, however private farmers receive free rent indefinitely, as well as subsidized equipment. Many Cuban families are now viewing farming as an opportunity and have left the cities to become farmers. The National Association of Small Producers states that membership has expanded by 35,000 from 1997 to 2000. The new farmers tend to be adults with young families (many with college education), early retirees, or workers with a farming background.[20]

Expanding labor opportunities in rural agriculture only addresses one side of Cuba's food production system. The emphasis placed on urban organic gardening transcends the town/country divide using a different strategy—introducing food production systems in abandoned city spaces. The organiponicos' productive raised beds offer organic produce to surrounding neighborhoods from what were once garbage dumps, parking lots, and demolished buildings. Today, urban gardens produce 60 percent of the vegetables Cubans consume.

The urban agriculture movement began informally based on the need of urban dwellers to meet basic food requirements. The Cuban government recognized the potential for urban agriculture and created the Urban Agriculture Department to facilitate the movement. The state formalized the growers' claims

upon vacant lots and legalized the rights to sell theft produce. All urban residents can claim up to one-third of an acre of vacant land, as long as they abide by the rules of all organic farming methods. By the beginning of 2000, more than 190,000 people had applied for and received these personal lots for use in organic farming. In total, 322,000 Cubans are involved in urban agriculture. The Urban Agriculture Department has acted to support and promote urban agriculture by opening neighborhood agricultural extension services where growers can bring their produce to receive technical assistance with pest and disease diagnosis, soil testing, etc.[21]

The transfer of technical agricultural knowledge from agronomists to food producers represents one side of the equation for successful sustainable agriculture. The Cuban model of agriculture recognizes that the artificial divide between mental and manual labor limits the range of opportunities for productive food systems. The goals of a participatory democracy for agricultural decision making have been incorporated into the new farming model, and this is made possible by the new ownership patterns. For example, the smaller cooperative farms are offered assistance by People's Councils, located in all fifteen provinces of Cuba.[22] The People's Councils are comprised of local food producers and technicians that work together to advise the area's farmers on best practices suited for that area. The trained agronomists work with the farmers in site-specific locations to determine the most appropriate techniques.

Farmers' knowledge is also incorporated into agricultural conferences and academic proceedings. Fernando Macaya, the Director of the Cuban Association of Technicians for Agriculture and Forestry (ACTAF), spoke of a Provincial Meeting of Urban Agriculturists he attended in November 2006. Of 105 research papers delivered, 53 were presented by food producers, 34 from research technicians, and 12 from academic professors—61 of the presenters were women. The inclusion of experiential knowledge with experimental data leads to the application of rational science, equally accessible to all members of society. Younger generations are invited to participate in agricultural clubs in school, and teachers are encouraged to promote ecological classrooms. The most recent ACTAF-funded project brought puppet shows to elementary schools, addressing how to grow and use various medicinal herbs.[23] Bridging the artificial divide between mental and manual labor is possible with new labor relationships.

The rift in the social metabolism can be overcome by melding the town/country boundaries (changing land tenure), as well as intersecting the roles of mental and manual labor (changing the division of labor). These two actions involve transformation of food *production*. But there is another relevant feature of the social metabolism of agriculture—the *distribution* of the harvest's "wealth." A key theme of Cuba's sustainable agriculture is diversification of channels of food distribution. Rather than allowing one central authority to control all food distribution, flexibility is built into the distribution process to meet the

populations' varying needs. To help people cope with persistent food availability problems, a ration card is maintained which guarantees every Cuban a minimum amount of food. The diets of children, pregnant women, and the elderly are closely monitored, and intentionally low meal prices are offered at schools and workplaces, with free meals at hospitals.

Neighborhood markets sell produce from organiponicos at well below the cost of the larger community markets, providing fresh vegetables for those who cannot afford the higher prices. By the beginning of 2000, there were 505 vegetable stands in Cuban cities, with prices 50–70 percent lower than at farmers markets.[24] The private farmers markets were opened in 1994 to allow outlets for increased production and greater diversity in produce. The private farmers markets provide producers with another means to distribute goods once basic necessities of the population have been met. Even though the private farmers markets operate on principles of supply and demand, governmental controls are in place to deter price gouging and collusion.

Attention is given to identifying low-income groups, and social assistance programs are created to address their food access. Marcos Nieto, of the Cuban Ministry of Agriculture, describes how "planning takes into account geographic patterns of distribution of the population, especially with regards to areas of high population density, or limited access, or poor soils, etc."[25]

Sovereign Agriculture in Latin America?

The rift in social metabolism of food production under capitalism is aggravated by private ownership of land, the strict division between mental and manual labor, and the unjust distribution of the fruits of labor. Cuba's model of agriculture systematically transcends these alienating conditions, reconnecting farmers to the land through cooperative production, participatory decision making, and diversified distribution. Can this vision for ecological sustainability and social equality extend beyond the island of Cuba?

Cuban farmers are traveling to Latin American and Caribbean nations to assist farmers in setting up similar types of food production systems. Indeed, Cuba's fastest growing export is currently ideas. Cuba hosts many visiting farmers and agricultural technicians from throughout the Americas and elsewhere. Cuban agronomists are currently teaching agroecological farming methods to Haitian farmers, as well as assisting Venezuela with their burgeoning urban agriculture movement.

It is not only Cuban farmers that are dispersing these ideas. Peasant movements throughout Latin America are returning to traditional agrarian practices and demanding land redistribution that allows for subsistence food production. The Latin America School of Agroecology was created in August 2005 in Parana, Brazil. Founded by a partnership between two peasant movements—the

Landless Workers Movement (Movimento dos Trabalhadores sem Terra, MST) and Via Campesina—the school focuses on bringing the principles of agroecology to rural communities throughout Latin America. According to the coordinator of the MST, Robert Baggio, the school will construct a new matrix based on agroecology. This new matrix, he explained, will be geared to small-scale production and the domestic market, respecting the environment and contributing to the construction of sovereign agriculture (www.landaction.org).

In this spread of metabolic restoration, we get a glimpse of Marx's vision of a future society of associated producers. In volume 3 of *Capital*, Marx wrote: "Freedom in this sphere can consist only in this, that socialized man, the associated producers, govern the human metabolism with nature in a rational way, bringing it under their own collective control instead of being dominated by it as a blind power; accomplishing it with the least expenditure of energy and in conditions most worthy and appropriate for their human nature."[26]

The psychological barriers that often prevent this vision from seeming possible are based on a myopic view—that of *agribusiness* as usual: where cows do not graze in forests and crops do not grow from worms; where farmers do not do science and workers do not eat their harvests; and where the metabolic rift in ecological and social systems becomes intensified with the ever-increasing quest for profit accumulation. Cuba's agriculture shows that the potential for metabolic restoration is real, and it can happen now. The advance of these ideas through the rest of Latin America provides hope for future transformations.

Notes

Clausen, Rebecca. 2007. "Healing the Rift: Metabolic Restoration in Cuban Agriculture," *Monthly Review* (May): 40–52.

1. Karl Marx, *Capital*, vol. 1 (New York: Vintage, 1976), 637–38.

2. Richard Levins, "The Unique Pathway of Cuban Development," in Fernando Funes et al., eds., *Sustainable Agriculture and Resistance* (Oakland, CA: Food First Books, 2002), 280.

3. Karl Marx, *Grundrisse* (New York: Vintage, 1973), 527.

4. See Peter Rosset, "Cuba: A Successful Case Study of Sustainable Agriculture," in Fred Magdoff, John Bellamy Foster, and Frederick Buttel, eds., *Hungry for Profit* (New York Monthly Review Press, 2000); and Sinan Koont, "Food Security in Cuba," *Monthly Review* 55, no. 8 (January 2004): 11–20.

5. Levins, "The Unique Pathway of Cuban Development."

6. John Bellamy Foster and Fred Magdoff, "Liebig, Marx, and the Depletion of Soil Fertility," in Magdoff, Foster, and Buttel, eds., *Hungry for Profit*, 53.

7. Miguel Altieri, "The Principles and Strategies of Agroecology in Cuba," in Funes et al., eds., *Sustainable Agriculture*, xiii.

8. Eolia Treto et al., "Advances in Organic Soil Management," in Funes et al., eds., *Sustainable Agriculture*, 164–89.

9. Marta Monzote, Eulogla Munoz, and Fernance Funez-Monzote, "The Integration of Crop and Livestock," in Funes et al., eds., *Sustainable Agriculture*, 190–211.

10. Rafael Suarez Rivacoba and Rafael B. Morin, "Sugarcane and Sustainability in Cuba," in Funes et al., eds., *Sustainable Agriculture*, 255.

11. Mildrey Soca Perez, personal communication, December 1, 2006.

12. Monzote et al., "The Integration of Crop and Livestock," 190.

13. Monzote et al., "The Integration of Crop and Livestock," 205.

14. Monzote et al., "The Integration of Crop and Livestock," 200.

15. John Bellamy Foster, *Marx's Ecology* (New York: Monthly Review Press, 2000), 158.

16. United Nations Development Programme (UNDP), The United Nations Environment Programme (UNEP), World Bank, and World Resources Institute, *World Resources 2000–2001—People and Ecosystems: The Fraying Web of Life* (UNOP, 2000).

17. Dale Allen Pfeiffer, *Eating Fossil Fuels* (Gabriola Island, British Columbia: New Society Publishers, 2006), 59.

18. Monzote et al., "The Integration of Crop and Livestock," 207.

19. Karl Marx, *Capital*, vol. 3 (New York: Vintage, 1981), 216.

20. Pfeiffer, *Eating Fossil Fuels*, 60.

21. Pfeiffer, *Eating Fossil Fuels*, 61.

22. Juan Leon, personal communication, November 27, 2006.

23. Fernando Macaya, personal communication, November 27, 2006.

24. Pfeiffer, *Eating Fossil Fuels*, 61.

25. Marcos Nieto and Ricardo Delgada, "Cuban Agriculture and Food Security," in Funes et al., eds., *Sustainable Agriculture*.

26. Marx, *Capital*, vol. 3, 959.

On the Trail of Courageous Behavior

Myron Peretz Glazer and
Penina Migdal Glazer

Sociological studies often reveal inequalities and hidden agendas or practices by powerful actors, such as corporations. Myron and Penina Glazer explore how sociological research can also uncover forces that challenge harmful or destructive practices. Examining the courageous behavior of American whistleblowers and environmental activists in the United States, Israel, and the former Czechoslovakia, they ask what enables ordinary people to engage in courageous behavior, such as long-term environmental activism. They identify four factors. First, activists typically have strong social networks, or social capital; second, they believe they can make a difference; third, they are willing to accumulate evidence and expertise; and fourth, they must overcome fear and intimidation.

We ask whether sociology, the study of human behavior in all its forms, can help save all of us from our most destructive proclivities. In an era of mass murder and unleashed genocide, of the production of unsafe and injurious products, of unnecessary waste and pollution caused by individual and corporate greed, can sociology assist us in unraveling the sources of evil, of behavior that intentionally harms others? Can our discipline highlight beliefs and actions that engender moral responsibility for the common

good? Can sociology help isolate the social, cultural, and emotional sources of courageous behavior, behavior that embodies taking risks for the well-being of others? Can sociology, through its grounded empirical research, illuminate principles that help sustain opposition to coercive and unaccountable power?

To attempt to answer these questions, and thereby underscore the significance of sociological investigations for maintaining a viable and democratic social order, we draw upon our research on organizational whistleblowers and on community crusaders for a safe environment. Beginning in 1982 we spent six years studying sixty-four American whistleblowers in government and industry. As sociologists we were particularly interested in the values that propelled them to protest unethical and illegal activities. We emphasized the social networks which sustained them and which provided publicity, legitimacy, and legal defense. We scrutinized the organizational retaliation mounted against them as they faced firings, isolation, black lists, and character assassination. Despite their pain and loss, we also highlighted the cultural significance of their victories, their impact on corrupted institutions, and their often successful efforts to rebuild their shattered careers and lives.

After the publication of *The Whistleblowers: Exposing Corruption in Government and Industry*, we decided to continue our study of the social and cultural foundations of courageous behavior. We interviewed scores of grassroots activists in the United States, Israel, and the former Czechoslovakia who would not remain silent when their air was polluted, their wells contaminated, and their children sickened by radiation or other hazardous substances. In continuity with the whistleblowers study, we approached a wide spectrum of environmental crusaders to understand their backgrounds, values, allies, and adversaries (Glazer and Glazer 1998). We wanted to test and advance our theory that environmental crusaders, like the organizational whistleblowers, are on the front lines in exposing and demanding remediation for society's most serious problems; that they often serve as bellwethers heralding crises just over the next horizon; that, in addition, they act as moral exemplars who embody the society's highest ideals of concern for one's neighbors and community. Whistleblowers and crusaders for a safe environment constantly re-assert the boundaries beyond which others, no matter how powerful, shall not pass without encountering serious and sustained resistance. In heralding all these interrelated contributions, sociologists provide a breakwater to the flood of historical and contemporary disasters which threaten a society's moral balance.

The Courage of Ordinary People

Many scholars who study acts of courage focus primarily on military and police situations or on other heroic events that occur in the effort to save the lives of others. Such actions are dramatic, requiring, for instance, the split-second decision

to charge a machine gun nest raining lethal fire on one's comrades, or to rush into a burning boiler room to rescue injured sailors before rising waters engulf them (Walton 1986; Rachman 1990). But for grassroots environmental activists and organizational whistleblowers, courage takes another form. The situations they face are usually not immediately life-threatening; rather, their battles demand a longer-term investment of time and energy. They must be ready to withstand withering criticism of their credibility, competence, and integrity. They must face attacks that may sully their reputations, isolate them from one-time friends, neighbors, and coworkers, and even cause rifts within their own families. Under extreme circumstances, grassroots activists and whistleblowers face physical threats, police harassment, and imprisonment.

Knowing these risks, we found that ordinary people in our studies took a courageous stand when they proclaimed the dangers of serious occupational and community situations. We probed into the background and situational factors that led them to commit themselves to building a sustained, collective campaign to demand accountability and remediation. We asked how gender, social class, occupation, religion, and other sociological variables influenced them. Thus, while their decisions did not reflect the single act of heroism associated with military bravery, they had to muster the social and cultural resources to spend years intensively involved in their causes, resulting in stress and the disruption of the rhythm of their lives. Friends and colleagues often experienced burnout, providing a constant reminder of the difficulties of the long-term crusade to remedy organizational irresponsibility or to ensure a safe environment.

This burnout is precisely what occurred to Cheryl Washburn, one of two courageous women who were fighting the effects of a hazardous waste site in Maine. Over time Cathy Hinds continued to demand remediation, but Cheryl Washburn began to withdraw from total involvement. She explained her inability to sustain such intense activity in words that speak for many others:

> It takes a certain person to be able to keep at it all the time. Cathy is one of those people. She's strong, and in some ways strong-willed. For me, it came down to wanting to live a normal life. I didn't want to be faced with this thing every day, or I'd be a basket case. I didn't want to go to all the meetings, to keep butting my head against a wall. As Cathy slowly started doing more, I slowly backed off. Cathy has a way with words—she knows how to put things, and I was glad to let her take over. I'm proud of what we did—and I'm proud of her for keeping it up. (Garland 1988, p. 100)

A similar situation but with a different twist confronted Frank Camps, a senior design engineer for the Ford Motor Company, who protested the construction of the Ford Pinto. Camps believed it was an unsafe car. He helped us record the impact of bureaucracy and its control of financial and career rewards

in thwarting collective action. Camps' overriding sense of professional responsibility and his fear of legal liability led him to take bold action despite the risks. After going all the way up the corporation hierarchy and urging redesign without success, he ultimately sued the company to limit his own potential liability. He counted on other engineers to help expose a potentially dangerous situation to consumers, but he soon stood virtually alone. We found comparable reactions in other settings both in industry and government.

> I can recall, right after I filed the suit, other engineers said, "Go get 'em, we wish we could do it, there goes a man with brass balls." While I had tacit support, I was looking for an honest man to stand with me. I found that these guys were suddenly given promotions, nice increases in salary. Next thing I knew, I did not have the support any more. (Glazer and Glazer 1989, p. 19)

The philosopher Douglas N. Walton argues that the courageous behavior of a Cathy Hinds or a Frank Camps is rare in contemporary industrial society:

> Perhaps another reason that courage today seems an absurd or outdated virtue is the growing lack of cohesiveness in social structures and group purposes. In vast modern industrial societies, the individual feels anonymous and often loses identity with the community as a group. This phenomenon in North America has often been remarked upon. Twenty-six bystanders watched as Kitty Genovese was brutally murdered on the street. Not one even calling the police. The current expression is "nobody wants to get involved." A kind of moral anomie is described by Camus in *L'Etranger*—an individual fails to feel even the smallest sympathy or emotion at the death of another. The attitude seems to be a moral aimlessness, a lack of purpose beyond one's own egoistic interests. To one in this frame of mind, *courage—taking personal risks to try and save another or to help the group* or community in time of trouble *seems simply* an irrational risk—no gain at all. (Walton 1986; p. 18, emphasis added)

Invoking our approach that focuses on sustained, long-term confrontations with irresponsible organizational power, we have encountered scores of instances where people have determined to help their communities. In contrast to Walton's assertion, grassroots activists and employee whistleblowers have displayed impressive strength and resilience in caring for others and in their willingness to put themselves at risk. . . .

Why were whistleblowers and grassroots environmental activists able to engage in such behavior when so many of their fellow citizens apparently have not responded with comparable courage? Our research points to several distinctive dimensions. First, a courageous response to a community's problems

does not occur in a vacuum. It is not based on a spontaneous decision. Rather, citizens call on a reservoir of social capital, of bonds that they have developed over many years. Those we studied saw their own fate as intertwined intimately with that of others. Whistleblowers expressed an irrevocable allegiance to professional, religious, and community-based values that emphasized responsibility for the well-being of others. They refused, for example, to enact decisions that resulted in the construction of dangerous nuclear power plants or that dumped toxic chemicals into an area's water supply. The whistleblowers assumed individual responsibility rather than acting as agents of hierarchical authority. . . .

Second, both whistleblowers and crusaders had a strong cultural commitment to the efficacy of action. Their past experience led them to believe that they could make a difference. . . . They embodied the democratic tradition that citizens could unite for a redress of grievances; that those in the media or in government would see the justice of their cause, and that their legitimate concerns would be met.

Third, courageous behavior depended on their taking determined action; on their ability and willingness to accumulate the evidence, and expertise. The protesters had to counter with confidence and competence the technological experts and policymakers who belittled their concerns. The whistleblowers usually had direct access to the incriminating data. . . .

To achieve their goals the environmental crusaders had to secure strategically placed allies who could supply firsthand information. At times these allies were whistleblowers within polluting corporations or regulatory agencies. Often, the crusaders also had to become adept at using public records or petitioning through the Freedom of Information Act to secure previously classified material. In this essential effort, public-interest groups often secured mountains of data necessary to prove, for example, that nuclear bomb releases had poisoned the atmosphere or that chemical waste had directly undermined the health of local residents. No campaign for environmental redress could hope to be successful without the crusaders forging a working alliance with others committed to securing governmental and corporate accountability. We designated this essential process as the creation of *alternative networks of power.*

Fourth, purveyors of courage had to overcome fear and intimidation. They knew that the reduction of serious environmental damage or the resolution of other organizational transgressions would not occur without years of struggle. The opposing government bureaucrats and corporate managers would extract a heavy price for challenging the status quo. The protesters' determination to persist in the face of such obstacles attests to their faith in the justice of their cause. Without their willingness to endure on behalf of their beliefs, without their determination to help their communities, serious problems would lie buried beneath the surface with the potential to do great damage to unknowing and unprotected victims.

The Reservoir of Social Capital

Grassroots activists and whistleblowers were deeply involved in the affairs of the community. They were not alienated or passive citizens unwilling and unable to show concern for others. Their sense of self was fully engaged in what happened to their families, neighborhoods, regions, and countries. They may have become protesters later in life, but they had been prepared by a previously developed and strongly held value system. These values included a sense of caring for others, a feeling of responsibility for their safety, and a slowly evolving but nonetheless strong commitment to act when others were in danger. The activists were conveyers of what Robert Putnam and others have labeled social capital (Putnam 1993). For example, women such as Lynn Golumbic in Israel, Jara Johnova in Czechoslovakia, Penny Newman in the United States, and many others may have exercised civic responsibility in more conventional ways until an environmental crisis propelled them into the public arena. But their community-based system of values had been developed and implemented earlier in PTAs, Green Circles, and other organizations, and had been engaged as they prepared to step forward into a leadership role. With their principles intact, they built grassroots organizations and thus joined a militant vanguard in defending communities from victimization by government and corporate bureaucracies. . . .

Each of the women cited above had borne children and had sought to raise them in the safest and healthiest areas. Penny Newman had spent countless hours volunteering to help improve the school system in Glen Avon, California. Jara Johnova had taken the dangerous step of signing the Charter 77 document petitioning the Czechoslovakian government to respect human rights, and for years she was part of a dissident group in Prague. Lynn Golumbic, who had moved to Israel from the United States so that she and her young family could participate in the effort to build a democratic Jewish state, joined the Association of Americans and Canadians in Israel (AACI), which focused on a wide range of social issues. For all of them, assuming a leadership role when they confronted environmental emergencies represented a major commitment and much greater public exposure. Yet this new action was grounded in past experiences and beliefs. Helping the community in a time of crisis was consistent with their strongly held values. While their new roles ruptured old schedules and made many demands, these roles were built on a foundation that could weather the intensive demands of community leadership (Kirp 1989; Hallie 1979; Swidler 1986).

This reservoir of social capital, this principled connection to others, is a core component of courageous behavior, for the risks of speaking out about a problem and assuming leadership could be costly, as Tom Bailie learned. Bailie, a farmer in eastern Washington state whose land abutted the Hanford Nuclear Reservation, epitomizes the grassroots activist whose past experiences prepared him to announce the existence of a crisis, even if such action was undertaken at

his own peril. Bailie had deep roots in the area; he grew up on his parents' farm, raised a family, and ran for local political office. He understood that speaking out against the Hanford nuclear facility entailed substantial risks. He would be a marked man from then on, someone who had punctured the cultural fiction born in the Cold War, the commonly held faith that patriotism demanded the production of nuclear bombs and that everything was safe and under control. But Bailie urged his neighbors and other area residents to face the seriousness of their situation. He told stories of deformed animals and an epidemic of cancer, illness, and death. He drew upon his own personal history of illness and that of neighbors and friends. Bailie urged all who would listen to question the very source of their economic security. He encouraged them to challenge the government and corporations that provided their livelihood. This was not a scenario that was likely to make Bailie a local hero, and for years he and a few allies in the community were objects of ridicule and scorn. His was a dangerous position, but it was one that he was determined to hold, no matter what the personal cost.

> What I have to do goes beyond my marriage and my other family relationships. I'm sorry. I don't know what I have to do to complete this, but I'll be glad when it's done. We still have to find out what the nuclear gang has done to those of us that live here, and how it has affected our lives and affected our health. We've just scratched the surface. (Glazer and Glazer 1998)

Blue-collar and clerical workers in large nuclear organizations who saw practices that entailed serious violations of environmental health and safety standards were also inspired to speak out against such violations. Their protests emanated from a deep sense of community. The nuclear plant construction workers we studied were determined to remain in the communities where they had grown up and thus strongly identified with potential victims who could be relatives, friends, or neighbors. At times, the workers specifically referred to an obligation to the land that had been passed down by parents and ancestors. They often contrasted their sense of responsibility for the community with that of high-placed corporate executives who moved frequently to accommodate their careers and had neither roots nor long-term commitments to the local people with whom they work.

One welder and craftsman at a Texas plant became so deeply concerned about safety at the construction site that he joined a protest to the Nuclear Regulatory Commission despite the likelihood of job loss and blacklisting. His statement captured the spirit espoused by social capital theorists. With his jeans and cowboy boots and Texas drawl, Stan Miles personified the land in which he was raised:

> I was born in this state and this state means a lot more to me than just a place to live. If you will look at my work record, I've never gone out of the

> state to work. I don't like to leave this land. I like the people here. It's changed a lot, though, since I was a boy. For instance, I was born in west Texas, real west Texas, west of the Pecos. You didn't have car trouble without the next person stopping, and if he had to drive eighty miles out of his way, he did, and you didn't have to pay him anything.
>
> That's gone—all gone, and for the sake of a dollar bill. They took something that was priceless and ruined it for something made of paper. Because if you poison the water, you poison the land. How can the dollar bill replace that? This state means something to me. I was born here, my ancestors came here in 1821, my grandmother was a Comanche Indian, and they've been here for ten thousand years. (Glazer and Glazer 1989, p. 131)

Unlike the environmental crusaders and employees like Stan Miles, many other whistleblowers spoke out to protect potential victims who were unknown to them. As professionals, these whistleblowers invoked a particular brand of social capital. They felt a special responsibility for the safety of others, even if it were a public they might never know. Demetrius Basdekas, an engineer responsible for the safety of control systems essential to avoid nuclear accidents, could not remain uninvolved as he imagined potential victims of a nuclear plant disaster. He protested his supervisors' decision to grant a license to operate a new nuclear facility that he believed did not have proper safety provisions.

> I said to myself, "Look, you are at a crossroads and you have to decide which way to go. You can either roll over and play dead or stand up and say what you think." I hit the wall, the red line. I could not go beyond that line. I was being asked to become a party to an act of fraud on the public where health and safety are concerned.
>
> Management's response was to remove me, to assign a greenhorn to do the job. I was simply told that I was no longer responsible for this part of the work. As a result of this, I and other engineers who were performing in similar situations decided to take our case to the Congress and to the public. (Glazer and Glazer 1989, p. 78)

Basdekas and his colleagues would not rationalize compliance by relegating their decision to the orders of high authority. They would not assume the "agentic role" highlighted by Stanley Milgram in his famous studies of obedience to authority (Milgram 1974). . . . Milgram found that the most telling counterweight to the orders of authorities was the presence of peers or colleagues who would support the decision to protest and resist. For Basdekas that support was essential. For others the stimulus for rebellion also may be professional values and the bond of comradeship. . . .

On the Efficacy of Grassroots Action

Environmental crusaders and employee whistleblowers assumed personal responsibility to confront serious environmental and other problems that affected their communities. Their involvement began when they became convinced that remedial action would not be undertaken voluntarily after they brought the issue to their supervisors or local officials. These grassroots activists and organizational employees believed that gathering information, focusing attention, and organizing to combat social problems could make a difference. These strongly held cultural assumptions about their entitlement to speak out on public affairs and in the efficacy of united action were crucial ingredients in the protesters' willingness to be stigmatized as the bearers of bad news and reinforced their readiness to put themselves at risk. . . . While they sought distant goals, they believed fully that they could achieve them (Russell 1989).

Penny Newman and her peers represent a prime example of a local group who committed themselves to battling the chemical contamination in their community. They began to organize in 1978 when a nearby toxic waste dump, the Stringfellow Acid Pits, overflowed, sending thousands of gallons of poisoned water running through their streets and into their children's school. Their group, Concerned Neighbors, grew increasingly determined to "fight City Hall"—that is, the State of California and some of the largest corporations operating in their region that had dumped tons of dangerous chemicals into a dry pit, without sufficient regard for the safety of the community. Now, twenty years later, Newman summarized how she and her colleagues were transformed from victims to agents of their own victories (letter to authors from Newman 1997).

> I look back at our 20 year battle over the Stringfellow Acid Pits and have a hard time assimilating everything that happened to us and of which we made happen. But as we start listing the accomplishments one can't help but be proud.
>
> We were able to get a new, safe water supply installed throughout the community at no cost to the residents. . . . We made a lot of institutional changes to the Superfund program and how Americans see the issue of toxic dumps. We were the first community to get a technical advisor and become the model used for the Superfund bill in 1986 so that other communities could hire such assistance. We were the first community to have an office established to answer residents' questions and to be staffed by community volunteers—all paid for by the state. Our community has been the driving force behind each and every improvement at the site.
>
> In more recent years we continued to have an impact both on our site and in public policy. We played a major role in the discussions about the reauthorization of Superfund. In State court, we filed the nation's largest

> toxic tort, consisting of 5,000 plaintiffs and 200 companies, the County of Riverside, and the State of California. We were able to reach a settlement for over $110 million, one of the first cases in which the plaintiffs were able to prove cause and effect with exposure to chemicals and community health. Another judgment that is certainly precedent setting occurred in Federal court where the court found the State of California 90–98% responsible for the cleanup of the site due to the fact that the state permitted the site, had an obligation to ensure it operated safely, and failed to do so resulting in our community being exposed and damaged.
>
> We were the first community granted Intervenor status by a Federal court which allowed that we had a right to participate in all discussions about the site. Two hundred companies named as Responsible Parties appealed the ruling to the U.S. Supreme Court. We are still intervenors! Since then Superfund has been revised to provide a statutory right of affected communities to participate in such discussions.

In addition to the legal victories, Newman emphasized how their belief in community power transformed many of their members from shy and insecure observers to active participants in the political process. One member of Concerned Neighbors embodied this transformation.

> A young Latina woman with 3 young boys at the elementary school was very concerned about the water at the school and attended a meeting where we focused on getting the water tested and filters added to the system. She was extremely shy. But her concern for her boys made her want to participate. She agreed to talk at a school board meeting, but was terrified. We practiced and practiced and that night she stood up and—with voice quivering—gave one of the most touching appeals for peace of mind in protecting the children at the school. Over the 6 month battle, she developed more confidence, was able to stand up and not shake, and helped to win that battle. But more importantly you could see the change in her. She learned that she could stand up and voice her opinion and make a difference. That she was important! This young woman had been in a very abusive marriage where she had been beaten time and time again. Through her participation in this battle, she gained enough strength, confidence and courage to leave that relationship and start a new life. She works with special education children and is doing great. (letter from Newman 1997)

Faith in their own efficacy was a crucial weapon on the side of the crusaders. It carried them forth in times of frustration, disappointment, and temporary defeat. . .

With Facts on Their Side

Because of their central organizational positions, the employee resisters to illegal or unethical behavior had surer access to incriminating evidence than did the environmental crusaders. Yet they, too, had to gather evidence that would convince a skeptical investigative reporter, attract the attention of a congressional committee, or convince public interest attorneys that a serious breach had occurred. . . . Hugh Kaufman, working for the EPA, visited scores of hazardous waste sites to document that chemical contamination was a plague undermining the health of American communities. His supervisors refused to acknowledge his evidence until he took his allegations and documentation to the media (Glazer and Glazer 1989, pp. 135–36). At the same time, Maude DeVictor, working in the Veterans Administration, gathered voluminous case material on the effects of Agent Orange (Glazer and Glazer 1989, pp. 231–32). She became a forerunner in a growing national campaign, to provide compensation for Vietnam veterans who had suffered exposure, incapacitation, and disease as a result of their wartime service. . . .

For Tom Bailie the unfolding of layer after layer of once-classified information slowly undermined the arguments of his detractors and confirmed his suspicion that the Hanford Nuclear Reservation had released dangerous emissions onto the local population. The same government and corporations that were charged with protecting the safety of the region's citizens turned out to be culpable of knowingly releasing radiation on civilian populations in the area. Despite their public-relations claims to the contrary, these bureaucratic organizations had shown blatant disregard for the safety of nearby communities. The testimony of Tom Bailie and other local residents was now supported by government documents and other hard data that had been obtained as a result of a decision by several organizations to file a Freedom of Information Act inquiry (FOIA). The Freedom of Information Act, which had been enacted in 1966, was crucial to furthering the activists' causes. To make full use of the FOIA, Bailie and the other activists had to rely on the technical assistance of allies in the press and in the Hanford Education Action League (HEAL), the local public interest group. Once they had government data confirming their claims of radiation exposure, their allegations could no longer be dismissed as the statements of paranoid personalities. Those who had risked their reputations by questioning the secrecy of the national security state or by challenging the economic viability of the defense-based economy now had the facts on their side. Family members might still be embarrassed and humiliated by the public controversy surrounding the crusaders, but they were also sobered by the evidence, which gave weight to the deadly consequences of the problem.

Not all societies have a Freedom of Information Act, and activists frequently had to use indirect methods to secure the necessary data (Flarn 1996).

In our research in Slovakia we found that prior to the fall of the Communists, a group of dedicated environmentalists believed that years of silence on environmental degradation had to end and that the time was ripe to challenge the Communists. . . . They knew they had to secure the documentation that would reveal the desperate state of the environment if they were to raise public awareness and open a serious dialogue with government officials. With retaliation, harassment, and even imprisonment a possible outcome, the environmentalists determined that their effort would be grounded in incontrovertible evidence. The best source of data was the government itself, and the activists spent months surreptitiously gathering information from officials who did not suspect that their contributions would be collated, matched, and eventually integrated into a report. Taken together, the accumulated evidence painted a dismal portrait of government deception, broken promises, and neglected environmental policy.

The publication of *Bratislava Nahlas* [Bratislava Aloud] provided documented assertions about the abysmal failure of the Communists to protect the country from air, water, and land contamination. The writers of the report, drawn from all professional fields, sought to avoid the label of political "dissidents." Rather, they claimed legitimacy as recorders of hard data that pointed to dangerous environmental conditions. The publication of the evidence substantiated their accusations and yet heightened the vulnerability of the activists. Would the government now confiscate the report, harass and arrest them, or subject them to violence? Was assassination a possibility? The *Bratislava Nahlas* group was prepared for the inevitable retaliation, having lived with its threat for years. The report opened with a strong declaration.

> In our city, the basic conditions of life have become problematic. Contamination of the atmosphere is threatening the health of virtually all inhabitants, particularly the aged, the sick, and children. . . . The degradation of values, waste, the damage to human health, and the mass problems which will impact upon future generations are immoral; nevertheless, they occur daily before the eyes of the citizens, no one is ever called to accountability. . . . The moral dimension of the Bratislava situation is, we believe, just as serious as the public health or economic viewpoints.

They ended their courageous introduction with a call to action that had never been heard in Communist Bratislava.

> We expect that the public discussion (which the document would like to introduce) will not only articulate the interests of the citizens of Bratislava, but will mobilize their forces and renew the relationship of the citizens with respect to their city. (*Bratislava-Nahlas* 1987)

Overcoming Fear

Whistleblowers and environmental crusaders undertook the challenge of exposing a major social problem and assuming a leadership role to resolve it. But they knew that they faced risks to their jobs, personal safety, reputations, and more. How did they withstand the fear of retaliation? What are the emotional resources that supported and sustained their decision?

Several factors enabled protesters to move against powerful interests. First, they transformed their anger into a positive determination to take action. Second, they depended on the trust and comradeship that developed in their local groups to sustain their motivation and commitment in the face of frustrations and setbacks. Finally, in their own personal cost–benefit analysis, they overcame the inevitable fear of retaliation by defining the environmental problems they confronted as more severe, more troubling, and more threatening than their anxiety about rejection and isolation. . . .

. . . According to Anne W. Garland, who studied women activists:

> Anger is often at the center of [activists'] transformations from private actors in restricted universes to public leaders in universes encompassing all the important issues of the day. The anger comes, of course, from a variety of sources. And it crosses the putative barriers of age and racial differences; differences in education, background, and lifestyle; and differences in religious and political belief. (Garland 1988, pp. xvi–xvii)

Trust also proved essential in sustaining commitment and solidarity among the activists. The accusations, the demeaning comments, even the threats of physical attack or arrest and imprisonment in Czechoslovakia, were all made bearable by the culture of solidarity that existed in the activists' group. . . . Pavel Ŝremer, a longtime dissident and one of the core group in the *Bratislava Nahlas* movement, emphasized how mutual trust in each other sustained them through difficult times. Each Bratislava participant had an assigned set of tasks, and the others had faith that it would be completed. To stop their work, to be paralyzed by the fear of what the government could do to them, would grant their adversaries an unacceptable victory. Faith in their cause and support for each other were strong incentives during their months of intensive, secret activity. . . .

Activists faced fear of failure, fear of criticism and ridicule, fear of attack and assault, and fear of imprisonment and exile, but these fears did not stop them, for they believed that the costs of inaction were even higher. . . .

For organizational whistleblowers fear takes on a particular form. To raise troublesome issues on the job is always risky. Yet as Frank Camps learned at the Ford Motor Company and Maude DeVictor at the Veterans Administration, going outside the organization with your allegations of misbehavior is much more

dangerous. It almost always results in threats or actual retaliation. Whistleblowers experienced retaliation that went well beyond their expectations. Some were deliberately isolated from previously congenial colleagues, others faced dismissal from a valued position and the terror of blacklisting from all jobs in that particular industry. There were many witnesses to the career and family dislocation such punishing outcomes entailed.

These kinds of retaliation are not trivial. To withstand them requires the fortitude to stay the course no matter how severe the organizational reaction. The statement of Margaret Henderson (not her real name) best exemplifies the fear, hurt, self-depreciation that results from retaliation. The case also reflects the tenaciousness and moral certainty of her husband. Harry Henderson had joined the federal government after working as a business executive in the South. When he protested the waste of tens of millions of dollars of government funds and the severe impact on the environment, his supervisors ordered him to remain silent and threatened to ruin his career if he spoke outside the agency. When he would not retreat, they initiated a campaign to isolate and later to dismiss him. Here is how his wife described the impact on him:

> Nineteen years ago, I married a man who was outgoing, secure, bold, and optimistic. About his career he was self-confident, enthusiastic, and ambitious. As husband he was interested in and supportive of my activities. Later, as father, he was involved in the lives of his five children and made every effort to spend as much time with them as possible.
>
> From an outgoing person who was involved in the interests and activities of his family, he became withdrawn, spending whatever hours he could in isolation, poring over and over his documents, compulsively reading and rereading every memo dealing with his work situation. When he and I did sit down to talk to each other, he could speak of nothing but what was happening at work and what his supervisors were doing to him, with the pain and suffering he was going through evident in the slump of his shoulders and strained quality of his voice.
>
> All of this, of course, had an effect on the rest of the family. We were afraid to approach Harry with our own needs and concerns, having come to expect his rejection and withdrawal because he no longer had time for or interest in us. One of our children was referred for psychological counseling. I found it necessary to seek work outside the home, having to escape from his oppressive presence and influence. His sleeplessness disturbed our night's rest. We all observed the profound effect of his work situation upon him: the bold man become fearful and intimidated; the aggressive person become reticent and insecure; the optimist become hopeless; the relaxed and outgoing person become tense, withdrawn, and isolated; the well-rounded man become obsessive, paranoid, and neurotic. No longer

> was he the loving spouse and father. He was the stranger who, although living among us, was not with us. (Glazer and Glazer 1989, p. 154)

Yet, despite all of this, Harry Henderson fought on with the assistance of the Government Accountability Project (GAP) which had taken his case because of its significance and because of their belief that Henderson would not back off. They were right. With GAP representing him, Henderson secured the interest of a congressional committee which held hearings on his allegations. Newspaper articles and television programs featured the seriousness of his testimony of government and industry collusion. Henderson had overcome his fear and disillusionment. His very obsessivenesses ultimately made him an unwavering adversary against government waste. He came to represent the employee who epitomizes devotion to serving the public rather than loyalty to the bureaucracy.

Employees in private industry are susceptible to even harsher retaliation and more paralyzing fear. Chuck Atchison worked as a quality assurance inspector in the nuclear industry, and after reporting several construction problems to the company, he was dismissed for overstepping his area of responsibility. Despite vindication from the Nuclear Regulatory Commission and later from the Department of Labor, he was out of a job. His whistleblowing action led to his blacklisting in the industry and to deteriorating economic circumstances.

> Everything that wasn't nailed down [with] the mortgage was sold. We lost our Visa and MasterCard rights and our gasoline credit cards. Finally we lost the house in July 1983. My wife, Jeanne, has always been employed as a secretary-clerk-bookkeeper. That was the only thing that really kept us going. We let someone take over the payments on the house and found a trailer we could take over the payments on.

The company's reach seemed so pervasive that he even feared physical assault. The ambiguous circumstances of Karen Silkwood's automobile crash ten years earlier in 1974 reinforced his fear of possible organizational, revenge:

> Silkwood hit the headlines again. I became paranoid if things happened like a car following me. I'd make several turns and the car would keep up with me. I feared that the company could hire gunmen that would kill someone for big dollars and get back across the border without anyone knowing it. (Glazer and Glazer 1989, pp. 146–47)

Atchison had now lost his job, his home, his credit rating, his sense of personal safety, and his self-esteem as a breadwinner. Forced to leave their familiar surroundings and to live in a mobile home without most of their possessions, the family no longer felt like respected members of the community. Atchison

became a living symbol to other workers of the cost of resisting large corporations. The pressure and humiliation penetrated deeply into his sense of self. He dreamed of striking a major blow against his adversaries when in reality he had to settle for the small pleasure of knowing that they had suffered a few defeats in their rush to obtain a license and make good on their investments:

> My emotions went the full gamut from deep depression to hostility. Now most of that part is gone. The main emotion I still get is tickled to death if I see an article in the paper that makes them look a little bit worse as they go along.

Although the costs were very painful, Atchison was not content with these small victories. To fight his case of illegal firing, he contacted the Department of Labor and the press, engaged lawyers, worked with the Government Accountability Project. The reprisals enacted against him for whistleblowing extracted a heavy toll but simultaneously resulted in his developing a new reference group of environmentalists organized to fight against unsafe nuclear plants. He became a principal witness in the campaign of a local grassroots safe-energy group against the plant. He was nationally recognized in 1984 when the Government Accountability Project and the Christic Institute nominated him and several other whistleblowers as the first winners of the Karen Silkwood Award for exposing dangerous working conditions (Glazer and Glazer 1989, pp. 228–29). The citation that accompanied the award was yet another sign that the blacklisting had failed to silence him. Finally in 1988 the company came to an unprecedented agreement with Atchinson and other whistleblowers, and publicly recognized that they had been correct in raising safety concerns. Atchinson had been fully vindicated.

The Allure of Sociology

Sociology can be a significant contributor to the achievement of such vindication. By seeking out these environmental crusaders, employee whistleblowers, and other courageous people, by interviewing them and analyzing their cases from a personal, sociological, and cultural perspective, we provide both publicity and understanding of their accomplishments. By consulting with them as they pursue their cases, we sociologists can contribute useful expertise. By serving on national advisory committees, we assist their battles with the prestige and recognition of our academic positions. By teaching about them, we give our students moral exemplars in a world where irresponsibility and destruction too often hold sway.

By integrating the lives of the crusaders into our theories of resistance to abusive authority, we can emphasize the centrality of moral courage in the building and maintaining of a viable, accountable, and democratic society. . . .

Note

Glazer, Myron Peretz, and Penina Migdal Glazer. 1999. "On the Trail of Courageous Behavior." *Sociological Inquiry* 69, no. 2 (Spring): 276–95.

References

Bratislava-Nahlas. 1987. Unpublished report. Bratislava: Slovak Union of Landscape and Nature Protectors.

Erikson, Kai. 1966. *Wayward Puritans: A Study in the Sociology of Deviance.* New York: Wiley.

Flarn, Helena. 1996. "Anxiety and the Successful Oppositional Construction of Societal Reality: The Case of Kor." *Mobilization* 1: 103–21.

Freedman, Alix M., and Suein I. Hwang. 11 July 1997. "How Seven Individuals with Diverse Motives Halted Tobacco's Wars." *The Wall Street Journal.*

Garland, Anne Witte. 1988. *Women Activists.* New York: The Feminist Press.

Glazer, Myron Peretz, and Penina Migdal Glazer. 1989. *The Whistleblowers: Exposing Corruption in Government and Industry.* New York: Basic Books.

Glazer, Penina Migdal, and Myron Peretz Glazer. 1998. *The Environmental Crusaders: Confronting Disaster and Mobilizing Community.* University Park: The Pennsylvania State University Press.

Hallie, Philip. 1979. *Lest Innocent Blood Be Shed.* New York: Harper and Row.

Jackall, Robert. 1988. *Moral Mazes.* New York: Oxford University Press.

Kirp, David L. 1989. *Learning by Heart.* New Brunswick: Rutgers University Press.

Milgram, Stanley. 1974. *Obedience to Authority.* New York: Harper and Row.

Putnam, Robert D. 1996. "The Strange Disappearance of Civic America." *The American Prospect* 24:34–48.

———. 1993. "Bowling Alone: America's Declining Social Capital." *Journal of Democracy* 6:65–78.

Rachman, S. J. 1990. *Fear and Courage.* New York: W. H. Freeman.

Russell, Diane E. H. 1989. *Lives of Courage: Women for a New South Africa.* New York: Basic Books.

Schmid, Thomas W. 1985. "The Socratic Conception of Courage." *History of Philosophy Quarterly* 2:113–30.

Stout, David. 21 June 1997. "Ex-Tobacco Official Enjoys the Aftermath of the Deal." *The New York Times.*

Swidler, Ann. 1986. "Culture in Action: Symbols and Strategies." *American Sociological Review* 51:273–386.

Walton, Douglas N. 1986. *Courage.* Berkeley: University of California Press.

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About the Editors

Leslie King is associate professor of sociology at Smith College, where she teaches courses on world population and environmental sociology. Much of her research has focused on the politics of population, and her work has appeared in *Ethnic and Racial Studies*, *The European Journal of Population*, *The Sociological Quarterly*, *Sociological Inquiry*, *Mobilization*, and *Gender & Society*. She is currently beginning a new project on socially and environmentally responsible investing.

Deborah McCarthy is associate professor in the Sociology and Anthropology Department at the College of Charleston, specializing in environmental sociology and urban studies. She has published pieces on the political economy of the environment, the relationships between philanthropic organizations and grassroots environmental groups, and the risk perceptions of migrant farmworkers. Deborah coedited a collection with Daniel Faber titled *Foundations for Social Change: Critical Perspectives on Philanthropy and Popular Movements*, and her articles have appeared in the *Human Organization*, *Sociological Inquiry*, and *Social Justice Research* journals. Her current projects explore connections between the built environment, physical health, and environmental sustainability.