

# Ecological Psychology



Healing the Split  
Between  
Planet and Self

DEBORAH DuNANN WINTER, Ph.D.

# ECOLOGICAL PSYCHOLOGY

## *Healing the Split Between Planet and Self*

Deborah Du Nann Winter, Ph.D.

*Whitman College*



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*To my nieces and nephews—Ana, Briana,  
Bush, Danielle, Gus, Kia, Mac, and Shane,  
to my foster child in Columbia—Elizabeth, and to all the  
rest of the children of the planet, whose lifetimes will  
undoubtedly reveal more than I can  
about the topic of this book.*

IF WE WILL HAVE THE WISDOM TO SURVIVE  
TO STAND LIKE SLOW-GROWING TREES  
ON A RUINED PLACE, RENEWING, ENRICHING IT,  
IF WE WILL MAKE OUR SEASONS WELCOME HERE  
ASKING NOT TOO MUCH OF EARTH OR HEAVEN,  
THEN A LONG TIME AFTER WE ARE DEAD  
THE LIVES OUR LIVES PREPARE WILL LIVE  
HERE, THEIR HOUSES STRONGLY PLACED  
UPON THE VALLEY SIDES, FIELDS AND GARDENS

**A VISION** RICH IN THE WINDOWS. THE RIVER WILL RUN  
CLEAR AS WE WILL NEVER KNOW IT,  
AND OVER IT, BIRDSONG LIKE A CANOPY.

by Wendell Berry

ON THE LEVELS OF THE HILLS WILL BE  
GREEN MEADOWS, STOCK BELLS IN NOON SHADE.  
ON THE STEEPS WHERE GREED AND IGNORANCE CUT DOWN  
THE OLD FOREST, AN OLD FOREST WILL STAND,  
ITS RICH LEAF-FALL DRIFTING ON ITS ROOTS  
THE VEINS OF FORGOTTEN SPRINGS WILL HAVE OPENED.

FAMILIES WILL BE SINGING IN THE FIELDS.  
IN THEIR VOICES THEY WILL HEAR A MUSIC  
RISEN OUT OF THE GROUND. THEY WILL TAKE  
NOTHING FROM THE GROUND THEY WILL NOT RETURN  
WHATEVER THE GRIEF AT PARTING. MEMORY,  
NATIVE TO THIS VALLEY, WILL SPREAD OVER IT  
LIKE A GROVE, AND MEMORY WILL GROW  
INTO LEGEND, LEGEND INTO SONG, SONG  
INTO SACRAMENT. THE ABUNDANCE OF THIS PLACE,  
THE SONGS OF ITS PEOPLE AND ITS BIRDS,  
WILL BE HEALTH AND WISDOM AND INDWELLING  
LIGHT. THIS IS NO PARADISAL DREAM.  
ITS HARDSHIP IS ITS POSSIBILITY.

from  
CLEARING, 1974

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# Foreword

Deborah Du Nann Winter has written a remarkable book—and it comes at an interesting juncture in the history of environmentalism in this country. It was 25 years ago when American environmentalists, inspired by Rachel Carson's monumental *Silent Spring*, sponsored the first annual Earth Day demonstration. This show of political activism and awareness, in turn, helped bring about, in rapid-fire succession, the passage of a series of important environmental laws: The Clean Air Act (1970), the Clean Water Act (1972), and the Endangered Species Act (1973). The past 25 years has also witnessed great progress in the development of environmentally friendly technology for diminishing the pollution caused by automobiles and industry.

While the legislation of the 1970s has always had a great many critics (from both ends of the political spectrum), it is an undeniable fact that it has been highly effective. Despite the fact that strict enforcement of these laws has fluctuated wildly over the past 20 years, because of these laws, our air and water have been getting progressively cleaner. For example, since 1970, nationwide, smog has declined by 33 percent, emissions of fine soot (a major cause of respiratory ailments) have declined 78 percent, and emissions of carbon monoxide have declined by 24 percent. Moreover, some of our once "near-dead" major bodies of water like the Great Lakes, Boston Harbor, and the Chesapeake Bay are improving slowly but steadily. Indeed, in 1971, only one third of the lakes and rivers in the United States were fit for swimming and fishing; as of 1995, almost two thirds of these bodies of water can be used in this manner. And, partly because of passage of the Endangered Species Act, over the past 20 years, our forests have been expanding rather than shrinking and a number of animals once on the brink of extinction (like the bald eagle and the peregrine falcon) are beginning to thrive. It is also worth noting, if only in passing, that this legislation has been relatively inexpensive—costing far less than anticipated by both its advocates and adversaries.

But environmentalists have never been a complacent lot—and rightly so. For, in spite of the success of these programs, environmental progress

in general has been a slow, uphill battle with enforcement of environmental legislation (for example, by the Environmental Protection Agency) varying dramatically as a function of the administration in power. Moreover, these laws themselves are currently under attack by a newly elected conservative majority in congress—a majority whose rhetoric frequently implies that virtually all regulations sponsored and administered by the central government are overly costly, wasteful, and riddled with bureaucratic stupidities. Will this congress see environmental progress as detrimental to business, costing jobs, slowing economic growth and, therefore, a luxury we cannot afford? Only time will tell.

It is for this reason that Deborah Winter's book could not be more timely. What Winter has done is to show, convincingly, that although technological advances and environmental policies (like those mentioned above) are extremely important, it would be foolish to leave the solution to our environmental problems solely in the hands of the legislator and the physical scientist. She argues that, because many of our environmental problems are psychological in nature—based on the beliefs, values, and habits of individuals, what may be of even greater importance in the long run is to use our knowledge of how the human mind works in order to counter some of the ecologically nonconstructive worldviews that many of us implicitly harbor.

What is the overriding worldview of the majority of the people—at least of those in highly developed nations? Do we tend to view the environment as something that must be controlled and subjugated to our will or as something precious to be preserved and safe-guarded? Winter explores this question brilliantly and argues that, in order to produce permanent beneficial changes in the environment, we need to make psychological changes—changes in the way we think, the way we see ourselves in relation to the environment, and ultimately, in the way we behave. Habits of the heart and mind are not easy to change—but the payoff for effecting such changes can be great—for changes in behavior that come from the inside out (that is, those that come from education and conviction rather than the force of laws imposed from the outside) are those that stay with us—regardless of the vicissitudes of the legislative climate.

This is an ambitious book. Not only does Winter write about the earth and the cavalier way we humans have treated it over the centuries, but she also takes us on a brief journey into the history of Western thought itself. For Winter, it is impossible to understand our attitude toward the planet without first understanding the philosophical and religious underpinnings of this attitude and how it relates to the dominance of and ascendancy by humans over the so-called untamed wildness of nature. In trying to understand how these attitudes were formed and how they might be changed,

she turns to the major focus of her book: an exploration of a wide array of psychological theorists and researchers—from Sigmund Freud and B. F. Skinner to Leon Festinger and Ulrich Neisser—trying to tease out the relevance of these theories and data for the promotion of environmentally conscious behavior.

Deborah Winter has bitten off a great deal—and she manages to chew most of it. She has the wisdom to avoid offering glib solutions to complex problems. What she has written is a book that is both hopeful and provocative. She raises more questions than she answers—but, in my judgment, she raises the right questions.

*Elliot Aronson*  
*April 9, 1995*

# *Introduction: The Why, the What, and the How of this Book*

## THE WHY: WHO I AM AND WHY I WROTE IT

This book deals with the psychology of environmental problems. Before I describe more about what is in each chapter, I would like to explain why I wrote the book in the first place. It would be ridiculously simplistic to claim that there was just one experience that changed my life or made me want to write this book. But in truth, there was one that I vividly remember as such an important moment that it really did both change my life and my career. I certainly did not realize it then, but now I do.

While on a sabbatical from my teaching position, I was living in Copenhagen in the winter of 1988, and I went to visit a friend in Hamburg. We were walking along the shore of a river one day; it was November, and everything felt cold, gray, damp, and dreary. The walk along the shore path took us past some beautiful Victorian homes, and I tried to visualize how pleasant they would be in the summer sun, facing the water. I could see well-dressed little children in white lace frolicking along the water's edge with their nannies looking on. So this is how the wealthy Germans live. As we continued on, my friend asked what I would like to eat for dinner that evening. I suggested fish, since here we were along the water's edge. My friend answered that fish was very difficult to get and not very good. "Why," I asked. "Here we are so near the water." "Oh," my friend responded, "the water is dead here. It's been dead for years. Nothing grows in it." "Oh," I thought, "That's OK." I suggested pasta instead.

We continued on and my thoughts returned to the problem of dead fish. And suddenly, I stepped into a new world: a world where the industrial pollutants of a city could actually kill water. Not just water in an isolated lake, but water in a big river. I looked at that water, then, and saw it was black and ominous. It looked like liquid death. I had never thought of water

as alive or dead before. It was just the backdrop for the more interesting and tasty beings who inhabited it. Now I saw the graveyard of an entire ecosystem in which not one living organism existed. No seaweed, no fish, no ameba, nothing. Just blackness, lapping up against the landscaped grounds of the beautiful estates.

What I experienced in those next steps was an important shift in my worldview. As a psychologist, I had always thought of the physical world as the mere background against which more fascinating animals called human beings loved, fought, conquered, created, suffered, and enjoyed pleasures such as those in the lovely estates beside us. Walking along the shorepath in Hamburg, I saw that the physical world made human civilization possible: those Victorian estates rested on the industrial wealth from shipping, manufacturing, and merchandising. But human civilization was destroying the physical world in return. These beautiful estates, financed by the wealth of Hamburg's industries, must now face the deathly result of that civilization, the black liquid that laps up against their shores.

As an American living in Europe I had immensely enjoyed many pinnacles of human civilization so salient there: the music, the art, the ballet, the cathedrals, the cuisine, and the ambience of urban sophistication. But as glorious and magnificent as human civilization is (and to an American in Europe, that glory and magnificence is absolutely stunning) *our Western civilization is not sustainable*. In Germany (and northern Europe) it is easier to see the ugly ramifications of too many people and too much pollution, where trees in the Black Forest are dying from automobile pollution from the autobahn, no wilderness exists anymore, where an entire river can die. In the United States, our unsustainable patterns are less obvious because there is more space per person. But we are not far behind our European friends.

The realization that we are living in an unsustainable culture has stayed with me ever since. A few months after returning to the United States and taking up my teaching again, I asked myself: What has psychology got to say about this? Given that we are living in an unsustainable culture, why am I even teaching psychology? My students help me keep this question alive with their concerns about their futures, about their choice of livelihoods, and about the reasons, if any, as to why they should be studying psychology.

When I ask my students, as I have done both in and out of the classroom, about whether they feel hopeful or pessimistic about the future, I am always dismayed to find the overwhelming majority feeling very uncertain and unhelpful. Although they plan and hope to "get a good job," when I ask how many think that their lives will be as comfortable as their parents', very few do. In fact there is a deeply set foreboding among most of my students, a feeling that we are quickly approaching the limits of economic growth,

and that their generation will have to pay the costs of the unsustainable practices instituted by mine. Most of the time this gloomy vision is buried underneath the demands of their academic loads, social lives, and personal development that is so crucial in the undergraduate years. But behind the layers of busy activity, pessimism prevails.

Yet my students are also idealistic, and it is their idealism that I am most grateful for, and to which I wish to speak. In my 20 years of teaching experience, I have continually found that most of my students truly want to help the world; they seek careers not only for good money but for good meaning; their hearts are still as open as their minds; and they ask really good questions about values, choices, and purpose. While most of my own generation is now locked into mortgages, family responsibilities, and firmly set identities, my students have less certainty as well as less confidence about their own lives, and consequently, more motivation and more authenticity in their struggle to make good value choices.

As a psychologist, I read William James' *Varieties of Religious Experience* many years ago, and I knew from that wonderful book that conversion experiences are real, but only if supported by many other congruent events. My walk in Hamburg was pivotal because of many other experiences that came both before and after it. For starters (a big one) 10 years ago I married a geologist who has taken me to the most extraordinarily beautiful wilderness areas and taught me that rocks and dirt are a crucial feature of our ecosystem. Before I married John, I was a typical social scientist, who thought of rocks and dirt as the stable (and boring) background, on which the interesting stuff like plants and animals (especially people) grew. But John has helped me recognize that the biological world is possible because of the nonbiological (inorganic) world; in fact, there is no easy figure/ground separation like I had imagined. The inorganic world is just as dynamic and fluid and dramatic, although it takes a different sense of time to perceive its impressive changes through melts, flows, and tectonic dances.

Let me tell you a little more about myself so you know who is behind this book. I also believe that my world view was changed in Hamburg that afternoon because of a variety of sociological factors including gender, nationality, class, race, and age. My views are a product of forces that at first seem quite tangential to the topic: I am a baby boomer, a white, middle-aged, professional female who enjoys the fruits of industrialized civilization and is having difficulty reconciling what I know about the ecological world with how I live. I believe that my gender, which gave me the experience of being a minority member in a man's world through graduate school and most of my career, has allowed me to be sensitive to unconscious patriarchy and oppression of feminine values. While I have never suffered the more virulent forms of sexual harassment or sexism, I have felt oppressed by



patriarchy because the feminine values of compassion, caring, and connecting spiritually with the natural world, are often regarded as soft-headed and fluffy by the traditionally male-dominated world of academia. As a privileged white person, I am economically secure enough to have the luxury of considering larger questions of survival than just my own. And without children of my own, I believe I am more concerned about the future of our planet's children than many of my friends, whose parenting responsibilities understandably require a more immediate focus on much smaller numbers.

These are the biases that pervade this book. Many of my thoughts about overconsumption will seem irrelevant or self-indulgent to those who are struggling to support a family, to stay employed in an extractive industry, or just survive in an economically and socially insecure world. I apologize in advance for this bias, which I cannot escape, but to which I do admit. I suspect many of my readers will share many of these biases. I hope that the material in this book will help them in their roles as decision makers and active citizens.

There are even more idiosyncratic factors that shape my biases. Having grown up in the suburbs of Los Angeles, I grieve over the way the automobile has destroyed village life. Also, having been a college student during the Vietnam war, I have some skepticism about my country's political involvement in other parts of the world, as well as an open heart for the romantic spirit that blossomed during that period. As an academician, I have never thought that economic gain is everyone's top priority, since it has never been mine (although I do think psychology has been naive to ignore the issues of class and distribution of wealth in its discussions of behavior).

I want to tell you these things about myself and about why I have written this book because I believe that the person is always alive and potent in any intellectual work, no matter how stringent one's attempt to be objective. We always shape our knowledge by our values, our assumptions, and cognitive styles, and the peculiar and arbitrary conjunction of sociological factors, over which we have no control, but from which our sense of meaning is derived. Trying to remove the self from our knowledge only results in hidden biases, dead prose, or inauthentic arguments. Without biases, there would be no meaning anyway, so I believe it is imperative to acknowledge one's values rather than attempt to deny, escape, or hide them.

Having disclosed my idiosyncrasies to you, I also want to call on one of my first loves in psychology, Erik Erikson, to help me remember the path toward wisdom. Erikson proposed that wisdom comes from what he called *ego integrity*, by which he meant living with the paradox of being able to

see the arbitrary, accidental basis for one's deepest beliefs, and at the same time, employing the courage to stand by them with utter conviction. While recognizing the personal and sociological reasons for my views, I offer them to you with the hope that they are clear and vivid enough to illuminate the ones you share as well as the ones you must rework to support your own ego integrity.

## THE WHAT: CHAPTER ORGANIZATION AND RATIONALE

This book is, in a nutshell, an introduction to psychology as it applies to environmental problems. Chapter 1 begins this project by outlining the main features of our environmental difficulties and arguing that because they have been caused by human behaviors, beliefs, decisions, and values, psychology is crucial for finding solutions to them. Chapter 2 discusses some historical contributions in Western intellectual thought to our contemporary views about nature. Chapters 3 to 7 each examine a particular field or theory in psychology and applies it to a selected environmental problem. Chapter 8 summarizes and compares these five psychological approaches. It also analyzes where psychology has been and where I believe it ought to go in order to make stronger and more potent contributions to solving our environmental problems.

Being much better at giving advice than following it (even—perhaps especially—my own) I rarely am able to do just one thing at a time. Consequently, in spite of my frequent efforts to simplify my work and my life, I have written a book that tries to do many things at once. Whether I have done any one of them more effectively than others, or any of them effectively at all, is for you to decide. (I suspect all authors are as deeply curious about their readers' reactions as I am, and I ask you to please write them down and send them to me.)

As an introduction to psychology applied to environmental problems, this book is written for the introductory psychology student, for the environmental studies student, and for the layperson who may wonder if psychology has anything useful to say about our mounting ecological difficulties. As I have told you above, I have wondered, as well. In pursuing this question, I have learned a lot about my discipline, and I hope you will, too, as I share my learning with you. After writing this final draft, I now see plenty of psychology that I have not used, and I regret the omissions of some fascinating topics, such as environmental conflict-resolution work, physiological effects of weakened immune systems in toxic environments, the role of psychology in retraining and supporting families making transi-

tions from extractive to service industries, and some others I have not even thought of yet.

Still, enough is enough. In the case of this book, some would say too much, for the five tasks attempted (while performing the general goal of introducing psychology and applying it to environmental problems) are a lot. Let me describe the various tasks I have attempted to accomplish along with their intended audience and location in the book.:

1. I have tried to set psychology in the larger cultural context in which it operates. After I describe what I see as the main features of global environmental destruction and how they are psychological problems, I analyze the history of Western thought as it has influenced our worldview about nature and our relationship to it (Chapter 2). These two chapters set the groundwork for examining the specific material in the next five chapters, each of which deal with specific subfields of psychology: social, Freudian, behavioral, cognitive, and gestalt/transpersonal. If the focus on psychology seems delayed, coming as it does after a treatment of both environmental issues and Western intellectual history, I ask for your patience. Placing psychology firmly in the modernist tradition allows us to understand its limits and contributions better and to do a more sophisticated analysis of the discipline at the end of the book. This interdisciplinary beginning will not be abandoned. Each of the content chapters addresses material not ordinarily thought of as “pure” psychology because of goal 3 (below).

2. This textbook explains key psychological concepts so that a first-time student can understand them. I assume no prior background in psychology, although the pace of the discussion is swift, and might be more easily digested toward the end of an introductory course than toward the beginning. I have tried to organize the discussions so that environmental studies students and general audiences will follow the reasoning without necessarily remembering the technical terms.

3. I try to reveal the psychological dimensions of specific environmental problems, which is why each of the five content chapters includes what might seem at first a tangent. (In the social psychology chapter there is a lengthy discussion of the global effects of gender bias; in the behavioral chapter, a discussion of forest conservation policy; in the cognitive chapter, a discussion of environmental risk assessment). I developed these discussions in some detail because it is impossible to demonstrate the psychology at work in such topics if they are only superficially described. In all cases, my effort is to illuminate the psychological dimensions of environmental problems that do not at first seem so psychological.

4. I am concerned about the problem of public despair and guilt over our ecological predicament, and I want to provide hope. While much of the literature on environmental issues has been useful in eliciting public con-

cern, I believe, along with Ted Roszak, that much of it has failed to go further because it has relied so heavily on “scare tactics and guilt trips.”<sup>1</sup> Without pulling punches or softening my description of what I believe to be our serious environmental predicament, I try to provide hope by delineating where psychological theory can help us. Each chapter provides a set of “what to do’s” and the Appendix lists other valuable works that do the same. Simultaneously, I urge you, the reader, to keep track of the psychological reactions you experience as you read through the book. I believe that we cannot transcend despair, fear, guilt, or denial until we acknowledge their presence. Building a sustainable world is no easy psychological task, and we will need our all our personal honesty, courage, commitment, and vision to do it. I wrote this book to be a tool as well as a textbook.

5. Finally, I attempt to both celebrate and critique mainstream psychology. In exploring where psychology has been, I try to point to where I believe it ought to be going. I leave most of that work for the last chapter, but I plant the ideas earlier on, within each of the main content chapters. As such, the book becomes appropriate for a senior-level capstone course in psychology, where students are asked to formulate their own critique of the field in light of its history. If I have succeeded, you will emerge from this book with your own critique, which because of what I have already told you about myself, must be in some way different than mine.

## THE HOW: SOME OF THE KEY INGREDIENTS AND EXPERIENCES

As a work for both general and academic audiences, I use a lot of personal examples. First, they are what I can write about most accurately and honestly. Second, in my four decades of reading and learning, I have found that I learn best from people who share real experiences. Although I know that my experiences cannot always be generalized, I hope that they underscore the concepts clearly enough to help you see where they are limited.

This book took about a year to write and about 20 to figure out. It represents a long intellectual journey, which I am still making, through psychology, whose enormous intellectual vitality and variation are never ending sources of both delight and frustration. Just when one thinks there is some coherence, something new defies it. Those same emotions also describe a recent 8-month journey my husband and I made around the world while on our sabbatical leave from Whitman College. The hardships and pleasures of traveling are matched only by the technicolor learning it

<sup>1</sup> Roszak, T., *The Voice of the Earth* (New York: Simon & Schuster, 1992), p. 35.

delivers. Encircling the planet gave me a sense of its vastness, diversity, and preciousness. That those experiences informed and enriched my thinking about our global ecological problems is a matter of great privilege, for which I will be forever grateful. In this regard, I thank the Trustees of Whitman College for the sabbatical, as well as the department members who filled in for me so that I could take an additional leave of absence and complete this book.

On that journey I found innumerable people who gave me interviews, logistical help, housing, Nepalese, Hindi, Mitali, Chinese, Tibetan, and Thai translations, and unabashed encouragement to pursue my interests in women's lives in developing countries. In India, they were Leigh and T. V. Punj, Rakesh Shaiwam, and especially Suman Nanjia who welcomed me as a soul sister working on the same problems halfway around the world. In Nepal they were Nancy Russell, Claire Bergert, Diana Houlihan, Young Chang, Cathy Leitz, Joe Elkins, and especially Bob Biles for making so many of those contacts possible for me. Thank you to Sabine Lehmann of the Vajra Hotel in Kathmandu for allowing me access to her splendid library. For library access in Thailand I appreciate the warm welcome from Linda Wheatly of the Peace Corps Office in Bangkok, as well as Marvin Pannell, Louis D'Angelo, and Jackie Rutledge for their helpful insights in to the sex industry in Chaing Mai.

To use the words of ecophilosopher Warwick Fox: I do not see how anyone can write about ideas and not develop at least some degree of ecological consciousness. Such writing inevitably leads one to realize just how much one's 'own' ideas are a complex interactive function of the ideas that one has absorbed from others—others whose "own" ideas are in turn, complex interaction of the ideas they have absorbed, and so on.<sup>2</sup>

This book has taught me a great deal about myself and about my discipline. But most of all it has taught me to appreciate the rich, supportive intellectual ecosystem in which I thrive. Before embarking on this task, I had no idea that my colleagues could or would be so helpful, insightful, caring, or generous of their intellectual energy and spirit. This book has been enormously enriched by their contributions. They enabled me to discover what I am trying to say, through allowing me the opportunity to propose, inquire, argue, and listen, as well as reexamine, rearrange, and rephrase, until finally, as imperfect as it is, the deadline is here and all that must stop, at least for this project. I have thoroughly enjoyed the intellectual community I have discovered, and can only say that I hope I can return the gift to even a

<sup>2</sup> Fox, W., *Toward a Transpersonal Ecology: Developing New Foundations for Environmentalism* (Boston: Shambala, 1990), p. xiii.

few of these colleagues by being as helpful to their work as they have been to mine.

There are so many people to thank that I apologize in advance for inevitably forgetting someone. Many people read and commented on earlier drafts of chapters, generously contributing their professional expertise to help me correct misunderstandings, find references, shape nuances, and clarify organization, including Bob Carson, Jan Meir, and John Du Nann Winter (Chapter 1); Naomi Abraham, Phil Brick, George Castile, Dale Cosper, Diana Brown Holbert, Tim Kaufman-Osborn, Sue Weiler, and Cynthia Witman (Chapter 2); Kelly Sax (Chapter 3); Jack Engler, Richard Garcia, Niklas Kraus, Judy Potts, Steve Rubin, and Cynthia Witman, (Chapter 4); Michael Domjan, Jay Eacker, Scott Geller (Chapter 5); George Cvetkovich and Paul Setze (Chapter 6); and Warwick Fox (Chapter 7).

Others did all those things and more by reading and rereading the whole manuscript, often in an impossibly short time in order to give me comments when I needed them. These saints include Susan Nielsen, Cynthia Witman, Carolyn O'Grady, Mike Wessells, and Paul Hoornbeek. Susan and Cynthia provided timely, detailed, nuts-and-bolts comments and support while Carolyn nourished my spiritual work in the book as she does my spiritual work in academia. Mike Wessells did a masterful job reviewing the first draft and making enormously insightful recommendations for reorganization. Paul Hoornbeek gave the amazing gift of offering to read all my first drafts (now that is friendship beyond friendship), and then sticking by me every inch of the way, cheering me on while confronting my sloppy reasoning and phrasing, and convincing me to put more of myself into this book than I otherwise would have dared. In many ways I learned to write from this great friend and gifted teacher of writing.

Many more people patiently listened to my half-baked ideas and offered helpful resources, including Dana Burgess, Bill Bogard, David Carey, Bianca Cody-Murphy, Heidi Dobson, Tom Edwards, Pat Henry, Meg Houlihan, Bud Kenworthy, Joe Maier, Susan McKay, Doug McKenzie-Mohr, Jan Mejer, Shirley Muse, Ulrich Neisser, Marc Pilisuk, Kevin Scribner, and Walter Wyman. The cheerful and professional help that Marilyn Sparks, Karen Anderson, John Paul, and Sarah Blattler gave me in Penrose Library makes me grateful beyond words, which is their main business. They gave me twinkling good will as well. Thanks to Susan Kelly for her work on footnotes, Kim Jordan's continuous aid on computer snafus (even at 8 a.m. one Saturday morning) kept me from missed deadlines, and the insanity they threatened. Many more people generously endured my little crises, those inevitable melodramas brought on by any project that claims more than a few months of one's life. In this regard I especially thank Cheryl Ray and Jeanne McMenemy for their abiding love and sup-

port. They both seemed to believe enthusiastically in the book long before I did. Jeanne's deep friendship and intuitive understanding of what I am trying to do here is expressed by her calligraphed rendition of Wendell Berry's poem (see page iv), which she did for my birthday before the book was very far along. And thank you to Catherine Woods at HarperCollins for deciding to publish the book before it was half written, and her spunky, able assistant Erica Smith for all her energy, vision, and sensitivity in seeing this book through to completion. For valuable help on the proposal I appreciate Kathy Ketcham and Candace Pierce. And for reading it, as well as for gracefully letting me out of all sorts of family commitments so I could finish what I promised, I thank each of the members of my family.

There are other people who must be thanked for getting me to this task in the first place: Elliot Aronson for visiting Whitman College, presenting his applied research on environmental problems, and then compassionately asking me the question I most dreaded: Why was I not doing it, too? (And thank you, Elliot, for writing *The Social Animal*, which first demonstrated to me that a textbook could be engaging, personal, and instructive at the same time.) Thanks to Bob Carson for formulating the first Global Studies course at Whitman College and inviting an interested neophyte like myself to help teach it. Thank you to Niklas Kraus for walking me along the Eble River that blustery day in November 1988 and telling me why we could not eat fish.

And finally, unfathomable thanks to my husband, John, who helped me realize that there is a physical world, that it is beautiful, and that it needs our love.

# 1

C H A P T E R

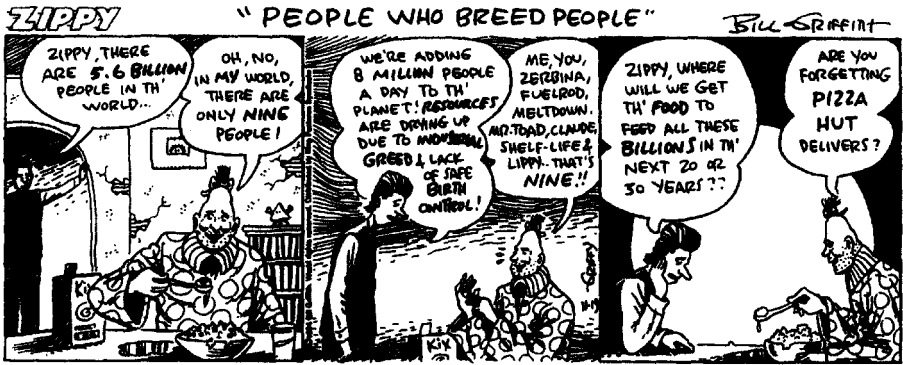
## *What on Earth Are We Doing?: The Psychology of Environmental Problems*



**W**hat will your future be like? If you are like most people, you have hopes of a happy life with your family and friends. You desire secure, meaningful work, good physical health, rewarding interests, and enough leisure time to enjoy them. Yet most of us also have a notion, ranging from an inkling to a grave fear, that our future will not be pleasant, at least not as comfortable as our current lives. Most of us realize, at one level or another, that we are operating in a way that cannot be sustained for more than a few decades. The earth's human beings are running out of available resources, polluting our natural habitat, and reproducing too quickly.

Yet we proceed to live as if our normal lives will continue. In 1990, 78 percent of Americans said they believe that a "major national effort" was





needed to improve the environment, yet only 22 percent said they were actively working toward solutions.<sup>1</sup> Instead, we go to school or work, do the shopping and laundry, visit friends, and take vacations when we can, trying not to think about the claim that the planet cannot possibly sustain our current lifestyles for very much longer. We bear a vague sense of pessimism about our future while we carry on with business as usual. Perhaps we hope that the doomsday scientists will decide they got it wrong, or come up with some good technological fixes. If we wait it out, we may find that all will be well after all.

But I doubt it, and so do most of the experts themselves. While trusting the specialists might make us more comfortable, we are unlikely to be saved by them. The physical problems that threaten the survival of human life on the planet seem too huge, too complicated, and too serious to be solved by a small group of scientists, although we will certainly need their knowledge to reverse our plight, just as we have required their knowledge to realize it. While human beings have always altered their physical environment in order to survive, the pace and scale of the environmental changes we are inducing has no precedent. And the longer we wait, the worse the problems become, making solutions seem more and more difficult. In short, betting on the smaller and smaller odds of technological solutions is likely to become more and more irrational.

Besides, deciding whether to entrust our fate to scientists misses an important cause of our predicament. We cannot leave our problems solely to physical scientists to create physical solutions, because our environmental problems are also psychological in origin: they have accrued because of the thoughts, beliefs, values, and worldviews that human beings have acted on and continue to act on. Human behavior is responsible for our quickly deteriorating ecosystem. Deforestation does not just happen; human beings

<sup>1</sup>New Road Map Foundation, *All-Consuming Passion: Waking Up from the American Dream*, 2nd ed. (Seattle, WA: New Road Map Foundation, 1993), p. 17.

cut down trees. Ozone holes are not natural phenomena; they are caused by human beings who manufacture and release dangerous amounts of chemicals into the stratosphere. Greenhouse gases may be threatening our survival because billions of people do what they do every day. Our behavior is accompanied by our beliefs and attitudes that make business as usual seem sensible, even though business as usual may be jeopardizing our future survival. Thus, solutions to environmental problems will require more than just technological answers. We will also have to make psychological changes: changes in the way we behave, the way we see ourselves, the way we see our relationship to nature, and even, perhaps, the way we see the meaning of our lives.

When I climb into my car in the morning to drive to work, my environmentally irresponsible behavior is rooted in many structural dimensions: my office is 20 miles from where I live; there is no mass transit system available; purchasing and operating a car is financially affordable because of massive government subsidies to car makers and an international trade system that makes petroleum and automobiles inexpensive for me; roads are built and maintained by tax dollars that I did not allocate, etc. I live with the split of knowing that I do environmentally irresponsible actions because there are so many ways in which political and economic institutions sponsor them.

Ever since the publication of Rachel Carson's widely read book *Silent Spring*<sup>2</sup> (1962), Americans have been exposed to information about our worsening environmental problems. During the energy crisis of the 1970s, sudden price escalations and shortages of gasoline helped us understand our dependency on petroleum products, and we learned to conserve where we could. In the 1990s we again are subjected to sermons about energy limits, but this time, we are learning that our difficulties are more threatening, more complex, and more interconnected than simply a shortage of crude oil from the Middle East. In the 1990s, we read about a slew of environmental problems threatening the survival of our entire planetary ecosystem: ozone depletion, global warming, overpopulation, deforestation, air and water pollution, topsoil loss, and coral reef destruction, to name a few. The news is bad, and it goes on and on. No wonder we cannot stay tuned for very long; to do so would be too depressing, perhaps too terrifying. So we turn our attention to our present concerns: family obligations, work or school, enjoying our friends, and paying our bills.

Yet our concern grows. Public opinion polls demonstrate that Americans are more worried about the environment than ever before. For example, in 1990, 55 percent felt that their environment had deteriorated in the past 5 years, up from 34 percent who felt this way in 1983. In 1989, 75 per-

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<sup>2</sup>Carson, R., *Silent Spring* (Boston: Houghton-Mifflin Co., 1962).

cent felt the greenhouse effect was a serious or somewhat serious problem, up from 43 percent in 1981. And in 1988, 62 percent said they thought environmental pollution was a very serious threat, up from 44 percent in 1984.<sup>3</sup> Increasing public concern has been attributed to graphic media coverage of environmental problems, successful recruitment techniques by national environmental organizations, and well-publicized statements by scientific experts, such as the 1980 Global 2000 Report to the President. Although not all scientists agree with the public majority, most do, and many of them are very prominent. In fact, in 1992, over 1670 prestigious scientists, including over 100 Nobel Laureates, signed a “World Scientists’ Warning to Humanity,” urging public attention to the “human activities which inflict harsh and often irreversible damage on the environment and on critical resources.”<sup>4</sup>

What leads so many people to conclude that we are in danger of irreversible ecological collapse? I want to describe what I see as the major components of this picture. But before I do, let me explain something about how I am approaching these problems as a psychologist. As imperative as the topic of our future survival may be, I have an additional reason for writing this book: to demonstrate the breadth and utility of psychology.

**Psychology is defined as the study of behavior and mental life**, and it is a relatively new discipline that recently has been celebrating its first century of existence. Although psychology has had a great impact on modern American culture, it has rarely been seen as an environmental science—as having something relevant to say about how we got into our mess and how we might get out of it. Instead, psychology seems to have two very different manifestations. In the college classroom it is taught as a science: empirical studies with statistical analyses are used to illuminate basic behavioral and mental processes such as learning, perception, motivation, and thinking. In the shopping mall, however, psychology looks much different. Much to the consternation of my academic colleagues, the trade bookstore places psychology books alongside self-help books and books on the occult; there psychology looks like a do-it-yourself method you can use to manage a divorce or experience your past lives.

Neither the academic nor the tradebook version of psychology is completely correct or completely wrong. Psychology has been both a science

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<sup>3</sup>Dunlap, R. E., “Trends in public opinion toward environmental issues, 1965–1990,” in Dunlap, R. E., and Mertig, A. G., eds., *American Environmentalism: The U.S. Environmental Movement, 1970–1990* (Philadelphia: Taylor & Francis, 1992), p. 108.

<sup>4</sup>Union of Concerned Scientists, *World scientists’ warning to humanity* (Cambridge, MA: Union of Concerned Scientists, 1992). (Statement available from the Union of Concerned Scientists, 26 Church St., Cambridge, MA 02238.)

and a practical tool for public use ever since its beginnings, and although these two wings often offend each other, they have also learned to live side by side. Neither the pure academic wing nor the “pop” wing represents the biggest constituent anyway. The largest number of psychologists (over 60 percent) are applied psychologists, trained professionals who bring psychological principles to the problems of mental health, personnel management, consumer marketing, etc. Using psychology to examine our environmental problems offers yet another opportunity to integrate the scientific and the applied sides of the discipline. As a science, psychology can demonstrate the empirical dimensions of our behavior that contribute to and result from environmental threats. Psychology can also help us examine our own thoughts, feelings, and behaviors, challenge us to question our entire Western worldview, and suggest ways to change ourselves so that we may begin climbing out of our environmental predicament. I am hoping that bringing psychology to speak to the unspoken pessimism that most of us share about our future on an overcrowded and overburdened planet will make psychological theory personally and intellectually meaningful. Thus, I believe that using psychology to examine our environmental predicament has two important payoffs: it will teach us about the discipline of psychology as well as give us insight into how we might design a sustainable future.

Before we begin our more technical discussion of our problems, I invite you to join me in thinking about them as a psychologist would. Since psychology is the study of behavior and mental life, you will learn more about it by considering your own behavior and mental life; your own experience can provide you with a basis for judging what others have said about these processes. Most of us are familiar, to some extent, with the sobering problems of our environment, and we have heard before at least some of what is to follow. As you read the rest of this chapter and this book, you will learn more if you keep track of your own reactions: your thoughts, feelings, images, and behaviors, which are the raw data of psychology. They will provide you with intriguing experience with which to understand and judge the adequacy of the psychological theories discussed in the chapters to come. You might want to jot some reactions down in the margins, as you experience them. Psychological responses are what this book is about, so treat yours with respect. They will enhance your understanding of the material, as well as of yourself.

## **BIOLOGY'S BOTTOM LINE: CARRYING CAPACITY**

While we must look at an array of interconnected problems, the bottom line that is causing so many of us to worry is that the earth has a limited car-

rying capacity. Globally, we cannot go on much longer in our present mode because the physical resources of the planet have limits and we are quickly approaching them. **Carrying capacity** is a concept developed by biologists to describe the maximum number of any specific population that a habitat can support. If the habitat is isolated and the population cannot migrate to a new one, the population must find a balance with the resource base. If this does not happen, and the population grows too quickly so that it depletes its resources suddenly, the population will crash. Such crashes have actually happened in both animal and human populations. Islands that segregate ecosystems and prevent migration provide the clearest examples. For instance, a recent case involving reindeer provides illuminating numerical data. In 1944 the U.S. Coast Guard imported 29 yearling reindeer to the isolated St. Matthew Island in the Bering Sea (between Alaska and Russia). The island was ideal for the propagation of reindeer, so that by 1963 the population had grown from 29 to over 6000. However, the terrain became badly overgrazed and food supplies dwindled, and the population crashed in the winter of 1964. The island could have sustainably supported about 2300 reindeer, but after the crash, only 3 percent of that figure survived.<sup>5</sup>

Archaeological evidence from Easter Island, off the coast of Chile, shows that a very complex but unsustainable human population grew there for 16 centuries. To support itself, the islanders cut more and more of their surrounding forests, so that eventually soil, water, and cultivated food supplies were depleted. The population crashed in the 17th century, falling from 12,000 in 1680 to less than 4000 by 1722. Only 111 people survived by 1877.<sup>6</sup>

When carrying capacity is exceeded in mainland civilizations, the picture is more complicated because declining wealth makes the civilization more vulnerable to outside attack. Two clear examples of exceeded carrying capacity, however, are provided by the Sumerians of Mesopotamia and the Maya of the Yucatan region. The Sumerians were the first literate society in the world, leaving detailed administrative records of their civilization and its decline between 3000 and 2000 B.C. The complicated agricultural system that supported their population also depleted their soil through salinization and siltation. Crop yields fell 42 percent between 2400 and 2100 B.C. and by 65 percent by 1700 B.C. In the words of environmental historian Clive Ponting:

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<sup>5</sup>Catton, W. R., "Carrying capacity and the death of a culture: A tale of two autopsies," *Sociological Inquiry*, 63 (1993): 202-222.

<sup>6</sup>*ibid.*

The artificial agricultural system that was the foundation of Sumerian civilization was very fragile and in the end brought about its downfall. The later history of the region reinforces the point that all human interventions tend to degrade ecosystems and shows how easy it is to tip the balance towards destruction when the agricultural system is highly artificial, natural conditions are very difficult and the pressures for increased output are relentless. It also suggests that it is very difficult to redress the balance or reverse the process once it has started.<sup>7</sup>

Similarly, the Maya, who developed what are now parts of Mexico, Guatemala, Belize, and Honduras, built a complex civilization on the fragile soil of tropical forests. Clearing and planting supported a population from 2000 B.C. to A.D. 800. As the population grew, land that needed to rest between plantings was overused. About A.D. 800 the population crashed. Within a few decades the cities were abandoned and only a small number of peasants continued to live in the area. The remains of their civilization, buried under the tropical jungle, was not discovered until the 19th century. Skeletal samples show that widespread malnutrition killed massive numbers of people.

In the past, population crashes have occurred in one part of the world without seriously affecting those in another. Today, however, because of deterioration of “the great life-supporting systems of the planet’s biosphere—the climate and chemical cycles, the accumulation of wastes, the exhaustion of soils, the loss of forests, and the decline of ecological communities”<sup>8</sup> weakened global structures are threatening an ecological catastrophe on a *planetary level*. The earth is, in this sense, a large island, with no known way to borrow resources or dump pollution anywhere else. Thus, because of the array of interconnected global problems described below, many of us believe that we are probably heading for a similar kind of population crash at a global level. We are using our resources unsustainably, and at the same time, polluting our ecosystem, thereby weakening its ability to restore and supply the basic physical requirements for our biological needs. In fact, both human population growth and resource depletion are accelerating at exponential rates, which is what makes our problem so pressing, yet so difficult to perceive directly.

**Exponential growth** is deceptive because it starts off slowly but quickly accelerates. It occurs when a quantity increases by a fixed percent-

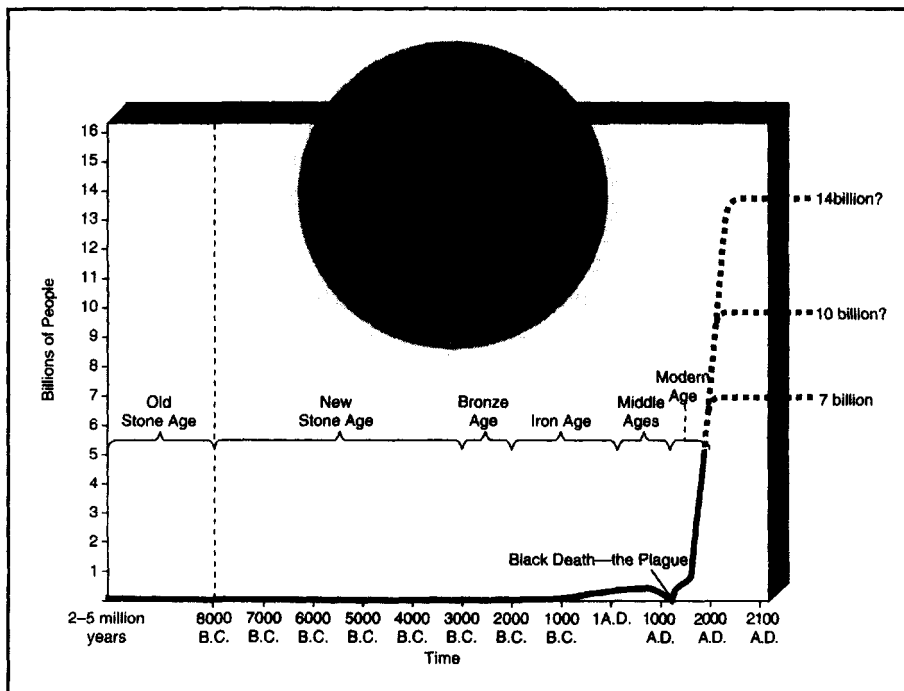
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<sup>7</sup>Ponting, C., *A Green History of the World: The Environment and the Collapse of Great Civilizations* (New York: St. Martin’s Press, 1992), p. 72.

<sup>8</sup>Speth, G., “The global environmental challenge,” in Miller, G. T., *Living in the Environment: An Introduction to Environmental Science 7th ed.* (Belmont, CA: Wadsworth, 1992), p. 27.

age of the whole, which means that it will double after a certain interval, rather than grow incrementally (which is linear growth). The concept of exponential growth is so important to understanding our predicament that it is worth spending a moment with a conceptual example. Imagine that you have a bottle with one bacterium in it that will double every minute. Assume that it is now 11:00 p.m. and the bottle will be completely full by midnight. When will the bottle be half full? If you suggest 11:30, you are thinking in terms of linear growth, rather than exponential growth. Actually, the bottle would be half full at 11:59 because the bacteria will double every minute. Next question (and this involves a little more imagination): When do you think the bacteria might start to notice that things are getting a little crowded? Probably not even at 11:55, because at this point the bottle is still only 3 percent full. Remember, exponential growth begins slowly but accelerates quickly. Final question: Suppose the Royal Bacteria Society spon-

Figure 1.1



***J-shaped curve of past exponential world population growth with projections to 2100. This curve is a composite of exponential growth taking place over time at several, mostly increasing rates.***

Source: From LIVING IN THE ENVIRONMENT, Seventh Edition, by G. Tyler Miller, Jr. ©1992 by Wadsworth, Inc. Reprinted by permission of the publisher.

sored Sir Francis Bacterium to leave the bottle and go exploring for new space and suppose Sir Francis got really lucky and found three new bottles, quadrupling the space for the society. How much time did he buy? Although it may seem at first that their problems are solved, actually only two more minutes were provided until all four bottles will be completely full.<sup>9</sup>

Unfortunately, our human population picture is even worse than this example, because our exponential growth rates have, until quite recently, been quickly increasing, meaning that up until a few years ago our doubling time has been growing shorter. In 1650 it would have taken 250 years to double the human population, but by 1994, the doubling rate is somewhere between 30 and 40 years. Even though the doubling time has started to grow longer, the number of people added each year continues to increase because the growth rate has not dropped as fast as the population base has grown. Like our bacterium example, our problems are only very temporarily solved by finding new supplies of food or energy, or even a new planet or two.

Although industrialized countries have managed to bring their birth rates down, population continues to explode in the world's less-developed countries, which are home to four fifths of the planet's human beings. Improved medical care has brought the death rates in these countries down, without a matching decrease in birth rates. Campaigns to curb birth rates have often failed because families who live at subsistence level must have many children to help provide family food supply and ensure parents some measure of protection during old age. Because infant mortality rates are high, more children must be born than can be expected to survive. And because of almost universal gender bias, families will keep on producing children until enough boys are born to provide the family with economic security and/or social status in the community. Thus, poverty and sexism together drive population growth.

Some experts argue that until the world's distribution of wealth is altered, population will not be controlled.<sup>10</sup> Unfortunately, poverty has been growing. Currently, one fifth of the world's population, or 1.4 billion people, live in desperate poverty, without the basic resources of clean water, adequate food, shelter, or sanitation. Even in developed countries such as the United States one person in eight falls below the official poverty line; one in five U.S. children now do. If current trends continue, by 2050, one half the world's population will live in absolute poverty, meaning too poor to grow or buy enough food, or maintain a job.<sup>11</sup>

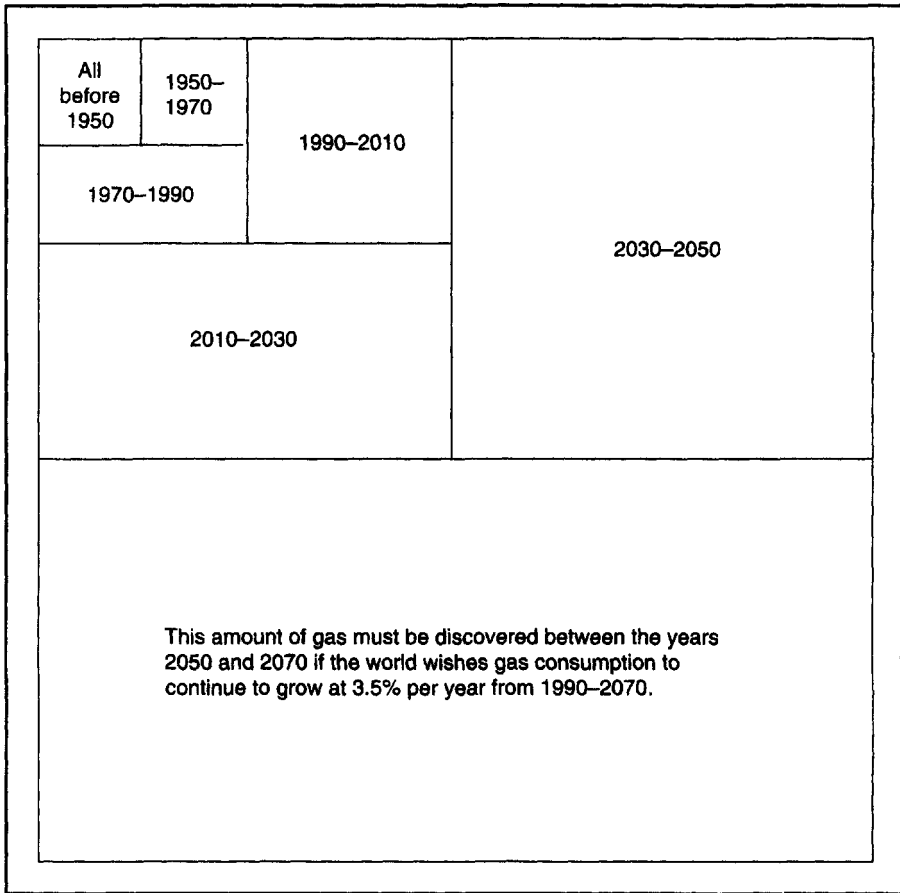
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<sup>9</sup>Special thanks to John Du Nann Winter for this teaching example.

<sup>10</sup>For example, Gerard Piel ("Defusing the 'Population Bomb,'" *The Nation*, March 21, 1994) proposes that population control closely follows economic development, which lifts people out of the poverty cycle.



Figure 1.2



***If the rate of growth of natural gas consumption continues at 3.5 percent per year, every 20 years an amount of new gas must be discovered that is equal to all the previous discoveries of history.***

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At the same time that human population has been increasing exponentially, so has our consumption of our resource base, but at an even greater rate. Energy is the most basic natural resource, and we can measure consumption of it in terms of the daily number of calories used for food, shelter, clothing, and whatever else humans create like cities, movies, and razor

<sup>11</sup>Miller, G. T., *Living in the Environment*, 7th ed. (Belmont, CA: Wadsworth, 1993), p. 7.

blades. One million years ago, about a million people on the planet engaged in hunting-gathering subsistence and each consumed a daily average of 3000 calories (for all human activities). By the early agricultural stage 10,000 years ago, energy consumption had jumped to 15,000 calories per person as cities were built and wealth was accumulated. Today, each of the globe's 5.5 billion people consumes an average of 89,000 calories per day, and people in North America consume an average of 314,000.<sup>12</sup>

Some of this utilized energy is renewable (like sun, food, wind, and hydropower) and some of it is nonrenewable (such as oil, coal, gas, and uranium). At present, humans on the planet get only about 17 percent of their energy from renewable sources, withdrawing about 83 percent from nonrenewable sources.<sup>13</sup> Some energy deposits of nonrenewable energy are identifiable and extractable right now, some are identifiable but too expensive or difficult to extract, and some are unidentified. At present use rates, how long can we expect the known major sources of nonrenewable energy to last? Not long. Even if we did not increase our rates of population or consumption from this point on, we would use up our known reserves of gas and oil in less than one lifetime. Because of exponential growth, even doubling our supply of oil (from, say, getting lucky in Alaska) would extend our consumption only by 20 or 30 years.

We have known about our limited supplies of fossil fuels since the 1970s, and many people are hopeful that we can convert to alternative energy supplies (sun, wind, nuclear or even fusion) soon. But other forms of resource depletion also threaten the carrying capacity of our planet to support human populations, and these forms have no clear alternative technologies. These depletions interact, accelerating their damage to our ecosystem. For example, as population has doubled over the past 40 years, the land area available for food production has shrunk because we have converted farmland to residential use. Because of urbanization, desertification, and (mainly) population growth, harvest area per person has been shrunk to half of what it was in 1950.<sup>14</sup> Although the Green Revolution has provided chemical fertilizers that have substituted for shrinking land, and increased grain production threefold over the past 40 years, per capita grain production is now *falling* because of shrinking land base and continued population growth, and because inorganic chemical fertilizers can damage

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<sup>12</sup>Clark, M., E. *Ariadne's Thread: The Search for New Modes of Thinking* (New York: St. Martin's Press, 1989).

<sup>13</sup>Miller, *ibid.*, p. 60.

<sup>14</sup>Brown, L. R., Kane, H., and Ayres, E., *Vital Signs 1993: The Trends That Are Shaping Our Future* (New York: W. W. Norton, 1993), p. 19.



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the land by exhausting and compacting the soil.<sup>15</sup> Top soil is also being lost at an astonishing rate: about 7 percent each decade is eroded or blown into streams, lakes, and oceans. In the region where I live, the inland northwest of the United States, which is a leading grain-growing site, one third of a ton of topsoil is lost for every bushel of wheat grown. Worldwide, topsoil is eroded 20 to 100 times faster than natural processes can replace it.

Our clean water supply is also shrinking. Ground water, lakes, rivers and oceans are being polluted by toxic chemicals from agriculture, industry, and domestic use. The portion of the hydrological cycle that provides fresh water to wells and springs is being interrupted. Rain water can no longer replenish aquifers because deforestation, urbanization, and overgrazing make it more likely that water will run off, rather than seep into the ground and replace what we use. The Green Revolution has required extensive irrigation, which has not only waterlogged and salinized soils, but also has quickly depleted aquifers. Globally, fresh water withdrawal has trebled since 1950,

<sup>15</sup>Miller, *ibid.*, p. 327.



Source: Reprinted with permission of Kirk Anderson.

and at current rates, we will run out of usable water within the next 30 years.<sup>16</sup> Already 60 percent of people living in rural areas of Third World countries do not have safe drinking water. Even in the United States, one quarter of the groundwater that is withdrawn is not replenished. The southwestern United States faces severe water shortages in the next decade.

While usable water and land supplies are shrinking, so are our forests. Less than one third of the world's original forest cover still remains, and the United States has only 5 percent left.<sup>17</sup> Half of what we have cut has been replanted, but replacement crops are more genetically homogeneous and therefore vulnerable to disease. In 1994, only 5 percent of the world's lumber was grown sustainably. Tropical forests, home for most of our planet's astoundingly varied life forms, are disappearing at record rates: currently we are destroying 70,000 square miles annually (about the size of the state of Washington) and degrading another equal amount. At this rate, we are extinguishing life forms faster than when the dinosaurs became extinct about 65 million years ago, and we will lose all of our tropical forests by the

<sup>16</sup>Meadows, D. H., Meadows, D. L., and Randers, J., *Beyond the Limits: Confronting Global Collapse—Envisioning a Sustainable Future* (Post Mills, VT: Chelsea Green Publishing, 1992).

<sup>17</sup>Durning, A. T., *Saving the Forests: What Will It Take?* (Worldwatch Paper no. 117) (Washington DC: Worldwatch Institute, 1993).

year 2020. Because the forests act like the lungs of the earth, converting carbon dioxide to oxygen, the planet's available oxygen supply will dwindle, and forest loss will also increase erosion, desertification, and siltation of our waterways.

As if loss of natural resources were not threatening enough, along with them comes another array of problems from their use and misuse: pollution. Burning our tropical forests is producing huge releases of carbon dioxide, which join emissions from automobiles, and other fossil-fuel-driven technologies to create greenhouse gases. Carbon emissions into the earth's atmosphere have increased exponentially since the 16th century; today they are far higher than they have been for the past 160,000 years, according to ice samples which scientists have withdrawn from glaciers in Greenland. Greenhouse gases trap heat in the atmosphere, causing the greenhouse effect. The greenhouse effect is one of the most widely accepted scientific theories, but scientists disagree on how much or how quickly global temperatures will rise because of greenhouse gases. Since 1880, when reliable measurement of global temperatures began, the earth's temperature has risen about 1°F. However, that is too small an increase to rule out chance variations. Debates also rest on questions concerning future rates of fossil fuel and forest burning.<sup>18</sup>

The specter of global warming is a controversial and frightening one. It may seem inconsequential, even attractive, that our climate would warm a little in a few years. However, only a few degrees' increase would produce many damaging effects to our current habitat. Farmlands would produce less, and agriculture would have to move toward the poles, causing disruptions in food supplies, requiring new dams and irrigation and migration of human populations. Tropical climates would replace temperate ones, speeding the decay of organic matter in the soil, releasing more greenhouse gases, and spreading tropical diseases. Sea levels would rise, causing flooding and severe threats to the half of the human population who now lives in the planet's coastal regions. Unfortunately, the world community has made little progress in its attempts to control carbon emissions. Equally distressing, the United States was a major player in blocking and weakening a carbon reduction treaty at the Rio Earth Summit in 1992—unfortunate, because the United States leads the world in carbon emissions per person.

While air pollution threatens us with global warming, it is also eating away at our ozone layer, which functions as a protective skin encircling the planet, shielding us from dangerous ultraviolet-B radiation. Atmospheric scientists have recently reported that the hole in the ozone cover over

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<sup>18</sup>Miller, *ibid.*, p. 287.

Antarctica is growing twice as fast as had been predicted in the 1970s and that a second hole is beginning to open up over the North Pole. The holes have high concentrations of chlorine oxide, the result of chlorofluorocarbons (CFCs) in action with oxygen atoms. Production of CFCs (the wonder chemicals of the 1950s and 1960s, used in a wide range of industrial products from insulation to solvents, and appearing in household items like freezers and air conditioners) doubled every 10 years from 1950. In 1987, 36 nations signed the Montreal Protocol, which stipulated a gradual reduction in CFC production by the year 2000. A year later, even greater ozone depletion levels were observed, stimulating further negotiations, and an improved global agreement. In 1990, government officials from 92 nations met in London and agreed to stop producing CFCs altogether by the year 2000. However, because it takes about 15 years for these chemicals to reach the ozone layer, the holes will continue to grow until at least until the year 2000. And because of the long lifetimes of CFCs the damage to the ozone will last for at least a century.<sup>19</sup> Consequently, we can expect rates of skin cancer, eye cataracts, and weakened immune systems to continue to remain high, if not increase.

Becoming more aware of the damage that industrialization is doing to the atmosphere leads us to consider the problem of how to clear global waste. When we try to get "rid of" waste, we have typically attempted to deposit it in the two places that seem infinite: air and oceans. Like air pollution, which is teaching us that nothing ever really "goes away," oceans, once seen as the ultimate sink for waste products, are demonstrating their limits to dilute and disperse our garbage. Measurable amounts of mercury, DDT, industrial chemicals, plastic, oil, and sewage sludge have been detected in our oceans at sites previously thought to be pollution-free. And on land or in water, toxic and nuclear waste are presenting expensive and dangerous problems for the survival of human beings, as well as the ecosystem on which we depend.

While scientists argue about some of the specific numbers and rates of resource depletion and pollution, the basic picture of a planet that is losing its ability to protect life, regenerate resources, clear pollution, and provide food for the quickly escalating number of human inhabitants is commonly understood. Whether or not we have memorized specific numbers, most people believe that on our current course, we are quickly approaching our limits in carrying capacity. Some argue that we have already "overshot" them—that we are already functioning in an unsustainable pattern from which way may not be able to escape.<sup>20</sup>

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<sup>19</sup>Meadows, *et al. ibid.*, p. 154.

<sup>20</sup>*ibid.*, Chapter 1.

## PSYCHOLOGICAL REACTIONS: BOOMSTERS VERSUS DOOMSTERS

Most of us are familiar with the outlines to these problems, but our reactions to confronting them is a psychological issue that is rarely addressed. As you read the above material, did you feel some inkling of fear, despair, or boredom? Did you scan the material, thinking to yourself that you already knew it? Did you find yourself growing irritated or frustrated? Or overwhelmed? Or guilty? Or did you wonder what any of this has to do with you? These reactions are important because they mediate how we understand our problems and what we are willing to do about them.

One way our reactions are likely to differ is basic optimism versus pessimism. Just as some people see the proverbial glass half empty, others see it as half full. You might have read the above material and felt growing hopelessness, while others might have read it thinking that while the picture seems gloomy, surely the creative spirit of human beings will enable us to invent and adopt solutions to solve our problems. These two views have been called the “doomster” and “boomster” responses.<sup>21</sup>

I want to spend some time discussing these two reactions because they demonstrate the important role that psychology plays in discussions about our environment. The boomster view (also called the “cornucopian view”) was exemplified in the early 1980s<sup>22</sup> by economist Julian Simon, who argued that population growth is good because people eventually produce more than they consume. Human beings are not limited by the carrying capacity of an ecosystem, he argued, because, unlike other animals, humans have the intelligence to redesign their habitat by inventing technology. Therefore, human ingenuity is likely to produce technological solutions that will solve our problems in ways we cannot imagine at present. As resources are depleted, their market costs will begin to rise, slowing use and encouraging alternative technologies to develop. Human beings are (as in the title of Simon’s book) “the ultimate resource.” There is no need for pessimism in the face of human creativity because humans are smart enough to work out solutions as they are required. The free market will allow human ingenuity to flourish, and therefore human products and human well being will continue to boom.

Although the boomster view remains a minority one, it is worth taking seriously because of its psychological implications. Boomsters like Simon argue

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<sup>21</sup>Bailey, R., *Eco-Scam: The False Prophets of Ecological Apocalypse* (New York: St. Martin’s Press, 1993).

<sup>22</sup>Simon, J. L., *The Ultimate Resource* (Princeton, NJ: Princeton University Press, 1981). See also, Simon, J. L., and Kahn, H., eds. *The Resourceful Earth: A Response to Global 2000* (New York: Basil Blackwell, 1984).

that each of the environmental problems discussed above has been exaggerated by the headline-hungry media that needs to create bad news in order to ensure public attention, sufficient Nielsen ratings, and advertising budgets. For example, in spite of graphic television pictures of the Exxon *Valdez* oil spill in 1989 showing oil-drenched wildlife and blackened beaches, suggesting that Prince William Sound was hopelessly contaminated, boomster Ronald Bailey<sup>23</sup> argues that U.S. surface water quality has *improved* since 1960. He cites examples such as Lake Erie, which has been cleaned up, along with other waterways, which have gotten better because of pollution-control measures. Similarly U.S. air quality has improved since 1970, as has air in cities around the world where the average per capita income has surpassed \$4,000 to \$5,000. Boomsters argue that as capital wealth accumulates, countries can afford better pollution control measures. As resources have been used, alternative technologies have developed, such as the use of iron to replace bronze in 700 B.C., and optic fibers to replace copper in the 1980s. Boomsters also emphasize the uncertainty in forecasts about global warming, quoting scientists who are not convinced that global warming has begun. Even ozone depletion is questioned, with suggestions that variations in solar and wind patterns could play a bigger role than CFC emissions.

In light of public anxiety about environmental issues, one would expect the boomster view to become quite popular, since it would relieve our discomforts about our uncertain future. Yet Simon has continuously bemoaned the fact in the past 20 years, the American public has steadily increased its endorsement of the doomster view. Public opinion polls have shown a continuous rise in concern about environmental issues, membership in national environmental organizations has surged, and donations to environmental causes has soared.

How, then, do boomsters explain the widespread acceptance of the alternative doomster vision? In addition to the irresponsible muckraking of the media, Bailey suggests that doomsters speak to some deep psychological, even religious, needs of Americans. Doomsters, he argues, are the modern-day versions of the fire and brimstone preachers of previous centuries. While describing the coming environmental hell in graphic detail, they scare their audience with dreadful prophecies, then promise salvation through conversion to a new ecological worldview. Although we may have always been susceptible to these rudimentary religious sentiments, today our paranoia is especially acute, boomsters say, because of the approaching millennium. As the turn of the century looms before us, we are especially vulnerable to anxiety about ultimate turning points, and therefore to visions

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<sup>23</sup>Bailey, *ibid.*



of doom and damnation. Boomsters also see environmentalists' concerns about social justice and inequities in distribution of wealth as only the most current version of the Marxist vision of a world collapsing because of evil capitalism. A secular society that has lost the psychological services of the church still has deep-seated needs to be saved by somebody, and the environmentalists dish out a very successful version of apocalyptic visions with moral imperatives. In contrast, boomsters suffer the problem of having only the status quo to offer.

The doomsters, on the other hand, would see the boomster view as one saturated with denial, scientific ignorance, pandering to current power structures or some combination of each. Clearly there are good (short term) emotional and financial reasons to ignore our environmental difficulties: recognizing the seriousness of our environment difficulties is not easy: to do so means that we open ourselves up to the risk of despair, guilt, or blame. It is understandably more convenient, both emotionally and financially, to deny the scientific data and warnings, or to simply remain uninformed. One of my family members told me that he does not like to talk about these issues because it makes him feel so helpless. A boomster view would obviously be a more comfortable one for him.

As a psychologist, I find both sides intriguing because they suggest that our perceptions of and responses to information about our environment depend on psychological needs. Boomsters and doomsters argue their cases with numbers and data, but obviously conclusions are based on more than "facts"—they are also based on assumptions and values. The invocation of religious needs to explain our environmental attitudes explains the counterintuitive reality that most Americans are willing to take a more pessimistic viewpoint, even though a more optimistic one would make us feel better. This explanation also implicates the role of the press in affecting our beliefs, forcing us to consider how information is presented to us, what assumptions we carry to it, and how we construct conclusions. Whatever else the boomster/doomster debate does, it makes a good case for the importance of psychology as an environmental science. We will discuss the informational, emotional, and spiritual dimensions of environmental concern in the following chapters as we examine more fully the ways in which people perceive and believe messages about our environmental predicament.

As the majority, doomsters show variations on their basic theme of pessimism, and do not always agree with each other, especially with respect to solutions. Some suggest that our problems can be solved only by massive governmental regulations, while others argue that only transformation of our deepest spiritual values will extricate us from our problems. Disagreement over solutions is inevitable, but giving up on them altogether is one risk of the doomster position. The complete "gloom and doom" picture can

lead one to conclude that there is no hope for warding off environmental catastrophes. The problems seem too huge, too complex, and too expensive for human beings to manage; government control seems as unlikely as spiritual transformation. In light of inevitable collapse, the best way of coping would be to ignore these issues, since their damaging effects will occur regardless of our understanding or efforts to delay them. Since we are helpless to solve these massive threats, we might as well not try. Many people feel that the only thing they can do is to live the best they can in the present, and try not to worry about our dismal future.

Whether one takes a boomster or a doomster view depends on one's assumptions about the future, and the future, of course, has not yet happened. Therefore, no one can say which one is more correct; instead, both are guesses, although some guesses are more informed than others. Arguments about specific data on particular environmental threats usually evolve to the conclusion that the past is not a sure guide for the future. For example, doomsters would say that even though technology has bailed us out so far, we cannot know that it will always do so. Boomsters would say that just because some resources are running out and some pollution is accumulating, some as-yet unimagined human ingenuity will solve these problems.

These predictions about the future are contradictory, and both cannot be totally true at the same time. But my guess is that something in each view is partially correct. That is, although our environmental difficulties are grave, some aspects can be and have been addressed by human effort. For example, recent international cooperation in halting the production of CFCs (which damage the planet's ozone cover) is encouraging. Similarly global use of coal has been dropping since 1989 because of its horrific polluting capacity (although China is now reversing this trend). The Green Revolution has increased food production threefold since the 1950s, and prices have fallen on most minerals as Russian minerals have flooded the global market. Good news about environmental problems is sparse, but it does exist. In any case, I propose that while pessimism may be understandable, and maybe even inevitable, it is also unaffordable if it permits us to ignore our ecological threats. Allowing ourselves the luxury of slipping into unconscious despair is to bet against the future of our children and perhaps against all the life systems on our planet. As geographer Robert Kates put it in a recent *Scientific American* article, "hope is simply a necessity if we as a species, now conscious of the improbable and extraordinary journey taken by life in the universe, are to survive."<sup>24</sup> Similarly, unbridled optimism is dangerous if it causes us to deny or ignore our predicament.

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<sup>24</sup>Kates, R. W., "Sustaining life on the earth," *Scientific American* 174(4) (1994): 114–122.

## GIMME MORE: THE PSYCHOLOGY OF OVERCONSUMPTION

An equally passive response to these issues would be to assume they are not my problem because I am not personally causing them. Since most Americans have two or fewer children, we are not contributing to population growth. Most of us are not directly working on Third World development, so we are not adding to the exponential growth rates of energy consumption and pollution there, nor are we logging forests, producing CFCs, or dumping wastes in the ocean. What, then, are we doing to deplete the carrying capacity of the planet to sustain human life? The most obvious answer lies in our extravagant use and misuse of the world's natural resources, especially energy and land.

We in the industrialized countries of North America and Europe comprise about a fifth of the planet's population but use more than 60 percent of the energy sold in the marketplace. Americans are by far the biggest users and biggest wasters of the world's commercial energy. Less than 5 percent of the planet's population lives in the United States, but this small group uses over 30 percent of the total commercial supply. Amazingly, over 80 percent of this huge expenditure of commercial energy is wasted.<sup>25</sup> Some of this waste is inevitable: as energy is converted to various forms of food, fuel, shelter, and living organisms, waste heat is always lost. However, human beings waste energy through inefficient behaviors, and Americans waste over 40 percent in completely avoidable actions: by selecting energy inefficient home heating systems, appliances, water heaters, and automobiles when more efficient choices are available. Energy expert Amory Lovins has claimed that "superefficient lights, motors, appliances, and building components can together, if fully used in existing U.S. buildings and industries, save about three-fourths of all electricity now used, at a cost far below that of operating a typical coal-fired or nuclear power plant, even if building it costs nothing."<sup>26</sup>

Americans literally throw their wealth out the window by heating rooms with poor insulation. Most of us live in houses with enough energy leaks to equal a three-foot-by-three-foot hole in the wall of our living rooms.<sup>27</sup> Most of us realize that we misuse our share of energy, yet we continue to do so. To illustrate my point, let me offer a personal example. As I am sitting here writing, a tremendous amount of heat is escaping through the beautiful windows in my office. It is March, and the electric heater has

<sup>25</sup>Miller, *ibid.*, p. 67.

<sup>26</sup>Quoted by Meadows, D. L., in *The Global Citizen* (Washington DC: Island Press, 1991), p. 131.

<sup>27</sup>Hollender, J., *How to Make the World a Better Place: A Guide to Doing Good* (New York: Quill, 1990).

been on for several hours, warming my workspace. My husband and I have talked about converting to gas heat (which is much more efficient) but do not have gas lines available. We have also talked about retrofitting our windows, but still have not replaced the double panes with windows that would be more efficient than insulated walls. Why not? Retrofitting would be expensive and laborious, and we would have to throw out the very expensive double panes that we chose 10 years ago. But retrofitting would probably pay for itself in saved energy within 5 years. Right now I cannot think of a good reason for not having undertaken this action, yet we have not done it. Why not? Is it because electricity is still so cheap that we do not notice our waste? Is it because we do not give a hoot about the world's carrying capacity, but only our own comforts? Or is it because we believe that our own little waste does not really make that much of a difference? These are psychological questions requiring psychological inquiry. Finding answers is crucial to solving our global carrying capacity problems, for unless we better understand our own behavior and how to change it, we will not use the most sophisticated technological solutions.

Our everyday behaviors also result in pollution. Americans generate about 5 lbs of garbage per person per day, about 10 times their body weight every year.<sup>28</sup> That is twice as much trash per person than in any other industrialized country. We recycle less than 15 percent of this garbage, much less than Europeans, who recycle 30 percent, and Japanese, who recycle 50 percent.<sup>29</sup> But even careful household recycling will not change the biggest solid waste problem—that produced by commercial and industrial activities—they generate 98 percent of our waste.<sup>30</sup> Americans sponsor this enormous waste production by buying products that are manufactured, packaged, and distributed through commercial operations. In fact, *overconsumption is the biggest depletor of the earth's carrying capacity*. Americans consume, either directly or indirectly, over 100 lbs of raw materials a day, including 40 lbs of petroleum, 25 of agricultural products, and 20 of forest products.<sup>31</sup> This voracious depletion occurs because in the past century we have transformed our households from places that produce necessary objects to places that consume convenience objects. The commercial sector provides food, clothing, entertainment, and services as marketed and packaged commodities that were once produced in the home. And the things we buy—the jacket, the compact disc, the kitchen gadget—are pro-

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<sup>28</sup>Hollender, *ibid.*, p. 80.

<sup>29</sup>Miller, *ibid.*, p. 523.

<sup>30</sup>Miller, *ibid.*, p. 30.

<sup>31</sup>Durning, A. T., *How Much Is Enough? The Consumer Society and the Future of the Earth* (New York: W. W. Norton, 1992).

duced from materials that leave a long trail of pollution in many Third World countries but is invisible to the American consumer. A pair of pants made of polyester and sold in an American department store may be sewn in a sweatshop in Indonesia, from synthetic material manufactured in Singapore, which comes from oil refined in Mexico. Even more distressing is that our consumer culture is now spreading, so that people in developing countries are aiming for “the good life” of Americans, hurrying to develop the same extravagant lifestyles that we have modeled through movies, television, advertising, and tourism.

Yet, there is good reason to believe that overconsumption is not delivering the “goods.” Empirical studies of people’s happiness show that it is not how much stuff people own, but the condition of their social relations, their work, and their leisure time that determines how much fulfillment people experience.<sup>32</sup> We will discuss these studies in more detail in Chapter 3, but the main point is that happiness does not result from overconsumption; in fact, the race to pay for our material possessions is more likely to detract from the quality of our relationships, the creativity of our work, and the quantity of our leisure time—the primary predictors of happiness. Attempting to meet our psychological needs through overconsumption jeopardizes not only our physical habitats, but also our psyches.

## BACK TO BASICS: CULTURAL VERSUS BIOLOGICAL CARRYING CAPACITY

The issue of overconsumption brings us back to the problem of carrying capacity. Biologists have defined carrying capacity as the maximum number that an ecosystem can support, which means that the maximum number would be living at the lowest possible standard. Some biologists have estimated that the earth could support 50 billion people, but of course, that would mean they would exist at a very meager standard of living. Supporting that number would require giving up most of our standard luxuries, including lighting, recreation, cars, fine arts, and (horror of all horrors!) higher education. Most of us would probably prefer to see fewer people living at a higher standard, but which cultural amenities would we see as basic? And who should decide? From a biological point of view, carrying capacity can be estimated numerically, but when it comes to human populations, **cultural carrying capacity** is always much less than the maximum number because human beings use more resources than is ab-

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<sup>32</sup>Myers, D. G., *The Pursuit of Happiness: Who Is Happy and Why* (New York: William Morrow, 1992).

solutely necessary for basic cultural products. But which products are basic? This question requires that we debate basic values.<sup>33</sup> Undoubtedly many people in developing countries would at this point have different and more conservative answers about minimum luxuries than people in industrialized countries.

A more formal way of conceptualizing cultural carrying capacity is to consider the formula for environmental impact given by population scientists Paul and Anne Ehrlich<sup>34</sup>:

$$I = P \times A \times T$$

where I is the impact of any group or nation, P is the population size, A is the per-capita affluence, as measured by consumption, and T is the technologies employed in supplying that consumption. With this formula, one can see that doubling a population will double its environmental impact if affluence and technology remain constant. Of course, impact is not as simple as this, since these terms are not completely independent. For example, as population and affluence grow, so does technological impact, because it becomes more difficult to extract resources, the more they are used (mines must be mined deeper, forests will be harvested earlier).

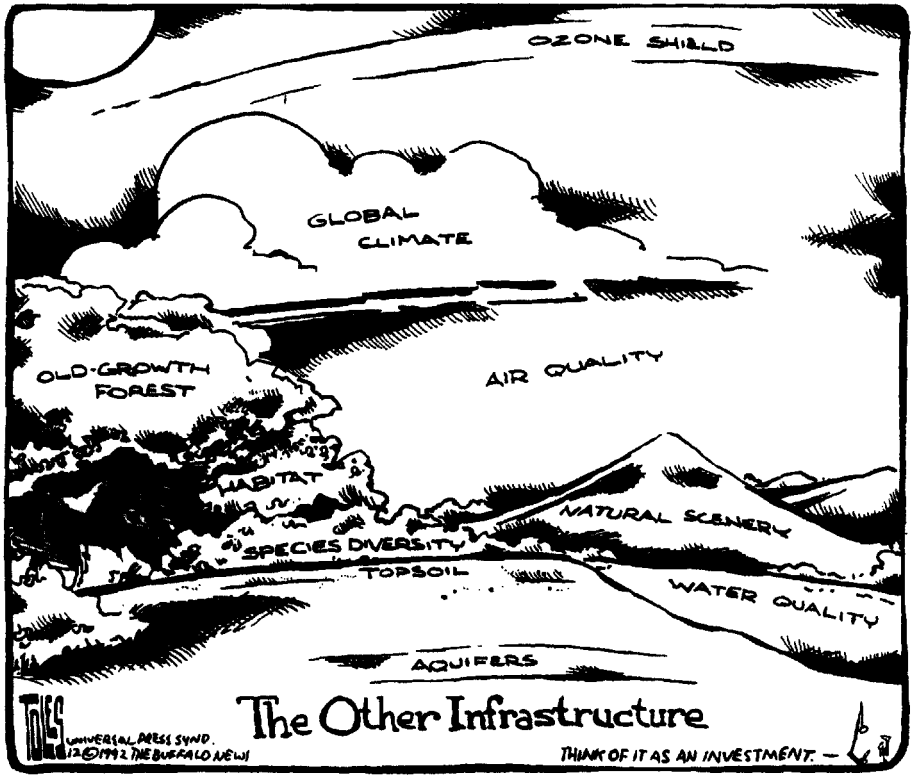
What this formula does illustrate, however, is that the United States is the world's most overpopulated nation. To see population as only a Third World problem is a fallacy that even a lot of environmentalists still hold. Population in the United States and in other industrialized countries must continue to decrease if the affluence we enjoy is to be sustained. Or alternatively, affluence will fall, either systematically with planning, or suddenly through ecological destruction, if population does not decrease.

Giving up our comforts and conveniences may be more than we can fathom, at least now, when we have little evidence that other people will do the same. Most people would say that reverting to pre-industrial culture is a ridiculous choice, and I would add that it probably is impossible anyway. Even if we could scale down our consumption to pre-industrial levels, most people would not want to. However, many pre-industrial cultures have sustained themselves for centuries, demonstrating that sustainable culture is possible. Copying pre-industrial cultures may be impossible, but selecting

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<sup>33</sup>Hardin, G., "Moral implications of cultural carrying capacity," in Miller, G. T., Jr., ed., *Living in the Environment: An Introduction to Environmental Science*, 7th ed. (Belmont, CA: Wadsworth, 1992).

<sup>34</sup>Ehrlich, P. R., and Ehrlich, A. H., *Healing the Planet: Strategies for Resolving the Environmental Crisis* (Reading, MA: Addison-Wesley, 1991), pp. 7–10. The formula was first introduced in Ehrlich, P. A., and Holdren, J., "The impact of population growth," *Science*, 171 (1971): 1212–1217.



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certain features might be useful. And sustainable cultures may offer some benefits to human psychological needs that are not well provided for by industrialized cultures. Our modern Western tradition of emphasizing the individual has given us both unsustainable technology and increasing social alienation. Embedded in our modern Western worldview, we try to use the former to mitigate the latter.

As Third World development proceeds, our Western worldview is replacing the worldviews of traditional cultures at an accelerating pace. Yet development could be a two-way process. As we transfer much-wanted technology from industrialized to non-industrialized cultures, perhaps we might also learn something from the sustainable cultures about safer, less dangerous ways to meet our psychological needs. In the next chapter we will examine our Western worldview, where it has come from, and how it differs with the worldviews of some sustainable cultures. As we shall see, our own common sense is really not so common; we may also find that it is not all that sensible either.

# 2

C H A P T E R

## *The "Nature" of Western Thought*



*P*lease indicate, by circling the appropriate number, how much you agree or disagree with each of the following statements:

Natural resources are ample for all human needs.

1. Strongly agree
2. Mildly agree
3. Mildly disagree
4. Strongly disagree

Mankind was created to rule over the rest of nature.

1. Strongly agree
2. Mildly agree
3. Mildly disagree
4. Strongly disagree



Plants and animals exist primarily to be used by humans.

1. Strongly agree
2. Mildly agree
3. Mildly disagree
4. Strongly disagree

Humans need not adapt to the natural environment because they can re-make it to suit their needs.

1. Strongly agree
2. Mildly agree
3. Mildly disagree
4. Strongly disagree

If you agree with these statements more than you disagree, you probably hold what Pirages and Ehrlich<sup>1</sup> have called a "Dominant Social Paradigm." Most of us have in the past, or still do believe in "abundance and progress, growth and prosperity, faith in science and technology, and commitment to a laissez-faire economy, limited governmental planning and private property rights."<sup>2</sup> Pirages and Ehrlich call these views dominant because they illustrate the modern Western worldview that has been held by many generations. Using these assumptions we believe that land that is not used for economic gain is wasted; that individuals have the freedom and right to develop land for economic profit; and that human beings should convert however much of the natural world they can procure to support their private well-being. Faith in science mitigates concern about approaching limits or destruction of the ecosphere.

This viewpoint is not only the dominant viewpoint of our past, it is also widely held in the present; its most vehement version is currently expressed in the "Wise Use Movement." Funded by hundreds of extractive industries, and comprising many ranchers, farmers, miners, and other landowners who believe that they have a right to use the land as they see fit, this movement is pushing for county ordinances that restrict federal environmental regulations. For example, a recent plan approved by Ontonagon County, Michigan, asserts that:

All natural resource decisions affecting Ontonagon County shall be guided by the principles of protecting private property rights, protecting local custom

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<sup>1</sup>Pirages, D. C., and Ehrlich, P. R., *Ark II: Social Response to Environmental Imperatives* (San Francisco, CA: W. H. Freeman, 1974).

<sup>2</sup>Dunlap, R. E., and VanLiere, K. D., "The 'New Environmental Paradigm': A proposed measuring instrument and preliminary results," *Journal of Environmental Education*, 9 (4) (1978): 10-19.

and culture, maintaining traditional economic structures through self-determination, and opening new economic opportunities through reliance on free markets.<sup>3</sup>

Such a statement upholds traditional American values while subtly elevating local county over federal law.

The value on private property rights and free markets is, and has been, part of the American fabric for several centuries. Confronting the problem of our planet's limited carrying capacity means examining suppositions that have been operating successfully for several hundred years. If debates about the environment get heated and angry, it is often because our most precious assumptions, those most deeply embedded in our Western worldview, are being challenged. People who hold these beliefs are not necessarily stubborn individualists (although they may be that also); they are expressing their cultural heritage, their earnest faith in the Western worldview, a worldview that historically has worked well. This worldview gives us a particular definition of nature and our relationship to it. More specifically, this Western worldview embraces the ideas that (1) nature is composed of inert, physical elements (2) that can and should be transformed by (3) individual human beings who are seeking private economic gain and (4) whose work results in progress (mostly economic development).

It may seem obvious and common-sensical to view nature as a set of resources to be used, and in fact, all human societies do transform some part of the natural world for human subsistence. Concern about the depletion of nature is not new: Lucretius in the first century B.C. pointed out that the fertility of the soil was declining. Civilizations have failed because of resource depletion; for example, as we discussed in Chapter 1, the Babylonians overirrigated their fields and thus salinized their soil.<sup>4</sup> Yet modern industrialized society is transforming our ecosystem at unprecedented rates. Meanwhile, our view of nature both condones and celebrates using nature for our own purposes.

There are many positive and valuable outcomes from our Western worldview: a successful science and technology that have solved many practical, medical, and industrial problems; a sense of freedom and opportunity unknown in most parts of the world; a creative and hard-working populace

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<sup>3</sup>Rauber, P. "Wishful thinking: Wise use cowboys try to rewrite the constitution," *Sierra* (Jan/Feb 1994): 40.

<sup>4</sup>For a highly readable discussion of earlier ecological crises, see Black, J., *The Search for Dominion: Ecological Responsibility of Man* (Edinburgh: University Press of Edinburgh, 1970).

whose output is tied to economic reward; and a lively, forward-looking, quickly evolving society that enjoys unparalleled material abundance. Yet as sensible and obviously valuable as our worldview is, it is a subjectively constructed view of the world (as are all worldviews). Our modern worldview results from centuries of Western thought, which we will discuss in this chapter. Our beliefs derive from many sources. Among the most important are the Greek philosophers, the Judeo-Christian tradition, the Enlightenment thinkers and the Scientific Revolution, European colonialism, and the Industrial Revolution. But in terms of human history, both our extravagant use of nature and our views of that use are very recent events. Human beings with our current brain structure (*Homo homo erectus* with our enlarged frontal lobe capacity for language) have been living on earth for somewhere between 300,000 and 500,000 years; our modern worldview and its accompanying resource use has been in place for no more than 300 years.

To get a sense of how recent our modern beliefs are, imagine our (conservatively estimated) 300,000-year human history reduced to a year. If humans began on January 1, most of their year was spent in small bands of hunting/gathering tribes. Agriculture and the formation of the first cities in the Near East did not begin until December 19 (about 10,000 years ago). The Greeks, to whom we owe much of our cultural heritage, did not create their gloried civilization until December 26. The Scientific Revolution, responsible for a massive change in the way Europeans viewed nature, happened after 11 p.m. on December 31; at the same time European civilization began to spread to the rest of the world through colonialization. And the Industrial Revolution (19th century) did not occur until 20 minutes to midnight, just about when psychology as an academic discipline was getting started. We will examine how each of these events helped shape our modern worldview, but my point right now is that even the most ancient roots of it have occurred very recently in human history.

We usually take our worldview as a given: we accept our assumptions as obvious and common-sensical. Unless we participate in intellectual communities where debates are frequent and vigorous, our Western assumptions are rarely a matter of contention; rather, they provide a conceptual framework from which we interpret our experience and create meaning. Our worldview acts like the frame of a house: it determines the shape and coherence of the particular beliefs it supports. We see and experience the particular beliefs (walls) instead of the frame, but the frame exerts pivotal influence on which beliefs we hold and how they are related to each other. In order to understand the house, we must examine its frame.

Each culture develops methods for knowing the world that are consistent with its assumptions about reality. In our own modern Western cul-

ture, psychology is both a field of knowledge and an illustration of the conceptual frame provided by our Western worldview, and we will speak much more about this point in Chapter 8. My point right now is that every worldview, including our own, is arbitrary, distinct, and limited. The frame provides a shape to understanding our experience which is coherent and integrated, but by necessity, also bounded and confined. From the perspective of a different worldview, ours looks just as distorted and irrational as that one would look to us. For example, to a Choctow Indian, white people elicited "a strange kind of pity. . . . These hopeless . . . creatures . . . possessed no magic at all, no union with Earth or sky, only the ability to hurt and kill. . . . They were sad and dangerous like a broken rattlesnake."<sup>5</sup>

The central premise of this chapter is that **we are approaching our planetary limits in carrying capacity in part because our modern worldview provides a set of beliefs that encourages us to use and abuse nature.** Our Western (North American and European) intellectual tradition, which has developed over many centuries, bequeaths us a concept of nature that we generally do not discuss or debate: we merely use it as a framework from which to interpret our experience and make decisions. In order to fully grasp the **psychological** dimensions of our ecological predicament, we must begin the difficult task of turning around to examine our psychological houseframe: the assumptions on which our perception of reality, and especially of nature, is constructed. Becoming aware of the limited and distinctive set of beliefs that we Westerners call "common sense" is the first step toward understanding the psychology of our unsustainable behavior.

In this chapter, we will first discuss the legacy of our Western tradition, focusing on the pictures of nature and human nature it has given us, and a few of the most obvious thinkers whose writing can be credited as sources for these ideas. (Examining the historical roots of our views about nature will also illuminate the historical roots of psychology, which is a distinctly Western discipline. In Chapter 8 we will return to this history when we critically analyze where psychology has been and where it should be going.) After we discuss the legacy of our Western views about nature, we will contrast our worldview with some elements from traditional cultures so that we can see more clearly the distinctiveness of our own. Finally, we will examine how psychologists have studied the concept of worldview and demonstrated the force it exerts on people's attitudes about the environment.

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<sup>5</sup>Haslam, G., "Hawk's flight: An American fable," in Ortiz, S., ed., *Earth Power Coming* (Tsaile, AZ: Navajo Community College, 1983). Quoted by Glendinning, C., *My Name is Chellis and I'm in Recovery from Western Civilization* (Boston: Shambhala Publications, 1994), p. 88.



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But before we proceed, let me make clear that my **main point is that our view of nature is constructed by our intellectual heritage, not that one worldview is better or worse than another.** While I believe alternative worldviews have something to teach us, I am not arguing that we should dump ours and trade it for a pre-industrial one (not that we could, even if we wanted to). No one worldview has all the answers to all human existence, least of all to the complicated problems of modern life (especially our new ecological ones), which we have hardly even begun to face. All worldviews have both assets and limits.

To give you a concrete example of the positive and negative features of worldviews, let us look for a moment at Nepal. Kathmandu, the capital city, is a wonderfully cacophonous place, and walking through its streets means confronting, appreciating, and dodging the best and the worst of many Asian cities: Hindu and Buddhist temples, and their festivals filled with dignified yet casual participants, incense, flowers, and tinka powder; half-paved and dirt roads crammed with deafening, asphyxiating traffic; obnoxious street hawkers, ragamuffin children, and hideously diseased beggars; exquisite Asian crafts and intricately carved wooden buildings; revolting piles of garbage, complete with human excrement and dead dogs floating in the main river that supplies the city water. Add to this list the impossibly gentle expressions of Nepalis, smiling serenely behind their face masks as they pick their way through the mess. (There is so much bacteria carried in the dust of that city that it is possible to get seriously ill simply by breathing the air.) To say that the streets of Kathmandu are a culture shock to the Western tourist is a considerable understatement: Kathmandu is also a real physical blow to any immune system accustomed to sanitation procedures such as sewers and garbage collection. What is even more disturbing about

the condition of Kathmandu is that Nepal has received as much foreign aid as any country in the world and yet still remains one of the world's poorest, both in terms of gross national product, as well as more direct social indices such as life expectancy, literacy, infant mortality, and nutritional status. How could Nepal in general, and Kathmandu in particular, have wasted so much financial assistance?

There are many answers to this question (ineffective aid planning; rampant corruption by the Royal family and other officials; lack of infrastructure for completing construction projects; runaway population growth). But one of the most oft-cited reasons is the Nepali worldview. Nepal has been heavily influenced by the Hindu notion of caste. Although the caste system in Nepal is not as rigid as India's, it does lead to a sense of fatalism, so that one's birth into the social structure determines everything; concomitantly, Nepalis are generally indifferent to the ideas of both progress and personal competence. In the words of an important Nepali political scientist, Dor Bahadur Bista,

The absolute belief in fatalism, that one has no personal control over one's life circumstances, which are determined through a divine or powerful external agency . . . has had a devastating effect on the work ethic and achievement motivation, and through these on the Nepali response to development. It has . . . led to the expectation of foreign aid as a divinely instigated redistribution. . . . In the present context aid becomes merely something that is justly due to Nepal and not a resource that is meant to be considered seriously and used productively.<sup>6</sup>

My point is not that the Nepali worldview is bad (although it is probably bad for industrial development and probably good for human equanimity in the face of physical suffering). My point is, rather, that every worldview has behavioral repercussions that are both helpful and hurtful, depending on which behaviors we are discussing. It would be both naive and dangerous to argue that an entire and complete restructuring of our Western worldview is necessary for us to solve our ecological problems; naive because it cannot be done anyway, and dangerous because a total upheaval of a social structure would mean abandoning certain essential tools, like science, that we will need to solve our problems. But while we cannot replace worldviews, we may be able to tweak them; I believe there is much value in examining certain features of our own view that might need to be modified. As we do so, having a clear idea of the constructed nature of our worldview and its historical roots will greatly support our inquiry.

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<sup>6</sup>Bista, D. B., *Fatalism and Development: Nepal's Struggle for Modernization* (Calcutta, India: Orient Longman Limited, 1991), pp. 4, 5.

## OUR WESTERN VIEW OF "NATURE"

Our common sense does not come directly from our experience, nor is it arbitrary or accidental. Instead our view of the world is shaped by centuries of intellectual tradition, so thoroughly embedded in our educational and social institutions that it is often difficult to appreciate it or its effects. A chronological description of the history of Western thought would be too great a task for the present chapter, but we can accomplish our goal of understanding some of the historical roots of our environmentally relevant beliefs by examining the four assumptions listed on page 27 of this chapter, where they originated, and why they have thrived.

As we look at each assumption, I will be reaching back in history to reveal scholars' best guesses about where our beliefs came from and why they became popular. Western intellectual history is not a smooth path, and my discussion here will exclude many important debates and detours. Nevertheless, if we look at key moments, we can see the origin and impact of these assumptions. In a relatively short amount of time, human beings changed from living in small tribes of hunter/gatherers, where nature was often imbued with a living and sacred quality, to living in technologically based cities, where nature has become a set of resources awaiting our use. The immensity, rapidity, and potency of this change cannot be underestimated, and we will examine how it came about by addressing each of the four assumptions of our Western worldview.

### Assumption 1: Nature Is Composed of Inert, Physical Elements

In the vast majority of human cultures, nature is seen as a living, organic unity, intimately tied to the activities of human beings. Even most of our Western history shows allegiance to the idea that the natural world is divinely ordered and alive. The world was thought to be united by a *spiritus mundi* (soul of the world), which Plato, in his *Timaeus*, proposed was the source of all movement and activity in the universe. Likewise, for the Stoics of 3rd century B.C. Athens and 1st century A.D. Rome, the world was an intelligent organism. Matter was alive with expansion and contraction, which gave life to all objects in the universe. Similarly, for most people in most ages, daily, immediate interaction with the natural world accompanies a belief that nature is not only alive, but it is also imbued with the same qualities as human beings. In most societies, rituals recreate and honor the link between the living human and nonhuman worlds. Such animistic and anthropomorphic beliefs underlie prayers, ceremonies, and sacrifices while linking the individual to the natural and supernatural realms.

Clearly, our own modern life shows a very different orientation. Housed in cities and buildings that remove the natural world from our daily experience, we think of nature as somehow different from us. We understand natural phenomena such as the weather, earthquakes, and volcanoes, to be the result of inherently inert matter that responds to physical rather than spiritual forces. They are caused by shifts of wind and temperature, not the work of angry gods and goddesses. We also believe that we have very little impact on these events: earthquakes do not happen because of human errors or angry gods; earthquakes happen because of physical phenomena outside our control, and often outside our understanding as well. Nature works like a machine: orderly, if not always predictable.

Where did this mechanical view of nature begin? Although the distancing between human and physical worlds had many contributors throughout Western history, the most important transition from a spiritual to a mechanical universe took place during the Enlightenment period. In Europe between 1500 and 1700, thanks to the work of Copernicus (1473–1543), the geocentric model of the universe was replaced by the heliocentric model. In the heliocentric model, the earth moves around the sun, instead of heavenly bodies around the earth. This new model “struck at the core of Aristotelian and Christian belief [because it] removed the earth from the centre of the universe and so from the focus of God’s purpose. In the new scheme man [sic]<sup>7</sup> was no longer the creature for whose use and elucidation the cosmos had been created.”<sup>8</sup> Moreover, during this period, the natural world came to be understood as a machine, made up of small, separate units (which we now call atoms) operating according to mechanical laws.

There were many contributors to this mechanical worldview, none more important than the French philosopher René Descartes (1596–1650). Descartes asserted that God had made the world, and that the world’s complete orderliness was proof of God’s all-knowing intelligence. Descartes’ view of a mechanically driven universe was enormously influen-

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<sup>7</sup>Throughout this book I will be noting use of the word “man” for “human” as [sic] because of the gender bias that so-called generic masculine language promotes. (I’ll discuss the evidence for this problem in Chapter 3.) Generic masculine language is no longer considered acceptable, as illustrated by the American Psychological Association’s guidelines on its use. [See *Publication Manual of the American Psychological Association*, 4th ed. (Washington, DC: American Psychological Association, 1994), pp. 50–51; 54–56.] Once one notices how often such usage occurs, one begins to sense the subtle but pervasive ways language helps keep women out of the mental picture created by public discourse.

<sup>8</sup>Burke, J., *The Day the Universe Changed* (Boston: Little, Brown, 1985), p. 134.



tial. Because God was so all-powerful and intelligent, He<sup>9</sup> created a world with unchanging laws of physical reality. Thus, once created, the world operated with clockwork-like precision without God's intervention. In Descartes' view, everything in the universe was mechanical, save one thing: the human mind, which he believed was of a different substance, which he called mental. "The soul" argued Descartes, "is entirely distinct from the body . . . and would not itself cease to be all that it is, even should the body cease to exist."<sup>10</sup> This mind/body dualism is one of Descartes' most lasting contributions, and it provides the basis for our *split between human consciousness and the rest of nature*. The human mind, imbued with soul, was under the jurisdiction of the church; the rest of nature, including our bodies, "lower" animals, and all other objects were material, and operated strictly according to mechanical laws. We could know these laws through logic and rationality of the mind (just as the Greeks had argued several centuries earlier). The emotions, belonging to the body, were not to contaminate the pure rationality of the mind. We will return to the implications of Descartes' severing the mind from its emotional context in Chapter 7.

The point right now is that for Descartes, humans did not anger the gods who then produced natural events at whim; instead the natural world was set and operated according to strict mechanical principles. This transformation of nature from a dynamic, alive, and spiritual entity to nature as an orderly, mechanical, and clockwork machine has been called "the death of nature" by historian Carolyn Merchant:

The rise of mechanism laid the foundation for a new synthesis of the cosmos, society, and the human being, construed as ordered systems of mechanical parts subject to governance by law and to predictability through deductive reasoning. A new concept of the self as a rational master of the passions housed in a machinelike body began to replace the concept of the self as an integral part of a close-knit harmony of organic parts united to the cosmos and society. Mechanism rendered nature effectively dead, inert, and manipulable from without.<sup>11</sup>

Seeing the world as a mechanical system had three important ramifications. First, it freed humans from the worry of placating uncertain gods. Second, it lifted what now seem like irrational superstitions underlying ne-

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<sup>9</sup>I use the masculine gender here consciously because I am talking about our historical view of God, which is masculinized. I will discuss the gender implications of seeing God as male and nature as female in Chapter 3.

<sup>10</sup>Descartes, R., Discourse on method, part 4. In *Descartes Philosophical Writings*. Selected and translated by N. K. Smith (New York: The Modern Library, 1958), p. 119.

<sup>11</sup>Merchant, C., *The Death of Nature: Women, Ecology and the Scientific Revolution* (San Francisco: HarperSanFrancisco, 1983), p. 214.

furious rituals such as human sacrifices. Third, it liberated human energy to adjust the machine. Thus, a mechanical and spiritless natural world allows for the possibility (and eventually, as we shall see, the moral mandate) of human control over natural phenomena. To see the world as a machine is to see it as made up of discrete parts that operate according to regular laws; a machine can be studied in a limited, specifically defined domain and it can be manipulated and controlled by human intervention.

By the middle of the 17th century, Descartes' ideas were widely discussed and increasingly substantiated. Sir Isaac Newton (1642–1727), whose *Principia* (1687) spelled out the mechanical principles of force and motion in the physical world, validated Descartes' view of a mechanical universe by providing mathematically verifiable predictions about the movement of stars and objects. Newton's work still provides the basis of our modern worldview: matter is seen as inherently inert; it is made up of objects that move only because outside forces move them, like billiard balls whose direction and motion can be successfully predicted. Although Newton agreed with Descartes that only God could have created such an exquisitely ordered universe, Newton helped pave the way for our modern secular worldview by demonstrating how orderly and precisely predictable the movement of objects is (objects above the level of the molecule, that is; as we shall see in Chapter 6, modern physics of the 20th century, which has focused on the movement of atoms and their parts, gives us a very different view of nature).

### Assumption 2: Nature Can and Should Be Controlled

To see nature as inert matter without spirit is to invite human control and use of it. After all, those with consciousness should use anything that lacks it for their own "higher" spiritual ends. Along with the mechanization of nature during the Enlightenment period came calls for the control of nature. In fact, the Scientific Revolution of the 16th and 17th centuries was born from the argument that nature can and should be controlled.

An important voice in the plea for human control of nature was Francis Bacon's (1561–1626), called by Alfred North Whitehead "one of the great builders who constructed the mind of the modern world."<sup>12</sup> Bacon's views of science were tremendously persuasive and helped escort the secular worldview to primacy over the medieval Christian worldview. Before the Scientific Revolution, knowledge about the world was delivered through the church, according to key texts and religious insights produced

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<sup>12</sup>Quoted by Dick, H. G., Introduction to *Selected Writings of Francis Bacon* (New York: The Modern Library, 1995), p. ix.

by contemplation of divine principles. After the Scientific Revolution, very much like our current worldview, knowledge about the world comes from observation of it, best done through controlled experiments.

Bacon was an important architect of the Scientific Revolution by virtue of his forceful writing on the conduct and goals of science. As a successful member of the British Parliament and holder of the highest appointed offices under James I, his passionate criticisms of the ineffectual knowledge of his day had great impact. Bacon argued that philosophy had been unproductive because it was based on speculation rather than on fact. Vowing to free knowledge from the stranglehold of the cloistered institutions of church and university, Bacon argued that we must abandon "the little cells of human wit" for the "reverence [for] the greater world"<sup>13</sup> and bring nature to light through observation rather than by "triumphs of confutation, or pleadings of antiquity, or assumption of authority, or even by the veil of obscurity."<sup>14</sup> Moreover, Bacon argued that we must study nature (which he saw as female) by controlling "her." In his view, science should observe

not only . . . nature free and at large (when *she* is left to *her* own course and does *her* work *her* own way)—such as that of the heavenly bodies, meteors, earth and sea, minerals, plants, animals—but much more of nature under constraint and vexed; that is to say, when by art and the hand of man *she* is forced out of her natural state and *squeezed and moulded* . . . seeing that the nature of things betrays itself more readily under the vexations of art than in its natural freedom.<sup>15</sup> (emphasis added)

Only by constraining nature and subduing "her" could "man" understand her secrets, and thereby gain mastery over the world. In the next chapter we will look at the psychological implications of conceptualizing nature as female to be "squeezed and moulded" by inquiring "man." For now, let us go on and examine Bacon's view that controlling the natural world was a moral imperative. Bacon used the Biblical story of creation to argue this point. To Bacon, science was the way back to paradise. When we were expelled from the Garden of Eden, we lost our "dominion" over the earth and its creatures, and were subject to the earth's dangerous forces such as droughts and floods. Bacon believed that God, "who gavest the visible light as the first fruits of creation, and didst breathe into the face of man [sic] the intellectual light as the crown and consummation thereof"

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<sup>13</sup>Bacon, F., "Preface of The Great Instauration," in Dick, H. G., ed., *Selected Writings of Francis Bacon* (New York: The Modern Library, 1955), p. 437.

<sup>14</sup>*ibid.*, p. 435.

<sup>15</sup>*ibid.*, p. 447.

would bless scientific understanding as "coming from Thy goodness [and] return to Thy glory."<sup>16</sup>

Thus, we could regain our blessed place in creation by exerting our power over nature through scientific understanding; science thereby offers human salvation. By learning about nature through scientific inquiry, we could return to that original state of dominion over the natural world. Science, in other words, will give us control over the rest of creation, which will return us to God's favor.

But as much as the Enlightenment philosophers of the 17th century were setting a new direction away from the church, most of them still relied on the fundamental belief in a Judeo-Christian God and His creation of the universe. Bacon's use of the creation story shows how important this tradition is in shaping our view of nature. All societies have creation stories—explanations for how the world was made—which deliver understandings about human beings and their relationship to the rest of the world. Unsurprisingly, the Genesis story from the Old Testament reveals our Western assumptions about nature and our use of it:

And God said, Let us make man in our image, after our likeness: and let them have *dominion* over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth. So God created man in his *own* image, in the image of God created he him; male and female created he them. And God blessed them, and said unto them, Be fruitful and multiply, and replenish the earth, and *subdue* it: and have *dominion* over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth.<sup>17</sup> (emphasis added)

It is especially the words "dominion" and "subdue" that have been blamed for human beings' arrogant attitude about the natural world and our abuses. For example, in an influential essay called "The Historical Roots of our Ecologic Crisis," anthropologist Lynn White has argued that

By gradual stages a loving and all-powerful God had created light and darkness, the heavenly bodies, the earth and all its plants, animals, birds, and fishes. Finally, God had created Adam and, as an afterthought, Eve to keep man from being lonely. Man [sic] named all the animals, thus establishing his dominance over them. God planned all of this explicitly for man's benefit and rule: no item in the physical creation had any purpose save to serve man's

<sup>16</sup>Bacon, F., "Preface to The Great Instauration," in Burtt, E. A., ed., *The English Philosophers from Bacon to Mill* (New York: The Modern Library, 1939), p. 23.

<sup>17</sup>Genesis, Chapter 1, verses 26–28, King James' Bible, Authorized Version of 1611.

purposes. . . . Christianity, in absolute contrast to ancient paganism and Asia's religions . . . not only established a dualism of man and nature but also insisted that it is God's will that man exploit nature for his proper ends.<sup>18</sup>

Blaming our ecological crisis on Christianity alone would be an oversimplification, perhaps even an unfair distortion of the meaning in the Biblical text. Some Christians concerned with ecological problems have argued that the word "dominion" has been mistranslated to mean domination. Instead "dominion" implies responsibility for stewardship. In the words of U.S. Vice President Albert Gore:

In the Judeo-Christian tradition, the biblical concept of dominion is quite different from the concept of domination, and the difference is crucial. Specifically, followers of this tradition are charged with the duty of stewardship, because the same biblical passage that grants them "dominion" also requires them to "care for" the earth even as they "work" it. The requirement of stewardship and its grant of dominion are not in conflict; in recognizing the sacredness of creation, believers are called upon to remember that even as they "till" the earth they must also "keep" it.<sup>19</sup>

But even if we agree with Gore that dominion *should* be understood as responsible stewardship, in large part it has not been; and use of the word "subdue" hardly suggests stewardship, either. More often, the Biblical story is used as a justification for human control of nature, and the Christian community has often been either indifferent or even antagonistic toward environmental concerns. For example, Pat Buchanan's quarterly newsletter *From the Right* recently published an anti-environmentalist manifesto by Llewellyn Rockwell that concludes:

In holy scripture, God told us to "fill the Earth and subdue it, and rule over the fishes of the sea, and the fowls of the air, and all living creatures that move upon the Earth," for they are ours "to feed upon." We are created in "His own image." And with the Incarnation, the Creator of the universe became a child. Thus any philosophy that equates man [sic] with animals or plants, or subordinates him to nature, is a heresy of astounding proportions.<sup>20</sup>

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<sup>18</sup>White, L., "The historical roots of our ecologic crisis," *Science*, 155 (1967): 1203–1207, p. 1205.

<sup>19</sup>Gore, A., *Earth in the Balance: Ecology and the Human Spirit* (New York: Plume, 1992), p. 243.

<sup>20</sup>Rockwell, L. H., "An anti-environmentalist manifesto," in Buchanan, P., ed., *From the Right*, 1 (6) (1990): p. 9.

While contemporary ecotheologists are rapidly working to reframe Christianity so that it embraces ecological principles,<sup>21</sup> environmental issues have yet to become a focus of the mainstream Christian community.

To give you a sense of how deeply embedded the license we feel toward "lower animals" is in our Western tradition, let me describe an example of my own experience. Recently, I had a friend over to dinner who, as I was cooking, asked me how my book was going and what I was working on. I described some of the thinking in this chapter, particularly this idea that we see humans as superior to the rest of nature, which is subject to our control. As I was describing this idea, a carpenter ant crawled across the counter, and I automatically smashed it. "Is that a problem?" my friend asked. "Yes," I answered, still thinking about our view of nature, "because it allows us to unconsciously manipulate or harm anything we want to in the name of human convenience." "No" my friend said "I mean is *that* a problem?" pointing to the smashed ant. "Yes, those damn things are destroying our house." "But isn't that *the* problem?" persevered my friend. I looked up in puzzlement, and then realized what I had done. Even though I had spent all day writing about our unconscious assumption that we have the duty and right to control nature, I had not even realized that I was using that assumption when I automatically smashed the ant. My worldview is so deeply ingrained that even as I write and think about it, I still unconsciously use it. The point of this example is not that I was wrong to kill the ant (I still smash them because I value my house more) but that I am still very unconscious about my relationship to other species.<sup>22</sup>

As our Christian and scientific heritages laid a framework for our relationship to nature, important political institutions followed that further convinced us of human right to control nature. The political ramifications of a mechanical universe were drafted in the 17th century by John Locke

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<sup>21</sup>See McDaniel, J. B., "Emerging options in ecological Christianity: The new story, the biblical story, and pantheism," in Chapple, C. K., ed., *Ecological Prospects: Scientific, Religious, and Aesthetic Perspectives* (Albany, NY: State University of New York Press, 1994). Also, Ruether, R. R., *Gaia & God: An Ecofeminist Theory of Earth Healing* (San Francisco: HarperSanFrancisco, 1992). Also, Bratton, S. P., "Christian ecotheology and the old testament," *Environmental Ethics*, 6 (1984): 195–209. Also, McFague, S., *The Body of God: An Ecological Theology* (Minneapolis: Fortress Press, 1993) Also, Fox, M., *The Coming of the Cosmic Christ*. (San Francisco: Harper and Row, 1988).

<sup>22</sup>I am still struggling with these kinds of issues, since I believe that all species must harm some others in order to survive, yet humans have abused their neighbors in their habitat. At this point, I try to live with this problem by becoming more aware of my own selfishness. Now when I kill an ant, I try to remember to apologize to it for taking its life so that I can be comfortable. With an apologetic attitude, I might be less likely to abuse other species for inconsequential reasons.

(1632–1704). Locke, a British philosopher and political theorist, worked out the philosophical foundation of democracy by stressing the importance of land ownership. According to Locke, anyone who owned land should vote; owning land earned a voice in the governance of the state because working the land shows merit. He asserted that

As much land as a man [sic] tills, plants, improves, cultivates, and can use the product of, so much is his property. He by his labor does, as it were, enclose it from the common. . . . God and his reason commanded him to subdue the earth, i.e., improve it for the benefit of life, and therein lay out something upon it that was his own, his labor. . . . And hence subduing or cultivating the earth, and having dominion, we see are joynd together. The one gave title to the other. So that God, by commanding to subdue, gave authority so far to appropriate. And the condition of humane life, which requires labor and materials to work on, necessarily introduces private possessions.<sup>23</sup>

Locke did argue for constraints on private ownership, proposing that men (not women, slaves, the uneducated, or anyone else who could not reason abstractly!) should own only as much land as they could successfully cultivate.<sup>24</sup> Yet because one could buy labor, one could own as much land as one could manage through hired help. Thus, by proposing that private ownership is a God-given right, and that land use is a God-given responsibility, Locke helped tie democratic institutions to the private ownership of common resources, a theme that becomes important in the export of our modern worldview through Third World development (to be discussed below). Moreover, his emphasis on land use as a starting point for democracy helped promote the notion that unused land is wasted land.

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<sup>23</sup>Locke, J., "Second Treatise: An essay concerning the true, original, extent and end of civil government." In *Two Treatises of Government* (Cambridge University Press, 1988), Chapter 5, Sections 32, 35, pp. 290–291, 292.

<sup>24</sup>Locke rarely mentioned the role of women, except in his lengthy discussion of the importance of both the mother and the father in teaching the child an early obedience to patriarchy [see Second Treatise, Chapter VII, reproduced in Burt, E. A., ed., *The English Philosophers from Bacon to Mill* (New York: The Modern Library, 1939), pp. 433–441]. However, a quick passing comment about the reasoning power of women demonstrates his lack of confidence in them: "Tis well if men of [wage-earner] rank (to say nothing of the other sex) can comprehend plain propositions, and a short reasoning about things familiar to their minds, and nearly allied to their daily experience. Go beyond this, and you amaze the greatest part of mankind." From *Locke's Works*, 1759, ii, pp. 585–6, as quoted by MacPherson, C.B., *The Political Theory of Possessive Individualism: Hobbes to Locke* (Oxford: Clarendon Press, 1962), pp. 224–5. Thus for Locke, most men cannot reason properly, never mind women.

### Assumption 3: Individual Human Beings Seek Private Economic Gain

One of the best ways to examine our worldview is to consider what people say about "human nature." A frequent claim in the West is that humans are motivated primarily by material gain; "it's the buck that counts." Without a profit motive, human effort is often considered unlikely.

Where did the attribution of a core economic motivation come from? Materialistic motivation superseded spiritual motivation when the mechanical worldview displaced the primacy of the church. Again, Locke helped out. Locke provided a positive spin on economically driven land use, first by arguing that God intended "man" to own land, and by so doing, "man" obeyed God's orders. Secondly, Locke provided a convenient justification for material wealth by arguing that "the chief end of trade is Riches & Power," which are essential for the defense of the nation.<sup>25</sup> His viewpoint provided a basis for early "trickle-down" economics, since he assumed that private ownership by the wealthy class enables the poorer class to sell their labor and thus gain livelihood. In this way, the problem of limited land for the vast majority was deftly avoided, since poorer people could work for the rich. Locke also noted that "The New World" furnished unlimited land, so that ownership was determined by a person's will rather than circumstance:

Full as the world seems . . . let him [sic] plant in some inland vacant places of America. . . . The extent of the ground is of such little value . . . there is land enough in the world to suffice double the inhabitants. . . . For it is labor indeed that puts the difference of value on everything. . . . There cannot be a clearer demonstration of anything than several nations of the Americans are of this, who are rich in land and poor in all the comforts of life; whom nature, having furnished as liberally as any other people with the materials of plenty—i.e. a fruitful soil, apt to produce in abundance what might serve for food, raiment, and delight; yet, for want of improving it by labor, have not one hundredth part of the conveniences we enjoy, and a king of a large and fruitful territory there feeds, lodges, and is clad worse than a day laborer in England.<sup>26</sup>

In proposing the use of the New World, Locke conveniently "ignored any inconvenience to either emigrants or Indians."<sup>27</sup> Instead he pitied the Native Americans, who were clad poorly by European standards, which he deduced was because they did not work their land. In Locke's vision,

<sup>25</sup>From Locke's Bodleian Library manuscript, as quoted by MacPherson, C.B., *ibid*, p. 207.

<sup>26</sup>Locke, J., *An Essay Concerning Treatise*, 6th ed. Locke, J., "Second Treatise," *ibid*, Chapter 5, Sections 36, 41, pp. 293, 296–7.

<sup>27</sup>Clark, M. E., *Ariadne's Thread: The Search for New Modes of Thinking* (New York: St. Martin's Press, 1989), p. 263.



landowners should provide the poor a means of livelihood, and the laboring class could in turn provide a commodity by which national wealth could be derived. With this symbiotic relationship between the wealthy and the poor, wealth could be accumulated. By this formula, the basic features of colonial expansion were put in philosophical order, and the British Empire proceeded to be built through land grabs of large portions of Asia, Australia, Africa, and America, whereby wealthy landowners were simply providing "enhanced opportunities" to the native populations they plundered. The only constraint on land use that Locke proposed was that nobody should own land that was not cultivated; on the other hand, money could be accumulated, especially if it was reinvested into the public good. Thus, capital investment in the support of colonization was a good way to gain God's favor.

Locke's reasoning was preceded by the work of Thomas Hobbes (1588–1679), whose less attractive arguments did not initially have as much impact as Locke's; eventually, however, Hobbes' views superseded Locke's by bypassing the moral constraints that Locke proposed. Whereas Locke, along with Descartes and Newton, had seen an important role for God in both creating the universe, and setting the moral rules for human conduct, Hobbes carried the mechanistic view of the universe to ultimate lengths by positing that everything, including people, minds, brains, and ideas, are nothing but material and material events. In proposing this irreducible materialism, Hobbes saw human beings as locked in a continual state of competition with each other for material goods and for power. For Hobbes (like Freud, whom we will meet in Chapter 4) nature was chaotic and dangerous, and humans must fight for their own survival against nature and against each other. Hobbes' view of human nature was not a pretty one:

The life of man [sic] [is] solitary, poor, nasty brutish, and short. . . . The condition of man . . . is a condition of war of everyone against everyone; in which case everyone is governed by his own reason, and there is nothing he can make use of that may not help until him, in preserving his life against his enemies.<sup>28</sup>

Thus, Hobbes saw competitive self-interest as the basis of human nature; because people are inherently in competition against each other, they must enter into market contracts to create some semblance of social order. And those market contracts define each person, since "the value or worth of a man [sic] is as of all other things, his price."<sup>29</sup> We owe society nothing,

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<sup>28</sup>Hobbes, T., *Leviathan: Or the Matter, Forme, and Power of a Commonwealth Ecclesiastical and Civil*. (New York: Collier, 1651/1962) pp. 100, 103.

<sup>29</sup>*ibid*, p. 73.

but instead are driven by our own selfish concerns. Without a spiritual foundation or creator, our worthiness as human beings could be calculated entirely by our material holdings.

As reductionistic and distasteful as Hobbes' vision of human nature was, it was made progressively more palatable by several important thinkers who followed: Adam Smith, the Scottish economist/philosopher (1723–1790) argued that the state should leave individuals alone to amass their material wealth and that what is good for the individual is eventually good for the state. The utilitarian British philosopher Jeremy Bentham (1748–1832) proposed that human nature always attempts to maximize pleasure and minimize pain, so morality could be defined by the greatest happiness for the greatest number (rather than by duty or obligation). While Bentham defined happiness, other utilitarians set about to measure it. In the words of Mary Clark (whose book *Ariadne's Thread* traces the development of Western thought and its impact on our ecosystem),

To maximize something, you have to be able to *measure* it. Casting about for method of quantifying happiness, the Utilitarian naturally hit upon the most quantifiable item in sight—the monetary value of one's possessions. And so, if it wasn't already, material wealth became equated with that which all persons, by their nature, most desire.<sup>30</sup>

Add to this material basis of motivation the work of the liberal democrats, such as Thomas Paine (1737–1809), who successfully argued that governments should not interfere with “natural rights, . . . those which appertain to man [sic] in right of his existence. Of this kind are all the intellectual rights, or rights of the mind, and also all those rights of acting as an individual for his own comfort and happiness which are not injurious to the natural rights of others.”<sup>31</sup> As we know, the American Declaration of Independence argued the same point: “All men [sic] are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty, and the pursuit of Happiness.” This primacy of the individual over the state became a hallmark feature of American government. And thus our modern world-view was written into a federal constitution and into a national psyche: no longer do we have primary moral or psychological responsibilities to the society (instead they are to our own life, liberty, and pursuit of happiness); no longer is the most important purpose of our life to ensure our passage to

<sup>30</sup>Clark, M. E., *ibid.*, p. 267. My debt to Mary Clark is important here. Not only did her book awaken me to the general problem of our Western worldview in designing a sustainable culture, but her succinct use of Locke, Hobbes, Smith, Mills, and Jefferson in explicating this problem (pp. 226–252) formed the basis of my discussion.

<sup>31</sup>Paine, T., “The rights of man,” in Adkins, N. F. ed., *Common Sense and Other Political Writings of Thomas Paine* (Indianapolis: Bobbs-Merrill, 1953), p. 84.

heaven or to honor our ancestors; no longer is our essential identity based on our family or kin relationship. Instead, our lives are lived as individuals, competitive and separate, pursuing our own material wealth through the God-given rights of freedom and noninterference from the state.<sup>32</sup> This is the great achievement of the modern age. To use the words of intellectual historian Richard Tarnas:

While the classical Greek worldview had emphasized the goal of human intellectual and spiritual activity as the essential unification (or reunification) of man [sic] with the cosmos and its divine intelligence, and while the Christian goal was to reunite man and the world with God, the modern goal was to create the greatest possible freedom for man—from nature; from oppressive political, social, or economic structures; from restrictive metaphysical or religious beliefs; from the Church; from the Judaeo-Christian God; from the static and finite Aristotelian-Christian cosmos; from medieval Scholasticism; from the ancient Greek authorities; from all primitive conceptions of the world. Leaving behind tradition generally for the power of the autonomous human intellect, modern man set out on his own, determined to discover the working principles of his new universe, to explore and further expand its new dimensions, and to realize his secular fulfillment.<sup>33</sup>

Again, I would like to repeat that I find many positive effects of our modern emphasis on individualism: a sense of freedom, of mobility, of opportunity, and of accountability that I wish more people on the planet could also experience. But excess individualism at the expense of group membership also has its costs. It can sponsor irresponsible self-indulgence and lack of concern for others. In order for America to retain its sense of greatness, we must look at some of the problems, along with the benefits, which its heritage has delivered.

Finally, we cannot leave the discussion of materialistic individualism without discussing the contribution of the Protestant reformers. They upgraded the Hobbesian view of human purpose as material accumulation by putting a moral and religious meaning back on it. To the Calvinists who helped settle America and promulgate the Industrial Revolution in England, work was a divine "calling"; material rewards were signs of God's blessings for labor well done. Concomitantly, poor people deserve their punishment because of their lack of effort; rich people simply reflect God's approval. In Protestant modernism, work and wealth are good; leisure and poverty are sin. Furthermore, as Max Weber's (1864–1920) successful ar-

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<sup>32</sup>Clark, *ibid.*, p. 268.

<sup>33</sup>Tarnas, R., *The Passion of the Western Mind: Understanding the Ideas That Have Shaped Our World View* (New York: Harmony Books, 1991), p. 290.

gument has been described,<sup>34</sup> Protestant beliefs encouraged industrial development by "sharply limiting the uses that could be made of [earned] wealth. In reaction against the softness and luxury of Rome, Protestantism was ascetic and forbade expenditures on pleasures of the flesh. One of the few things one could in good conscience do with savings was to 'plow them back into the firm' "<sup>35</sup>; in other words, invest. In this way Calvinism encouraged the perfect combination of hard work and ascetic self-denial that enabled capitalism to flourish.

While Weber argued that Protestantism established the impetus for the rise of capitalism, his interpretation was really an extension and critique of the theory of Karl Marx (1818–1883), who 50 years earlier had argued the opposite: that economic motivation determined religious experience, and not the other way around. With the industrialization of England as his datum, Marx posited that human relationships in an industrialized society are defined by their economic dimension. One's economic role determines the way one thinks, perceives, and reasons. In Marx's words, the economic interactions—"the modes of production"—provide the substructure or foundation on which is built the superstructure of social interactions, philosophy, religion, and art. "The mode of production of the material subsistence, conditions the social, political and spiritual life-process in general. It is not the consciousness of men [sic] which determines their existence, but on the contrary it is their social existence [their role in the marketplace] which determines their consciousness."<sup>36</sup> Because workers become alienated from their products through industrialization's division of labor, their social relationships become defined by money and the commodities that money can buy.

In earlier periods during which modes of production were agricultural or mercantilist, production was directly of one's own making and one could identify with the finished product with a sense of pride, accomplishment, and humanity. But in a capitalist system, according to Marx, social relationships are divided into either owners of production or means (labor) of production. Both roles are dehumanized because in neither case can one identify with one's work. When alienation from one's work occurs, money takes on excessive "fetish" power. Although Marx looked forward to an eventually classless society, as long as the distribution of wealth remains uneven, people would be focused on balancing it. Thus, for Marx, industrialization focuses human motivation on economic realms. Although Marx's ideas

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<sup>34</sup>Weber, M., *The Protestant Ethic and the Spirit of Capitalism*, 2nd ed., translated by T. Parson (New York: Scribner, 1930).

<sup>35</sup>Brown, R., *Social Psychology* (New York: Free Press, 1965), p. 451.

<sup>36</sup>Marx, K., *Capital, I*, Ben Fowkes edition (New York: Vintage Books, 1977), p. 929.

about communism are more unfashionable today than ever, it is intriguing to consider how many people would still endorse this economic view of human nature.

#### **Assumption 4: We Must Progress**

Even if the Protestant ethic had not provided a religious framework for modern industrial development, the moral imperative of individuals at work for material gain would still be bolstered by our allegiance to the notion of progress. To us, time is a linear event, and we expect that during its passage, growth will occur. Whereas the traditional world saw the passage of time in circular terms, celebrating the cycles of nature (and even in some cases positing the reincarnation of the human being into repeating lifetimes), we in the West are married to the idea of progress. We see time not as a circle, but as a line: as a sequential series of snapshots revealing continuous growth. To return to a previous state is to go backward, to regress. In our Western way of looking at the world, to return is to fail.

Where does our devotion to the idea of progress come from? Some cite Charles Darwin (1809–1882), whose theories of evolution seem to suggest a continual growth of complexity and adaptation in species, although Darwin specifically argued that there was no goal or purpose to evolution. However, evolutionary theory became a popular tool for conceptualizing progress, thanks to the efforts of the English philosopher Herbert Spencer (1820–1903). Spencer proposed that societies, like everything else, undergo the same kind of evolution as do species, from simple to complex:

Whether it be in the development of the Earth, in the development of life upon its surface, in the development of society, of government, of manufactures, of commerce, of language, literature, science, arts, this same evolution of the simple into the complex, through successive differentiations, holds throughout. From the earliest traceable cosmical changes down to the latest results of civilization, we shall find that the transformation of the homogenous into the heterogeneous, is that in which progress essentially consists.<sup>37</sup>

Thus, societies, like species, evolve from simple to complex, that is from simple agrarian communities to complex industrialized societies. Formulated in a country busily expanding its wealth through colonialization and industrialization, it is no surprise that Spencer's ideas became widely popular: what better concept with which to condone the imposition of British rule on the "less evolved savages" of Asia, Africa, and Australia? "Through-

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<sup>37</sup>Spencer, H., *Essays Scientific, Political, and Speculative* (New York: D. Appleton and Company, 1891), p. 10, as cited by Nisbet, R. A., *Social Change and History: Aspects of the Western Theory of Development* (New York: Oxford University Press, 1969), p. 124.

out the Edwardian period, ordinary people were encouraged to believe that the empire stood for the expansion of civilized values as well as the accumulation of profits."<sup>38</sup> Thus, the progress of society and of economic development were tightly linked in the Victorian mind, which, I am arguing, is not so different from our own.

As if to prove Spencer's point, however, America, as England's offspring, complicated and extended the idea of progress. After all, the New World stretched out in what must have seemed infinite wilderness, and the lure of the West soon pulled settlers whose visions of fortune were matched by visions of religious conversion: "American expansionism and Indian salvation began to become synonymous."<sup>39</sup> Although westward expansion was debated, many saw it as inevitable, at least those who believed in "manifest destiny":

The American claim is by the right of our manifest destiny to overspread and to possess the whole of the continent which Providence has given us for the development of the great experiment of liberty and federative self-government intrusted to us. It is a right such as that of the tree to the space of air and Earth suitable for the full expansion of its principle and destiny of growth.<sup>40</sup>

"Manifest destiny" expressed a moral imperative to use whatever needed to be used in order for the great experiment of liberty to grow and "possess the whole of the continent." It is ironic that the metaphor of a tree was chosen to suggest the rights of Americans to "their full expansions and destiny of growth," since millions of trees were cut for human settlements, and consequently denied their "space of air and Earth." No matter. The spirit of westward expansion was more potent than its logic. Even though the phrase "manifest destiny" was invented by a New York journalist, whose words appear above, it captured the self-righteous and land-hungry spirit of the newly migrating pioneers. And it hasn't entirely run its course, as the following message from the John Birch Society illustrates:

No one can be free without the ability to own and control property. Free individuals are producers who make life better for all. Free individuals and too much government are incompatible. Free enterprise, including full property rights, gives all the opportunity to enjoy natural beauty.<sup>41</sup>

Thus, the particularly American spin on progress was to focus on the freedom of individuals to make life better for themselves, through wide-

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<sup>38</sup>Bowler, P. J., *The Invention of Progress: The Victorians and the Past* (Cambridge, MA: Basil Blackwell, 1989), p. 200.

<sup>39</sup>White, R., "It's Your Misfortune and None of My Own": *A History of the American West* (Norman: University of Oklahoma Press, 1991), p. 72.

<sup>40</sup>*ibid.*, p. 73.

<sup>41</sup>From an ad for the John Birch Society that appeared in Buchanan, *ibid.*

spread land ownership. Progress is made when individuals enjoy the right to own and control their own property. Just as Locke argued, progress occurs when individuals apply technology to convert their land to income. Progress through private land is the explicit assumption of American culture, but it is also, I am arguing, the assumption of Western culture in general. I am not suggesting that land ownership is a bad idea. In light of East European environmental mistakes, it may be less destructive than massive state ownership. What I am saying, however, is that private ownership without group responsibility—the sense that this is my land and I can do anything I want with it—is a deeply ingrained legacy of our Western tradition. Consequently land-use arguments will threaten deeply held commitments to “our American way of life.”

Progress, through land ownership or economic wealth, is a fundamental feature of our worldview. The perception that human life is perched in a *linear time* marked by progress toward something better is mirrored by the Greek and Christian view that we are perched in a *linear power order* as well. In the traditional Western view of the cosmos, God reigns over men, who rule over women, children, animals, plants, and inorganic matter, in that order. This makes humans more important than animals, men more important than women, organic matter more important than inorganic matter, mammals more important than insects, and plants more important than dirt. Intellectual historian Arthur Lovejoy has termed this idea “The Great Chain of Being” and attributed its origin to the Greeks, especially Aristotle. Aristotle proposed that all beings are arranged in a single continuum, a *natural scala*, according to “their degree of perfection.” This perfection is based on the amount of “soul” or “potential realization,” which differs for each kind of being. The amount of soul determines how close they are to God, who of course, sits at the top. In Lovejoy’s words, Aristotle’s notion of unilinear gradation

result[ed in] the conception of the plan and structure of the world which, through the Middle Ages and down to the late eighteenth century, many philosophers, most men [sic] of science, and indeed, most educated men, were to accept without question—the conception of the universe as a “Great Chain of Being.”<sup>42</sup>

This linear view of the universe exhibits the concept of hierarchical spatial ordering, so familiar in many other Western institutions: the priestly hierarchy, and the divine power of kings, as well as in more contemporary institutions, such as the military with its chain of command; the corporation

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<sup>42</sup>Lovejoy, A. O., *The Great Chain of Being: A Study of the History of an Idea* (New York: Harper & Brothers, 1960), p. 59.

with its vertical structure of power and status; the taxonomy of biological organisms; and even the reductionistic idea of science that complex wholes are made up of simpler parts.

Yet democratic institutions have gradually undermined this strict idea of hierarchy given by The Great Chain of Being. To allocate one vote to one citizen is to begin to level the power hierarchy (although class, race, gender, and ethnicity still help to maintain it). While modernity has weakened our vertical concept of reality, it has not annihilated it. And vertical organization combines with linear progress to form two crucially important tenets of our Western worldview.

In this way, our thinking is dominated by a line—of progress, of power, and of consciousness (or closeness to God). The line is a potent basis of our modernist vision. It sanctions and promotes the idea of growth, which is seen as good, and diminishes the value of sustainability, which is seen as stagnation. We are thoroughly and deeply wedded to the hope of progress, improvement, growth, ascendance, enhancement, as our national and international visions promise. Our international "development" efforts focus on increasing the standard of living, meaning increasing life spans, education, literacy, and technological conveniences of other countries. At the national level, our quarterly reports are saturated with criterion of economic growth. Presidents are elected for their promise of economic growth and measured against the accomplishment of it.

For centuries of Western thought, and the North American implementation of it, progress has seemed not only possible, but evident and incontrovertible. Life spans have increased. Water and land has been claimed for human needs. The average person in the industrialized countries of the planet today lives at a level of material comfort that the richest person anywhere could hardly imagine a century ago. Progress in terms of material comfort, technological innovation, human population growth, and resource utilization seems undeniable.

Yet, in the closing years of the 20th century, we must question our vision of progress, as our technological feats have brought on troubling ecological problems that defy easy solutions. Mounting ecological difficulties force us to ask how beneficent our "progress" is turning out to be. Is it progress to have so many millions of tons of nuclear waste with no known way of ensuring its safe storage? Is it progress to be cutting the last 5 percent of North America's ancient forests? Is it progress to be exposing ourselves to ultraviolet radiation because we have progressively released more and more harmful chemicals? To be doubling the human population in the next 40 years?

The line has brought us into a troubling relationship with our physical world. As Swedish physician and environmental policy maker Karl-Henrik Robert has observed,



For roughly the past hundred years, humans have been disrupting the cyclical processes of nature at an accelerating pace. All human societies are, in varying degrees, now processing natural resources in a *linear* direction. Our resources are being rapidly transformed into useless garbage. With few exceptions, none of this garbage finds its way back into the cycles of society or nature; it is not taken up for repeated use by industry, nor is it put back into the soil. The ultimate consequences of all this are impossible to foretell.<sup>43</sup>

For this reason Robert argues that the Third World needs the same thing that the industrial world needs: "cyclic technology." Technology that recognizes our cyclic relationship with nature will be needed to build a sustainable world.

At the end of the 20th century, John Locke's assertion "that there is land enough in the world to suffice double the inhabitants" is clearly no longer valid. Perhaps our worldview is faltering because there is no more "New World," no more "inland vacant places in America" for us to plant, no more infinite sinks into which we can dump. Perhaps our old notion of progress and linear technology requires empty space, which on an increasingly crowded planet, is more of a historical memory than a current reality.

As we question the linear notion of progress, we may begin to question some of the other assumptions intimately tied to it: material consumption; the sanctity of the individual and of individual freedom to live without responsibility to a larger community; and a natural world that operates outside the realm of human activity. A vivid way to examine our own assumptions is to confront worldviews that make a different set.

## THE "NATURE" OF TRADITIONAL THOUGHT

If collapsing several centuries of Western thought into a few pages is a difficult task, accurately discussing the worldviews of ancient and non-Western perspectives in a short space is even more daunting. Traditional cultures (by traditional I mean nonindustrialized) show many important differences from each other. Anthropologists typically focus on differences rather than on similarities in order to demonstrate the amazing variation and powerful influence of culture on human behavior. Nevertheless, variations on a theme do not necessarily diminish the validity of the theme; nor do exceptions to the rule, if the number of cases that fit the rule outnumber the exceptions. Thus, I will be discussing traditional culture as an ideal type, acknowledging that not all specific instances of traditional cultures

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<sup>43</sup>Robert, K., "Educating a nation: The natural step," *In Context*, 28 (Spring 1991): 11.

will match it, but still asserting that in comparison to modern industrialized cultures, traditional cultures show the patterns described below.

In most traditional societies, people lived and continue to live in small groups of closely knit relationships, deriving a sustained subsistence from the land, either through hunting and gathering, or from hand-based or animal-based agriculture. The events of the natural world have enormous and direct impact on the well-being of people in traditional society, and people immediately experience the rhythms and changes in weather, water, sun, and wind. In the vast majority of these societies, nature is seen as a living organism, most often as a mother, which is nurturing, beneficent, and ordered, but also at times wild, violent, and chaotic. To personify nature as a female has important ramifications, which we will discuss in the next chapter, but for now, let us consider the effects of seeing nature as a live being. To project human characteristics onto the natural world gives a sense of relationship to it, and often, a restraint to human actions. In Carolyn Merchant's words

The image of the earth as a living organism and nurturing mother had served as a cultural constraint restricting the actions of human beings. One does not readily slay a mother, dig into her entrails for gold or mutilate her body, although commercial mining would soon require that. As long as the earth was considered to be alive and sensitive, it could be considered a breach of human ethical behavior to carry out destructive acts against it. For most traditional cultures, minerals and metals ripened in the uterus of the Earth Mother, mines were compared to her vagina, and metallurgy was the human hastening of the birth of the living metal in the artificial womb of the furnace—an abortion of the metal's natural growth cycle before its time. Miners offered propitiation to the deities of the soil and subterranean world, performed ceremonial sacrifices, and observed strict cleanliness, sexual abstinence, and fasting before violating the sacredness of the living earth by sinking a mine.<sup>44</sup>

Similarly, in many traditional cultures, rituals before hunting or after harvest are a regular feature of human experience. Such rituals provide constraints to human activities that would disrupt the ecological health of the habitat. For example, Navajo rituals are considered necessary to the sustainability of the community. They are executed not just for tradition's sake, but to reaffirm a deeply felt sense of harmony with the natural world.

A Navajo does not say a prayer to the inner form of a deer explaining his need for the deer and asking for the deer's indulgence simply because it is a kind and gracious thing to do; he does so also because it reminds him of the deer's right to life and the necessity for him not to be excessive or overindulgent in his use of the deer, for such excessive behavior could throw the whole world

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<sup>44</sup>Merchant, *ibid.*, pp. 3–4.

out of harmony and balance and that would be dangerous to his own survival.<sup>45</sup>

Likewise, regular rituals honoring the sun, moon, water, fire, etc. are performed to maintain or restore balance, harmony, or connection with the natural world. In Ladakh (a region of northern Kashmir high on the Tibetan plateau) prayers and rituals are performed to accompany the agricultural cycle:

When the sun reaches the right place for sowing . . . the spirits of the earth and water—the *sadak* and the *lhu*—must be pacified: the worms of the soil, the fish of the streams, the soul of the land. They can easily be angered; the turning of a spade, the breaking of stones, even walking on the ground above them can upset their peace. Before sowing, a feast is prepared in their honor. For an entire day a group of monks recites prayers; no one eats meat or drinks *chang* (the local barley beer). In a cluster of trees at the edge of the village, where a small mound of clay bricks has been built for the spirits, milk is offered. As the sun sets, other offerings are thrown into the stream.<sup>46</sup>

Dances, prayers, sacrifices, and stories re-establish the sacred quality of human appreciation and use of the natural world. In traditional cultures, spiritual worship of natural phenomena is a regular and crucial practice. The natural world is imbued with spirit, and human beings are part of, rather than rulers of, this living being. For example, in the esoteric Hopi tradition,

the cornstalk, the talking stones, the great breathing mountains—all are significant and alive, being mere symbols of the spirits which give them form and life. These invisible spiritual forms are in turn but manifestations of the one supreme creative power which imbues them with meaning, which moves them in their earthly orbits and seasonal cycles in unison with the constellations of the midnight sky. And again, their unhurried, stately movements follow the inexorable laws of universal life itself—symbols for symbols, layer upon layer of ritual esotericism, through which man [sic] reaches at last the ultimate meaning of his brief existence on this one puny planet among countless myriads more. Such are the truths deeply embodied in Hopi ceremonialism, whose complex symbolism and ritualism have long been the despair of rational observers.<sup>47</sup>

In addition to the close relationship with the natural world, traditional cultures also tend to revere close relationships between people, so that kin-

<sup>45</sup>Witherspoon, G., *Language and Art in the Navajo Universe* (Ann Arbor: University of Michigan Press, 1977), p. 180.

<sup>46</sup>Norberg-Hodge, H., *Ancient Futures: Learning from Ladakh* (San Francisco: Sierra Club Books, 1991), pp. 19–20.

<sup>47</sup>Waters, F., *Book of the Hopi* (New York: Ballantine, 1963), pp. 153–154.

ship and clan identities are far more important than the individual person. In most (although of course not all) such cultures "relationships are activated and animated through proximity, and proximity is determined by affection and friendliness."<sup>48</sup> Small groups afford face to face interaction, so that

Democratic decision-making is likewise a common characteristic among nature-based peoples. Because of ongoing face to face contact, as well as councils for decision-making in some communities, every member has the opportunity to talk things out, make suggestions, have them heard, and participate in guiding the group. Among the BaMbuti (Pygmy) of the African Congo, interpersonal conflict and offensive acts are settled without any apparent formal mechanism at all. Anyone can discuss any issue that is of concern to the community, and anyone can join in creating solutions.<sup>49</sup>

Likewise, in most traditional cultures in which subsistence is successful, a person working for private economic gain in competition with others would be considered a perversion, if not an impossibility. Unlike the view of human beings proposed by Hobbes, reciprocity and belonging rule human interaction, much more often than do competition and hoarding. The notion of private property is rare; shared communal spaces and cooperatively tended land are far more typical. The purpose of life is not to amass personal wealth, but to live in harmony with one's group, honoring tradition and continuity with ancestors, as well as the spiritual world, which provides for human needs. In these ways, traditional worldviews support ecological sustainability.

At this point it may sound like I am glorifying traditional cultures, committing the common error of seeing only positive qualities in that which is different from our own culture. Rousseau's dream of a Noble Savage comes to mind, whereby all that is good in human nature was perceived to exist before the evil force of Western civilization contaminated our pure innocence. Let me repeat, then, that I do not exalt traditional cultures over our modern industrial one. Life is difficult in most traditional cultures: infant mortality rates are high, physical safety and survival is uncertain, and physical comforts are rare. Traditional cultures do not have enough wealth to enable their members much travel, higher education (although sophisti-

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<sup>48</sup>Wilson, P., *The Domestication of the Human Species* (New Haven, CT: Yale University Press, 1988), p. 33. Quoted by Glendinning, C., *My Name is Chellis & I'm in Recovery from Western Civilization* (Boston: Shambhala, 1994), p. 45.

<sup>49</sup>Glendinning, C., *My name is Chellis & I'm in Recovery from Western Civilization* (Boston: Shambhala, 1994), p. 41. Glendinning cites Turnbull, C., *The Forest People* (New York: Simon and Schuster, 1962), Chapter 6, on the BaMbuti's democratic practices.

cated forms of education exist), or even medical care. Having visited some nomadic tribes in Tibet, a tiny farming community in central Nepal, and small preindustrial villages in southern Nepal and northern India, I can tell you that I would not choose to live in any of those settings. In spite of their much more sustainable systems, I would find the physical discomforts and threats of disease (not to mention their treatment of women) unbearable. Furthermore, the sense of belonging that I admire comes at the price of freedom, so that identity and roles are determined by birth rather than by choice. I am too much a Westerner to be able to tolerate such psychological confinement even though it comes with the sense of social belonging.

Nevertheless, I did experience that the people in those settings have something most Westerners lack: a calm and open attitude (at least toward a white tourist), a sense of play and lightness, and a clear sense of kinship, connection, and identity. Mostly, they were much more relaxed than we. I danced with Tibetan nomads in a park in Lhasa, who delighted in spending their afternoon drinking chang (barley beer), singing, and dancing in the crisp sunshine (a common Tibetan practice). When they saw a white person looking on, they invited me to join them, laughing at my awkward attempts to follow their dance steps and insisting that I drink their precious chang and eat their tsampa (barley flour and rancid yak butter—a truly unique dining experience). My point is not that all traditional people spend their time laughing and dancing: they also engage in gruesome wars (witness Rwanda), painful sexism (infertile Tibetan women are abandoned by their husbands for fertile women), and their own forms of ecological destruction (slash and burn agriculture in the Amazon). Rather, I am suggesting that we have something to learn from traditional cultures, both about psychological well-being and ecological sustainability. Looking at traditional cultures helps us see our own more clearly. More specifically, as compared with the four assumptions of the industrialized West discussed at the beginning of this chapter, in most traditional worldviews (1) nature is alive and whole (rather than inert and particularized), (2) humans try to fit in to and honor nature (rather than transform and subdue it), (3) humans value belonging and kin relationships (more than private economic gain), and (4) harmony and sustainability are valued (more than economic development).

Although our Western worldview is quite new, it has evolved through the contributions of innumerable thinkers, many more than I have been able to consider in this chapter. But we can summarize what we have discussed so far with the following table, which allows an overview of the main points of the chapter.

| View of:        | Traditional View          | Modern View                         | Important Contributor    |
|-----------------|---------------------------|-------------------------------------|--------------------------|
| Nature          | Alive; imbued with spirit | Mechanical; made up of bits (atoms) | Bacon; Descartes; Hobbes |
| Land            | Common                    | Privately owned                     | Locke                    |
| Humans          | Group member              | Individual                          | Bentham; Jefferson       |
| Human nature    | Cooperative               | Selfish, competitive                | Hobbes                   |
| Time            | Circular                  | Linear                              | Darwin; Spencer          |
| Purpose of life | Harmony; sustainability   | Progress; growth; material wealth   | Locke; Smith; Calvin     |

Without suggesting that our worldview is better or worse, or so mutually exclusive as this chart might imply, it is possible to ponder the implications of quickly spreading our worldview to other traditional cultures. Pre-industrial societies are fast disappearing as international development efforts proceed. While foreign aid has been implemented with the best intentions, it has often been difficult to foresee some of the ecological and psychological prices it is now extracting. This is because our worldview leads us to be addicted to the idea of development.

### THIRD WORLD "DEVELOPMENT"

The word *development* connotes an attractive idea to Westerners, who value growth, change, and progress. When Harry Truman presented the idea as the Point Four Program in his 1949 inaugural address, he met little resistance.

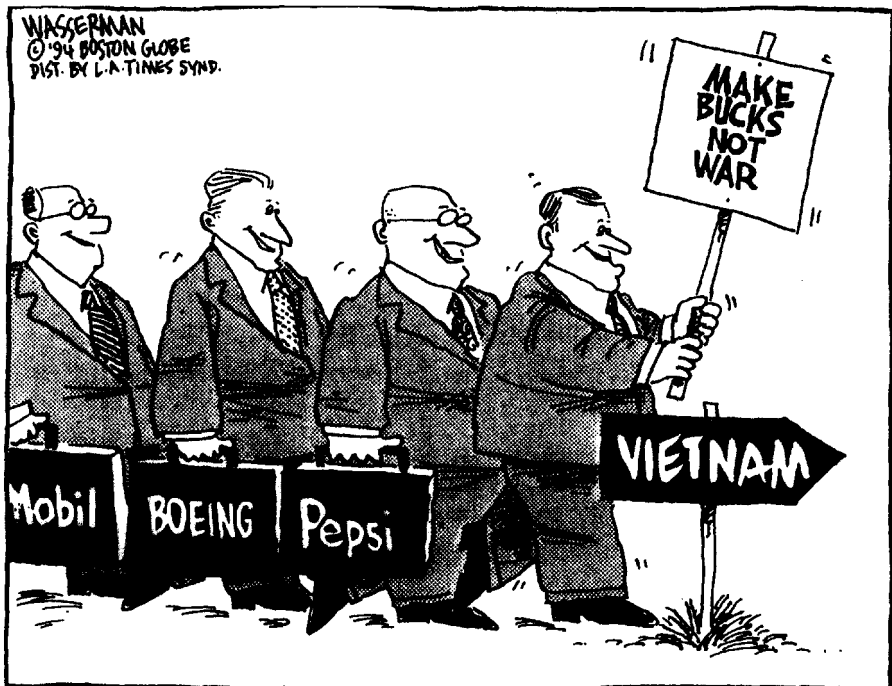
The old imperialism . . . has no place in our plans. What we envisage is a program of development based on the concepts of democratic fair-dealing . . . a bold new program for making the benefits of our scientific advances and industrial progress available for the improvement and growth of underdeveloped areas.<sup>50</sup>

Instead of the military invasions, puppet governments, and overt land grabs that the European countries used to assemble their colonial empires, the United States built an economic empire with financial loans, social service

<sup>50</sup>Quoted by Stone, R. D., *The Nature of Development: A Report from the Rural Tropics on the Quest for Sustainable Economic Growth*. (New York: Alfred A. Knopf, 1992), p. 35.

programs, and subsidized markets. In general, the 50-year history of Third World development has meant more development for the U.S. economy than for the Third World. Although the gross national product (GNP) in many developing countries did grow, the per-capita income gap has continued to widen, so that a few rich landowners have gotten wealthy while many more poor have gotten poorer.<sup>51</sup>

Poverty has worsened as a result of "development" because subsistence economies have been converted to market economies, weakening the ability of peasants to make a living off the land. In pre-industrialized cultures, people feed themselves from hunting, gathering, and limited farming; exchange of goods is done more by barter than by cash; and commonly owned land provides or augments the family food supply. The major story of Third World "development" has been loans provided by the World Bank and International Monetary Fund for capital-intensive investments in large projects such as dams, roads, power plants, and machine-based agriculture. In order to qualify for these loans, the land must be privately owned, so com-



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<sup>51</sup>Harrison, P., *Inside the Third World* (London: Penguin, 1988), pp. 418–427.

mon land has been converted to private holdings, forcing peasants to work for wages on the land they used to work for their own food. Because peasants have no control over the prices paid for agricultural products and because food prices are often artificially low to subsidize the more politically powerful populations who live in cities, poverty among many rural poor has actually increased as a result of "development." As noted in Chapter 1, poverty drives population growth, as rural families have more children to ensure economic survival. Furthermore, financial debt now eats up enormous portions of many "developing" countries' GNPs, replacing their subservience to overt military and colonial power with subservience to global economic, financial power.

Moreover, "development" has worsened ecological problems in almost every country in which it has occurred. For example, excessive tilling of sloping land in the Himalayas has produced soil erosion and flooding in Nepal. Attempts to eradicate the tsetse fly (which is harmful to cattle) in Africa has resulted in increased herds, overgrazing, desertification, and soil erosion. The Green Revolution has brought increased food production at the cost of soil erosion, water pollution, and salinization. In spite of a threefold increase in food production worldwide, global food production per acre is now declining, as monocrops become vulnerable to new forms of pests and disease, urbanization claims farmlands, and topsoil is lost through erosion.

But from a psychological point of view, the most dangerous legacy of Third World development is the replacement of traditional cultures and their diversity with our modern Western worldview. Like big-scale agriculture, which replaces small diverse crops with one large monocrop, we are replacing cultural diversity with monoculture. It is difficult to overestimate the degree of cultural hegemony now displayed by the West. English is the world's most prevalent second language, a requirement for any educated person who wishes to participate in the modern world. In every corner of the earth, Coca Cola is the most recognized brand name; television exports Western cultural values and understandings on a daily basis. The materialist values of the West have become the "progressive" values for the "developing" world. Peasants have learned to have contempt for their material frugality. If we in the West have already created a dangerous ecological predicament by our extravagant conversion of the natural world into personal wealth, the prospects for reversing this trend in the next decades seem slim when we consider the fierce commitment to "development" that the "developing" nations now display.

Third World countries are understandably attracted to industrialization and are enthusiastic recipients of the foreign aid and cultural messages that promote it. After all, industrialization feeds the hungry, cures the sick, and makes life more pleasant, comfortable, and convenient while it reduces



suffering caused by physical hardship. Our humanitarian impulses converge with market forces to make global industrial development an almost universally accepted goal. Even more potently, the lure of industrialization attracts each country's powerful elite because a country's power and prestige in the international community is directly related to its economic development. Even if we have some concerns about the long-term wisdom of unsustainable resource conversion, Third World countries often find those reservations both hypocritical and patronizing when such questions are directed toward them.

In short, our modernist vision has not only justified our own raid of our ecosphere, but it increasingly is being used by the rest of the world for the same purpose. And while we may begin to question the wisdom of our materialist lifestyles, it is much more difficult to ask Third World countries to abandon a consumption goal that they have yet to meet, particularly in light of the escalating number of desperately poor who must increase their consumption in order to survive.

## A PSYCHOLOGICAL APPROACH TO WORLDVIEW

So far I have argued that our Western worldview gives us a set of beliefs about the importance of the individual and about our relationship to nature. In doing so, I have taken a historical and philosophical approach, documenting the origins of key ideas and tracing their impact. Until quite recently, psychologists have not given such concerns much attention. As I will describe in Chapter 8, psychologists usually assume, rather than investigate, the importance of the individual in explaining human behavior. And unless you are a student or professor in a "History and Systems" course in psychology, the intellectual roots of psychology are rarely addressed. However, a few people calling themselves cultural or cross-cultural psychologists have begun studying the links between individualism, culture, and beliefs about nature from a psychological perspective.

What do I mean by "a psychological perspective"? Remember that in Chapter 1 I defined psychology as the scientific study of human behavior and mental life. For the most part, psychologists test ideas about human behavior and mental life with empirical evidence. In other words, while it may make philosophical sense to claim a link between culture, individualism, and environmental attitudes, psychologists would ask for data. Recently, two intriguing lines of psychological research have demonstrated empirical relationships between individualism and (1) industrialization and (2) environmental attitudes.

The empirical connection between individualism and industrialization was first investigated by Geert Hofstede who in the early 1980s studied

more than 117,000 IBM employees in 66 different countries. Asking workers to respond to a series of survey questions, Hofstede showed the impact of national differences in individualism versus collectivism in their answers. In Hofstede's words

Individualism pertains to societies in which the ties between individuals are loose: everyone is expected to look after himself or herself and his or her immediate family. Collectivism as its opposite pertains to societies in which people from birth onwards are integrated into strong, cohesive ingroups, which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty.<sup>52</sup>

Thus, collectivist or "we" cultures stress collective identity, emotional dependence, group solidarity, sharing, duty, stable friendships, and group decision making. Individualistic or "I" cultures stress autonomy, emotional independence, individual initiative, right to privacy, and pleasure seeking. Moreover, "I cultures" are clearly the most industrialized: United States, Canada, and Western European countries; collectivist countries are the least individualized: Asian, Latin American, and African nations.

So much research was stimulated by Hofstede's initial findings that the 1980s has been called the "individualism/collectivism" (I/C) decade in cross-cultural psychology. Researchers have produced both replications and refinements of Hofstede's basic findings. Most interestingly, from the perspective of environmental concerns, is John Berry's (1994) theory which proposes that variations in I/C result from "ecological demands" of subsistence on social structure.<sup>53</sup> Specifically, Berry proposes that agricultural subsistence societies require collectivism from their social organization: group interdependence, belonging, reciprocated help and cooperation, in order to accomplish crop planting and harvesting within optimal time frames. Industrial societies require the opposite: individual initiative, mobility, competition, and striving. Interestingly, Berry argues that hunter-gatherer societies also demand individualism because "a good deal of personal initiative and self-reliance are considered valuable attributes in the successful hunter." Although many of his ideas still need to be tested, he cites indirect empirical evidence that supports his theory, including data

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<sup>52</sup>Hofstede, G., *Cultures and Organizations: Software of the Mind* (London: McGraw-Hill, 1991), p. 51. Quoted by Kim, U., Triandis, H. C., Kagitcibasi, C., Choi, S., and Yoon, G., eds., *Individualism and Collectivism: Theory Method and Applications* (Thousand Oaks, CA: Sage Publications, 1994), p. 2.

<sup>53</sup>Berry, J., "Ecology of individualism and collectivism," in Kim *et al.*, *ibid.*, pp. 78-79.

that show that hunter-gatherer tribes tend to be independent on cognitive/perceptual tasks.

To pin a worldview on the requirements of subsistence is to flip the reasoning of this chapter upside down. Up to this point, I have been arguing that our worldview shapes our attitudes about, and hence our use of, the environment. This is called an "idealistic" view of human history because it posits that ideas determine our actions and that our physical existence results from our ideas. Perhaps the opposite is more true: the qualities of our physical environment determine our worldview. This way of looking at human history is called "materialistic": it posits that the material demands and offerings of our physical environment shape our views. Marx argued this by positing that economic structures determine our art and ideas. If the materialists are right, our worldviews are not as important as I have made them out to be. Population pressures may well be a far more potent cause of ecosystem damage than worldviews. Debating our visions of nature could be moot exercises if the planet's population doubles in the next 40 years. I will argue from this materialistic position in the last chapter when we look at the larger contributions from psychology. But from a psychological standpoint, examining the shape and force of our worldview helps us understand the passion with which environmental issues are disputed in the late 20th century. **We are not just debating environmental regulations: we are debating entire versions of reality.** Whether or not they are caused by the physical environment, worldviews are important psychological phenomena.

The second line of research that empirically documents the importance of worldviews is that done by Karl Dake and colleagues at the University of California in Berkeley. Relying primarily on surveys and interviews of California residents, Dake's work shows that perceptions of environmental risks are linked to worldviews "entailing deeply held beliefs and values regarding society, its functioning, and its potential fate."<sup>54</sup> More specifically, people who value individualism fear social deviance more than environmental degradation. They "believe that nature is resilient" and that "unfettered market mechanisms will increase abundance for all, thereby more than compensating for any environmental damage."<sup>55</sup> But they fear economic deterioration caused by inflation, debt, overregulation, and unstable investment climates. In contrast, people who value egalitarianism "believe that an egalitarian society is likely to insult the fragile environ-

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<sup>54</sup>Dake, K., "Orienting dispositions in the perception of risk: An analysis of contemporary worldviews and cultural biases," *Journal of Cross-Cultural Psychology*, 22 (1991): 61-83.

<sup>55</sup>Dake, *ibid.*

ment just as it exploits the poor.”<sup>56</sup> Egalitarians do not worry about economic risks as much as they worry about “environmental pollution, worldwide overpopulation and starvation, and restriction of civil liberties.” Dake is careful to point out that even though risk is socially constructed, this does not mean that risks are not real. People *do* die from environmental pollution and *are* hurt by diminished economies. What socially constructed risk *does* mean is that one’s worry about risk is related to other socially determined beliefs about the ideal organization of society with respect to its constituent members.<sup>57</sup> Our beliefs about nature are socially constructed.

In summary, then, our attitudes about the environment and our concern for environmental problems are part of a larger worldview shaped by several centuries of Western thought. As we begin to confront the physical limits of our behavior on the planet, it is useful to contemplate the intellectual tradition that has formed our behavior in the past. Examining the thinkers who shaped our Western worldview can help us be more aware of the way in which it was constructed. Examining the views of other cultures, which make different assumptions about nature, also helps us understand the constructed nature of our own. **Becoming aware that our assumptions about nature are constructed does not mean that they are wrong—or that they are right. It does mean that environmental issues are deeply philosophical and psychological ones.** Psychologists who have taken up these questions empirically have shown the links between our assumptions about the individual and both industrialization and environmental attitudes. In short, our views about the environment, about the importance of the individual, about the purpose of life, and about the effects of industrialization, are culturally transmitted and socially constructed.

The social construction of belief reveals the important role that other people play in shaping our environmental concerns and behaviors. To confront our ecological predicament is a social psychological activity: we learn from and are influenced by the messages we hear, the people who promote them, and a wide range of other potent elements in the social transmission of knowledge. To examine these factors more directly, it is now time to turn to the study of social psychology.

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<sup>56</sup>*ibid.*

<sup>57</sup>Dake, K., “Myths of nature: Culture and the social construction of risk,” *Journal of Social Issues* 48 (1992): 21–37.

# 3

C H A P T E R

## *Social Psychology: The Impact of Other People*



*I* imagine that you are at a party with some friends. One of them is talking about the Environmental Issues Club to which she belongs and its work on The Endangered Species Act (ESA). The ESA, a federal regulation adopted in 1973, makes it illegal to engage in any practice that threatens the extinction of a species, such as the Northern Spotted Owl or Chinook Salmon. (As I am writing this book, the U.S. Congress is considering revising or dropping the ESA because efforts to protect certain species hinder some industries, such as timber and aluminum companies.) Your friend explains that her group is collecting signatures to send to Congress to urge them *not* to change the ESA. You do not know much about the issue one

way or another, but you like your friend a lot, and decide, along with the rest of the people standing there, to sign her petition. After all, it does seem reasonable to try to protect species from extinction. Her argument that we humans do not have the right to let other species perish because of our human actions seems to make sense.

A few days later she calls you and thanks you for your support and tells you there is a meeting next week to learn more about the legislation and the grass roots efforts to save the ESA. As she is talking, you start thinking about the letter you read earlier that morning in the newspaper. It was written by a prominent community businessman and it argued that the ESA is a threat to American freedoms and the free market system. You thought the letter was well written and you see his point about government interference with business opportunities. Now you feel torn. What do you tell your friend? Will you go to the meeting? Are you more likely to go to the meeting because you previously signed the petition? How does your liking for your friend stack up against your respect for the businessman in influencing your decision? Is his opinion likely to weigh more because he's male?

In this example we see some important topics of **social psychology, which I am defining as the scientific study of social influence**. How do other people affect our thoughts, beliefs, attitudes, and behavior? How does our attraction and respect for others determine what we think and do? Does gender sway our responses? How about education, age, and political affiliation? How are environmental attitudes tied to deeper beliefs about our Western way of life and worldview? (How do you come to decide whether human beings have the right to knowingly extinguish other species?) Although we like to think that our attitudes and behaviors are based on rational and logical assessment of facts, a brief glimpse at social psychology reveals the enormously powerful (although usually unconscious) influences that other people have on us, our reasoning, our beliefs, and our behavior. The main point of this chapter is that our understandings and actions about environmental issues are largely social phenomena.

In this chapter we will discuss the historical roots of social psychology, survey some of its most important contributors and concepts, and describe some of the ways in which it has been applied to environmental issues. After examining a few classic studies in the field, we will look at the effects of gender in some detail, because gender illustrates how interpersonal relationships are directly linked to political and global structures that undermine ecological sustainability. By the end of this chapter I hope you will agree that what we do and what we believe arise from an intriguing composite of socially determined rules, expectations, explanations, and attractions, making our environmentally relevant behavior very much the outcome of social influence processes.

## HITLER'S CONTRIBUTION TO SOCIAL PSYCHOLOGY

Although the first social psychology began in the 1890s when Norman Triplett demonstrated that people perform a simple task more quickly if they are in the presence of others,<sup>1</sup> the field of social psychology did not really flourish until the post–World War II years in the United States. It is easy to imagine how anyone observing the horrors of the Nazi holocaust would find the question of social influence enormously compelling. How could Hitler have persuaded the German people of their racial superiority and proceed with the appalling genocide of 6 million Jews? Are human beings so malleable that they can be talked into anything by anyone who happens to be melodramatic enough? Hitler's legacy troubled social psychology's pivotal thinkers and shaped their questions for many decades. The post-war McCarthy years in the United States only reinforced such concerns, as U.S. citizens were pressured to report their friends to the communist-hunting House Committee on Un-American Affairs.

The discipline's most important founder was Kurt Lewin (1890–1947), a Jewish scholar at the University of Berlin when Hitler became Chancellor of Germany. With the help of American colleagues, Lewin immigrated to the United States, where he obtained appointments at Cornell University and then the University of Iowa. At Iowa he founded the Center for Research on Group Dynamics. Lewin's brilliant intellect and interpersonal warmth inspired an important genealogy of social psychologists who identified a wide variety of social influence questions such as persuasion, conformity, leadership, obedience, and conflict resolution.

Social psychology proceeded to grow quickly under the inspired leadership of Lewin, his students, and his colleagues at the Center for Research on Group Dynamics. Lewin urged his students to design laboratory studies on important social problems. *Action research* was Lewin's term for scientifically sound studies focused on real world problems. Lewin is remembered fondly for his courage and creativity in stepping out of the artificially constrained laboratory, which was the dominant approach in psychology at the time, to work on the messier but more compelling social issues of his day. One of his most important studies examined the effects of autocratic, democratic, and laissez-faire leadership on the hostility, dependency, and productivity of boys in summer camp. Lewin designed this well-controlled but "real-life" experiment to address the destructive effects of fascism on group behavior.<sup>2</sup> With his passion for using psychology to solve human

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<sup>1</sup>Triplett, N., "The dynamogenic factors in pacemaking and competition," *American Journal of Psychology*, 9 (1898): 507–533.

<sup>2</sup>Lewin, K., Lippitt, R., and White, R. K., "Patterns of aggressive behavior in experimentally created 'social climates,'" *Journal of Social Psychology*, 10 (1939): 271–299.

problems, were he alive today, I believe he would enthusiastically join us in examining psychology's potential for addressing our pressing environmental difficulties.

## OUR IRRATIONAL ATTEMPTS TO LOOK RATIONAL: COGNITIVE DISSONANCE THEORY

Lewin's most famous student was Leon Festinger (1919–1989). His intriguing theory of cognitive dissonance inspired an enormous amount of research, debate, and insight into the way social influence works. Festinger began his career with an interest in how people explain away their anxieties by making up explanations. To find out, he and two of his students infiltrated a religious cult, whose leader had professed the end of the world. Under secret cover, the researchers studied how cult members experienced and coped with their crisis, as phrased in Festinger's book title *When Prophecy Fails*. Assuming the world would go on, Festinger was curious about how the cult members would deal with the "unequivocal and undeniable evidence that [their] belief is wrong."<sup>3</sup> What impressed the researchers was that the most ardent believers emerged from the experience more, rather than less, convinced of their accuracy. When faced with the painful contradiction between their beliefs and reality, the true believers found a new explanation: because of their prayer and goodness, God had decided to save the world.

Festinger's work on failed prophecy is reminiscent of the boomster/doomster debate we discussed in Chapter 1. When beliefs are strong, people are unlikely to change their minds simply because new information is available. Instead, contradictory "facts" are discounted, distorted, or disregarded so that the more hardy opinion remains undiminished. (That is probably why many people try to avoid discussions of religion or politics at the dinner table—we are more likely to change our opinion of our dinner partner than we are our strongly held positions.)

In more general terms, Festinger posited that whenever we experience a discrepancy between two opposing thoughts, cognitive dissonance exists. **Cognitive dissonance** produces an uncomfortable state of tension, which motivates us to take whatever steps we can to reduce it, meaning we will change whatever beliefs or behaviors we can most easily change in order to appear consistent. But we do not need such an extreme illustration of a religious cult to understand how dissonance reduction works. To go back to our opening example, Festinger would predict that your friend's telephone

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<sup>3</sup>Festinger, L., Schachter, S., and Reicken, H., *When Prophecy Fails* (Minneapolis: University of Minnesota Press, 1956).



call would create cognitive dissonance and you would be uncomfortable until you reduced it. Her request to attend the meeting would elicit two contradictory cognitions: on the one hand, you feel allegiance toward your friend, some agreement with her view about the importance of saving the ESA, and an urge to appear consistent with your recent signing of her petition; but on the other hand you also respect the importance of American freedoms, the articulate nature of the anti-ESA letter, and the businessman himself, so you feel some sentiment against the ESA. Festinger would predict that your motivation to resolve this conflict will lead you to diminish the importance of one viewpoint and elevate the importance of the other. For example, if you do agree to go to the meeting, you will be likely to find some reason why the businessman is not very convincing (perhaps you will decide that businesspeople are myopic about environmental problems); or if you refuse to go to the meeting, the letter will seem more convincing. (What else is more important to protect than American freedom?) Festinger emphasized the importance of postdecision shifts in our reasoning; once committed to a decision, we line up and rearrange our conflicting cognitions to fit it.

Festinger and his colleagues demonstrated the intriguing effects of cognitive dissonance in a wide range of laboratory experiments. In each case, people's attempts to appear rational and consistent resulted in behavior that was amusingly irrational. For example, consider the most famous cognitive dissonance experiment, which Festinger conducted with his colleague J. Merrill Carlsmith.<sup>4</sup> They asked college students to perform some very boring tasks (such as turning spools or packing and repacking trays) for an hour. Then they asked their student subjects to lie to the next subjects by telling them that the experiment was actually interesting. In return, the experimenters offered to pay some of the liars \$1 and others \$20. Afterward, they asked their liars how they really felt about the experiment. What do you think the results were? Many people would predict that the people paid the bigger reward would tell the biggest lie, so that the \$20 liars would report more liking for the experiment. Instead, the subjects who were paid only \$1 said they found it more interesting than the subjects who were paid \$20. These results demonstrate how cognitive dissonance works. Apparently the \$20 subjects did not need to convince themselves that the experiment was interesting—they had a good external reason (lots of money) for telling a lie. But the \$1 subjects had a problem. They had also lied, but with no good external reason. Consequently, they changed their attitude toward the experiment—it was not really so bad—and reduced their dissonance.

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<sup>4</sup>Festinger, L., and Carlsmith, J. M., "Cognitive consequences of forced compliance," *Journal of Abnormal and Social Psychology*, 58 (1959): 203–210.

These kinds of self-justification efforts are at the heart of dissonance reduction. They can lead us to change our attitudes in order to fit our behaviors.

Most of us reduce our cognitive dissonance over environmental problems by creating plausible but untrue explanations for our behavior. In uncertain situations, we bolster our decision by strengthening consistent cognitions and reducing the inconsistent ones. For example, unsure whether I should contribute money to an environmental cause presented to me in an umpteenth mass mailing appeal, I discard the plea, picturing the director in a fancy limousine and thinking to myself that "they probably spend way too much on overhead." Likewise, if you decide not to go to the ESA meeting, you are likely to prop up your decision by finding additional reasons: you do not have the time, or you have a competing commitment, or you might be coming down with a cold. These are not necessarily lies, but they are reasons that might not occur to you unless you needed them to justify your decision.

Of course, dissonance can also be used to increase environmentally appropriate behavior. One way this has been demonstrated is through the **foot-in-the-door technique**. If someone gets us to agree to a small action, they can often get us to undertake a bigger one. The foot-in-the-door technique would lead to the prediction that you will be more likely to go to the ESA meeting (a big action) because you previously signed the petition (a little action). Researchers have successfully used this technique to increase energy conservation behaviors. For example, a study done in 1980<sup>5</sup> used families who had volunteered to participate in conservation studies and randomly assigned them to two groups. The first group was asked to agree to have their names published in the newspaper (they all agreed); the second group was not asked. Even though none of the names were ever published, the group that agreed to the public commitment showed a 15 percent greater reduction of gas use and a 20 percent greater reduction of electricity use than did the group which was not asked. Apparently, the intent to go public was enough to induce behavior change; people try to live up to their public image.

Similarly, in another foot-in-the door experiment, Hutton<sup>6</sup> mailed water-flow restricters, together with information about conserving water, to a randomly selected set of households; to another set of households he sent the information but not the devices. The group that received the devices

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<sup>5</sup>Pallak, M. S., Cook, D. A., and Sullivan, J. J., "Commitment and energy conservation," in Bickman, L., ed., *Applied Social Psychology Annual* (Beverly Hills, CA: Sage, 1980).

<sup>6</sup>Hutton, R. R., "Advertising and the Department of Energy campaign for energy conservation," *Journal of Advertising*, 11 (2) (1982): 27-39.

showed less water use. More importantly, however, this group also showed a variety of other conservation behaviors, such as turning down their hot water heaters, cleaning their furnaces, and installing automatic thermostats. As long as you start conserving in one area, you might as well do it in others: behavior changed attitudes, which in turn changed behavior. Likewise, Arbuthnot and his colleagues<sup>7</sup> were able to increase recycling behavior simply by asking people to complete a survey about recycling or to send a prorecycling postcard to the city council. Getting people to adopt a small pro-environment behavior can lead them to adopt other pro-environment behaviors, presumably because behaviors are changed to maintain consistency with publicly expressed attitudes. Cognitive dissonance can work for or against environmentally appropriate behaviors.

### ATTITUDES VERSUS BEHAVIOR: THE SPLIT BETWEEN PLANET AND SELF

The foot-in-the door technique suggests that we will change our attitudes to make them consistent with our behavior. Certainly we like to think our behavior is consistent with our attitudes, but we usually think of the reverse causal order: we think our attitudes determine our behavior, rather than the other way around. My common sense tells me that I recycle cans because I believe it is important to save energy; if someone told me I think it is important to save energy because I recycle cans, I would think that explanation bizarre. Most attempts to influence social behavior, including advertising and marketing, work on the common sense model: change what people believe and that will change their behavior. Environmental education seems like the first step to increasing environmentally responsible actions.

Yet social psychologists have learned a lot about attitudes that make this simple rule insufficient. As already discussed in Chapter 1, many people have pro-environment attitudes that are incongruent with environment behaviors. The gap between environmentally appropriate attitudes and actions is the social psychologist's way of examining the split between planet and self. If we suffered no split, our attitudes and actions would line up neatly. Unfortunately, they don't. But it isn't just in our environmental actions that we are hypocritical. Morally relevant attitudes fail to match individual behavior in a host of other areas. For example, most people claim

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<sup>7</sup>Arbuthnot, J., Tedeschi, R., Wayner, M., Turner, J., Kressel, S., and Rush, R., "The induction of sustained recycling behavior through foot-in-the-door technique," *Journal of Environmental Systems*, 6 (1977): 355-368.

they are not racist, even though racist behaviors are, at some level, universal, especially in the most intimate situations (such as marriage or sex).<sup>8</sup> Similarly, peoples' attitudes about cheating have little to do with whether or not they actually cheat.<sup>9</sup> As social psychologist Robert Abelson noted, we are good at "finding reasons for what we do, but not very good at doing what we find reasons for."<sup>10</sup>

Not surprisingly, then, research on the relationship between environmental attitudes and behaviors has shown a lot of inconsistent results. Sometimes pro-environmental attitudes are correlated with pro-environment behavior (for example, people who think recycling is important are more likely to recycle). Sometimes pro-environmental attitudes are unrelated to behavior (for example, people who think use of fossil fuels should be reduced do not necessarily drive less than others). When different studies show contradictory results, it is often useful to do what social scientists call a meta-analysis. A **meta-analysis** looks for patterns across various studies in order to make sense of the contradictory data.

Jody Hines and her colleagues<sup>11</sup> did such a meta-analysis on environmental attitudes and behavior. By looking at the results of 128 different studies, they were able to show that the correlation between attitudes and behavior is positive, although not very strong. Attitudes and behavior are more tightly related when actual behavior, rather than self-reported behavior, is measured. For example, my neighbors' attitudes about recycling say more about how much they *actually* recycle than how much they *say* they recycle. Attitudes predict actual behaviors better than reported behaviors. Attitude/behavior consistency is also stronger when people belong to environmental organizations, when they hold a sense of personal responsibility, and when they verbally express their intentions to engage in responsible behaviors. From this study we can deduce three ways to enhance the consistency between pro-environmental attitudes and pro-environmental behaviors: join an environmental organization, maintain a sense of personal responsibility, and tell others about intentions to do environmentally responsible actions. We will return to these points at the close of

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<sup>8</sup>Myers, D. G., *Social Psychology*, 4th ed. (New York: McGraw-Hill, 1993), p. 379.

<sup>9</sup>Wicker, A., "Attitudes versus actions: The relationship of verbal and overt behavioral responses to attitude objects," *Journal of Social Issues*, 25 (1969): 41-78.

<sup>10</sup>Abelson, R., "Are attitudes necessary?" in King, B. T., and McGinnies, E., eds., *Attitudes, Conflict, and Social Change* (New York: Academic Press, 1972). Quoted by Myers, *ibid.*, p. 112.

<sup>11</sup>Hines, J. M., Hungerford, H. R., and Tomera, A. N., "Analysis and synthesis of research on responsible environmental behavior: A meta-analysis," *Journal of Environmental Education*, 18 (1986/7): 1-8.

the chapter when we consider how social psychology can help us heal the split between planet and self.

Studies of environmental attitudes have demonstrated the social bases of environmental concern. Interest in environmental problems is not randomly distributed across the population. Because we influence each other, certain demographic variables show predictable association with environmental concern. In a helpful review of this literature, environmental sociologists Kent Van Liere and Riley Dunlap describe the main findings and possible causes.<sup>12</sup> First, environmental concern is more prevalent among people with more education and in higher social classes. There are at least two possible explanations for this: (1) education could enhance environmental concern through reference group processes, by providing better information, or (2) default: those with less socioeconomic standing may have more immediate concerns (such as crime, disease, and hunger) than long-range environmental ones. (This point is expressed in the cartoon about Russia's environmental problems.)

Second, pro-environmental attitudes are more prevalent among younger than among older people. Perhaps young people are less integrated into the American economic system or dominant social paradigm or are more affected by recent environmental disasters such as Chernobyl or the Exxon Valdez oil spill because they have had less experience with the robustness of nature relative to these experiences with its fragility. Third, many studies have shown that urban residents are more concerned than rural residents. Urbanites may have experienced more environmental problems directly, and/or may be less dependent on economic growth than are small-town residents. Rural residents, living in closer contact with wilderness spaces may be less likely to romanticize nature and see it as a painting. Fourth, political affiliation is correlated with environmentalism. Environmentalists are more likely to be Democrats than Republicans, possibly because of their greater comfort with regulation and reforms and their weaker alignment with business and industry. Finally, for reasons that we will discuss shortly, women tend to have more environmental concerns than men, especially when it comes to hazards that have an impact on the local community or the health of the family.<sup>13</sup>

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<sup>12</sup>Van Liere, K. D., and Dunlap, R. E., "The social bases of environmental concern: A review of the hypotheses, explanations, and empirical evidence," *Public Opinion Quarterly*, 44 (1980): 181-197.

<sup>13</sup>Mohai, P., "Men, women, and the environment: An examination of the gender gap in environmental concern and activism," *Society and Natural Resources*, 5 (1992): 1-19. See also Stern, P. C., Dietz, T., and Kalof, L., "Value orientations, gender, and environmental concern," *Environment and Behavior*, 25, (1993): 322-348.



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Concern about environmental problems is strongly correlated with a person's worldview. Remember the multiple-choice questions at the beginning of Chapter 2? Those items were taken from a scale that measures people's agreement with the Dominant Social Paradigm (DSP)—the "common values, beliefs, and shared wisdom about the physical and social environments"<sup>14</sup> that constitute our society's basic worldview. Among these dominant cultural beliefs are a commitment to laissez-faire government, individualism, progress, and growth. Dunlap and Van Liere<sup>15</sup> have shown that people who strongly hold these values show less concern about environmental problems, such as population control, pollution control, resource conservation, environmental funding, and environmental regulations. People who think environmental problems are unimportant show

<sup>14</sup>Pirages, D. C., "Introduction: A social design for sustainable growth," in Pirages, D. C., ed., *The Sustainable Society* (New York: Praeger, 1977), pp. 1–13.

<sup>15</sup>Dunlap, R. E., and Van Liere, K. D., Commitment to the dominant social paradigm and concern for environmental quality, *Social Science Quarterly*, 65(4) (1984): 1013–1028.

strong agreement with DSP items, such as support for the status quo (“We should know if something new will work before taking a chance on it”); distrust of government (“Regulation of business by government usually does more harm than good”); support for private property rights (“Property owners have an inherent right to use their land as they see fit”); faith in science and technology (“Most problems can be solved by applying more and better technology”); and support for economic growth (“The positive benefits of economic growth far outweigh any negative consequences”).

Conversely, Dunlap and Van Liere (and their colleagues)<sup>16</sup> have demonstrated that people who hold a “New Environmental Paradigm” (NEP) are more environmentally concerned. That is, people who believe world ecological issues are pressing, who support pro-environmental policies, and who believe community air and water pollution are serious problems are likely to agree with NEP statements such as “We are approaching the limit of the number of people the Earth can support”; “If things continue on their present course, we will soon experience a major ecological catastrophe”; and “The balance of nature is very delicate and easily upset.” Moreover, research with the NEP scale between 1976 and 1990 shows significant increases in public endorsement. For example, “If things continue on their present course, we will soon experience a major ecological catastrophe” had 60 percent agreement in 1978 and 78 percent agreement in 1990. In line with data I described in Chapter 1, the American public appears to be increasing its support for the NEP and reducing its support for the DSP. Dunlap has also documented widespread environmental concerns in 22 other countries and demonstrated that people around the world believe that environmental problems are increasing<sup>17</sup> (Figure 3.1).

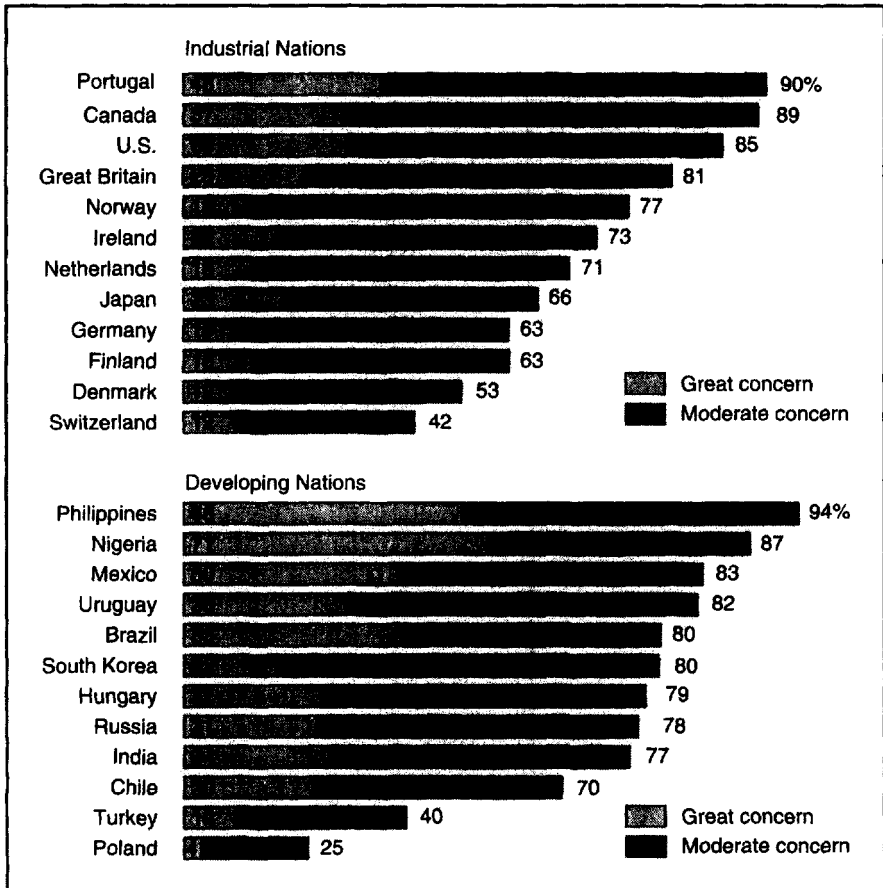
One of the items on the NEP scale is “Plants and animals have as much right as humans to exist.” This gets us back to our problem of the ESA (Endangered Species Act). How do you come to decide whether other species have a right to exist? Dunlap’s research shows that your opinion on this question relates to a whole host of other beliefs about environmental limits, the delicacy of nature, and the threat of ecological catastrophe. And

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<sup>16</sup>Dunlap, R. E., Van Liere, K. D., Mertig, A. G., Catton, W. R., and Howell, R. E., “Measuring endorsement of an ecological worldview: A revised NEP scale.” Presented at the annual meeting of the Rural Sociological Society, The Pennsylvania State University, State College, August, 1992.

<sup>17</sup>Dunlap, R. E., Gallup, G. H., and Gallup, A. M., *The health of the planet* (Princeton, NJ: The George H. Gallup International Institute, 1992); also “Of global concern: Results of the health of the planet survey.” *Environment*, 35, (1993):6–15; 33–39.

Figure 3.1 "Environmental Concern is Global"



*People in both developed and developing countries share concern about environmental problems. Answers to a 1993 Gallup poll conducted in 24 countries showed people have great to moderate concern when asked "How concerned are you personally about environmental problems?"*

these views are influenced by your age, your political party, your education, and as we will see below, by your gender. You do not make up your mind on this question in isolation from other opinions you hold or opinions held by people you know. Environmental attitudes show consistency with your worldview and the worldviews of others around you, even if they show less consistency with your actual behavior. And because of the large amount of literature on gender bias, which we will discuss below, you are more likely to be persuaded by the businessman simply because he is male.



## ATTRIBUTION THEORY: MAKING UP MEANING

We like to think of our own behavior as logical and consistent, and we keep busy trying to explain it to maintain this order. Worldviews are an example of the human effort to maintain a coherent picture of reality, people, and their relationship to nature. And we are just as busy trying to explain other people's behavior and beliefs as we are our own. Social psychologists call our strong tendency to attribute behavior to various causes the **attribution process**. We rarely see the social world strictly in terms of overt behaviors. Instead we are continuously attributing those behaviors to our constructed explanations. She smiles because she is friendly. He sits alone because he is shy. Attributions help us make sense of our social world, help us create a sense of order and consistency, and provide convenient short-cuts for interacting with others. But sometimes attributions get in our way.

For example, most of us constantly make the **fundamental attribution error**. We overestimate the degree to which other peoples' behaviors are due to their personal traits, and underestimate the degree to which they are caused by the situation. When I see my colleague drive his car two blocks to the library, I am likely to explain that behavior as laziness and lack of awareness about environmental issues; I am less likely to attribute it to the possibility that he has to carry 14 books back; but when I drive my car around the campus to the library, it is obviously due to the situational demand of returning so many books. I am not lazy, but he is. Most of our attribution problems come from these kinds of self-serving biases: we like to think of ourselves in favorable ways, and resist explanations that are uncomplimentary.

The tendency to make attributions that save us from personal discomfort can seriously impede our ability to learn environmentally appropriate behaviors. For example, most people like to think of themselves as well informed. But when social psychologist Dane Archer and colleagues surveyed California residents, they found huge discrepancies between how much people claimed they knew about energy conservation and how much they really knew. Using an objective test to measure knowledge, people predicted they knew from half to two thirds of the answers; instead their actual scores ranged from 1.4 to 41 percent.<sup>18</sup> Similarly, most people like to think that they are not wasting energy and will go to impressive lengths to

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<sup>18</sup>Archer, D., Aronson, E., Pettigrew, T. F., Condelli, L., Curbow, B., McLeod, B., and White, L. T., *An Evaluation of the Energy Conservation Research of California's Major Utility Companies, 1977-1980*. Report to the California Public Utilities Commission, February 10, 1983. Energy Conservation Research Group, Stevenson College, University of California, Santa Cruz, CA 95064.

explain away evidence that shows they are. For example, Hackett has demonstrated that people like to think of their energy consumption as normal, and will use creative attributions to maintain that view, as the following explanation from a utility user illustrates:

I had gotten my PG&E bill and said out loud about how awful it was and she (a little old lady) looked at me and said “oh, I don’t pay anything like that.” It turned out her apartment is the same size as mine but she said she paid only about \$20 a month for heat. I couldn’t believe it. I’ve thought about that so much. She was really tiny, real small, though, not like me. I think maybe these real little old ladies just don’t have much meat on their bones, so they don’t need much heat to get warmed up.<sup>19</sup>

## THE RATIONALITY OF IRRATIONAL BEHAVIOR

From the outside, lying about how much fun a boring experiment is or explaining away the end of the world or a higher energy bill all look pretty irrational. So does a lot of other behavior that social psychologists have observed in the laboratory. The frequency and ease with which social psychologists have been able to induce illogical behavior in the laboratory has led one of Festinger’s most gifted and productive students, Elliot Aronson, to conclude that “people who do crazy things are not necessarily crazy.”<sup>20</sup> Instead of attributing our behavior to personal characteristics of the individual, social psychologists instead look to the situation to examine the social forces that induce us to behave irrationally.

A particularly important and controversial example of such research was conducted in the 1960s by Stanley Milgram.<sup>21</sup> Milgram wanted to know what situational factors would induce people to be obedient—obedient even to unreasonable demands, made by someone hardly known to the person. (Notice again Hitler’s legacy in social psychology.) To study this phenomenon, Milgram asked his male subjects to “teach” another man a list of vocabulary words by administering punishment whenever he made a mistake. The punishment was an electric shock, which the subject believed was delivered to the “learner.” (No shocks were actually delivered, but the subject did not know this). To Milgram’s (and many other social scientists’) amazement, the majority of people who participated in this experiment

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<sup>19</sup>Hackett, B., “Energy billing systems and the social control of energy use in a California apartment complex,” in Morrison, B. M., and Kempton, W., eds., *Families and Energy: Coping with Uncertainty* (East Lansing: Michigan State University, 1984), p. 298.

<sup>20</sup>Aronson, E., *The Social Animal*, 7th ed. (New York: W.H. Freeman & Co., 1995), p. 9.

<sup>21</sup>Milgram, S., *Obedience to Authority* (New York: Harper and Row, 1974).

were unbelievably obedient, continuing to deliver electric shocks even after they were led to believe that they had inflicted serious harm (possibly death) to the “learner.” Under the situational demands of a stern experimenter and “scientific” laboratory setting, most subjects obeyed the commands, even though they showed concern and worry about the well-being of the “learner.”

Likewise, Philip Zimbardo demonstrated the power of situational influences by setting up a mock prison in the basement of a Stanford University building. College men were randomly assigned to play the roles of guards or prisoners in a 2-week simulation. But as Zimbardo describes it

at the end of only six days we had to close down our mock prison because what we saw was frightening. It was no longer apparent to us or most of the subjects where they ended and their roles began. The majority had indeed become “prisoners” or “guards,” no longer clearly able to differentiate between role-playing and self. . . . In less than a week, the experience of imprisonment undid (temporarily) a lifetime of learning; human values were suspended, self-concepts were challenged, and the ugliest, most base, pathological side of human nature surfaced.<sup>22</sup>

Like Milgram’s subjects, Zimbardo’s responded to the situational demands with inhumane and brutal behavior. Yet these same people, removed from those social situations, were not horrible people: Zimbardo’s subjects were talented and intelligent Stanford University college men; Milgram’s were fathers and husbands, conscientious workers and citizens. Much like the Nazis who committed atrocities by day and went home to their loving families in the evening, something in these situations caused otherwise normal people to behave quite abnormally.

How could these people behave so horribly? Is human nature basically evil? Instead of looking for internal explanations like evil, a social psychological explanation would focus on the situation instead, specifically, the norms and roles that these situations supported. A **norm** is an implicit rule, an expectation about what kind of behavior is appropriate in a given situation. A **role** is a set of norms that accompany any particular relationship to other people in that situation. In the Milgram simulation, obedience to the experimenter was maintained by norms, supported by the professional appearance of the laboratory, by the explicit demands of the experimenter, and by the lack of any social support for disobedience. Milgram’s subjects were instructed to play the role of “teacher” and were taught how to ad-

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<sup>22</sup>Zimbardo, P. The psychological power and pathology of imprisonment (p. 3). Statement prepared for the U.S. House of Representatives Committee on the Judiciary; Subcommittee #3: Hearings on Prison Reform, San Francisco, October 5, 1971. Quoted by Aronson, *ibid.*, p. 11.

minister the punishments that the role required. No other information about choices was given. If, as in later variations of the experiment, subjects had an opportunity to observe another “teacher” refusing to obey the experimenter, obedience dropped significantly. A new norm was introduced by a disobedient “teacher.”

Likewise, in the Zimbardo prison simulation, subjects wore costumes that reduced their sense of personal identity and responsibility (dark glasses for the guards, numbers for the prisoners) while the prison environment elicited norms of brutality and cruelty. Our stereotypes of guards and prisoners were enough to define the roles and norms of that situation. Those roles and norms became so powerful that they superseded the roles and norms that ordinarily prevailed—even for the experimenter. At one point in the experiment, a colleague wandered down to the basement and asked Zimbardo about the specifics of the experiment he was running. Zimbardo reports that he was so upset about a possible prison revolt that was about to happen that he did not have time to answer this academic ninny’s questions about some abstract experiment. Zimbardo’s role as prison chief became more salient than his ordinary role as social scientist.<sup>23</sup>

While these laboratory situations are extreme (and so controversial on ethical grounds that they cannot be run today), norms and role expectations continually shape our behavior, whether or not we are aware of them. We constantly “read” a social setting for what is appropriate language, manner, gestures, and behavior. We become so dependent on these cues that we notice their importance only when we have trouble deciphering them. For example, you are much more likely to sign the petition if everyone else at the party is signing it—others communicate a norm that is easy to read. In the absence of knowing what is expected, our behavior is more uncertain (when you receive a telephone call, it is not so easy to read the norm, because other people are not present to demonstrate their reactions). This is not to say that everyone conforms in all situations, but that when we are uncertain about an action, we look to situational cues to help us decide what to do.

## FROM NORMS TO ENVIRONMENTALLY APPROPRIATE BEHAVIOR

A good example of how norms are communicated with respect to littering behavior was conducted by social psychologist Robert Cialdini and his col-

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<sup>23</sup>Zimbardo, P. G., Haney, C. W., Banks, W. C., and Jaffe, D. N., The Stanford prison experiment. A slide/tape presentation produced by Philip G. Zimbardo, Inc., P. O. Box 4395, Stanford, CA 94305.

leagues.<sup>24</sup> They placed handbills on the windshields of cars in a parking garage. Drivers approaching their cars from the garage elevator experienced one of two conditions: either the garage was littered with many of these handbills, or the garage was clean and litter-free. The experimenters observed what the drivers did with the handbill on their windshield. Knowing something about norms and how they are communicated, what would you predict? Drivers were far more likely to throw their handbill on the ground in the already littered garage. This experiment explains to me something I could never figure out about the neighborhood where I once lived in South London. The streets were constantly blowing with litter, and I often observed Londoners contributing even more to it. As an American, I was revolted by such behavior, and thought my fellow neighbors crass and insensitive. A more social psychological explanation would be that the litter continued by virtue of the norm it expressed.

Norms can be transmitted by the particular features of a situation, or by hearing about what other people are doing. **Social diffusion** occurs when people change their behavior in line with what others do. Like a fashion that spreads throughout a group, environmentally appropriate behavior can be induced through one's acquaintances. Your personal relationship with your ESA friend, as well as the ESA-relevant attitudes of your other friends, are going to be important determinants of your response to her request. Likewise, research has shown that the best predictor of whether people purchase solar equipment is the number of acquaintances they have who currently own such equipment.<sup>25</sup> Thus, the more friends you have who support the ESA, the more likely you are to support it yourself.

Conformity to group norms is an important determinant of our beliefs and behavior. Whether or not you notice it, your viewpoints and actions are powerfully shaped by the people who surround you. One of social psychology's most classic studies demonstrated this point at Bennington College in the 1930s, where the faculty expressed quite liberal political attitudes. Bennington's women students came from politically conservative families, but as they continued their education at Bennington, their attitudes became progressively more liberal. Newcomb explained this influence as the effect of a new reference group. A **reference group** is any constellation of people whom we use as standards to evaluate our attitudes, abilities, or current situation. As the freshmen came to campus they left behind the reference

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<sup>24</sup>Cialdini, R. B., Kallgren, C. A., and Reno, R. R., "A focus theory of normative conduct: A theoretical refinement and reevaluation of the role of norms in human behavior," *Advances in Experimental Social Psychology*, 24 (1991): 201–234.

<sup>25</sup>Leonard-Barton, D., "The diffusion of active-residential solar energy equipment in California," in Shama, A., ed., *Marketing Solar Energy Innovations* (New York: Praeger, 1981), pp. 243–257.

group of their conservative families and adopted the new reference group of faculty and upperclassmen. Newcomb also showed that the social diffusion spread through **proximity**: women who lived near each other and were likely to see each other often had more influence on each other than those who were spatially more distanced.<sup>26</sup>

Spatial proximity is certainly not necessary for successful social diffusion, however, as researcher Michael Dennis and his colleagues have demonstrated. Here is their solution for getting architects to implement energy-efficient building designs:

The Washington Energy Office enlisted high-profile architects and builders and used highly publicized meetings between the governor, the builders, and the building owners in designing its Energy Edge program. . . . The Energy Edge program made energy-efficient design prestigious and a status symbol for new buildings. Smaller, lesser known developers indirectly disseminated the technology by imitating the program's features.<sup>27</sup>

Obviously, people do not pay attention just to the facts. They pay attention to a host of other variables, including the social status of the person communicating the message. Social diffusion depends in part on status. We are much more likely to imitate or be persuaded by someone of a higher status than of a lower status. One of the earliest findings in social psychology is that the **credibility of the source** makes a difference. If exactly the same information is presented by two different people, we will be more persuaded by the one we believe has more credibility. That is why New York City residents cut their electricity use by 7 percent when asked in a letter with New York State Public Service Commission letterhead. But when the same letter was sent on Con Edison stationery, the plea had no effect. Apparently, people trusted or respected the Public Service Commission more than they did Con Edison.<sup>28</sup>

These kinds of studies demonstrate our prejudices and stereotypes. In another example, the same research article was evaluated more favorably when the author was named John T. McKay than Joan T. McKay.<sup>29</sup> **Gender bias**, the unequal valuing of males and females, is so important to our understanding of global environmental problems that I want to spend some

<sup>26</sup>Newcomb, T. M., *Personality and Social Change: Attitude Formation in a Social Community* (New York: Dryden Press, 1943).

<sup>27</sup>Dennis, M. L., Soderstrom, E. J., Koncinski, W. S., and Cavanaugh, B., "Effective dissemination of energy-related information: Applying social psychology and evaluation research," *American Psychologist*, 45 (1990): 1109–1117, p. 1115.

<sup>28</sup>Craig, C. S., and McCann, J. M., "Assessing communication effects on energy conservation," *Journal of Consumer Research*, 5 (1978): 82–88.

<sup>29</sup>Goldberg, P., "Are women prejudiced against women?" *Transaction* (April 1968): 28–30.

time examining what social psychology knows about it. In order to understand the social psychological barriers to a sustainable society, we must discuss the harmful ways in which females are considered inferior to males throughout the world.

## IT'S STILL A MAN'S WORLD

What, you might ask, does the oppression of women have to do with building a sustainable society? The traditional view, one held by many people interested in environmental problems, is that we should work on solving our environmental difficulties first and worry about social equality second. From a social psychology point of view, however, we are unlikely to solve our environmental problems until we examine the social structures that have created them. More specifically, we will not go far in resolving our difficulties before we confront and counteract the global gender bias that drives them.

Gender bias is a newer but quite important topic in social psychology, having gained considerable attention in the 1970s and 1980s as the American women's movement flourished. I am going to discuss gender bias in some detail because it contributes to global environmental deterioration in several ways. First, as I mentioned in Chapter 1, it fuels overpopulation, especially in many Third World countries, through at least two related mechanisms: (1) because women are denied education and thus economic security, their only insurance policy for their old age is the number of children who can take care of them, and (2) because males are so much more valued than females, families continue to have babies until enough male offspring are produced.

As I am writing this chapter (September 1994), the United Nations Conference on Population and Development is meeting in Cairo. As many critics are pointing out, we have traditionally approached population control as a medical problem, by focusing on the medical and technical features of birth control, and the distribution of information and contraception to families in Third World countries. Agency for International Development (AID) has worked on "supply side" contraception, assuming that if families have access to birth control methods, they will want to use them. AID has funded family planning programs that distribute contraception and education through medical and health facilities. Such programs have helped bring down birth rates in some countries, such as China, Indonesia, and Brazil. In many more countries such as India, Egypt, Bangladesh, Pakistan, and Nigeria, however, family planning efforts have produced poor results.<sup>30</sup>

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<sup>30</sup>Jacobson, J. L., *Gender Bias: Roadblock to Sustainable Development* (Worldwatch paper no. 110) (Washington DC: Worldwatch Institute, 1992).

More recent discussions concentrate on the plight of women and their decision to have more children under conditions of poverty. Without access to employment or community food supply, females depend on their children to take care of them in old age. This is why female literacy is a better predictor of lowered birth rates than availability of contraception, the strength of the Catholic Church in the community, or any other of a number of factors that would seem to affect family size.<sup>31</sup> When women have no economic security other than the number of (in many countries male) offspring, they will continue to have more children. Thus, many experts have now agreed that the best way to bring a country's birth rate down is to improve the education of its women. In most of the less-developed countries, women are uneducated and illiterate and have no legal rights to own land, borrow money, or work for wages. Although they do two thirds of the world's work they are paid less than one tenth of the world's income, and own 1 percent of the world's land. The only security a poor rural woman will have in her old age is that which her sons provide. Consequently, it is rational to have as many sons as possible. As Worldwatch researcher Jodi Jacobson states:

Gender bias is . . . the single most important cause of rapid population growth. Where women have little access to productive resources, and little control over family income, they depend on children for social status and economic security. A necessary step in reducing births voluntarily, then, is to increase women's productivity and their control over resources.<sup>32</sup>

Gender bias also undermines global environmental health by ignoring women's knowledge and expertise about sustainable agriculture. And it contributes to excessive investment of public wealth into military organizations, which siphon off resources from environmental and domestic welfare and contribute to environmental destruction in their own ways. I will discuss evidence for each of these claims below.

But we do not have to go to exotic Third World countries to see the impact of gender bias on environmental issues. In our own culture, our language and our differing roles as males and females give gender dimensions to our problems. With regard to language, ecofeminists such as Carolyn Merchant and Susan Griffin have argued that our tendency to see nature as female (with such terms as Mother Earth, Mother Nature, virgin territory) helps us maintain an abusive attitude toward it, as if Mother will provide, no matter what we do to her, or is a virgin simply waiting for penetration.<sup>33</sup> Furthermore, in industrialized and developing countries alike, women are more likely to worry about environmental hazards than are men, and more

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<sup>31</sup>Kennedy, P., *Preparing for the Twenty First Century* (New York: Random House, 1993).

<sup>32</sup>Jacobson, *ibid.*, p. 7.



likely to become politically active in environmental issues than other issues, especially if the hazards have an impact on the local community and/or their families. As caretakers, women tend to be more concerned than men about the physical health of their families.

Before discussing more specific evidence for each of these claims, let us talk more generally about what social psychologists know about gender bias and how it is maintained. As we examine this problem, it is important to understand that *I am not trying to blame our environmental problems on men alone*. I believe that both men and women around the world contribute to our global predicament through gender bias because both use the mistaken assumption that men are more important than women. Women collude with men on this assumption. Concomitantly, I also believe that we cannot solve our problems by simply switching the gender bias to its opposite: thinking that women are more important, intelligent, or able to solve our environmental problems than men. The complicated and linked problems of environmental deterioration, international development, militarism, and sexism will require the best efforts of all of us, male and female, to design and implement solutions.

Now, what do social psychologists know about gender bias and how it operates? First, gender bias is universal. Cultures vary enormously on how differential the status is between men and women, but in all cultures we have studied, men have access to some privilege or opportunity, some power or status that is denied to women.<sup>34</sup> In our own culture, the glass ceiling of highest governmental offices and corporate executive positions demonstrates this fact: while women comprise 51 percent of the population, throughout the 1980s they made up 3 percent of the top appointments in the 1000 largest corporations and 99 percent of secretaries; only 8.5 percent of the U.S. Congress were women, and by the mid-1990s, we have yet to elect a female President or Vice President. In the United States women now earn 72 percent of what men who work at the same job earn, with exactly the same education and experience.<sup>35</sup> Globally, women work longer hours than do men, who rarely share in domes-

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<sup>33</sup>Merchant, C., *The Death of Nature: Women, Ecology and the Scientific Revolution* (San Francisco: HarperSanFrancisco, 1983). Griffin, S., *Woman and Nature: The Roaring Inside Her* (New York: Harper and Row, 1978).

<sup>34</sup>Ortner, S. B., "Is female to male as nature is to culture?" in Rosaldo, M., and Lamphere, L., eds., *Women, Culture, and Society* (Stanford, CA: Stanford University Press, 1974), pp. 67-87.

<sup>35</sup>Olsen, J. E., and Frieze, I. H., "Income determinants for women in business," in Stromberg, A. H., Larwood, L., and Gutek, B. A., eds., *Women and Work*, vol. 2 (Newbury park, CA Sage, 1987), pp. 173-208. O'Neil, J., "The trend in male-female wage gap in the United States," *Journal of Labor Economics*, 3 (1985): S91-S116.

tic chores. In developing countries women spend 12 to 18 hours a day laboring, as compared with 8 to 12 hours a day for men.<sup>36</sup>

In developing countries women are far worse off relative to their male counterparts than women in industrialized countries. A recent United Nations project measured the well-being of men and women across nations and demonstrated the global gender gap. Access to education, health care, employment, and decision making were calculated to form a Human Development Index (HDI), expressing the degree to which people have the options that enable them to "lead a long and healthy life, to be knowledgeable, and to find access to the assets, employment and income needed for a decent standard of living."<sup>37</sup> The HDIs for men and women of selected nations is given in Figure 3.2. Note that even the richest countries of Sweden and Finland show a gender gap, but that this gap increases as the countries become poorer.

It may be difficult to see the impact of gender bias because in the United States, overt expressions of sexism are quickly diminishing, paralleling a decrease in overt expressions of racism. Just as the word "nigger" has virtually disappeared from common usage in the past 50 years, so too do people express much less explicit sexism. Most people claim to believe that women are just as talented, intelligent, or capable as men. For example, in 1988, 9 of 10 people said they would vote for a qualified woman for President, whereas 50 years ago, only 1 in 3 said they would. Recent attempts to replicate the "John T. versus Joan T. McKay" study have shown that it fails to produce the striking gender bias that it did in 1968; most often it produces no difference in judgment of work.<sup>38</sup>

Nevertheless, more subtle forms of sexism are still widespread in the United States (and in other cultures, the forms are still quite explicit). In the United States, behavioral measures show that women are discriminated against in commercial situations such as negotiating for a car price<sup>39</sup> and being served by a sales clerk in a department store.<sup>40</sup> When competing for a job with exactly the same qualifications as a man, a woman is less likely to be selected, in spite of Affirmative Action policies. Although there is widespread endorsement of equal opportunity, sexism still exists and hinders women's opportunities. This is because verbal statements are often superficial indicators of true sentiment. For example, in a study of latent sexism, men who were led to believe that the experimenter could read their true at-

<sup>36</sup>Jacobson, *ibid.*, p. 15.

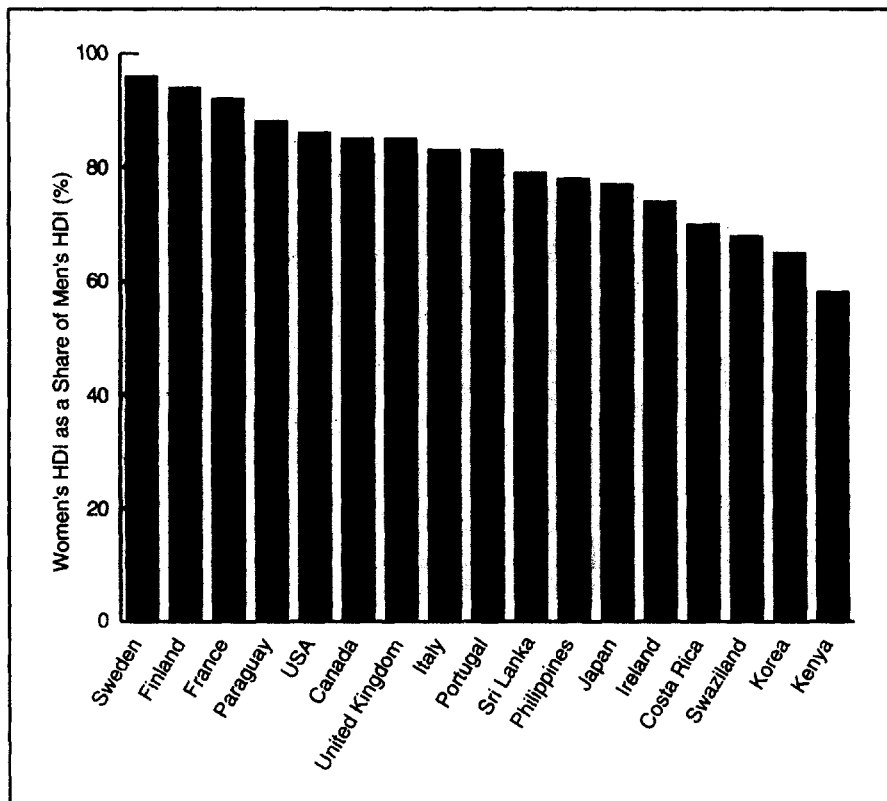
<sup>37</sup>*ibid.*, p. 34.

<sup>38</sup>Myers, *ibid.*, pp. 383–384.

<sup>39</sup>Ayres, I., "Fair driving: Gender and race discrimination in retail car negotiations," *Harvard Law Review*, 104 (1991): 817–872.

<sup>40</sup>Zinkhan, G. M., and Stoiadin, L. F., "Impact of sex role stereotypes on service priority in department stores," *Journal of Applied Psychology*, 69 (1984): 691–693.

Figure 3.2 “Gender Bias is Global”



***Around the world, men have more advantages than women, especially in poorer countries. The “Human Development Index” (HDI) is a measure developed by the United Nations to quantify the degree to which people have access to nutritional food, medical care, and income needed for a decent standard of living. Women lag behind men in every country for which data are available. A sample of 17 countries is shown here.***

*Source: Jacobson, J. L., Gender Bias as a Roadblock to Sustainable Development. (Worldwatch, paper #10) (Washington, D. C.: Worldwatch Institute, 1992) p. 11. Reprinted by permission*

titudes with a lie detector showed less agreement for women’s rights than men who were questioned without the lie detector.<sup>41</sup> As with racism, latent sexism still operates even though most people deny they are sexist.

Sexism, like racism and other forms of prejudice, is enhanced by personal, social, or economic insecurity. During periods of frustration, a lower-status group becomes a scapegoat for displaced fear and hostility. For ex-

<sup>41</sup>Myers, *ibid.*, p. 384.

ample, acts of racial hatred such as lynchings and house burnings occur more often when economic conditions are harsh. Prejudice is also linked to personal anxieties. When researchers at Washington State University asked men to evaluate women on a videotape, men with the lowest self-esteem assessed strong, nontraditional women in negative terms; men with higher self-acceptance preferred them.<sup>42</sup>

### Maintaining Gender Bias: Four Mechanisms

In its more subtle forms, gender bias is maintained in at least four ways: through attribution processes, through language, through media representations, and through scientific research. Let us examine each of these in turn.

**Attribution Processes** How would you explain the eminence of a highly successful male physician? You would likely attribute it to a combination of talent and hard work. But when people are asked to explain the success of an eminent female physician, they are more likely to attribute it to effort, rather than to talent.<sup>43</sup> Because of a subtle belief that men are more talented than women, people more frequently attribute women's successes to luck or effort. So even though people would say they are not sexist, these attribution studies show they are. And although younger people show less sexism than older people, stereotypes of female disability are still strong among children and teenagers. For example, when high school students were asked to explain the successes of a medical student after reading his or her impressive biography, ability was attributed to the male medical student, while effort, luck, or (worse yet) cheating were attributed to the female student.<sup>44</sup> Even children in grade school explain female success on mechanical tasks as due to effort and male success as due to ability.<sup>45</sup>

**Language** Language codes and reinforces gender bias in several different ways. First, words for males and females that are superficially equivalent reveal negative connotations for females. For example, consider the distinction

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<sup>42</sup>Grube, J. W., Kleinhesselink, R. R., and Kearney, K. A., "Male self-acceptance and attraction toward women," *Personality and Social Psychology Bulletin*, 8 (1982): 107-112.

<sup>43</sup>Feldman-Summers, S., and Kiesler, J., "Those who are number two try harder: The effects of sex on attributions of causality," *Journal of Personality and Social Psychology*, 30 (1974): 846-855.

<sup>44</sup>Feather, N. T., and Simon, J. G., "Reactions to male and female success and failure in sex-linked occupations: Impressions of personality, causal attributions, and perceived likelihood of different consequences," *Journal of Personality and Social Psychology*, 31 (1975): 20-31.

<sup>45</sup>Etaugh, C., and Brown, B., "Perceiving the causes of success and failure of male and female performers," *Developmental Psychology*, 11 (1975): 103.

between bachelor versus spinster, master versus mistress, manly versus effeminate, wizard versus witch, stud versus bitch, and misogyny versus (?) (although “misandry” means hatred of men, it is rarely used; misanthropy means hatred of people).<sup>46</sup> Slang words for women are particularly derogatory, expressing disparagement through animal terms, such as chick, bird, and pet. In many all-male settings, such as athletic teams and military units, it is particularly insulting to be called a “girl” (meaning stupid, fearful, or silly). In professional settings, women are more likely to be referred to in gender terms, which diminish the authority and competence of the individual. For example, people rated a female political candidate as less competent, less serious, and less intelligent after reading a newspaper article in which she was referred to in various sexist terms such as “gal” and “lady candidate.”<sup>47</sup>

Language also maintains gender bias by making women invisible. So-called **generic masculine** language such as “man” instead of “human,” “forefathers” instead of “ancestors,” “his” instead of “his and her” helps communicate that males are the key people in society and women are bystanders. Research on the impact of such language clearly shows that these generic masculine terms are not gender-neutral. For example, when confronted with textbook titles such as “Social Man” or “Industrial Man,” people picture males, not males and females.<sup>48</sup> In perception experiments using a tachistoscope (which projects an image for a very short time) subjects were more likely to report seeing a male’s face if the language that accompanied the ambiguous image was generic masculine language.<sup>49</sup> And perhaps most importantly, male students are more likely to remember material when presented with generic masculine language than are females, who are more likely to remember it when presented in gender-neutral terms. In this way, so-called generic masculine language puts women at a disadvantage and continues a cultural bias favoring men.<sup>50</sup>

**Media** Gender bias is promulgated by disparate images of men and women on television and radio, in movies, newspapers, and magazines. A

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<sup>46</sup>Matlin, M. W., *The Psychology of Women*, 2nd ed. (Fort Worth, TX: Harcourt Brace Jovanovich College Publishers, 1993), p. 240. I am indebted to Matlin for her cogent discussion of gender bias for much of the thinking and references in this section.

<sup>47</sup>Dayhoff, S. A., “Sexist language and person perceptions: Evaluation of candidates from newspaper articles,” *Sex Roles*, 9 (1983): 543–555.

<sup>48</sup>Schneider, J. W., and Hacker, S. L., “Sex role imagery and use of the generic ‘man’ in introductory texts: A case in the sociology of sociology,” *American Sociologist*, 8 (1973): 12–18.

<sup>49</sup>Wilson, E., and Ng, S. H., “Sex bias in visual images evoked by generics: A New Zealand study,” *Sex Roles*, 18 (1988): 159–168.

<sup>50</sup>Crawford, M., and English, L., “Generic versus specific inclusion of women in language: Effects on recall,” *Journal of Psycholinguistic Research*, 13 (1984): 373–381.

concise and well-documented discussion of this bias is described by psychologist Margaret Matlin who notes that men outnumber women by a margin of two-to-one in photos appearing in newspapers, as well as in television commercials, especially for commercials for expensive products. The authoritative voice that gives the last word to a product's appeal is a male voice in 9 of 10 cases. And men are more often shown in advertisements elevated above women who are more frequently shown lying or bending down, or draped in some horizontal position. In dramatic programs, women are seldom seen working outside the home and men are rarely shown doing housework. Research also shows that the people who hold stronger gender stereotypes also view more television.<sup>51</sup>

Lastly, media representations code gender bias through communicating more emphasis on the woman as sex object. In a study of 1750 photographs of people in magazines and newspapers, social psychologist Dane Archer and his colleagues showed that women's bodies are depicted much more often than men's, whose images are more likely to focus on the face.<sup>52</sup> Other research shows that people infer more intelligence, competence, and ambition from photos of faces than from full body shots.<sup>53</sup> The use of scantily clad women to decorate cars, boats, and many other luxury items is a widely practiced, though probably unintentional, method of maintaining gender bias.

**Scientific Research** Did you notice the sex of the subjects used in Milgram and Zimbardo's studies? Or Newcomb's studies? For decades, nobody did. Generalizing from either all-male or all-female samples has made sex differences invisible. The field of medicine has recently recognized this problem; women's health issues have been given insufficient attention because of the automatic tendency to use male subjects and to think of males as the norm. Consequently, research on women's reproductive health has lagged behind research on most other areas.

In psychology, Carol Gilligan was one of the first to articulate the gender problem when she analyzed the work of Lawrence Kohlberg, who used boys to generate a theory of moral development. Gilligan criticized Kohlberg's theory as being male-bound, and argued that paying attention to gender gives a more accurate picture of moral reasoning because male and female morality are often different.

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<sup>51</sup>Lull, J., Mulac, A., and Rosen, S. L., "Feminism as a predictor of mass media use," *Sex Roles* (9): 165-177.

<sup>52</sup>Archer, D., Iritani, B., Kimes, D. D., and Barrios, M., "Face-ism: Five studies of sex differences in facial prominence," *Journal of Personality and Social Psychology*, 45 (1983): 725-735.

<sup>53</sup>Schwarz, N., and Kurz, E., "What's in a picture? The impact of face-ism on trait attribution," *European Journal of Social Psychology*, 19 (1989): 311-316.

The moral imperative that emerges repeatedly in interviews with women is an injunction to care, a responsibility to discern and alleviate the “real and recognizable trouble” of this world. For men, the moral imperative appears rather as an injunction to respect the rights of others and thus to protect from interference the rights to life and self-fulfillment.<sup>54</sup>

We will examine the implications of a feminine sense of morality later in the chapter, but my point now is that scientific research has contributed to gender bias by ignoring women. One reason given for studying men more often than women is that women’s behavior is more variable, and in scientific research, variability is trouble. Researchers are looking for consistent and replicable results so they can build a coherent and elegant theory. But consistency cannot be the only rationale. When researchers wanted to study affiliation, they often chose women instead of men, as in the cases of both Newcomb’s Bennington study, and the extensive research on affiliation by Stanley Schachter (a student of Festinger).<sup>55</sup> Scientists have used men to study aggression and women to study affiliation. In this way scientific research continues to code gender stereotypes and biases.

Gender stereotypes and biases may also shape the very conduct of science itself. For the most part science has been a male profession. Most people wrongly assume that science is a completely objective method, meaning that the subjective feelings of the experimenter are not allowed to enter the process. Although complete separation of the self from the subject matter is impossible, such objectivity would be valued by males, who especially appreciate separation in general. Consider “hard data” versus “soft data” as another expression of this unconscious gender dimension. This is not to say that females do not care about rigor (a gender, if not genital priority) but that women may be more likely to allow, appreciate, and express emotional connection with the subject matter than men. For example, Evelyn Fox Keller has shown how award-winning cell biologist Barbara McClintock’s work demonstrates the power of connection, this “feeling for the organism”<sup>56</sup> to use the title of her biography of McClintock:

In McClintock’s microscopic studies of *neurospora* chromosomes (so small that others had been unable to identify them), she found that the more she worked with the chromosomes, the “bigger and bigger” they got, until finally, “I wasn’t outside, I was down there—I was part of the system.” As “part of the system,” even the internal parts of the chromosomes became visible. “I actu-

<sup>54</sup>Gilligan, C., *In a Different Voice: Psychological Theory and Women’s Development* (Cambridge, MA: Harvard University Press, 1982), p. 100.

<sup>55</sup>Schachter, S., *The Psychology of Affiliation* (Stanford, CA: Stanford University Press, 1959).

<sup>56</sup>Keller, E. F., *A Feeling for the Organism: The Life and Work of Barbara McClintock* (San Francisco: W.H. Freeman & Co., 1983).

ally felt as if I were down there and these were my friends." Much of this material suggests a kind of respect and attention—almost nurturant—that some people would see as the privilege of women.<sup>57</sup>

In contrast to bondedness as the basis of inquiry, science is more often conducted from the basis of abstraction. The "warm and friendly" feelings for the subject matter exhibited by McClintock are much less common than "cold and removed" detachment, producing an emotional atmosphere which men would be more likely to appreciate and revere than women. In such settings "warm and friendly" are often discounted as "touchy-feely." This of course is not to say that men can't be warm and friendly. Instead, I am suggesting that social situations dominated by men are more likely to be formal and hierarchical, as in the military and the large corporation. And because gender bias pervades our society, women endorse these values almost as often as men do. In my own experience the most successful women in male-dominated settings are often the best examples of the male value structure (as they would need to be in order to succeed).

### Gender Bias Saturates Our View of Nature

Contemporary forms of sexism should not be surprising, since our culture has inherited a strong legacy of gender bias from our greatest Western thinkers. Overtly sexist statements are easy to document among the great contributors to our Western worldview. For example, Aristotle claimed that "we should look upon women as a deformity, though one which occurs in the ordinary course of nature. . . . She is more envious, more querulous, more slanderous, and more contentious [than man]."<sup>58</sup> The Judeo-Christian tradition helped reinforce this sexism by describing woman as the second sex, made after man, and responsible for his undoing, as exemplified by the story of Adam and Eve. God made Adam in His image, and Adam would have been sinless, had it not been for Eve, the woman, who God created next. More easily tempted by sin, she is seen as less rational and less powerful than man, and therefore should rightly take her place under man's guidance, as directly urged in the New Testament:

For the man is not of the woman; but the woman of the man. . . . Let your women keep silence in the churches. . . . They are commanded to be under obedience. . . . And if they will learn anything, let them ask their husbands at home. (I Corinthians, 11–14).

<sup>57</sup>Keller, E. F., "Women, science and popular mythology," in Rothschild, J. ed., *Machina ex Dea: Feminist Perspectives on Technology* (New York: Pergamon, 1983), p. 141.

<sup>58</sup>Aristotle, *The Generation of Animals*, translated by A. L. Peck (Cambridge, MA: Harvard University Press, 1943). Cited by Matlin, *ibid.*, p. 236.



Thus, by seeing God as male, females are taught that their basic nature is flawed, sinful, and more distant from the all-perfect God than are males.

Saturated with Christian sentiment, the Enlightenment period carried on this view of women, as it crafted the rudiments of the scientific revolution. Recall Francis Bacon's words, which proposed that science should observe

not only . . . nature free and at large (when *she* is left to her own course and does *her* work *her* own way)—such as that of the heavenly bodies, meteors, earth and sea, minerals, plants, animals—but much more of nature under constraint and vexed; that is to say, when by art and the hand of man *she* is forced out of her natural state and squeezed and moulded . . . seeing that the nature of things betrays itself more readily under the vexations of art than in its natural freedom.<sup>59</sup> (emphasis added)

Thus, men should control and manipulate nature, which just like a female, should be squeezed and molded so as to behave properly under man's scientific inquiry. Assuming the dualism of male versus female, the Enlightenment thinkers projected it onto the distinction between human and nature. Scientific investigation became the explicit attempt by "man" to control and penetrate the secrets of nature (depicted as female). In this dualism, men are the users and controllers of nature, which, as an unruly and recalcitrant female, threatens men's control. A more misogynist formulation of our relationship to the natural world could hardly be imagined.

If this gendered understanding of nature seems dated, consider the contemporary manifestations of it in such terms such as Mother Earth and Gaia. Although these phrases are often used to express the need to respect and care for the planet, the terms are problematic to the extent that they continue our unconscious gender stereotypes. It would be far better to drop the gendered connotation altogether, since we are likely to misperceive environmental problems to the extent that we project our gender stereotypes on to them. For example, consider the words of an Exxon senior vice-president describing the aftermath of the *Valdez* accident:

Water in the [Prince William] Sound replaces itself every 20 days. The Sound flushes itself out every 20 days. Mother Nature cleans up and does *quite* a cleaning job.<sup>60</sup>

The view that "Mom will pick up after us" is one which most men in the world can be expected to share because it is women, rather than men, who

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<sup>59</sup>Bacon, F., "Preface of The Great Instauration," in Dick, H. G., ed., *Selected Writings of Francis Bacon* (New York: The Modern Library, 1955), p. 447.

<sup>60</sup>Statement given by Charles Sitter in an interview on National Public Radio "All Things Considered," May 19, 1989. Quoted by Seager, J., *Earth Follies: Coming to Feminist Terms with the Global Environmental Crisis* (New York: Routledge, 1993), p. 221.

do the vast majority of housework, cleaning, laundry, and tidying. The idea of Mother Earth is thus problematic, and likely to hinder our responsibility for solving our environmental problems. In geographer Joni Seager's words:

The earth is *not* our mother. There is no warm, nurturing, anthropomorphized earth that will take care of us if only we treat her nicely. The complex, emotion-laden, conflict-laden, quasi-sexualized, quasi-dependent mother relationship . . . is not an effective metaphor for environmental action. . . . It is not an effective political organizing tool: if the earth is really our mother, then we are children, and cannot be held fully accountable for our actions.<sup>61</sup>

Nowhere are environmental dramas played out in gendered terms more obviously than in the controversy concerning nuclear power. Nuclear technology was developed in the highly masculinized secret worlds of Los Alamos laboratory and Hanford production sites during the second world war. The language used by these scientists portrays the gender bias at work. For example, the atomic bomb itself was called by its designers a boy baby (if it was successfully detonated) and a girl baby (if it flopped).<sup>62</sup> Men have had much more confidence in nuclear energy and its safety than have women since the atomic age began.<sup>63</sup> Moreover, many of the most long-standing and vocal environmental groups have been organized by women activists, worried about the health effects of nuclear wastes on their children and communities. The classic scenario, then, is a male-run establishment of scientific experts pitted against the amateur female activist. Women constitute the majority of virtually every environmental group around the world, and throughout the world, express more concern about environmental problems, more favor toward tougher environmental laws, and more distrust of experts.<sup>64</sup>

Women are drawn into environmental disputes because as family caretakers, they are the first to notice the damaging effects of polluted water, food, and air on their family's health. Rachel Carson serves as an example

<sup>61</sup>Seager, *ibid.*, p. 219.

<sup>62</sup>Cohn, C., "Sex and death in the rational world of defense intellectuals," *Signs: Journal of Women in Culture and Society*, 12 (4) (1987): 687-716.

<sup>63</sup>Brody, C. J., "Sex differences in Support for Nuclear Power," *Social Forces*, 63 (1) (1984): 209-228. Louis Harris and Associates: *The Virginia Slims American Women's Opinion Poll* (New York: Louis Harris and Associates, 1972). See also two reports by Louis Harris and Associates: *Harris 1975 Nuclear Power Survey #2515(MRDF)* and *1976 #2628(MRDF)*. Both reports published by Louis Harris Data Center, Chapel Hill, NC. Also Nelkin, D., "Nuclear power as a feminist issue," *Environment*, 23 (1984): 14-20; 38-39.

<sup>64</sup>Seager, *ibid.*, Chapter 6. See also Flynn, J., Slovic, P., and Mertz, C. K., "Gender, race and perception of environmental health risks," *Risk Analysis*, 14 (6) (1994): 1101-1108.

of the way in which women have catalyzed concern about environmental hazards: her internationally acclaimed book, *Silent Spring*, is widely known as the launching work of the ecology movement.<sup>65</sup> Grass-roots resistance to male-run environmentally destructive projects are legend throughout the world: in India, women have hugged trees to prevent logging; in Kenya, women have planted trees throughout the “Green Belt”; in Japan, women have demanded accurate labeling of dangerous chemicals; in New York, Lois Gibbs (who was often dismissed as “a hysterical housewife”) organized a Clearinghouse for Hazardous Waste through her efforts to uncover the infamous Love Canal dump. Male scientific experts are quick to characterize the environmental movement as hysteria (a female problem, related to the word *hystero*, or uterus).

Why are women likely to express more environmental concern than men? One answer is suggested by environmental psychologist Paul Stern and colleagues, who found that women are more likely to see the connection between environmental conditions and harm to others. Stern’s analysis draws on the work of Carol Gilligan, who, as discussed above, argued that women evaluate social dilemmas using an ethic of care. In Stern *et al.*’s words, because

women are more likely to see a world of inherent interconnections . . . [they] . . . are more accepting than men of messages that link environmental conditions to potential harm to themselves, others, and other species or the biosphere.<sup>66</sup>

Similarly, at the meeting of the Global Assembly of Women for a Healthy Planet, Peggy Antrobus proposed that

We are different women, but women nonetheless. The analysis and the perspectives that we get from women are certainly mediated by, influenced very profoundly by, differences of class, and race, and age, and culture, and physical endowment, and geographic location. But my hope and my optimism lies in the commonalities that we all share as women—a consciousness that many of us have, if we allow ourselves to have it, of the exploitation of our time and labor in unremunerated housework, subsistence agriculture and voluntary work. Our commonality lies in the often conflicting demands of our multiple roles as caretakers, as workers, as community organizers. Our commonalities lie in our *primary responsibility for taking care of others*. Our commonality lies in our concern about relationships; the commonality that we share is the exploitation of our sexuality by men, by the media, and by the economy. The commonality that we share is in our vulnerability to violence. Our commonal-

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<sup>65</sup>Carson, R., *Silent Spring* (New York: Crest Books, Houghton-Mifflin Co., 1962).

<sup>66</sup>Stern P. C., Dietz, T., and Kalof, L., “Value orientations, gender, and environmental concern, *Environment and Behavior*, 25 (1993): 322–348, p. 340.

ity finally lies in our otherness, in our alienation and exclusion from decision-making at all levels.<sup>67</sup> (emphasis added)

In these ways, then, we are unlikely to reverse our environmental destruction until we examine the ways in which gender bias helps drive that destruction. We will not make substantive changes while our institutions systematically exclude women, disempowering them to express and act on their experience, and ignoring their expertise and talents with regard to sustainable agriculture, medicine, and other life-supporting practices. The tendency to ignore and devalue females is a planetary psychological problem, and it will continue to impede our progress until we confront and neutralize our unconscious sexism. The knowledge, interests, and values of BOTH males and females are needed for environmental solutions.

Analogous to our unconscious sexism is our unconscious ethnocentrism. International development is destroying cultural diversity as fast as it is destroying biological diversity. Of the planet's 6000 cultures, between 4000 and 5000 of them are indigenous. Yet they are disappearing faster than at any other time in human history.<sup>68</sup> This loss of cultural diversity is dangerous because indigenous peoples possess vast ecological knowledge about their habitats. They have lived sustainably in them for long periods and can teach "developed" cultures much about conservation, biological diversity, and sustainable practices. Just as women need to be included in planning for sustainability, so too do indigenous people. Development should be a two-way, rather than a one-way, process in which skills are mutually taught and respected. Psychology as well as Western culture needs the wisdom of sustainable cultures.

This point is well argued by Helena Norberg-Hodge in her widely read book *Ancient Futures: Learning from Ladakh*. Ladakh is an isolated region of northern Pakistan that has recently entered into the transition toward "industrial monoculture," to use her words.<sup>69</sup> As a traditional Tibetan Buddhist culture, Ladakh has sustained itself for centuries in a harsh climate and with minimal technology. Yet its people are joyful, industrious, and happy. Norberg-Hodge urges us to learn the sustainable practices and values that this culture is quickly losing as global market mechanisms invade its traditional society. For reasons I will describe shortly, such mutual learning is becoming increasingly more unlikely.

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<sup>67</sup>Antrobus, P., at the Global Assembly of Women for a Healthy Planet, Miami, quoted by Seager, *ibid.*, pp. 269–270.

<sup>68</sup>Durning, A. T., *Guardians of the Land: Indigenous Peoples and the Health of the Earth*. (Worldwatch paper no. 112) (Washington DC: Worldwatch Institute, 1992).

<sup>69</sup>Norberg-Hodge, H., *Ancient Futures: Learning from Ladakh* (San Francisco: Sierra Club Books, 1991), p. 3.

### The Global Context of Environmentally Destructive Behavior

I have spent some time on the problem of gender bias because it demonstrates the link between social psychology, which examines the interpersonal realm, and the larger political and cultural structures that drive environmental destruction. To give you a more concrete example of how gender bias and global environmental destruction are linked, let me describe some experiences my husband and I had while traveling in Thailand.

We arrived in Bangkok for some rest after roughing it on treks in the Himalayas. Thai Airlines offered a package deal from Kathmandu, Nepal which included a reduced rate at a modern hotel, so we booked it and eagerly looked forward to reliable hot water, a clean room, and safe food. When we checked into our hotel, we were a bit disappointed to find that it was an ultramodern Western hotel, filled with Western tourists and businessmen, but we were happy to discover that it had a health club. After suffering sore backs and joints from our treks, a sauna sounded wonderful. The health club was also modern, with bare wooden walls and the usual workout machines. When signing in, we saw that we could get a massage for a small extra charge, and decided to splurge. So it was quite a surprise to both of us when our masseuses showed up with bangly jewelry and skimpy outfits. More startling still, my husband's offered to climb on top of him without telling his wife! Had we been more experienced travelers, we would have known that it is very difficult to get a massage anywhere in Bangkok (or anywhere else in Thailand) that does not offer some kind of sexual activity. (In case you are wondering, my husband politely refused.) Bangkok has become the world's capitol for the sex industry, and Thailand is well known for the way in which prostitution is mainstreamed into the daily consumer culture. I will interrupt my story here for a moment to explain why.

Whereas in the United States prostitution is run primarily by pimps and organized crime, in Thailand, commercial sex, though not technically legal, is widely available through registered "entertainment centers," which are well protected by the police. Close to 10 percent of women between the ages of 15 and 24 work in "special services," and the vast majority of Thai men have their first sexual experience with a prostitute.<sup>70</sup> In Thai culture, the elite class has a long history of multiple wives and concubines; consequently the links between power, wealth, and multiple sexual partners is an ideal to which most of the male culture aspires.

But the sex industry in Thailand could not have developed to the extent that it has without international support. Thirty years ago, the United States helped create the sex trade's infrastructure for its foreign military personnel seeking "R and R." In 1967, the U.S. military signed a treaty with

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<sup>70</sup>Phongpaichit, P., *From Peasant Girls to Bangkok Masseuses. Women, Work and Development*, no. 2 (Geneva: International Labour Office, 1982).

the Thai government that allowed soldiers from Vietnam to visit Bangkok for "recreational services"<sup>71</sup>; between 1960 and 1972 \$4 million from the Bank of America Corporation, the Chase Manhattan Corporation, the International Finance Corporation, and the Deutsche-Bank was lent (through Thailand's Industrial Finance Corporation) to build massage parlors, hotels, brothels, and other types of "personal services" establishments.<sup>72</sup> Since then, international tourism has explicitly advertised sexual services as a lure to visit Bangkok, as in the following examples:

Thailand is a world full of extremes and the possibilities are unlimited . . . especially when it comes to girls. . . . For the first time in history, you can book a trip to Thailand with erotic pleasures included in the price. (West Germany)

Slim, sunburnt and sweet, they love the white man in an erotic and devoted way. They are master of the art of making love by nature, an art that we Europeans do not know. (Life Travel, Switzerland)

You can get the feeling that taking a girl here is as easy as buying a package of cigarettes . . . little slaves who give real Thai warmth. (Kanita Kamha, Netherlands)

In Thailand, it is the market mechanism that rules, if there is a need somebody will emerge to satisfy this need. (Scan-Thai Travelers' Club, Norway)

The publicity about the famous massage parlours can only be tried out. (Vacances 2000, France)<sup>73</sup>

With such rampant commercial sex, AIDS is a very big problem in Thailand, and experts estimate that by the year 2000, one third of all deaths in Thailand will be from AIDS.<sup>74</sup> I was especially dismayed to learn that many of the professional prostitutes are very young, often pre-adolescent girls, whose parents have indentured them in return for money to run their farms. Many of these young girls come from the hill villages in the north of Thailand, or Burma, where rural poverty is increasing so rapidly that families often face the choice of "selling" their daughters for a few years or losing their land and their ability to support the rest of their family.

To learn more about how the sex industry is fed by the rural poverty of the north, we traveled next to Chiang Mai, the biggest city in the north, to

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<sup>71</sup>Truong, T.-D., *Sex, Money and Morality: Prostitution and Tourism in South-east Asia* (London: Zed Books, 1990), p. 161

<sup>72</sup>Phongpaichit, *ibid.*

<sup>73</sup>Truong, *ibid.*, p. 178.

<sup>74</sup>Robinson, L. S., "Touring Thailand's sex industry," *The Nation* (November 1, 1993): 492-497.

talk to Peace Corps workers who were helping girls in the sex industry by teaching them safe sex practices or offering literacy classes to help provide alternative employment. One evening a Peace Corps worker took me to the Chiang Mai night market, one of the most delightful experiences I had in Thailand. While accomplished dancers and musicians performed intricate Thai dances, we ate delicious Thai food from the many different stalls. Later we wandered through the market, where village women from the hill tribes sat in their native costumes, selling tribal artifacts. The women were asking very little for these colorful costumes, baskets, jewelry, bags, and other crafts. As I inspected the wares, I found an embroidered purse which I particularly liked for its complexity, design, and accomplished hand craftsmanship. I asked the price, learned that it cost the equivalent of \$4 U.S. and paid it immediately. I could have bargained to get the price lower, but I thought that whatever I could give to support an alternative to prostitution was a good donation. How wonderful, I thought, that I could help support these women, so that they could stay out of the sex business. And \$4 was so little for such a beautiful piece of work.

A moment later I noticed that the Peace Corps worker had a frown on his face. I asked him about it and he said that one should never pay the asking price, because it is always at least twice as much as the fair price. When tourists pay the asking price, they drive up the currency scale, so that the local people cannot afford to pay for the same commodity. Eventually inflation affects the currency value for other basics, so that peasants become poorer and poorer as tourists overpay. What I believed was a good deal for me, as well as possibly an act of generosity, was also a damaging act.

This experience illustrates three points I wish to make about the global relationship between gender bias and environmental deterioration: (1) they seem unconnected at first glance but they are linked, and they contribute to each other; (2) our consumer choices affect both, although we are rarely aware of their impacts; and (3) they both contribute to economic underdevelopment and poverty.

### **International Development and Underdevelopment**

Unfortunately, as discussed in Chapter 1, many international development programs designed to alleviate poverty have actually increased it by displacing subsistence-based communities from their land. In geographer Joni Seager's words,

The current economic development strategy for the Third World consists mostly of bringing Third World countries into the orbit of international trade by influencing them to eliminate subsistence agriculture and artisan modes of production catering to a local market, and to replace them with capital-inten-

sive plantations and factories geared to the international market. Thus, rich-government-to-poor-government aid typically emphasizes large capital-intensive projects, large construction and infrastructure projects, such as dams and other power structures, and agricultural transformations encouraging export-oriented crop production. This model of growth, when exported to poor countries, has widely contributed to rapid exploitation of natural resources and, by increasing the gap between rich and poor within Third World countries, it has escalated poverty, which itself, in turn, has put unsustainable pressures on the environment.<sup>75</sup>

When people are desperate, they are forced to ravage their environments for immediate survival, and so devastation of many Third World resources escalates under international development programs. Such deterioration is often masked, however, by how economic development is measured: the gross national product (GNP) does increase, but it does so because a small proportion of the nation's elite are advantaged as their wealth grows; concomitantly, however, poverty is usually also increased among the nation's poor by driving peasants off their commonly owned land. Such deterioration of the peasantry has been called "underdevelopment" by many economic theorists.

Underdevelopment is easily observable in a country like Thailand, which prides itself on its status as an "NIC" (a newly industrialized country) in the international community. Thailand's economic progress in the past few decades appears very impressive, as long as one does not look too far into the countryside. Computing national averages, Thailand comes in just behind the "Four Dragons" of Southeast Asia: Singapore, Taiwan, Hong Kong, and South Korea on just about all measures of industrialization: lowered birth and infant mortality rates, high literacy rates, and high gross domestic product. However, Thailand has achieved this progress by ignoring the plight of the rural peasant, investing in urban services such as communications and manufacturing, and using a desperate rural population to provide cheap labor and tragically, cheap sexual services. Thailand has notoriously ignored its rural poor, failing to provide education, health, or agricultural assistance, but instead leaving them to starve as land taxes escalate and deforestation accelerates.<sup>76</sup> A farmer does not sell his daughter because of personal pathology, but instead out of an economic desperation that devastates not only the child prostitute, but also the countryside, through illegal logging, soil erosion, slash and burn agriculture, changing weather patterns, and falling crop yields.<sup>77</sup>

<sup>75</sup>Seager, *ibid.*, p. 133.

<sup>76</sup>Phongpaichit, *ibid.*, pp. 71-76.

<sup>77</sup>Ekachai, S., *Behind the Smile: Voices of Thailand* (Bangkok: Thai Development Support Committee, 1991).



While 1 billion of the earth's 5.5 billion people live in unprecedented luxury, luxury that has been significantly increased in the past two decades of international development, another 1 billion live in destitution. Poverty is increasing at a much greater rate than is wealth through international development, as international debt, ecological destruction, and landlessness grows. As Worldwatch researcher Alan Durning points out:

For the poor of Africa, Latin America, and parts of Asia, the eighties were a time of cruel reversals, a period when the global economy seemed to conspire against them. On top of the runaway population growth and accelerating environmental decline that were already dragging down living standards across the Third World, prices for poor nations' exports plummeted, and international debt siphoned a growing share of their income into the hands of foreign financiers. . . . Forty three developing nations probably finished the decade poorer, in per capita terms than they started it. The 14 most devastated—including Zambia, Bolivia, and Nigeria have seen per capita income plunge as dramatically since their troubles began as the United States did during the Great Depression. Indeed, the term developing nation has become a cruel parody: many countries are not so much developing as they are disintegrating.<sup>78</sup>

Development projects have hurt both peasant men and women, but they have hurt women more because of their traditional roles and responsibilities. Throughout the world, in both developed and developing nations, women are primarily responsible for child care, housework, food preparation, and family clothing. In rural subsistence economies, women are the main providers of fuel, food, and water, and they depend heavily on community-owned waterways, forests, grasslands, and croplands for accomplishing these chores. When development efforts convert community resources to privately owned farms, women must go farther and work harder to provide fuel, food, and water. As a result, resources are more quickly depleted because more people are forced to forage on smaller community spaces. In southern Zimbabwe, for example, forests were cut in order to install mines and mining towns to support a cash economy. This forced women to gather their fuel from leftover forests, and severe deforestation has resulted.<sup>79</sup>

Because of their responsibilities for obtaining family necessities from communally owned resources, women have traditionally been more knowledgeable, experienced, and concerned about sustainable environmental practices than have men. To the extent that development efforts ignore and undermine women, they also ignore and undermine sustainability. In the words of Worldwatch researcher Jodi Jacobson:

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<sup>78</sup>Durning, A. T., "Ending poverty," in Brown, L., ed., *State of the World, 1990* (New York: W. W. Norton and Co., 1990), p. 137.

<sup>79</sup>Jacobson, *ibid.*

Differences in the obligations and workloads of men and women within subsistence economies, and how these shape their economic interests, have profound implications for the environment. . . . Studies show that because of their responsibilities for securing food, fuel, and water—and the labor burdens imposed on them when the resources needed to produce these goods become scarce—women tend to have a greater interest in preserving and conserving croplands, forests and other natural resources for perpetual use, whereas men are more often concerned with converting these resources into cash. Development programs that vest control over natural resources solely within the hands of men, or profit-making enterprises in general, are in effect explicitly supporting short term consumption at the expense of long term sustainability.<sup>80</sup>

Furthermore, contrary to conventional stereotypes, women are more often the breadwinners for their families than are men. This is especially true in Thailand where women in the commercial sector are quite well accepted (whether in the sex industry, running a noodle stand, sewing in a Nike factory, or harvesting rice for wages). In developing countries where women have been able to get work (always lower-paying than men's work), they contribute more of their cash income to the family than do men. For example, a recent Mexican study has shown that women contribute 75 percent of their earned income, whereas men contribute only 40 percent. Unfortunately, men who are often isolated from their families through urban migration to find jobs, are more likely to spend their wages on consumer products such as cigarettes, stereos, tennis shoes, etc., as well as alcohol, prostitution, and gambling. Consequently, in every country, the relative nutrition of children is more closely related to the mother's rather than the father's income.<sup>81</sup>

For these reasons, development that ignores women increases both environmental destruction and population pressures by increasing poverty. The gender bias of international development demonstrates the important role of psychology in what seem like non-psychological issues: economics, foreign policy, and agriculture. Although rarely articulated, development projects that ignore women stem from a stereotypic belief about men and women: the assumption that men are wage earners and women are dependents. This erroneous view of women as dependents translates into projects that focus on men and their access to jobs in spite of data that show that women are more often the wage earners.

In a gender-biased world, it is easy to think that what is good for males is good for everybody. The way in which women have been left out of international development also characterizes other male-driven institutions,

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<sup>80</sup>*ibid.*, p. 13.

<sup>81</sup>*ibid.*, p. 16.

such as the multinational corporation, the military, and the nation/state, with similar ecological effects. The fact of male-dominated public institutions would be innocuous if the assumption held that what is good for men is also good for women, as well as good for the environment. Unfortunately, as military institutions show, that assumption is rarely correct.

### The Military

It should come as no surprise that military organizations are also entirely designed by, run by, and almost entirely composed of men. Throughout the world men are more likely to do the warring and fighting than women, and this gender difference has simply been institutionalized in modern military organizations.

Males are more violent than females, showing eight times the rate of violent crimes in every country in which records have been kept.<sup>82</sup> Societies in which men hold the exclusive power in decision making are more violent than societies in which men and women share decision making. For example, Iran under Khomeini, Germany under Hitler, and Japan under the Samurais, show both violence and male dominance, especially as compared with more peaceful societies such as the Hopi and Zuni cultures of the American southwest, who have more gender equality.<sup>83</sup> Women collude with male-built military institutions and warfare by “bravely sacrificing” their sons and brothers. But women do not choose to go to war nearly as often as males do. It is only when women find their families and communities threatened that they become as militant as their male counterparts.<sup>84</sup>

Militarization hurts the environment in several important ways. First, the preparation for war creates enormous pollution—not just nuclear wastes, but pollution of every conceivable sort from metal and chemical to other types of hazardous industrial wastes. In the United States the Pentagon is responsible for one third of the nation’s toxic wastes, producing more pollution than the top five multinational chemical corporations combined.<sup>85</sup> Because military institutions operate under shrouds of secrecy, these pollution problems are barely understood by the public who suffer their effects and are increasingly asked to pay to clean them up. The Department of Defense has excused itself from environmental regulations

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<sup>82</sup>Myers, *ibid.*

<sup>83</sup>Eisler, R., *The Chalice and the Blade: Our History, Our Future* (Cambridge, MA: Harper and Row, 1987).

<sup>84</sup>Zur, O., and Morrison, A., “Gender and war: Reexamining attitudes,” *American Journal of Orthopsychiatry*, 59 (4) (1989): 528–532.

<sup>85</sup>Renner, M., “Assessing the military’s war on the environment,” in Brown, L., ed., *State of the World, 1991* (New York: W.W. Norton, 1991), pp. 132–154.

that no other business or government agency would be allowed to escape. Secondly, the conduct of war is environmentally devastating, and growing more so as increasingly sophisticated weapons are used. Aside from the horrific environmental effects of a nuclear bomb, severe damage occurs from conventional weapons, such as a typical bomb that blows away an average of a ton of topsoil. Increasingly, wars are fought with ecological weapons, such as the 25 million gallons of defoliants and environmental toxins dumped on Vietnam, the oil fires of Kuwait, and the "scorched earth" policies in Guatemala.

But most importantly, because of sheer monetary amounts, military expenditures rob nations from spending their resources for creating an environmentally sustainable world. "In terms of revenues . . . the military drain is enormous: \$15 to \$20 of every \$100 spent by central governments now goes to military purposes, triple their budgets for education, eight times their budgets for housing."<sup>86</sup> In the poorest countries, military expenditures are often the highest, contributing approximately 40 percent to the country's financial debt. That same money could go far in cleaning up environmental messes, rather than continuing to create them. Figure 3.3 shows the relative costs of solving the most pressing environmental and social problems compared to what the world spends on military institutions: about 1 to 4. In other words, reducing military expenditures by a mere one quarter would finance the solutions to pressing environmental difficulties.

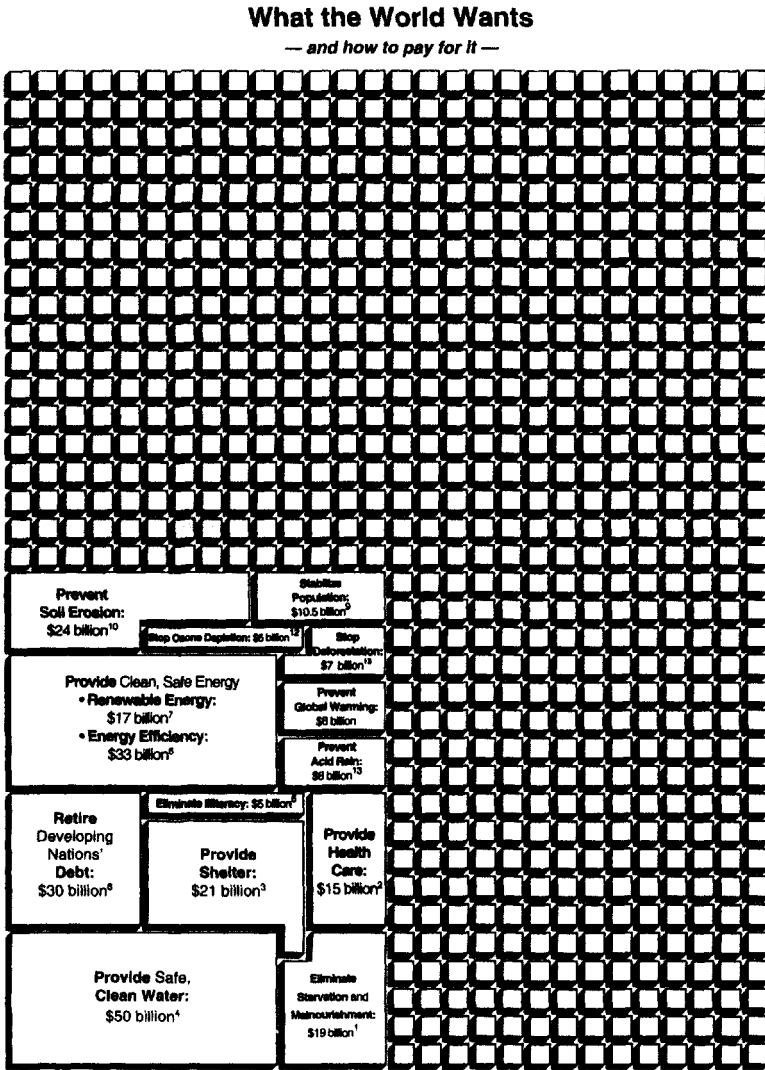
What kind of world would pour so much money into militarization instead of the environmental and personal health of its population? My answer is a gendered world, in which men are more powerful, and in which both men and women assume that how men prioritize human activities is the best way to prioritize them. As the world's domestic caretakers, women would not choose to direct wealth toward military establishments, although they certainly collude with the male decision-makers who do.

To recap what has been discussed so far in this chapter, we have examined important dimensions of social influence and how they contribute to environmentally destructive behavior. Situational norms and roles lead us to implicit beliefs and behavioral choices that contribute to ecological destruction. Yet we have an enormous tendency to justify our actions and attribute them to self-enhancing explanations. We are influenced by others when their social status is high, but we tend to ignore or disparage messages from lower-status individuals. Prejudices and social stereotypes me-

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<sup>86</sup>Sivard, R., *World Military and Social Expenditures 1991* (Washington DC: World Priorities, 1991).

Figure 3.3 “The Enormous Costs of Global Militarization”



**...using World Military Expenditures.**

The above are annual costs of various global programs for solving the major human need and environmental problems facing humanity. Each program is the amount needed to accomplish the goal for all in need in the world. Their combined total cost is approximately 25% of the world's total annual military expenditures. Footnotes and references are [page 103]. Full explanatory text is in "Doing the Right Things," available from the World Game Institute at the address on the reverse.

-  Total Chart = Total Annual World Military Expenditures: \$1 trillion
-  = One-tenth of One Percent of Annual World Military Expenditures: \$1 billion
-  = Amount That Was Needed to Eradicate Smallpox From the World (Accomplished 1978): \$300 Million

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While the world spends approximately \$1 trillion on militarization, human needs and environmental problems remain unsolved. Estimated annual costs of various global programs for solving these problems are shown. If approximately 25 percent of the world's total annual military expenditures were redirected to solve human and environmental problems, they could be alleviated.

## What the World Wants

*This chart seeks to make the point that what the world needs to solve the major systemic problems confronting humanity is both available and affordable. Clearly, to portray a problem as complex and large as, for example, the global food situation, with just a small part of a single graph is incomplete, at best. The following explanations of the chart's various components are not intended as complete or detailed plans, but rather as very broad brush-strokes intended to give the overall direction, scope and strategy. The paper, "Doing the Right Things" goes into more detail and is available from the World Game Institute at the address below. (References listed at end of numbered sections contain supporting documentation, further explication, and related information.)*

- 1. Eliminate starvation and malnourishment:** \$19 billion per year total; \$2 billion per year for 10 years for global famine relief—spent on international grain reserve and emergency famine relief; \$10 billion per year for twenty years spent on farmer education through vastly expanded in-country extension services that teach/demonstrate sustainable agriculture, use of local fertilizer sources, pest and soil management techniques, post harvest preservation, and which provide clear market incentives for increased local production; \$7 billion per year for indigenous fertilizer development. Educational resources of #10 coupled with this strategy. Closely linked with #'s 2, 2A, 2B, 4, 5, 9, 10.
- 2. Provide health care:** \$15 billion per year spent on providing primary, health care through community health workers to all areas in the world that do not have access to health care. Closely linked with #'s 1, 3, 4, 5.
  - 2A. Child health care:** \$2.5 billion per year spent on: a) providing Vitamin A to children who lack it in their diet, thereby preventing blindness in 250,000 children/year; b) providing oral rehydration therapy for children with severe diarrhoea; and c) immunizing 1 billion children in developing world against measles, tuberculosis, diphtheria, whooping cough, polio and tetanus, thereby preventing the death of 6–7 million children/year.
  - 2B. Special health problems:** \$40 million per year for iodine addition to table salt to eliminate iodine deficiency, thereby reducing the 190 million who suffer from goiter and not adding to the 3 million who suffer from overt cretinism.
- 3. Eliminate inadequate housing and homelessness:** \$21 billion for ten years spent on making available materials, tools and techniques to people without adequate housing. Closely linked with #'s 1, 4, 5, 9.
- 4. Provide clean and abundant water:** \$50 billion per year for ten years spent on water and sanitation projects—wells, pipes, water purifying systems. Closely related to #'s 1, 2, 3, 9.
- 5. Eliminate illiteracy:** \$4.5 billion per year for ten years; \$2 billion spent on a system of 10 to 12 communication satellites and their launching; \$2 billion spent on ten million televisions, satellite dish receivers, and photovoltaic/battery units for power—all placed in village schools and other needed areas throughout high illiteracy areas; the rest (90% of funds), spent on culturally appropriate literacy programming and maintenance of system. Closely related to #'s 1, 2, 3, 4, 9, 10, 11.
- 6. Increase efficiency:** \$33 billion per year for ten years spent on increasing car fleet mileage to over 50 m.p.g., plus increasing

appliance, industrial processes, and household energy and materials use efficiency to state of the art. Closely linked with #'s 7, 8, 12, 13, 14.

- 7. Increase renewable energy:** \$20 billion per year for ten years spent on tax and other incentives for installation of renewable energy devices, graduated ten year phase-out of subsidies to fossil and nuclear fuels, research and development into more advanced renewable energy harnessing devices. Closely linked with #'s 6, 8, 11, 12, 13, 14.
- 8. Debt management:** \$30 billion per year for ten years spent on retiring \$450 billion or more of current debt discounted to 50% face value. (Much of developing world's current debt is already discounted to 10–25% face value.) Not only helps developing countries get out of debt, but helps banks stay solvent. Closely linked with #'s 1, 6, 7, 10, 11, 14.
- 9. Stabilize population:** \$10.5 billion per year for ten years spent on making birth control universally available. Closely linked with #'s 1, 2, 3, 4, 5.
- 10. Reverse soil erosion:** \$24 billion per year for ten years spent on converting one-tenth of the world's most vulnerable cropland that is simultaneously most susceptible to erosion, the location of most severe erosion, and the land that is no longer able to sustain agriculture, to pasture or woodland; and conserving and regenerating topsoil on remaining lands through sustainable farming techniques. Both accomplished through a combination of government regulation and incentive programs that remove the most vulnerable lands from crop production; and by farmer education through vastly expanded in-country extension services that teach/demonstrate sustainable agriculture and soil management techniques. Closely linked to #1.
- 11. Reverse deforestation:** \$7 billion per year for ten years spent on reforesting 150 million hectares needed to sustain ecological, fuelwood, and wood products needs. Planted by local villagers, costs would be \$400 per hectare, including seedling costs. Additional costs for legislation, financial incentives, enforcement of rainforest protection. Closely linked with #10 and 14.
- 12. Reverse ozone depletion:** \$5 billion per year for twenty years spent on phasing in substitutes for CFCs, CFC taxes, incentives for further research and development. Closely linked with #14.
- 13. Stop acid rain:** \$8 billion per year for ten years spent on combination of tax incentive, government regulation and direct assistance programs that place pollution control devices (electrostatic precipitators, etc.) on all industrial users of coal, increase efficiency of industrial processes, transportation, and appliances. Closely linked to #6, 7, 11, 14.
- 14. Stop global warming:** \$8 billion per year for thirty years spent on reducing carbon dioxide, methane and CFC release into atmosphere through combination of international accords, carbon taxes, increases in energy efficiency in industry, transportation, and household, decreases in fossil fuel use, increases in renewable energy use and reforestation. Closely linked with #'s 6, 7, 11, 12, 13.

diate these effects. Gender bias undermines women and the values they hold. To the extent that we project feminine characteristics onto Nature and disparage messages from female environmentalists, we continue this pattern of ecological destruction.

Therefore, vigilant attention to the problem of gender bias will be important for reversing our global pattern of environmental destruction. Increased examination of women's roles, expertise, responsibilities, and concerns will be needed to interrupt the widespread practice of dismissing women as trivial, economically dependent, or irrelevant to building a sustainable world. Projections of female characteristics onto nature or the planet should be resisted because they are unlikely to lead to responsible solutions by mature men and women working together for an ecologically healthy world. You can help reduce the effects of gender bias by helping to discontinue the mechanisms that maintain it, including use of generic masculine language, and terms that refer to nature as female or to women in sexist terms.

I have taken time to extend the social psychological analysis of environmental problems to the discussion of gender because it shows how what seem like inconsequential social psychological phenomena quickly link to political, economic, and cultural dimensions of our environmental difficulties. These larger structural features of our predicament are important to examine because until we do so, individual actions will be trivial. Each behavior we undertake is embedded in a huge global system of political and economic structures. Without understanding these global patterns, we will lack ways of prioritizing changes, we will be easily discouraged about how difficult it is to transcend situational norms and roles, and we will be likely to waste time on more trivial actions while ignoring more important ones.

Our environmental problems are myriad and their impacts interact; recall from Chapter 1, for example, the way in which deforestation increases erosion, water contamination, fish loss, air pollution, and quite possibly global warming. Similarly, we have repeatedly discussed the ways in which resource depletion is driven by the interacting effects of poverty, overpopulation, pollution, and land degradation. From this perspective we could start with almost any indicator, and if we could change it, we would make a viable beginning. However, I propose that in the industrialized West, we must examine the consumer culture as a pivotal source point for most other dangerous planetary problems. In the industrialized countries, an average person consumes 3 times as much fresh water, 10 times as much energy, 14 times as much paper, and 19 times as much aluminum as someone in a developing country.<sup>87</sup>

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<sup>87</sup>Durning, A. T., *How Much Is Enough? The Consumer Society and the Future of the Earth* (New York: W.W. Norton, 1992).

## THE SOCIAL PSYCHOLOGY OF OVERCONSUMPTION

Our voracious appetites are fed by the natural resources of the developing countries who typically export to us their raw materials in exchange for some of our manufactured ones. Our disproportional use and abuse of the planet's resources not only pollutes and depletes our own country, but fuels a global trade system that feeds us as other countries fall into debt and disintegration. Our consumer culture sponsors much of our own dangerous behavior as well as encourages the developing nations to abandon their cultural traditions and adopt ours. As Alan Durning asks in the title of his book analyzing overconsumption, we must also ask: *How Much Is Enough?*<sup>88</sup>

I believe this is a crucial question, which each individual must examine on a continuous basis. Yet there is little reason to believe that very many people are asking it. Consumerism is spreading, in our country as well as throughout the world. For example, 44 percent of the students entering college in 1967 indicated they believed it was essential to be "very well off financially"; in 1990 74 percent said so. Meanwhile, the proportion who believed it essential to develop a meaningful philosophy of life fell from 83 percent to 43 percent. By 1986 "having lots of money" had become first priority among the country's high school seniors.<sup>88</sup> Undoubtedly, these numbers reflect the success of an intentionally designed consumer culture articulated just after the second world war. As the Chairman of President Eisenhower's Council of Economic Advisers said, the American economy's "ultimate purpose is to produce more consumer goods."<sup>89</sup> In today's culture, the most frequent and explicit messages we receive are sales pitches. Advertising, an enormously powerful form of applied social psychology, explicitly urges us to see ourselves deprived until a particular product is purchased, unfulfilled until a new gadget is owned, hungry until that next burger is consumed. And advertisers are especially likely to focus on the self-doubt and personal insecurities of women. As one chief executive put it 40 years ago, "it's our job to make women unhappy with what they have."<sup>90</sup> Total global advertising is a truly colossal enterprise, rising per capita from \$198 in 1950 to \$495 in 1990, and outdistancing total economic output over that same period.

## THE SOCIAL PSYCHOLOGY OF HAPPINESS

Unfortunately, increased consumption does not deliver the really important goods: research shows that people are not happier when they own

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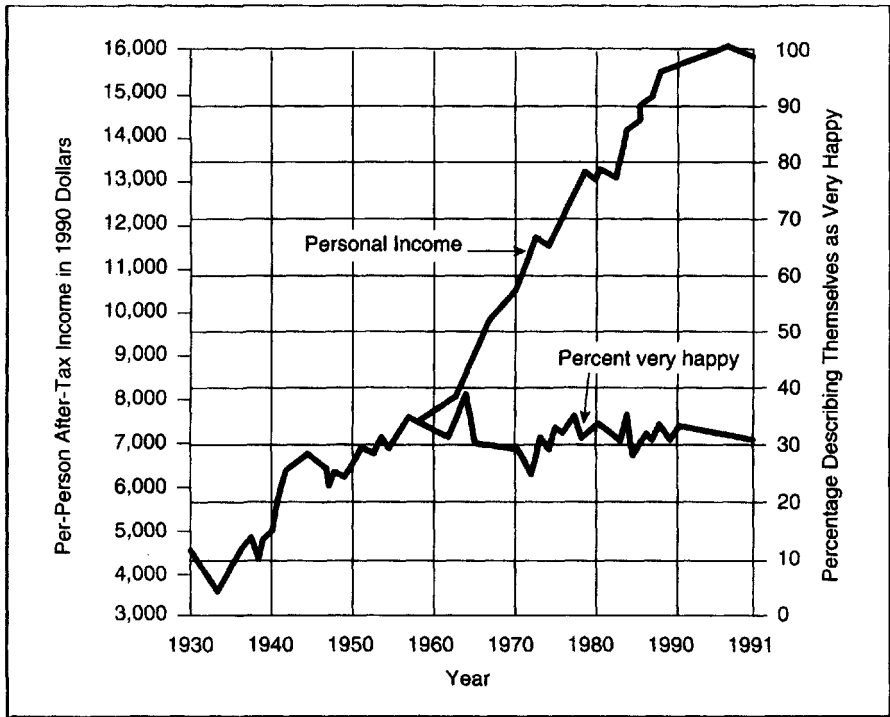
<sup>88</sup>*ibid.*, p. 34.

<sup>89</sup>*ibid.*, p. 3.

<sup>90</sup>*ibid.*, pp. 119–120.



Figure 3.4 “Money Doesn’t Buy Happiness”



*Because of rising incomes, more workers, and shrinking family size, buying power of Americans has doubled since the 1950s. However, self-reported happiness remains unchanged.*

more things. Above a minimal poverty level, reports of personal happiness are completely unrelated to financial income or material possession. Since 1950, the purchasing power of Americans has doubled, yet their reports of personal happiness have remained essentially constant (Figure 3.4).

Instead, personal happiness is correlated with experiences that tend to become scarce in the mad rush to work harder and own more: good quality time with friends and family, meaningful work, and enough leisure time to relax and enjoy little things in life.<sup>91</sup>

Instead of contributing to our happiness, consumerism is more likely to detract from it because it reduces our potential for building personal happiness. Again, to quote Alan Durning,

The tragic irony is that while the consumer society has been stunningly effective in harming the environment, it has failed to provide us with a sense of ful-

<sup>91</sup>Argyle, M. *The Psychology of Happiness* (New York: Methuen, 1987).

fillment. Consumerism has hoodwinked us into gorging on material things because we suffer from social, psychological, and spiritual hungers. . . . Fulfillment . . . has to do with the timeless virtues of discipline, hope, allegiance to principle, and character. Consumption itself has little part in the playful camaraderie that inspires the young, the bonds of love and friendship that nourish adults, the golden memories that sustain the elderly. The very things that make life worth living, that give depth and bounty to human existence, are infinitely sustainable.<sup>92</sup>

Empirical research on happiness supports Durning's claims. When asked "what makes you happy?" the vast majority of people mention, before anything else, satisfying close relationships with friends, family, and romantic partners.<sup>93</sup> Well-being also comes from active hobbies pursued during leisure time,<sup>94</sup> meaningful work,<sup>95</sup> and a sense of personal control over one's life and circumstances.<sup>96</sup> Moreover, in a study of college graduates, people with "yuppie values"—who preferred a high income and occupational success and prestige to having very close friends and a close marriage were twice as likely as their former classmates to describe themselves as 'fairly' or 'very' unhappy.<sup>97</sup> Thus, consumerism is threatening not only our environment, but also our psyches.

Switching from a consumer to a sustainable lifestyle will heal not only our environment, but also ourselves. In Chapter 8 I will say more about what a sustainable culture might look like and how the various subfields of psychology could contribute to it. For now, however, let us close by summarizing our ecological problem from a social psychological perspective.

From a social psychological perspective, environmentally relevant behavior is a function of a complex interaction of social influences. Norms and roles determine our choices by influencing what we think of as appropriate behavior in any given situation. When choices become more difficult, we try to reduce our dissonance by justifying our actions. We explain our own behavior by attributing it to various features of the situation, but we are more likely to attribute other people's behavior to their personalities. We imitate and are influenced by people whom we perceive to have higher social status, and even though we like to think that we are not sexist, we still

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<sup>92</sup>Durning, *ibid.*, back cover. Also "Asking how much is enough," in Brown, L., ed., *State of the World, 1991* (New York: W.W. Norton, 1991) p. 169.

<sup>93</sup>Myers, D., *The Pursuit of Happiness: Who Is Happy and Why* (New York: William Morrow, 1992), p. 150.

<sup>94</sup>*ibid.*, p. 137.

<sup>95</sup>Argyle, *ibid.*

<sup>96</sup>Langer, E., *Mindfulness* (Reading, MA: Addison-Wesley, 1989).

<sup>97</sup>Myers, *ibid.*, pp. 149–150.

give men more importance than women. This gender bias contributes to personal as well as global patterns of environmental destruction. And although we are materially better off than ever before, research on happiness shows that we are not happier. Overconsumption, facilitated by a form of applied social psychology known as advertising, is depleting the planet's resources, as well as our own psyches.

Therefore, reducing consumption is far more important than recycling or reusing. Our global trade patterns make overconsumption the single most important change that we in the developed nations can make. Carrying a cloth grocery bag to the market will not change the global pattern of industrialized nations overconsuming the planet's resources, exacerbating environmental destruction by gulping the world's resources, while simultaneously causing more and more poverty throughout the world.

From this perspective, insights from social psychology can help us redesign situations to include more norms, roles, and social influence mechanisms to induce environmentally responsible behavior, and fewer norms, roles, and social influence mechanisms that lead us toward overconsumption. Deliberately avoiding situations with environmentally destructive norms, while simultaneously joining groups and cultivating activities, friendships, and commitments that help support environmentally responsible behavior make a lot of sense from a social psychology point of view.

For example, I am writing this paragraph a few days before Christmas 1994. As I contemplate my Christmas gift list, I am attempting to make choices that have less environmental impact than what I chose last year. Some of my gift items this year are a set of music lessons for my husband, a membership at the YWCA for my best friend, and a hand-crocheted vest, which I purchased 20 years ago in Greece, for my niece. To the extent that I have purchased new objects, I have done so primarily through mail order, because going shopping provides too many norms for environmentally irresponsible buying. I have enjoyed my time away from the shopping mall, where the advertisements, strategically placed sale items, and other busy shoppers purchasing large amounts communicate a norm of buy, buy, buy, and buy some more. Christmas, the biggest shopping season of the year, has become a consumer nightmare.

Likewise, food habits are socially induced behaviors that have important environmental repercussions.

Americans eat oysters but not snails. The French eat snails but not locusts. The Zulus eat locusts but not fish. The Jews eat fish but not pork. The Hindus eat pork but not beef. The Russians eat beef but not snakes. The Chinese eat snakes but not people. The Jale of New Guinea find people delicious.<sup>98</sup>

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<sup>98</sup>Robertson, I., *Sociology* (New York: Worth Publishers, 1987) quoted by Myers, D., *Social Psychology*, 4th ed. (New York: McGraw Hill, 1993), p. 187.



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People who want to make environmentally appropriate food choices must consider the issue of eating meat. Because livestock eat grain and soybeans, meat is an energy-inefficient food form. Twenty vegetarians could be fed by the same amount of land needed to feed one meat-eating person.<sup>99</sup> Although meat could be produced in environmentally sustainable ways, currently it is not. Land degradation from grazing now constitutes one of the planet's most serious environmental problems: 90 percent of harmful organic waste-water pollution is attributable to U.S. livestock, and livestock produces 250,000 pounds of excrement per second. Such pollution destroys fish and shellfish in rivers subjected to livestock runoff. And because feedlots are so unhealthy, 55 percent of this country's antibiotics are given to livestock, posing health risks for humans who eat them.<sup>100</sup>

Part of the difficulty in changing our food consumption habits arises from social diffusion: with everyone else making these inappropriate food choices, it is easy for us to make them too. Furthermore, resisting them can be socially awkward. When my parents visited me recently, I took them to a local restaurant that served my father's favorite: barbecued spare ribs. I thought about asking where the beef was produced, but felt that such a

<sup>99</sup>Hollander, J., *How to Make the World a Better Place: A Guide to Doing Good* (New York: Quill William Morrow, 1990), p. 120.

<sup>100</sup>*ibid.*, p. 123.

question would be socially awkward. Soon I was thinking about what a special treat this was, in an effort to reduce my cognitive dissonance about feeding my parents an environmentally destructive food. Ironically, they were busy applying similar dissonance reduction strategies, since my father recently had heart bypass surgery and knows that eating red meat is dangerous. (The risk of an American male having a heart attack is now 50 percent; the risk to a vegetarian American male is now 4 percent; in line with gender-biased research discussed above, no statistics on female risk were given.<sup>101</sup>)

Walking into any American supermarket presents us with norms that easily lead us to globally destructive choices. Food appears plentiful and cheap; plastic bags appear free; thoughtful placement and advertising of items makes it easy to select unneeded products; other people comb the aisles filling their baskets with environmentally destructive choices. Given such strong norms, social psychologists would predict that changing behavior would be difficult. Choosing to shop in alternative settings would be wise from a social psychological point of view. Food stores that offer items in bulk (enabling the consumer to reduce unnecessary packaging), farms that sell directly to customers (enabling the reduction of fossil fuels used to ship food all over the country), and stores that offer a good selection of healthful fresh foods instead of processed foods all provide situations in which good choices are easier to make.

Once we make small changes, other changes become easier. I remember switching over to a brand of nonpolluting household cleaners (sold widely under the name of Shaklee products). Realizing that these cleaners were cheaper and just as effective, I examined other household items, like fabric softener, which really seemed unnecessary as soon as I began using the organic products. In this way, the foot-in-the-door technique can facilitate a larger series of changes, once the initial changes are made. Asking our grocers about local and organic products, registering our desire for them and talking to our friends about having similar conversations, can



Source: Reprinted with permission of Chris Suddick.

<sup>101</sup>*ibid.*, p. 120.

start an attribution process that results in bigger changes than at first predicted. As we explain our actions to ourselves as environmentally responsible, and begin to see ourselves as global citizens, we become more conscious of other choices, and changes become easier and easier.

## THE MAIN MESSAGE AND LIMIT OF SOCIAL PSYCHOLOGY

If there is any single message from social psychology, it is that our behavior is socially determined more than we like to think. Thus changes are much easier to make and keep if we put ourselves in social situations that support them. Our immediate reference groups of friends, relatives, and colleagues are enormously powerful social influence agents. Joining an environmental group, cultivating friendships around environmental concerns, and making public commitments to work on environmental problems are potent ways to heal the split between planet and self. As Kurt Lewin observed at the outset of social psychology,

It is easier to change individuals formed into a group than to change any of them separately. As long as group values are unchanged the individual will resist changes. . . . If the group standard itself is changed, the resistance which is due to the relation between the individual and the group is eliminated.<sup>102</sup>

But social psychology is limited. Not all of our behavior is a product of group influence. If it were, everyone in any given situation or group would respond in exactly the same way. Instead, individual behavior is enormously variable. We can predict the actions of a group as a whole much better than we can predict the particular actions of its individual members. Resisting the group, experiencing conflict with its norms, and acting on the basis of more deeply seated personal dynamics also occur in our daily experience. While emphasizing the power of the situation, social psychology ignores individual differences between people. In its success to illuminate the principle that “people who do crazy things are not necessarily crazy” social psychology does not look at the internal (perhaps eternal) ways in which human beings respond to factors beyond the group.

Psychology must also examine the more internal features of the individual actor, the qualities that make each of us different and unique, and the ways in which we creatively express our own motivations that are in conflict with group needs. For those insights we now turn to the intriguing and troubling insights of Sigmund Freud.

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<sup>102</sup>Lewin, K., *Field Theory in Social Science* (New York: Harper and Bros., 1959), p. 228, as quoted by Schellenberg, J. A., *Masters of Social Psychology: Freud, Mead, Lewin, and Skinner* (New York: Oxford University Press, 1978), p. 79.

# 4

C H A P T E R

## Unconscious Conflicts: Freud and the Psychoanalytic Tradition



We recognize, then, that countries have attained a high level of civilization if we find that in them everything which can assist in the *exploitation of the earth by man [sic] and in his protection against the forces of nature*—everything, in short, which is of *use to him*—is attended to and effectively carried out. In such countries, rivers which threaten to flood the land are regulated in their flow, and their water is directed through canals to places where there is a shortage of it. The soil is carefully cultivated and planted with the vegetation which it is suited to support; and the mineral wealth below ground is assiduously brought to the surface and fashioned into the required implements and utensils. . . . Wild and dangerous animals have been exterminated, and the breeding of domesticated animals flourishes. . . . *Men [sic] have gained control over the forces of nature to such an extent that with their help they would have no difficulty in exterminating one another to the last man.* They know this, and hence comes a large part of their current unrest, their unhappiness, and their mood of anxiety. (emphasis added)

Freud, *Civilization and Its Discontents*, 1930<sup>1</sup>

<sup>1</sup>Freud, S., *Civilization and Its Discontents*, trans by James Strachey (New York: W.W. Norton, 1961), pp. 39, 92.

**F**or Sigmund Freud (1856–1930) and the many modernists who preceded and followed him, nature stands in opposition to human existence, an enemy to be subdued and diminished whenever possible. The main project of civilization is to tame and control the natural world so that its dangerous forces do not destroy us, and so that its resources are available for our use. Nature is the opponent; technology is our defense. The split between human beings and their natural world is required if we are to survive, and our entire existence is owed to our abilities to oppose and mitigate the physical world. By positing a spiritually empty but dangerous universe that must be countered by science and technology, Freud's work rests squarely on the shoulders of the Western tradition I have described in Chapter 2.

Even though he never addressed our ecological problems in terms of limited resources or overpopulation per se, Freud's thinking (as well as that of the people he influenced) is enormously useful for understanding our plight, because it provides insight into our deepest motivations and defenses. In this chapter we will examine the main outlines of his work in order to extract his most applicable concepts for understanding our ecological predicament. We will then move on to an update of Freudian theory (called "object relations theory") because it goes further than Freud did in focusing on our split between self and planet. Finally, we will end by examining what is useful about both Freudian and object relations theory for healing our split between planet and self. Paradoxically, the Freudian emphasis on the unconscious elements of our functioning provides the basis for increased consciousness about how we have gotten into our mess and how we might extricate ourselves from it.

## THE DIFFICULTY OF FREUD

It is ironic that this man who is sometimes only tangentially regarded as a psychologist by many academic psychologists, and is often publicly regarded as one of psychology's most mistaken thinkers, is at the same time psychology's most important figure. Because of Freud's work, our popular culture has become "psychologized": his ideas are common household terms, even if they are not well understood or endorsed very often. Before Freud we in the West had no notion of neurosis, of the unconscious, of defenses, of psychotherapy, or even of clinical psychology. Even the idea that emotional problems could be treated as a mental illness was not conceptualized, much less widely accepted.

Looking back on his work we can now see the most spectacularly insightful of concepts alongside the most spectacularly misguided. Of course our judgments as to which is which proceeds from our own assumptions



about human nature, born from our most personal experiences of ourselves. As you read through this chapter, keep track of which ideas you find reasonable and which seem outlandish. No matter what your analysis, no one can refute that in all of psychology's 100-year history, no other person matches Freud's productivity, genius, or influence on Western thought.

One reason that Freud's ideas are often difficult to accept is that they do not paint a pretty picture of human beings. In Freud's eyes, our basic core is weak, irrational, selfish, and rigidly determined. In the words of one of his most compassionate biographers,

Freud's estimate of the human animal is far from flattering, and his message is sobering in the extreme. To expose oneself to the full gravity of Freud's thought is therefore risky and unsettling, and many have found it more soothing by far to soak up fragments of that thought through bland popularizations, or to rely on the doubtful wisdom of common discourse. Freud took some pride in disturbing the sleep of mankind [sic], and mankind has responded by trivializing him, watering him down, or finding reasons—whether by denouncing his theories or denigrating his character—for disregarding him altogether.<sup>2</sup>

But while his ideas are often dismissed, his impact has been monumental. Many thinkers, including the immodest Freud himself, have described his contribution as equivalent to that of Copernicus and Darwin, because all three have systematically dislodged human beings from thinking of themselves as the center and pinnacle of the universe.<sup>3</sup> Copernicus informed us that the planets do not revolve around us, but instead around the sun; Darwin made us realize that humans are not categorically different from other animals, but instead are descendants of apes; and Freud showed how irrational, weak, and biologically determined we are, thereby depriving us of our free will and intelligence.

Nowhere is human frailty more saliently observed in Freud's thought than in his thinking about our struggle against nature. Freud believed that although we construct impressive technologies to ward off nature's destructive powers, our efforts are only temporarily successful. Consider his words from his book *The Future of an Illusion*:

[T]he principal task of civilization, its actual *raison d'être*, is to defend us against nature. We all know that in many ways civilization does this fairly well already, and clearly as time goes on it will do it much better. But no one is under the illusion that nature has already been vanquished; and few dare hope that *she* will ever be entirely subjected to *man* [sic]. There are the elements which seem to mock at all human control: the earth, which quakes and is torn

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<sup>2</sup>Gay, P., *The Freud Reader* (New York: W.W. Norton 1989), pp. xiii–xiv.

<sup>3</sup>For example, Burt, E. A., *The Metaphysical Foundations of Modern Physical Science* (Garden City, NY: Doubleday, 1954); also Koyre, A., *From the Closed World to the Open Universe* (Baltimore: Johns Hopkins Press, 1968).

apart and buries all human life and its works; water, which deluges and drowns everything in turmoil; storms, which blow everything before them. . . . With these forces nature rises up against us, majestic, cruel and inexorable; *she* brings to our mind once more our weakness and helplessness, which we thought to escape through the work of civilization.<sup>4</sup> (emphasis added)

In this passage, as in the one that opens this chapter, we see Freud's vision of human beings standing in opposition to nature. (We also see here his gendered understanding of this conflict by referring to human beings as male and nature as female, and we discussed the implications of his and many other people's vision of nature as female in the previous chapter.) Freud viewed humans as weak and helpless, subjected to the brutal forces of nature. For Freud, both the natural world and the inner psychological world of the human being were untamable and unmasterable. The best we could hope for was temporary, fragile, uneasy, anxiety-based truces and compromises between the competing forces both within and outside the individual psyche. As we read Freud, we may feel belittled and diminished. Understandably, we may have defensive reactions to his views, the same sort of defensive reactions that might occur when we read about the seriousness of our ecological plight as discussed in Chapter 1. But the whole notion of defense is one of Freud's main contributions, as we shall see shortly.

Ironically, the very defenses that Freud so brilliantly conceptualized are the same ones that prevent many people from understanding or profiting from his ideas. As you read this chapter, I encourage you to take the same active approach that I urged in Chapter 1: note your ideas, images, reactions, and outrages if any, in the margins, as you are reading. You will learn much about your own psychology if you allow your responses to be data for your own inquiry. You may be able to experience and articulate a defensive reaction you have to his thinking. Paradoxically, the extent to which we learn to see our own behavior as unconscious and defensive is the extent to which we can begin to become more conscious and free.

## THE BASIS AND BASICS OF FREUD'S THEORY

Because Freud's writing filled 24 volumes, which he produced over a 50-year career,<sup>5</sup> his work is impossible to describe thoroughly in one chapter.

<sup>4</sup>Freud, S., *The Future of an Illusion* (New York: W.W. Norton, 1961) pp. 15–16.

<sup>5</sup>The best way to scan Freud's output is to browse through his collected works, compiled and annotated in 24 volumes by Strachey J., and Freud A., eds., entitled *The Standard Edition of the Complete Psychological Works of Sigmund Freud* (London: Hogarth Press, 1953–1964) (afterward referred to as *The Standard Edition*.) Any moderately good academic library will house this set, and browsing through it reveals the entire history of Freud's thinking as well as the huge amount of detail with which he described his particular case studies.

Nonetheless, there are four main principles to Freud's thought that underlie the many particular concepts and case studies that make up the bulk of his writing. If you grasp these four principles, you will have a good foundation from which to apply Freudian thought to ecological issues. The four main principles of Freud's theory that we will discuss are (1) much of our behavior is a result of unconscious motivations; (2) conflict is universal, chronic and inevitable; (3) our character is laid down early in our lives, by basic bodily experiences; and (4) in order to function effectively, we split off our awareness of unwanted thoughts, feelings, and wishes, and use defenses to disguise and contain them.

We will examine each of these principles, explaining what Freud meant by them as well as how he came to believe them. In so doing, we will mention specific ideas that illustrate these principles, but the main principles are most important. In order to comprehend Freud's theory properly, however, we must first understand something about the *Zeitgeist* (the implicit values and beliefs at work in a culture during a particular period) that nurtured his views.

Born in 1856, Freud was a truly creative thinker, but many of his foundational views are clearly influenced by the cultural climate in which he lived. In the latter half of the 19th century, Europe's increasingly materialist culture was supported by an industrial revolution in full gear. The enlightenment thinkers described in Chapter 2 had made a significant impact on academic thinking, and Freud became a convert to their project of debunking religion and replacing it with science. One of his first teachers was Ludwig Feuerbach, whom Freud worshipped. Feuerbach's most famous book, *The Essence of Christianity*, was fundamentally "the destruction of an illusion," an "utterly pernicious illusion"<sup>6</sup> which Freud was to use in the title of his own work *Future of an Illusion*.<sup>7</sup> After studying philosophy, Freud took up physiology and learned from his brilliant and world-famous mentors, Ernst Brucke and Hermann Helmholtz, that mental life is the result of the central nervous system and that all psychological events should be understood as physical energy that circulates through the brain and nerves. Such a view seems obvious now, but in the late 1900s it was a progressive idea, which contradicted the then more popular notion that psychological events emanate from some vital force, such as a soul. Instead, Freud was an utter materialist: all of our psychological life can be understood as a product of physical forces. And to buttress this newfound materialism, Freud and his teachers enthusiastically embraced the newly pub-

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<sup>6</sup>Quoted by Gay, P., *Freud: A Life for Our Time* (New York: W.W. Norton, 1988), p. 29.

<sup>7</sup>Freud, S, *The Future of an Illusion*, *ibid*.

lished work of Charles Darwin. Natural selection dispensed with any need for a God, a soul, or for any other spiritual/religious entity or explanation.

On the more personal side, we may be able to attribute some of his creativity to his Judaism. During the decades of Freud's youth, Jews of Vienna enjoyed a liberal interval, as laws allowing discrimination against them were repealed. As liberalism grew, so did Vienna; the city underwent tremendous modernization and growth just as Freud was coming of age. As the industrial revolution progressed, urban migration from the outlying villages proceeded quickly. Two hundred thousand people immigrated to Vienna in 20 years, many of them Jews from small villages. Freud was a part of this urbanization, and he experienced the hope and ambition of many rural Jews as he enrolled in university and took up a professional position. Yet anti-Semitism was always present; it grew stronger as more Jews gathered in the city and competition for jobs put economic stress on its citizens. As a Jew in academia, he felt himself outside the mainstream. In his words,

when in 1873, I first joined the University, I experienced some appreciable disappointments. Above all, I found that I was expected to feel myself inferior and an alien because I was a Jew. . . . At an early age, I was made familiar with the fate of being in the Opposition, and of being put under the ban of the 'compact majority.' The foundations were thus laid for a certain degree of independence of judgment.<sup>8</sup>

Comfortable with the role of an outsider, he managed to espouse views which were at best controversial, and most of the time, unpopular.

Freud showed potential as a research scientist, but because his parents were poor and because he had not yet made a grand scientific discovery, his prospects for a career in scientific research were slim. He soon met and fell in love with Martha Bernays. In order to support a family, he would have to work as a physician, and so he entered private practice in neurology in 1885. Yet Freud continued to see himself as a scientist, and his clinical practice became his laboratory, where he tested and revised his ideas about human functioning on the basis of his patients' symptoms and illnesses.

Freud was caught up in the new openness and vitality of enlightenment thinking, but he also worked in a sexually repressive society, which forbade his patients, mostly female, opportunities for expressing their sexual desires. Impressed by the bizarre symptoms he treated in his patients, Freud came to believe that psychological functioning is a creative outcome of the interplay between physical, instinctually based drives and the social, cultural, and moral pressures to tame, channel, subdue, or repress them. **Sex-**

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<sup>8</sup>Freud, S., "An autobiographical study," in Gray, P., ed., *The Freud Reader* (New York: W.W. Norton, 1989), p. 4.

**ual instincts** in particular, which Freud called **Eros**, he came to see as fundamental in shaping the personality of the adult. Freud also watched with horror the emergence of both World Wars in Europe, and concluded that the brutal and horrific killing he witnessed could only be explained by an unconscious, **inborn, irrational need for destruction**, which Freud called **Thanatos**. That three of his sons fought in the First World War only increased his dismay.

With these personal and historical dimensions in mind, then, let us examine each of the four important Freudian principles listed above.

### Unconscious Motivations

Like an iceberg that has 80 percent of its mass below the surface, the human psyche, Freud believed, is predominantly unconscious and unobservable. While humans may think they are largely aware of their motives, Freud believed that they actually are driven by unconscious forces. These forces are kept unconscious because their recognition would produce immense anxiety. Freud posited that if we were aware of our unconscious sexual and aggressive motivations, we would be greatly disturbed. Instead, our psyches expend energy to keep impulses below the surface so that we can fool ourselves into thinking that we behave for rational or moral reasons, when in fact, much of our behavior is driven by subversive needs, wishes, fears, and impulses which are quite selfish and unacknowledged.

Why would he posit such a dismal view of human nature? Freud believed that

our assumption of the unconscious is *necessary* and *legitimate* . . . [because] conscious acts remain disconnected and unintelligible if we insist upon claiming that every mental act that occurs in us must also necessarily be experienced by us through consciousness; on the other hand, they fall into a demonstrable connection if we interpolate between them the unconscious acts which we have inferred.<sup>9</sup> [emphasis his].

In other words, our behavior looks chaotic on the surface, but when we see it as a product of unconscious forces, it is meaningful and coherent.

The transformation of chaos to meaning through explanation of unconscious forces is nowhere more obvious than in dreams, which Freud believed are “the royal road to the unconscious.”<sup>10</sup> At first glance, our dreams seem bizarre and disorderly. But when analyzed through the lens of unconscious

<sup>9</sup>Freud, S., “The unconscious.” in Gay, P., ed., *The Freud Reader* (New York: W.W. Norton, 1989), p. 573.

<sup>10</sup>Freud, S., *The Interpretation of Dreams. The Standard Edition* (1953).

motivations, their confusing elements become clear. To see why, you must realize that Freud believed we express our unconscious desires in symbolic ways. Symbols both partially conceal and partially express the impulse. For example, in a touchingly honest analysis of one of his own dreams, Freud dreamt that his patient and friend, Irma, had received a ridiculous diagnosis and treatment from a colleague. Freud's analysis revealed his own anxiety about her well-being, and his secret wish that Irma be treated by someone else and absolve him of his worry about her, as both patient and friend. The "ridiculous diagnosis" of her problem was not ridiculous at all in light of Freud's anxieties about his competence in treating her.<sup>11</sup> Similarly, Freud believed that everyday actions often express our unconscious desires. For example humor, such as racist, sexist, and ethnic jokes, often reveals our unconscious hostility, and slips of the tongue (Freudian slips) demonstrate our unconscious sentiments. I have more than once been amused by a student who "accidentally" misspells Freud as Fraud, thereby unconsciously verbalizing rejection of his ideas.

In myriad ways we unintentionally reveal our impulses during our waking and sleeping hours, which, if allowed into consciousness, would produce anxiety. To Freud, human beings are constantly expressing their "Psychopathology of Everyday Life."<sup>12</sup> Our unconscious selfishness and appetites drive our most sophisticated efforts.

How does the unconscious help us understand our ecological predicament? From a Freudian perspective, environmental destruction is to be explained by the instinctual urges that drive human behavior. The strong unconscious drives of Eros (sexual pleasure and reproduction) and Thanatos (aggression, violence, and destruction) rule our actions, in spite of our most sophisticated attempts to deny and conceal them. Becoming aware of our environmental problems does not mean that we can easily stop ourselves from ruining our habitat, and it should be no surprise that we continue to proceed even while we become conscious of our environmental crises. Because behavior results from deeply buried instinctual drives, it is not easy to change. One could even say (Freud might have, if he were alive today) that our environmental predicament is inevitable.

## Conflict

Freud was a materialist who believed that our psychological functioning comes from the physical actions of the nervous system. In the later half of the 19th century, Freud had other important materialist thinkers to build

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<sup>11</sup>Freud, S., "The interpretation of dreams," in Gay, P., ed., *The Freud Reader* (New York: W.W. Norton, 1989), pp. 131–143.

<sup>12</sup>Freud, S., "The psychopathology of everyday life," in Strachey, J., and Freud, A., eds., *The Standard Edition*, 1960. In this volume Freud discusses the unconscious motivation behind forgetting, misreadings, bungled actions, and other kinds of everyday errors.



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on, none more important than Sir Isaac Newton. Newton's principle of the conservation of energy served as a pivotal organizing feature to Freud's theory about the psychological life of human beings. All energy is supplied by the nervous system and must be divided up between the three psychological structures, which for Freud constituted the psyche: the *id* (the first

structure, consisting of the appetitive desires, and seeking pleasure); the **ego** (a reality-oriented mechanism that considers realistic constraints on impulse expression); and the **superego** (the moral principles internalized from the parents and society). If energy is given to one structure, it must necessarily be reduced in another. For example, consider the conflict one might experience in buying a fast-food hamburger. The id experiences hunger; the ego considers price, convenience, and nutrition; the superego might ask about the moral implications of contributing to rain forest destruction (hamburger is frequently produced from cattle raised on cleared Third World forests). As one structure grows stronger, the other structures weaken. Concerns about rainforest habitat might dwindle with intense hunger (the superego might be overpowered by a very strong id); or one might not be hungry enough to wait in a long line (a weak id might be overpowered by a pragmatically oriented ego). Many of our environmental choices involve conflicts of just this sort. We are able and willing to enact environmentally beneficial behaviors as long as inconvenience, high prices, and strong appetites are not in our way. At the other extreme, superego guilt or shame normally nag at us when id appetites go unchecked, producing unresolved anxiety.

All of our personality can be understood as the outcome of how physical energy is distributed to these competing psychological structures. In Freud's view, the same conflict over the allocation of physical energy is mirrored in our relationship to society and to nature. As individuals, we compete against others for energy, just as our inner psychological structures compete for energy against each other. This view that we compete with each other for a finite amount of energy in the physical system is congruent with our problem of planetary carrying capacity which we discussed in Chapter 1. In all these cases, the idea is that a finite and constant amount of energy must be allocated between competing players.

### **Bodily Basis of Personality**

Even though this is one of his most controversial ideas,<sup>13</sup> Freud's theorizing about the somatic (bodily) basis of our adult personality provides important insight into the rest of his viewpoints. Remember that Freud be-

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<sup>13</sup>In addition to being one of his most controversial ideas, the hypothesis that adult personality is determined by weaning and toilet training functions has not stood up well to empirical tests. Instead, character traits have been shown to be more closely associated with parental traits, though the transmission could be mediated by childbearing practices. [Atkinson, R. L., Atkinson, R. C., Smith, E. E., and Bem, D. J., *Introduction to Psychology*, 11th ed. (Fort Worth, TX: Harcourt Brace Jovanovich College Publishers, 1993), p. 537.]



lieved that all psychological life is a result of physical forces. According to him, the infant comes into the world as a package of **libidinal** (appetitive) desires: its entire experience is centered around feeding, eliminating, and sleeping. Freud noticed, however, that infants suck even when not hungry, which led him to postulate that more fundamentally, we are driven by pleasure. This **pleasure principle** becomes particularly apparent in the fourth or fifth year, when children show a focus of attention on genitals, their own and others', wanting to see and touch them as part of their normal play. It is during this phallic stage, as Freud termed it, that the **Oedipal complex**, for the boy, and the **Electra complex** for the girl, results in the child's competition with the parent of the same sex for the attentions of the opposite-sex parent. Feelings of hostility and competition toward the same-sex parent is thus a normal part of development.<sup>14</sup> Eventually, the child will resolve these feelings by identifying with the parent of the same sex, which begins a lifetime internalization of gender role understandings. The three areas of somatic function: feeding, elimination, and genital pleasure, give rise to **oral, anal, and phallic stages**. Freud believed that the way in which parents respond to weaning, toilet training, and genital interest greatly determines later adult functioning. How these bodily-based experiences are handled provide a template for our psychological development.

Freud is best known to the lay public for his views about sex. To appreciate (and tolerate) Freud's ideas about the importance of sexual energy in the human personality, one must remember that he worked with neurotic patients, primarily women of the wealthy class, in Victorian Vienna. Overt expression of sexuality was (and to some extent still is) taboo in that subculture, especially for women. Extreme punishment was due women who displayed even subtle sexual inclinations. To imagine that Freud's patients would have been sexually frustrated is not difficult. But lest we think that Freud's ideas are limited to the repressive society in which he lived, imagine our reactions to a schoolchild masturbating in the classroom and you will see that Freud's ideas here are not outlandish, even today. We did not then, and we still do not, tolerate public displays of sexual impulses.

Nevertheless, it is important to realize that Freud's view of sexuality is much broader than is typically understood. When he spoke of the pivotal

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<sup>14</sup>One of the more troubling and dated elements of Freud's theory is his belief that homosexuality is a result of psychopathology incurred from an inadequately resolved Oedipal complex. Empirical research on homosexuals has demonstrated that Freud was wrong here and that homosexuals do not show weaker psychological functioning than heterosexual people. For example, see Hooker, E. "A preliminary analysis of group behavior of homosexuals," *Journal of Psychology*, 42 (1956): 217-225; and Hooker, E., "The adjustment of the male overt homosexual," *Journal of Projective Techniques*, 21 (1957): 18-31.

feature of sexual drive he was usually not speaking of genital sexuality. For him,

sexuality is divorced from its too close connection with the genitals and is regarded as a more comprehensive bodily function, having pleasure as its goal and only secondarily coming to serve the ends of reproduction. . . . Sexual impulses are regarded as including all of those merely affectionate and friendly impulses to which usage applies the exceedingly ambiguous word "love."<sup>15</sup>

In other words, the genesis of both sensual pleasure and interpersonal warmth is based in sexual libido, but sexual motivation is much broader than reproductive, genitally oriented behavior. When Freud posited sex as the basic instinct of personality, he often meant bodily pleasure as well as interpersonal love. The more general psychological motivation grows out of the earlier physical experience.

On the other hand, Freud believed that our adult personality is built on the foundation provided by our bodily experience, so that traumas encountered in various body regions early in life (such as weaning and toilet training) give rise to character traits later in life (such as oral dependency or anal retentiveness). In line with his view of the somatic basis of personality, experiences of the genital region are also considered important. And because the genital structure of males and females is different, we would expect him to see men and women as having very different basic orientations to the outside world.

Perhaps one of the most controversial of Freud's ideas about the importance of the body is his notion of **penis envy**. Freud argued that males possess an organ that females want—that females are less than males because they lack conspicuous male genitalia. From our contemporary perspective, we can see that although Freud worked mostly with women patients, his understanding of them was limited by his culture, which placed the male human in central view and regarded the female form as only a deviation. In Freud's time, men played all the roles for public life; women were almost completely hidden in the private, domestic sphere. Consequently, Freud (and most other thinkers of his day) regarded men as the obvious focus, and females as a mysterious derivation. His concept of "penis envy" likewise assumes the male body as standard and the female body as aberration.<sup>16</sup>

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<sup>15</sup>Freud, S., "An autobiographical study," in Gay, P., ed., *The Freud Reader* (New York: W.W. Norton, 1989), p. 23.

<sup>16</sup>But even Freud knew that he did not get it right about females when he asked, near the end of his career, "What *do* women want?" This question has become part of our contemporary lexicon, often asked humorously and also often asked quite seriously. In a world organized around and by men, it is not surprising that a good answer is not yet well understood.

As humorous and wrongheaded as Freud's ideas seem to most feminists,<sup>17</sup> I believe there are two important gems in Freud's thinking that should not be thrown out with the notion of penis envy. First, as Freud himself argued, body parts are important, not only as organs, but also as symbols. A penis is not only a sexual organ, it is a symbol of male power. Although women might not want the body part, they might very well want the power that it symbolizes. In every society we have studied, men have some power or privilege that women do not have.<sup>18</sup> Although societies differ greatly on how large this differential privilege is, women's inferior status might very well lead them to envy men their superior position.

Secondly, bodily experiences of differing genitalia might lay down a template for the gender differences we see between adult men and women. Although Freud did not argue this specific point, it is entirely consistent with his theory. Freud suggests that our orientation to the world is based on our genital structure and our experience of it. This idea may seem absurd at first, and many people would reject it immediately, but consider the structure of the penis as compared with the structure of the vagina. The penis thrusts out, the vagina embraces. The penis asserts, the vagina receives. In every culture we have studied, it is primarily males who initiate sexual activity, whereas females much more often are the receivers—responding and accepting (or refusing), but rarely initiating.<sup>19</sup> To carry the analogy further, societies that value males over females would be likely to value assertion, initiation, and domination over reception, nurturance, and capitulation. Such a society would celebrate males who “fill the space” either with their penises, or more symbolically, with their ideas and creations. The female conforms to the change and supports the contribution from the male. It is no accident, then, that the largest and most costly technological feats are accomplished primarily by men: nuclear power plants, high-rise buildings, guided missiles, and dams are designed, built, and maintained by men far more often than by women. Women certainly enjoy the conveniences that these masculine constructions provide, but they are far less likely to design or build them. Most people would explain male-built constructions to be a result of male privilege, and I would not disagree. Perhaps females, given the same opportunities, would build the

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<sup>17</sup>For an amusing and insightful discussion of Freud's gender bias, see Steinem, G., “Womb envy, testyria, and breast castration anxiety: Gloria Steinem asks ‘what if Freud were female?’ ” *Ms.* (March/April 1994): 48–56. By beginning with the female body as norm, Steinem illuminates the rampant sexism of Freud's ideas.

<sup>18</sup>Ortner, S. B., “Is female to male as nature is to culture?,” in Rosaldo, M., and Lamphere, L., eds., *Women, Culture, and Society* (Stanford, CA: Stanford University Press, 1974), pp. 67–87.

<sup>19</sup>Myer, D., *Social Psychology*, 4th ed. (New York: McGraw-Hill, 1993).

same things. However, what we have seen is that what males often choose to do with their privilege is fill space with phallic-like structures. From this perspective, the space program serves as a quintessential example of the masculine motivation to thrust. The masculinized quality of the military, which was discussed in Chapter 3, would understandably direct and facilitate such a project.

I am not saying male dominance is inevitable, nor am I saying that it is good because it is natural. In fact, in Chapter 3 I argued at length that our imbalanced appreciation of males over females is a key element of our ecological predicament, and that to solve our environmental problems we will have to change the power relations between the genders. I am saying, however, that male and female orientations to the world could be in part a product of our basic differences in genital structure, as Freud implied.

In Freud's terms we could call the traditional Western view of nature a phallic view. "Mother" Nature, like a woman, is there to be used, to provide a backdrop and support system for man's creations. (In this case I use the masculine referent nongenerically to mean men, not women.) In a phallic culture that prizes males' work and experience over females', we would expect that the use of nature would be more important than the embrace of nature. A similar point has been argued by Riane Eisler in her popular work, *The Chalice and the Blade*.<sup>20</sup> The chalice and the blade (which Freud believed symbolized the female and male genitalia) describe two different kinds of cultural organization: those that prize connection and embrace versus those that prize domination and control. The androcentric nature of Western culture, she argues, needs to be balanced by a gynocentric viewpoint, "a new global ethic based on a greater consciousness of and identification with future as well as present generations, and [this] will require that cooperation, rather than confrontation, and harmony with, rather than conquest of, nature become our normative ideals."<sup>21</sup> Eisler's very contemporary view is surprisingly consistent with Freud's emphasis on the somatic basis of our personality.

To attribute our current abuse of nature to phallic genital structure is a troubling idea, and one that can be criticized from a number of vantage points. First, since all cultures value men over women to some extent, phallic structure does not explain the tremendous cultural variation in the abuse of nature. Second, the idea rings of "essentialism," implying that men and women are categorically different and cannot be taught each other's perspective. Third, one *could* also imagine the roles of the genitals differ-

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<sup>20</sup>Eisler, R., *The Chalice and the Blade: Our History, Our Future* (San Francisco: Harper & Row, 1987).

<sup>21</sup>*ibid.*, p. 195.

ently—for example, the vagina as a powerful shield again the weak and vulnerable penis. Fourth, the fact that women do not build dams and nuclear power plants could have more to do with their limited education and power in Western culture than their genital structure.

All these criticisms underscore the power of culture over biology in determining behavior, and I certainly agree that cultural patterns are crucial features. Thus, I disagree with Freud's claim that "biology is destiny." Like most contemporary social scientists, I would place far more emphasis on environmental than on biological factors in explaining behavior. But to say that cultural factors are important does not mean that biology is irrelevant. In my opinion, Western social scientists ignore physical levels of experience, a problem which I will discuss at more length in Chapter 8. Underattention to physical factors comes from an old dichotomy (inherited from the Enlightenment) of the dualism between body and mind. In this way of thinking, if behavior is a product of learning (mind) it cannot be a matter of physiology (body). I believe this dichotomy is too sharply drawn, and I suggest that bodily experience may lay down a template on which more complicated cultural dimensions go to work. Cultural patterns produce a lot of variety, but not infinite variety. One *could* imagine the roles of the genitals differently—females could be seen as more assertive and violent—but generally, they are not. While culture complicates and modulates biology, it does not seem to reverse it very often.

## Defenses

Finally, we come to the most important Freudian principle for our understanding of ecological problems. Freud postulated that we defend ourselves from anxiety by "splitting" our awareness, so that we can remain unconscious of our instincts without entirely ignoring them. This half-in/half-out compromise allows us to give allegiance to both the instinct and its denial. Here are Freud's own words to describe this process:

Let us suppose, then, that a child's ego is under the sway of a powerful instinctual demand which it is accustomed to satisfy and that it is suddenly frightened by an experience which teaches it that the continuance of this satisfaction will result in an almost intolerable real danger. It must now decide either to recognize the real danger, give way to it and renounce the instinctual satisfaction, or to disavow reality and make itself believe that there is no reason for fear, so that it may be able to retain the satisfaction. Thus there is a conflict between the demand by the instinct and the prohibition by reality. But in fact the child takes neither course, or rather he [sic] takes both simultaneously, which comes to the same thing. He replies to the conflict with two contrary reactions, both of which are valid and effective. On the one hand,

with the help of certain mechanisms he rejects reality and refuses to accept any prohibition; on the other hand, in the same breath he recognizes the danger of reality, takes over the fear of that danger as a pathological symptom and tries subsequently to divest himself of the fear. It must be confessed that this is a very ingenious solution of the difficulty. Both of the parties to the dispute obtain their share: the instinct is allowed to retain its satisfaction and proper respect is shown to reality. But everything has to be paid for in one way or another, and this success is achieved at the price of a rift in the ego which never heals but which increases as time goes on. The two contrary reactions to the conflict persist as the center-point of a splitting of the ego.<sup>22</sup>

Freud went on to describe a particular case in which a child was frightened by his father's punishing him for masturbating. But let us drop the sexual dimension for a moment, and consider the more general question of prohibited instinctual drives, and more specifically, our own instinctual, appetitive desires in the face of impending ecological disaster.

Here is our problem: We seek comfortable housing, delicious food, stimulating entertainment, personal mobility, and successful careers. Each of these desires leads us to behaviors that we know contribute to an impending ecological collapse, an event so dire and overwhelming that we cannot fully fathom its consequences. As with the case of the child, would not splitting our awareness be an ingenious solution, allowing us to both maintain our behavior and also retain our knowledge of reality? I suggest that this is precisely the state that most of us live in—a split-off, fragmented, dissonant state in which we continue on with our destructive behaviors while paying some, though not full, heed to the mounting threats to our ecosystem.

How do we manage such ingenuous and effective splits? Freud suggested that we construct our partitions through a variety of **defense mechanisms**. As we shall see in the following list of examples, defense mechanisms protect us from our discomfort, enabling us to believe that we are behaving quite reasonably. Defenses are actually quite irrational: they hide reality from us. But they are also functional; they shield us from our discomfort, so we do not like to give them up. Very much like the principle of cognitive dissonance that we discussed in Chapter 3, defenses demonstrate the illogic of our behavior while also illustrating the vulnerability of our self-concepts.

For example, most of us rationalize frequently. **Rationalization**, one of the most common defense mechanisms, occurs when we create an at-

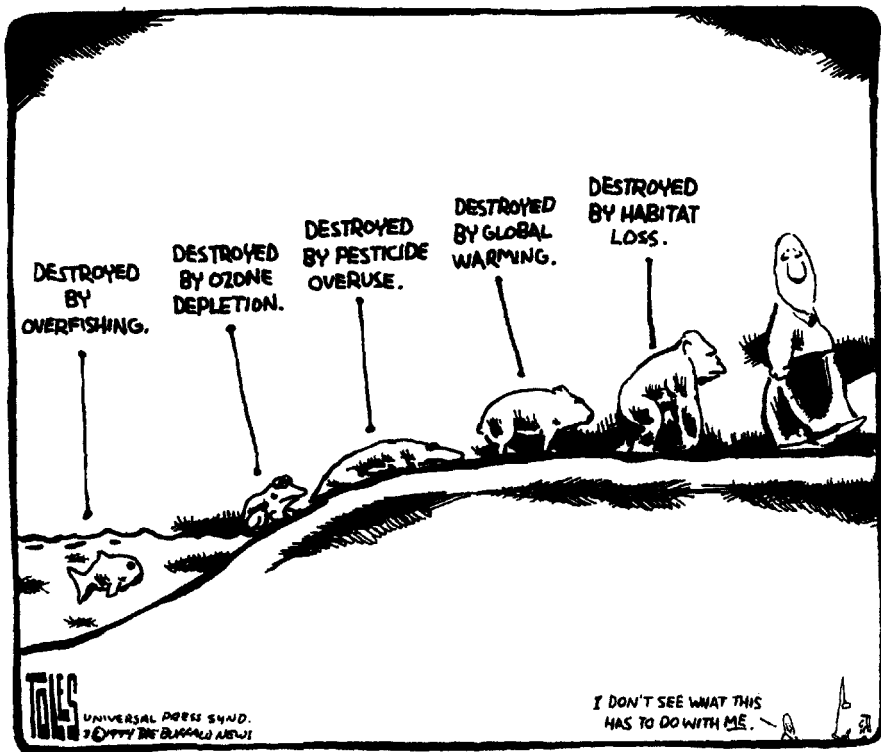
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<sup>22</sup>Freud, S., "Splitting of the ego in the process of defence," in Strachey, J., and Freud, A., eds., *The Standard Edition*, 1964, pp. 275–276.

tractive but untrue explanation for our behavior. I rationalize when I tell myself that I bought a sweater because it was on sale. Since I really do not need another sweater, my purchase, however small, contributes to the collapse of the planet's ecosystem, because it enhances the market for unnecessary goods. Unnecessary consumption depletes resources and increases pollution by encouraging additional manufacturing and distribution of more unnecessary goods. But I find it too uncomfortable to recognize that fact, so I supply a more attractive explanation for my behavior and claim that I bought it because it was cheap. Unnecessary purchases are never really cheap—they are very costly, but rationalization keeps my anxiety at bay.

Similarly, most of us intellectualize our environmental predicament by failing to recognize our own hand in creating it or the implications it has for our own future. **Intellectualization** occurs when we distance ourselves emotionally from the problem by describing it in abstract, intellectual terms. It is often easier to talk about the general principles of resource depletion than to recognize our personal contributions to it. And frequently we can allow ourselves to notice more general threats, rather than experiencing how they directly endanger us. Many people, for example, feel that toxic waste is a problem in general, or for *that* community, not *mine*. Topsoil loss affects farmers, not me. Intellectualizing helps us stay defended by allowing us to address the issue superficially without experiencing our anxiety about its impact. Its function is well illustrated by the cartoon on page 129, which demonstrates intellectualization about species extinction. Extinction of species is a problem for other species, rather than our own.

Intellectualization helps us distance ourselves from a threat; a similar outcome is achieved by the defense mechanism **displacement**. Freud suggested that displacement occurs when we express our feeling toward a safer, less-threatening target. For example, instead of yelling at the boss, the insulted worker comes home and yells at the dog. The dog is an indirect but safe target. Analogously, much of our environmentally relevant behavior involves displacement. We often express our concerns through less-direct and less-effective but more comfortable routes. Consider, for example, buying a tee-shirt with a picture of a whale on it. The tee-shirt does not help the environment, although the picture of a whale leads us to think that it does. To use an even more uncomfortable example, recycling gives us the feeling that we are doing something good for the planet, and of course, we are. However, recycling is a much less direct action than cutting our consumption in the first place. Reducing consumption is much more difficult, so recycling serves as a displacement for our anxiety. It allows us to express our concern, without having to endure the more anxiety-provoking changes of giving up our luxuries. While I would certainly agree that recycling is



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better than nothing, and certainly important to undertake, it will not solve our problems, and we use it as a defense when we think it will.

Sometimes we are aware of our anxiety, but actively try to think about something else. **Suppression** involves the conscious attempt to put the anxiety-provoking thought out of one's mind. Most of us use suppression quite regularly, when we walk past a homeless person, hear a disturbing newscast about nuclear waste, or contemplate the effects of driving our cars. We begin to experience anxiety, and we intentionally try to change our awareness so that we can reduce it. We shift our attention away from the homeless person we are passing or the carbon dioxide our car is emitting, change the radio station or our thoughts to avoid our discomfort about nuclear waste.

Whereas suppression is a conscious defense, **repression** is unconscious. When we use repression, we do not realize the motivated attempt to put the anxiety-provoking material out of our mind—it just happens. A good example of repression is my surprise at “finding out” about the nuclear waste problem at a nuclear production site (Hanford) just a few miles



from where I live. Even though information about Hanford had been in the news on and off for 20 years, I only recently “discovered” the problem. I had read about Chernobyl and Three-Mile Island accidents, but never bothered to learn about this giant nuclear reservation just a few miles from my home, which is really much more troubling. I unconsciously repressed not only the waste, but the entire operation, somehow not hearing the news stories or seeing them in the newspaper. I had driven past the reservation many times but (with my government’s help) did not see or think about its existence. Repression just occurred naturally without any conscious attempt on my part (although my government’s insistence on tight security helped set up an environment in which repression became easy). When a citizens action group succeeded in getting 19,000 pages of previously classified documents released, my (and many other people’s) repression ended, and anxiety replaced it instead.

Repression is certainly the most effective defense, but it is not easy to maintain, especially when information from the world around us threatens to lift its protective force. When stimuli from the outside jeopardize our defenses, we often use **denial**, a mechanism that allows us to insist that the anxiety-provoking material does not exist, while simultaneously expressing our anxiety in the form of impatience or irritation, or even anger. For example, I would suggest that some of my colleagues are in denial about our environmental predicament. While refusing to see or acknowledge our ecosystem’s fragility, they express anger and irritation at the very idea. They use sarcasm and humor to dismiss threats. Often the phrase “politically correct” or “p.c.” is used to dismiss the uncomfortable thoughts about not only the environment, but also racial inequalities and other social injustices. When denial is used as a defense there is a subtext of emotional frustration or hostility. Anxiety is “leaked” alongside the mechanism of repression, which gives denial its own special flavor of tension.

This flavor of tension is also a part of two other mechanisms, reaction formation and projection. In **reaction formation**, the person denies the impulse, and *also* gives intense energy to expressing its opposite. For example, the great vehemence with which some environmentalists proclaim self-denying, holier-than-thou attitudes about American comforts suggests that they have not thoroughly dropped their instinct toward these creature comforts themselves. Likewise the sneering hostility with which Wise Use proselytizer Ronald Arnold describes environmentalists as “pathological fools”<sup>23</sup> who buy into “spiritual crap”<sup>24</sup> makes me wonder about his former

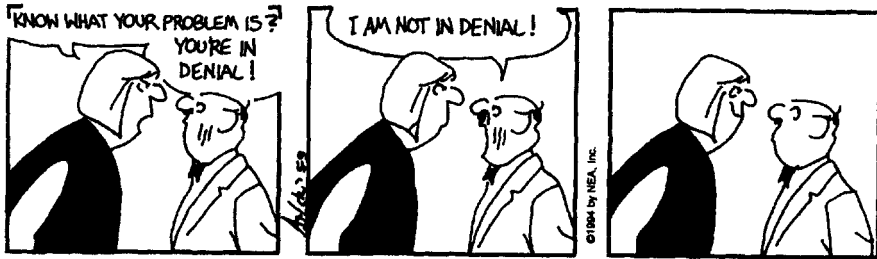
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<sup>23</sup>Arnold, R., *Ecology Wars: Environmentalism as If People Mattered* (Bellevue, WA: Meril Press, 1993), p. 42.

<sup>24</sup>*ibid.*, p. 30.

**Born Loser**

by Art and Chip Sansom



Source: THE BORN LOSER reprinted with permission of NEA, Inc.

role as a Sierra Club official. The term *homophobia* is another example that suggests two kinds of reaction formation at work. First, a homophobic person may be vehemently heterosexual and judgmental of homosexuality because of her or his own unconscious homosexual impulses. Second, the term itself implies a judgment and may be used to deride any questions about the place of homosexuality in our culture. In each of these cases, it is not the belief or attitude that is questionable, it is the hostility with which it is expressed that suggests underlying emotional conflict.

Like denial and reaction formation, projection also leaks anxiety. **Projection** occurs when we perceive in others what we fail to perceive in ourselves. Most of our judgments and criticisms of others involve some degree of projection, especially when our criticisms are particularly heated or derisive. After all, it is much easier to recognize weaknesses in others than in ourselves. For example, perhaps you have been irritated at someone for being a bad listener, when in fact your own listening skills could use work. In my own experience, one of the most distasteful qualities I perceive in the Wise Use Movement is its staunch insistence that what is good for the farmer, rancher, or miner is good for everybody. Use of land without regulation profits certain people, but in the long run I believe it is dangerous for all of us. Yet, it is painful for me to recognize that I too overgeneralize my values on to others, assuming that what I think is important is ultimately important for everyone. I have difficulty recognizing the ways in which my environmentalist perspective distorts my conclusions, so I find it particularly irritating when I think that others are overgeneralizing their views. Judgments based on projection have a special flavor of irritation or hostility. You can learn about your own projections by considering which criticisms you have of others are most irritating to you.

Finally, Freud proposed that the best defense mechanism we can employ is **sublimation**. Sublimation occurs when we channel our unconscious anxiety into socially acceptable projects, as in work. Expressing pain through creative poetry and painting or expressing anxiety by writing a

book (!) are popular forms of sublimation. The full extent of the feeling is not felt because it is channeled into a societally useful creation, thereby protecting the individual while contributing something of value. Freud, himself a disciplined and arduous worker, continually sublimated his own impulses into writing, thinking, and communicating with colleagues.

Freud believed that defense mechanisms are inevitable and necessary; indeed, he argued that civilization depends on the inhibition of our basic impulses, and thus on the defenses that prevent their direct expression. Without them we would inappropriately display all sorts of dangerous libidinal or aggressive behavior, or suffer a massive psychotic breakdown, in which our impulses would become hopelessly scrambled with our view of reality. Defenses allow for the normal functioning of the individual in a society that requires us to behave, conform, cooperate, and adapt in spite of our biological drives. But defenses also extract their cost. They take energy, that limited physical commodity, for which various psychic structures compete. To the extent that energy is tied up by defense mechanisms, less is available for creativity, spontaneity, or realistic problem solving. The extreme case of a completely defended person is the textbook neurotic who spends so much time warding off unacceptable impulses that little else is possible. Surely you have met a few people like this in your lifetime, people who are so afraid of experiencing anything new that all that is possible is a rigidly maintained series of familiar behaviors. These people are shut off from others as well as from their own creative potential.

We will need this creative potential to solve our environmental problems. Thus, from a Freudian point of view, we must gradually confront our defenses, loosening them slowly so that we may go beyond them without being overwhelmed by the anxiety they help manage. To do this, we must be willing to experience gradually increasing states of discomfort. For example, we cannot begin the difficult problem of environmental clean-up until we allow ourselves to feel the anger, disgust, or guilt which confronting our waste sites might elicit. We must be willing to acknowledge our dismay, sadness, and fear about our environmental predicament in order to free up the psychic energy now used by the defenses to be used in more creative problem solving. From a psychoanalytic perspective, being willing to experience discomfort is the first step toward a solution to our problems.

## CRITIQUE OF FREUD AND PSYCHOANALYSIS

Much of Freud's theory about specific sexual functions, symbolic expressions, and therapeutic interventions has been reworked or abandoned by

psychoanalysts who followed him. The importance of Freud's contribution has been matched by the vehemence with which his ideas have been attacked. As a psychologist who is basically more appreciative than critical of his views, I am often impressed by the hostility with which his ideas are criticized (and I wonder about the defense mechanisms that might sometimes be at work). Nevertheless, there are important flaws in Freud's theory that need to be addressed.

First, Freud claimed to be a scientist, but his ideas are difficult to test scientifically. Most of his principles do not easily translate into measurable observations. For example, the unconscious, his most central concept, defies clear definition. A related problem is that quite opposite behaviors are explained by the same mechanism, making it difficult to test whether the mechanism is present or absent. For example, consider his concept of reaction formation. Freud believed that human selfishness is pervasive. When someone acts unselfishly, reaction formation is used. But here Freud's theory is untestable because there is no way for it to be disproved. Whether or not the person is behaving selfishly, his theory is supported. A proposition that cannot be disproved cannot be proved.

Further, when Freud's ideas *have* been tested, they have often been shown to be limited. In large part the limits of his theory have been demonstrated in other cultures, which prove the cultural boundedness of his ideas. For example, Freud believed the Oedipal complex to be universal. Yet studies of young boys in the Trobrian Islands show that hostility is felt toward the uncle (the main disciplinarian) rather than the father.<sup>25</sup> Kinship roles and patterns are not universal, and thus early personality formation is not either. The crucial influence of culture should not surprise us in light of material in Chapter 3. Freud argued that "anatomy is destiny"—that biology is completely determinative. His excessive emphasis on biology at the expense of cultural factors is widely dismissed.

The cultural limitations of Freud's theory is certainly the point at which feminists have attacked him. Freud's theories about women were overgeneralized from his rather small set of neurotic female clients in 19th-century Vienna. Embedded in a patriarchal culture, his ideas were greatly distorted by his tendency to see women as inadequate versions of men. His concept of "penis envy" discussed above clearly demonstrates this problem. Freud was also more likely to believe what men told him and to dismiss what women disclosed. In the classic case of Dora, one of his most famous patients, Freud postulated that her anxiety about being sexually harassed by

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<sup>25</sup>Malinowski, B., *Sex and Repression in Savage Society* (New York: Harcourt, Brace, and Co., 1927).

an older man (a friend of his) was a case of wish fulfillment. According to Freud, Dora was sexually attracted to his friend, but expressed her attraction through repulsion (a reaction formation). Not only that, but Freud published the case, which included very intimate details of her sexual fantasies, without her permission. Such actions reveal Freud's lack of respect for women and his inability to take them seriously. Accordingly, most feminists are quite critical of his work.<sup>26</sup>

On the other hand, feminist psychoanalysis has abandoned some of his concepts while centrally relying on others. In this regard, we must mention Nancy Chodorow, whose focus on parenting relationships (and object relations theory, to be discussed below) has given rise to a theory of gender differences that has been widely influential. Chodorow formulated a psychoanalytic explanation for the female ethic of care (as in Carol Gilligan's work on female morality, as discussed in Chapter 3). Because the daughter separates from the mother later than the son does, females stay in relationship with the primary caretaker longer, and consequently have greater needs for maintaining connection. Boys have relatively greater needs for maintaining separation.<sup>27</sup>

In spite of the tremendous controversy surrounding Freud's work, it is worth underscoring his extraordinary contributions. Freud launched clinical psychology by addressing, defining, and treating the neurotic patterns in his patients as psychological disorders. His revealing self-analysis helped us see that normal people use defenses and display character patterns that are simply more obvious in the neurotic patient but not qualitatively different from normal functioning. His careful scrutinizing, theorizing, and prodigious writing (24 volumes) gave us a theory of the unconscious, the notion of defenses, and the concept of conflict in everyday behavior. Although specifics of his treatment techniques and interpretations have been largely discarded, his theorizing about defenses has withstood the test of time, research, and empirical test.<sup>28</sup> The many studies of cognitive dissonance theory described in Chapter 3, for example, can be considered empirical demonstrations of rationalization. In spite of his many limitations, Freud's contributions are undeniable.

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<sup>26</sup>For example, see Charles Bernheimer and Calire Kahane, eds., *In Dora's Case: Freud-Hysteria-Feminism* (New York: Columbia University Press, 1985).

<sup>27</sup>See Chodorow, N., *Feminism and Psychoanalytic Theory* (New Haven, CT: Yale University Press, 1989); and Chodorow, N., *The Reproduction of Mothering: Psychoanalysis and the Sociology of Gender* (Berkeley, CA: University of California Press, 1978).

<sup>28</sup>Atkinson, R. L., Atkinson, R. C., Smith, E. E., and Bem, D. J., *Introduction to Psychology*, 11th ed. (New York: Harcourt Brace Jovanovich College Publishers, 1993), p. 540.

## OBJECT RELATIONS THEORY: RE-EXPERIENCING THE MOTHER

Freud's brilliant career inspired many followers who both extended and revised his basic principles. Most of the important revisions have qualified one of the four important principles discussed above. For instance, many neo-Freudian thinkers (including Alfred Adler, Karen Horney, Henry Stack Sullivan, and Erik Erikson) have emphasized social rather than sexual needs as core motivation. In addition, Alfred Adler<sup>29</sup> also gave more weight to the conscious parts of the personality; Erik Erikson<sup>30</sup> extended developmental tasks beyond childhood; Carl Jung<sup>31</sup> substituted spiritual for sexual impulses as the core motivation; and Wilhelm Reich<sup>32</sup> developed a therapeutic method using massage, breathing, and touch, techniques more in line with Freud's emphasis on the body than Freud's own psychoanalysis, which was purely talk therapy. However, we will focus our discussion on only one contemporary branch of Freud's thought—object relations theory—because it is so germane to our problem of splitting between self and planet. Also, object relations theory is a currently important model and therapeutic approach in individual and family psychotherapy.

Object relations theory emphasizes the process by which we come to understand our sense of self in relation to the world, especially to other people in the world. **The central premise of object relations theory is that we construct our sense of self from our interactions with others, particularly the person who was our primary caretaker** (either a biological or adoptive mother or father, or other caretaker). Our interaction with that important first person lays a template on which we organize and interpret later experiences. The construction of a self is a complicated psychological project, which takes several years to be completed.

The term *object* may seem an unfortunate one to denote other people, implying that we treat them as objects rather than as human beings. The term clearly comes from Freud, who wrote repeatedly about how the child learns to channel biological drives for instinct gratification from the target of the mother to other "love-objects." In his words

the child's first erotic object is the mother's breast that nourishes it; love has its origin in attachment to the satisfied need for nourishment. There is no doubt that to begin with, the child does not distinguish between the breast

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<sup>29</sup>Adler, A., *The Neurotic Constitution* (New York: Moffat-Yard, 1917).

<sup>30</sup>Erikson, E. H., *Childhood and Society*, 2nd ed. (New York: Norton, 1963).

<sup>31</sup>Jung, C. G., *Symbols of Transformation* (New York: Random House, 1956).

<sup>32</sup>Reich, W., *The Function for Theory of the Orgasm: Sex-Economic Problems of Biological Energy* (New York: Simon and Schuster, 1973).

and its own body. . . . This first object is later completed into the person of the child's mother, who not only nourishes it, but also looks after it and thus arouses in it a number of other physical sensations, pleasurable and unpleasurable. . . . [Herein] lies the root of a mother's importance, unique, without parallel, established unalterably for a whole lifetime as the first and strongest love-object and as the prototype of all later love relations.<sup>33</sup>

Thus, for Freud and object relations theorists who followed and elaborated his point here, both our sense of self and our relationships with others evolve from the experiences we have with our earliest caretaker.

There are many variations of object relations theory and consequently important disagreements, especially regarding the relative power of biological drives versus social experiences as the root explanation for our sense of self.<sup>34</sup> However, all object relations theorists agree that our sense of self is constructed over time, in interaction with our earliest caretakers. Most would endorse the general pattern of development laid out by Margaret Mahler (1897–1985). According to Mahler, the developmental process takes place over 3 to 4 years, and involves four different, although overlapping, stages.

At first, the infant exists in “normal autism.” The baby does not know separation or identity, but instead experiences an undifferentiated and disorganized set of sensations having to do with need gratification. As the baby and caretaker learn to read each other's cues, they bond together, producing the second stage, between the second and eighth month, called “symbiotic unity.” In this phase, the baby experiences a delusional unity, not realizing that its caretaker is different from itself, but “behav[ing] and function[ing] as though he [sic] and his mother were an omnipotent system—a dual unity within one common boundary.”<sup>35</sup> Although this attachment is illusory, it is crucial for the child in order for it to trust the world. If the caretaker is unresponsive to the infant's needs, or places too many demands on the infant in return, attachment will be impaired and a host of personality impairments—which we will discuss below—will result. The third stage begins in the fourth or fifth month (overlapping with the second stage) and starts the “separation/individuation” process. While learning to separate itself from the caretaker, the child frequently returns quickly for affirmation and comfort. In the fourth and final phase, the child

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<sup>33</sup>Freud, S., “An outline of psychoanalysis,” in Strachey, J. and Freud, A., eds., *The Standard Edition*, (1964).

<sup>34</sup>See for example Greenberg J. R., and Mitchell, S. A., *Object Relations in Psychoanalytic Theory* (Cambridge, MA: Harvard University Press, 1983).

<sup>35</sup>Mahler, M. S., “On the first three subphases of the separation-individuation process,” *International Journal of Psycho-Analysis*, 53 (1972): 333–338. Reprinted in Buckley, P., *Essential Papers on Object Relations* (New York: New York University Press, 1986). p. 201.

learns “constancy of self and object,” coming to see itself in relationship to other separate beings. Healthy development through the fourth phase makes it possible for us to experience ourselves as integrated, multidimensional beings, who, like other people, possess both gifts and faults. Healthy object relations development gives rise to adults who can appreciate themselves while being able to appreciate and bond with others, without a compulsive sense of dependency or fear of intimacy.

The ability to experience one’s separateness and yet bondedness with others is a delicate process and many factors can interrupt its optimal conduct in the critical days and years after birth. There are at least three ways in which the self/other split can be damaged which will produce later psychological difficulties.

1. If the caretaker puts excessive demands on the baby, failing to read its cues, but inflicting instead the caretaker’s needs, the child may learn to build a “false self,” in which the requirements of others are taken as his or her central being. The attachment formed with the caretaker does not involve the infant’s authentic self, but instead an expected or attempted self. Such an individual is incapable of true creativity because life is lived in a state of exacted conformity.
2. If the child’s needs were never adequately met, the sense of self would be profoundly damaged because the attachment and separation processes never fully succeeded. The most serious of psychotic disorders may result; the psychotic’s “reality” is a set of hopelessly tangled and blurred boundaries between self and nonself.
3. If the caretaker withdraws attention too quickly the sense of self will be constructed, but trust in the outer world will be damaged. Several neurotic reactions could result from withdrawal implemented too quickly. One is a narcissistic individual, whose sense of self is sturdy, but who cannot trust the world, and so must continuously focus on seeking and planning self gratification. Or depression might result, as despair and hopelessness take root in the structure of the personality. Another reaction might be paranoia, in which the individual feels likely to be betrayed or assaulted by another. In all these cases, the individual learns not to trust—first not to trust the caretaker, and then because this experience lays a template, not to trust other people, and finally, not to trust the world.

Most of us are fortunate to have had enough good caretaking to bond with our caretaker and then tolerate well enough the inevitable separation/individuation that ensues. Yet because the initial interaction with the caretaker is so delicate and so primordial, it rarely is perfect. Whatever small inadequacies it delivers, it lays the foundation for our experience of



all other objects in our psychological reality: the crib, toy, the rest of the family, and eventually, the group, the work unit, and finally, the sense of the world. In short, **our relationship to our caretaker sets the foundation for our relationship with the planet.**

What, then, would object relations theorists say about how we have arrived at our ecological predicament? Let us consider each of the three aberrations of the separation/individuation process to examine their implications for environmentally sustainable behavior.<sup>36</sup>

1. *Excessive early demands.* If the caretaker forces the child to eat when it is not hungry, wakes the child when it would prefer to sleep, or otherwise inflicts environmental pressures on the infant that do not fit its internal needs, an orientation to the external world is created before the child organizes its internal one. For example, the rigid feeding schedules popular with parents during the 1940s and early 1950s would produce too many demands too early. The result would be a child who builds a “false self,” responding too often to outside demands without being sufficiently tuned to one’s internal reality. The person would develop into an adult who is constantly focused on satisfying the norms of the social group, without adequate self-insight or direction.

Much of the irrationality of our environmentally unsustainable behavior could be attributed to a “false self” system. It does seem plausible that without a firmly rooted internal organization, we are likely to use external objects to express who we are. Thus, we pursue material pleasures that really function as symbols of our self in relation to others. Automobiles would be an example of a material luxury that do much more than move us from one location to the next: they also make a statement to others about who we are. Some of us would feel personally embarrassed or belittled by driving one style of car rather than another. Clothes would be another case of the use of material possession to express the externalized self. Most of us own many more clothes than we really need. Most of our clothes are chosen for “style,” and many of us feel uncomfortable if we are not properly dressed for a certain occasion, or diminished if our clothes do not feel attractive on us for one reason or another. Thus, most luxury items function to fulfill pleasure as well as status; *we enjoy not only what the object gives us, but also what it says about us.* Much of our overconsumption may be driven by a “false self” system.

Even if we do not get caught up in conspicuous consumption, the “false self” system often drives our environmentally destructive behaviors by propelling us to take up careers that do not satisfy our deeper values or com-

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<sup>36</sup>I am grateful to Richard Garcia, an object relations therapist, whose thinking enriched this discussion.

mitments. Because of the external demands of financial security or professional success, many people find themselves in careers that do not really speak to their deepest values, especially if opportunities are not clearly available for more authentic choices. Many, perhaps most, jobs are done because they are available, rather than because one deeply believes that doing them will make the world a better place. But no matter what work one does, the person is healthier psychologically if it is chosen out of a belief that it is important work, work that needs to be done in order for society to function effectively. Pride in one's work, and a sense of its value, are signs of a healthy internal organization. Regardless of one's choice, questions about right livelihood eventually surface, often in painful ways during midlife or old age when people are likely to assess their contribution to the world. Less reliance on the "false self" would make it easier to choose right livelihood earlier in life.

2. *Inadequate caretaking.* Rather than being too demanding, the mother (or important caretaker) might not be available enough. In the important period of postnatal development and early bonding, perhaps the caretaker was ill or preoccupied by other concerns. Perhaps the infant was abandoned. Many events could conspire to prevent the baby from developing the attachment and separation required for a clear sense of self. Without the foundation of being able to differentiate self from non-self, experiences cannot be ordered, and traumatic confusion will result. The result is a person vulnerable to psychotic states.

**Psychosis** is defined as a severe mental disorder in which thinking and emotion are so impaired that the individual is seriously out of contact with reality. Recent research into the neurochemistry of psychosis shows that important chemical events accompany this profound form of mental disturbance. There are genetic, neurotransmitter, and stress factors that correlate with psychosis. Whether or not one agrees with the object relations interpretation of the genesis of psychosis, most mental health professionals agree that the more extreme forms of mental illness, including various states of schizophrenia and mania, are difficult to treat without chemical medication. As compelling and distressing as the problem of psychosis is, it does not demand our attention here since most persons afflicted with psychotic disorders will not be functioning at a high enough level to make conscious changes in their environmentally relevant behaviors. Most psychotic patients are hospitalized, or barely coping on urban streets or homeless shelters. The environmental implications of their behavior are much more a result of hospital policy and social services staff decisions than they are of the patients or residents themselves.

On the other hand, I have argued in Chapters 1 and 2 that what is required for healing our ecological crises is a reordering of our experience so

that we sense that the division between the self and the non-self is an artificial and constructed split. Am I not urging, in object relations terms, a form of psychosis? This question is not entirely rhetorical, since it is sometimes difficult to discriminate mystical from psychotic states. Is a person who is convinced she or he is "one with everything" enlightened or psychotic?

Object relations theorist Jack Engler took up this question in 1984 when he noted that discovering the constructed nature of the self is dangerous if it occurs before the experience of the self is firmly rooted. Much like the requirement of adequate caretaking in order that the child can withstand the anxiety of withdrawal, Engler argues that

You have to be somebody before you can be nobody. The issue in personal development as I have come to understand it is not self *or* no-self, but self *and* no-self. Both a sense of self and insight into the ultimate illusoriness of its apparent continuity and substantiality are necessary achievements. Sanity and complete psychological well-being *include both, but in a phase-appropriate developmental sequence* at different stages of object relations development. The attempt to bypass the developmental tasks of identity formation and object constancy . . . has fateful and pathological consequences.<sup>37</sup> (emphasis his)

Thus, discovering the intimate interconnectedness and mutuality between planet and self is a developmentally sophisticated task. It cannot be accomplished by short-circuiting any of the critical experiences required for the construction of a stable and secure self-concept. Merging between self and other is possible only after object relations are firmly structured. We will return to the psychoanalytic implications of the unity experience shortly, but let us go on to finish talking about the last form of aberration of our object relations curriculum, and assess its implications in terms of environmentally relevant behavior.

3. *Adequate caretaking withdrawn too quickly.* Caretaking that starts out being adequate but that is withdrawn too quickly can damage the trust a child needs to build in order to interact effectively with the world. A damaged sense of trust can result in a variety of neurotic reactions. We will discuss four which are likely to have an impact on environmental behavior: narcissism, depression, paranoia, and compulsion.

a. *Narcissism.* First, if an infant suffers a prolonged state of unmet needs, its orientation could become fixated on need gratification, producing a chronic state of narcissism. The child learns it cannot depend on the world to satisfy its desires. Such a child will have difficulty recognizing or

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<sup>37</sup>Engler, J., "Therapeutic aims in psychotherapy and meditation: Developmental stages in the representation of self," *The Journal of Transpersonal Psychology*, 16 (1984): pp. 25-59, 51-52.

respecting objects and people outside the self who do not offer to alleviate its needs.

From this perspective, a large part of our difficulty could be understood as a kind of mass narcissism, in which we have assumed that nature exists for our need gratification. Our inability to appreciate nature for its own complexity and beauty signals a deeply seated narcissism whereby we see the natural world only as resources, which should be extracted and used by human beings for the comfort and convenience of human beings alone. At best, other species are considered irrelevant; more likely their well-being is jeopardized because we consider them either useful for our purposes or harmful to our comfort. Human needs are central; other species' needs are peripheral, competing, or illusory. Freudian theory laid the groundwork for this idea in general by positing that the ego tries to meet the id's biological needs by acting on the environment. Only the superego can restrain the id/ego partnership through moral injunctions. It takes a somewhat well developed personality to inhibit abusive instincts.

But object relations theory puts an interesting spin on this general point. From an object relations point of view, our human anthropocentrism, and the Great Chain of Being idea discussed in Chapter 2, are indications of our limited psychological development. By positing that we are "on top" of the biological spectrum, we portray our immaturity, our narcissism. These comments are not made to suggest that humans should be forbidden to use other species or elements of the ecosphere; all species feed on one another, and life in general would be impossible without the food chain that subjects one species to another's biological needs. What I am suggesting, however, is that our Western tendency to regard *all* of the natural world as simply a storehouse of natural resources awaiting our use is narcissistic.

Narcissism can be more personally lodged and can prevent recognition of our responsibilities to members of our own species. For example, we live for the present, and try to suppress our fears for the next generation. We focus on the well-being of our own family and try to suppress our concerns about others in our neighborhoods, or those in the Third World. Recognizing and concerning ourselves with the needs of others requires that we go beyond our own need gratification.

Narcissism can also set the personality organization for addiction. Addiction behaviors are maintained by what Freud called **compulsion**, meaning any repetitive action that a person feels driven to make and is unable to resist. As a defense mechanism, compulsions help us manage anxiety. For example, most of us have had the experience of ameliorating a bad mood or experience by purchasing something new. In fact, there are many womens' jokes about it, such as the greeting card that says on the cover,

"I'm depressed"; and inside says, "Wanna go shopping?" For many people, shopping is an addiction. The person knows that it is not appropriate, and some people even do it in private, hoping that their friends will not see them (a key signal of addictive behavior). Consumer goods offer a temporary substitute for the loss of a nurturant environment we experienced early in life, but no longer can. Addictions can also involve drug or substance abuse, compulsive eating or gambling, sexual activity, etc. In all cases the individual's experience is organized around need satisfaction; the world is simply a place that offers or denies the opportunities to satisfy one's needs. Unfortunately, however, addictive needs and narcissistic impulses are never satisfied, because the target objects cannot feed the deeper psychological need for self definition.

*b. Depression.* If the child experiences too sudden a withdrawal, unmet needs could lead to chronic despair. The child would become vulnerable to depression, suffering a primal loss of confidence in the outside world and its own ability to affect it. A chronic sense of loss, hopelessness, or grief would pervade the personality, and the individual would be susceptible to bouts of depression, especially whenever real losses are incurred. The ability to "keep the faith" would be difficult for such individuals.

Depression is a serious psychological problem that often leads to suicide and suicide attempts. The incidence of successful suicide has increased dramatically recently, especially among American young people between 15 and 24 years old, whose suicide rates have quadrupled in the past four decades. A recent study of high school students showed that 27% had "thought seriously" about suicide, and one in 12 said they had tried.<sup>38</sup> From an object relations viewpoint, this increase would be understandable in light of the increasing number of babies who are born to parents who are either physically or emotionally unavailable to them, either through overwork, divorce, teenage pregnancy, or substance abuse. Research also shows that adults who are prone to depression are more likely than average to have lost a parent early in life.<sup>39</sup>

As adults, our reactions toward environmental difficulties can easily lead to despair, especially as the complexity and the enormity of the problems become clearer to us. Understanding our environmental predicament can shrink our trust that the world will provide for us, and in some ways diminished trust seems appropriate. On the other hand, our need to find active and creative solutions to a deteriorating physical world also requires that we stay hopeful, if not always confident.

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<sup>38</sup>Atkinson, *et al.*, *ibid.*, pp. 638-640.

<sup>39</sup>Barnes, G. E., and Prosen, H., "Parental death and depression," *Journal of Abnormal Psychology*, 94 (1985): 64-69.

*c. Paranoia.* Finally, the child could translate lack of trust into chronic paranoia, in which it experiences the world as an antagonistic place where only bad things can happen. Such a person lives in a chronic state of fear and suspicion, fearful that at any moment someone may turn against her or him. Full-scale paranoia is an unusual pathology, but more subtle versions are quite common. Consider, for example, Freud's view that nature stands in opposition to human existence and must be tamed by technology so that its nefarious effects are reduced. From an object relations perspective, our Western view of a separate and threatening universe illustrates a cultural pattern of diminished trust projected onto nature.

By now, you might be thinking that this is a lot to blame on early caretakers. Other schools in psychology (like the behaviorists, who are the focus of Chapter 5) put more emphasis on the present causes of behavior, rather than on the early history of the individual. Focusing on the present makes it easier to see what and how to change. However, when we examine how difficult it is to change some of our habitual behaviors, I believe there is utility in the notion that deeply patterned experiences of the self in relation to the world provide an important template on which the rest of the adult personality is built. For me, the important contribution of object relation theorists is the proposition that the self is a construction based on many experiences, experiences that occur early in life and lay down character patterns that are difficult to change.

Difficult, but not impossible. Although becoming conscious of our character patterns is not easy, awareness of them does offer the opportunity to make choices outside the patterns. A paranoid person may become aware of the paranoid pattern, and with the help and experience of more trustworthy relationships, choose to trust instead, knowing that the trust response is awkward and difficult but important to make because it contradicts the character pattern. Similarly, a compulsive shopper may become aware that shopping is an addiction and choose to satisfy needs for connection through some other method, even though unconscious impulse would still lead the person in the direction of the shopping mall. Choosing to contradict the pattern will not happen until the person becomes conscious of the pattern, and the myriad ways in which it unconsciously drives behavior. But when a person comes to recognize the pattern, then alternative choices can be made. The important insight, I believe, is that the self and its relationship to the world, as well as the defenses that we use to manage our anxieties, are all psychological constructions. Becoming aware of our deeply set patterns and habitual defenses offers us the opportunity to see their constraints and to begin to act outside them.

Thus, object relations theorists see the self as a complicated psychological project constructed from the earliest experiences of relationship with the world, especially the primary caretaker, who is most often the mother.

The ability to heal the split between planet and self is a function of how healthy or disrupted those earliest experiences were. From an object relations perspective, the phrase “Mother Earth” makes tremendous sense: we experience our relationship with the planet in terms of our experience with our mother. Our earliest encounter with our first object—the caretaker or mother—becomes a foundation for our relationship with all other objects.

Engler went a step further to argue that the ability to experience unity requires the previous accomplishment of separation/individuation. That is, we must first develop a separate self in order to withstand the experience of unity between self and planet. Psychotic blurring of boundaries can result when the self project is not accomplished before the mutual interpenetration of self and non-self is experienced. In other words, in order to heal the split between planet and self, we must have a strong sense of self, so that we can then learn to experience its illusory nature without suffering psychotic breakdown.

### HEALING THE SPLIT BETWEEN PLANET AND SELF: FREUD'S VIEW

The question of unity between self and world was one that Freud took up in his own personally honest and personally limited way. In his *Future of an Illusion* (1927), Freud argued that religion is simply an expression of human fears and compulsions, without validity or merit, except as a complicated defense mechanism. Remember that Freud was a complete disciple of the Enlightenment, and part of his life's goal was to demonstrate the folly of religious sentiment. His “dismissive, unvaryingly antagonistic attitude toward religion, all religion, is at once cause, sign and consequence of [his] total commitment to science.”<sup>40</sup> But (as he tells us in the beginning pages of his next work, *Civilization and its Discontents*) Freud received a puzzling letter from a friend of his who felt that in *The Future of an Illusion* Freud had not “properly appreciated the true source of religious sentiments.”<sup>41</sup> To Freud's credit and consternation, this friend caused him to reconsider his analysis of religion and ask himself if he had gotten it wrong.<sup>42</sup>

<sup>40</sup>Gay, P., *The Freud Reader* (New York: W.W. Norton, 1989), p. xix.

<sup>41</sup>Freud, S., *Civilization and Its Discontents* (New York: W.W. Norton, 1961), p. 11.

<sup>42</sup>Freud's reconsideration of his views on religion because of later evidence that did not fit was an example of his lifelong ability to revise his views if new evidence suggested they were incorrect. Although Freud was not a scientist in the more formal sense of the term (in that he ran controlled experiments and evaluated their results quantitatively), he was most certainly an empiricist, who continually checked his ideas against his observations and revamped his theory when necessary. Freud's inability to qualify his views on the basis of the disagreements that his colleagues and prodigies expressed is a curious contradiction to the openness with which he was able to revise his thinking when he was alone with his ideas.

Freud had much admiration for his friend, whom he believed was truly exceptional. The friend had claimed that his own religious sentiment stemmed from, in Freud's words, a

feeling, which he himself is never without, which he finds confirmed by many others, and which he may suppose is present in millions of people. It is a feeling which he would like to call a sensation of eternity, a feeling as of something limitless, unbounded—as it were, “oceanic.” This feeling, he adds, is a purely subjective fact, not an article of faith; it brings with it no assurance of personal immortality, but it is the source of the religious energy which is seized upon by the various Churches and religious systems. . . . One may, he thinks, rightly call oneself religious on the ground of this oceanic feeling alone, even if one rejects every belief and every illusion [contributed by the church].<sup>43</sup>

Freud goes on to admit that he has never experienced such a feeling himself “but this gives me no right to deny that it does in fact occur in other people.”<sup>44</sup> But he tries to explain the genesis of this oceanic feeling in psychoanalytic terms, and he suggests that it stems from the original experience of unity with the mother, a feeling that can exist in certain adults, alongside the experience of separateness. To support the logic of an earlier structure existing simultaneously with a latter one, Freud develops a (rather lengthy) discussion of the city of Rome as an analogy, describing how the oldest parts of the city exist along side the newer parts. Thus, oceanic experience is a memory of infantile experience, and because infantile experience is also saturated with the feeling of helplessness, which is a key element of religious sentiment, Freud satisfies himself that religion stems from the earliest experiences of the infant. Freud then admits that because he does not possess this feeling, he does not feel comfortable theorizing about it, and concludes his chapter by rejoicing in going on to other less esoteric matters.

I find Freud's attention to oceanic experience and his explanation for it intriguing because it demonstrates the limits of psychoanalysis as well as of Freud. Freud himself experienced separation rather than connection as the fundamental reality of human beings; oceanic experience, he believed, was a vestigial illusion, a remnant memory of early experience, but not a reality. His own long-term experience of separation and pessimism saturates his view of human beings and their pathetic fate. I am suggesting here that Freud was both intellectually honest and self-revealing in attributing oceanic experience to an earlier memory, a regressive illusion, and that he did not have the requisite personal experiences to pursue the concept in

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<sup>43</sup>*ibid.*, p. 11.

<sup>44</sup>*ibid.*, p. 12.



any more depth. That is left to his followers, Jung and Maslow, who we will meet in Chapter 7.

## USING FREUD'S IDEAS

From the Freudian perspective, our environmental difficulties and our solutions to them must focus on unconscious feelings. Because Freudian theory stresses unconscious motivation, it is often difficult to see its principles directly. Sometimes distancing ourselves from our own behavior can aid in sponsoring insights. So I ask you to imagine, for a moment, what human beings would look like to a visitor from outer space.

That visitor would discover a planet populated by a species systematically destroying its own habitat. The creatures who are destroying themselves through overconsumption and overpopulation think themselves intelligent and rational, but are actually driven by deeply unconscious needs. Rushing through existence in order to procure more and more appetite satisfaction, the animals instead enjoy less and less fulfillment. What would such creatures do on a planetary scale? What kind of life would such an animal build? What kind of society would it create? Likely, a destructive one, because the animal would not realize its own unconscious drives. Its need for both pleasure and aggression would result in overconsuming and overpopulating, eventually destroying its own habitat in a blind race to satisfy its own deeply unconscious needs. Meanwhile these animals would destroy other species as well as themselves. Seeing themselves in opposition to nature, rather than part of it, this species lives in chronic insecurity and alienation, but does not know from where these feelings arise. It enjoys transforming and destroying nature, but lives in fear that the process can reverse itself, so that nature will destroy them instead. With conflicts arising from unrecognized opposing needs for Eros and Thanatos, morality (*superego*) and selfishness (*id*), autonomy and belonging, the creatures behave inconsistently, sometimes obeying one need, sometimes another.

Yet rather than learning about their deeper needs from their behavior, the creatures simply carry on, filling their time with compulsive acts that symbolically express their deeply buried instincts for sensual pleasure and physical destruction.

The creatures do not understand this general pattern, nor their own idiosyncratic variations on it, because their earliest experiences are buried. Living in chronic alienation from nature, they also are distanced from their own physical bodies. The creatures build institutions and cities that block them from experiencing the physical world. Their cities symbolize their vast defenses against nature as well as their own feelings. Some of the crea-

tures even come to believe that the physical world is simply a figment of their intellect. Terrified of their own past feelings of infantile vulnerability, they convince themselves that their true identity resides in their social roles and responsibilities. Consequently, at a deep level, they feel isolated, for they suspect that they are more than their roles, but they know not what.

To stay away from their earlier feelings of vulnerability, they construct elaborate defenses to convince themselves that they are powerful and autonomous, rational and generous. Instead, they really are selfish, terrified, and plummeting toward their own demise.

Sound familiar?

For most of us, learning about the way in which our current levels of consumption drive a global system of destruction is discomforting. What am I to do in a world in which my car is possible in part because 1 billion people are forced to drink unsafe water, watch their children die of preventable diseases, and live in urban slums of unspeakable destitution? Realizing our place in the world and the economic order we encourage through our overconsumption is likely to cause us anxiety, and consequently, from a psychoanalytic perspective, our defenses would be expected to kick into high gear.

Recall the discussion of development and underdevelopment, overconsumption and poverty, from Chapter 3. While you were reading this material (or any other so far) did you have any defensive reactions? Irritation would be likely to lead to rationalization (the poor are lazy and deserve it); denial (this is left-wing hogwash); suppression (I cannot let myself think about this stuff); or projection (look how greedy and selfish X is!). Or can you identify any other defenses?

To approach our difficulty from an analytic framework, we have to talk about the psychotherapy that Freud developed—**psychoanalysis**. Because behavior is run by deeply unconscious forces and maintained by an active defense structure, we must learn to experience the unconscious feelings in order for anything to heal. For this reason, Freud believed that emotional material must be allowed to surface and be expressed. This expression he called **catharsis**, a term he borrowed from Aristotle. Catharsis is a sudden, spontaneous, and powerful emotional expression that slips past the defenses. Freud viewed psychic energy as a steam engine, which would eventually explode unless energy was released somewhere. Emotional discharge frees this tightly organized system of defenses. Catharsis enables us to be freed from the energy expenditure tied up in keeping the unacceptable feelings unconscious.

From an analytic point of view, we will not be able to creatively develop solutions to our predicament until we allow ourselves to experience the uncomfortable feelings that our predicament causes. Thus, the first step in

solving our environmental problems is to allow ourselves to feel. The feelings that we defend against will be not pleasant: anger, sadness, disappointment, shame, or fear, or whatever feelings we have because of our planetary predicament will be uncomfortable. These feelings are legitimate reactions to our situation, and our attempts to block them only stand in our way of true healing. Without the direct experience and expression of such feelings, part of our psyche must be allocated toward arranging a defense of them, thus robbing our full intelligence for finding creative solutions.

With this model, psychotherapists such as Johanna Macy have developed “despair and empowerment work” to free up psychic energy for more adaptive behaviors. For Macy, despair rests just under the surface of our psyches, embedded in a feeling of powerlessness and meaninglessness. Expressing the despair often leads to concomitant expression of fear and anger. Such catharsis, however, then frees up the psyche to redirect energy toward adaptive solutions.

Despair and empowerment work . . . refers to the psychological and spiritual work of dealing with our knowledge and feelings about the present planetary crisis in ways that release energy and vision for creative response. . . . Repression is physically, mentally and emotionally expensive: it drains the body, dulls the mind and muffles emotional responses. When repressed material is brought to the surface and released, energy is released as well; life comes into clearer focus. Art, ritual, and play have ever played a cathartic role in our history—just as, in our time, psychotherapy does too. By this process the cognitive system appropriates elements of its experience, and by integrating them gains a measure of both control and freedom.<sup>45</sup>

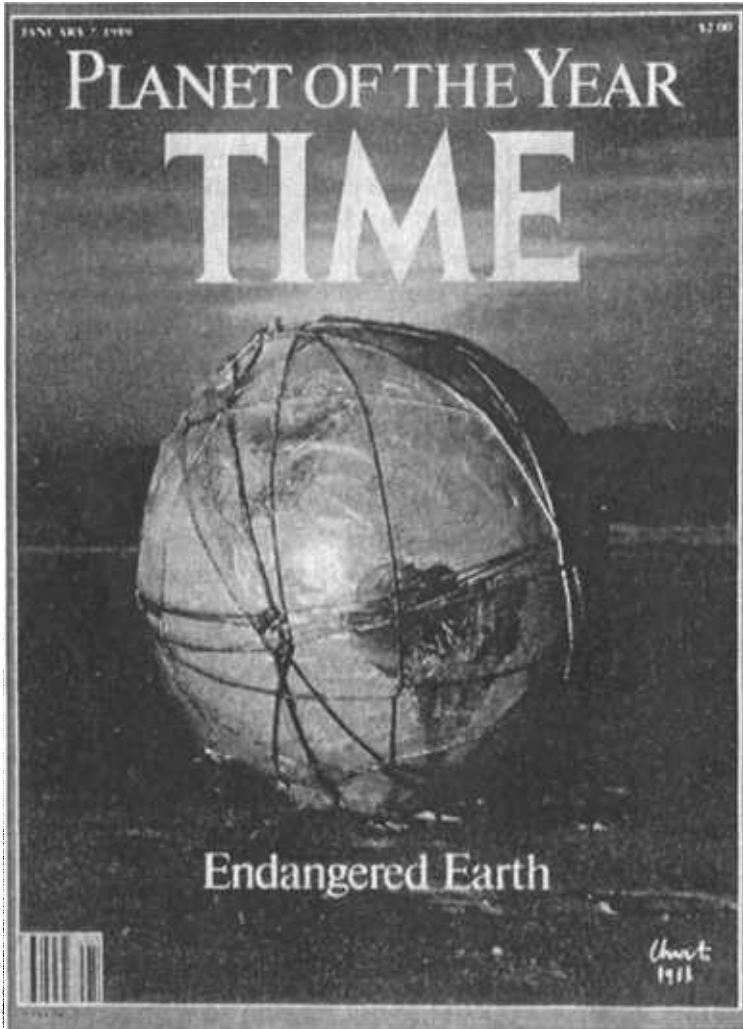
Even without attending a group or session to do such work, however, you can profit from this approach by taking a moment to visualize a trashed world, clogged by pollution and starving or greedy people, depleting its last resources. Take a few minutes to gaze at the figure on page 149, which expresses the condition of the world that we will pass on to our children.

What feelings surface in you? Your appreciation and understanding of the Freudian approach will be enhanced if you write down your reactions. Allow yourself to “climb into” even the most fleeting of sensations, so that you can further identify and “own” those feelings. The more fully you allow yourself to experience your feelings, the more your energy will be available for redirection toward creative solutions.

A Freudian perspective would predict that as we begin to sense the absurdity of this planetary predicament, many of us will have some sensation

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<sup>45</sup>Macy, J. R., *Despair and Personal Power in the Nuclear Age* (Philadelphia: New Society Publishers, 1983), pp. xiii, 23.



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of anxiety, sadness, or helplessness. Working with these emotions for a few moments will help you experience them more fully. It will probably also help you experience how automatic and habitual the defense system is. We don't WANT to experience painful feelings, and we find myriad ways to stay away from them. Track not only your feelings, but the ways in which you defend against them.

A despair/empowerment therapist would help you to exaggerate these feelings, allowing the expression of them to become fuller and fuller, until the whole of you is immersed in them. This holistic response would allow for a temporary cessation of the splitting that we ordinarily use to maintain

our functioning. Once the splitting is interrupted, the full power of the person can be experienced. Much of our resistance to the full experience is the fear that as soon as we allow it to occur, we will be immobilized. If I allow myself to experience any sadness, I will be overcome by chronic despair. Just the opposite happens, however. Once I allow myself to experience the fullest degree of sadness, energy is lined up and available for redirection.

From a Freudian perspective, our deeply set instinctual drives will be difficult to change (although not impossible). Adult character is built on an infantile pattern of neediness, and the accouterments of adult society function as symbolic expressions of those needs. Although we do not really need the luxury car, we DO need the sense of self-edification and validation that such a car provides. Until we change the social meanings of luxury items in a consumer culture, we will be unlikely to change our behavior patterns. Unless, that is, we develop insight into the ways in which our behaviors are irrational expressions of deeper needs that can be satisfied in more direct ways. Until we do the necessary emotional work of confronting and experiencing our deeper feelings, behavioral changes will be superficial and fleeting.

Let us consider the problem of overconsumption from a Freudian perspective. Knowing that we Americans constitute 5 percent of the globe's population but consume over 30 percent of its resources, and knowing what a problematic chain of events such overconsumption creates in the global system, our superegos would create moral injunctions against unnecessary material purchases. Yet from an object relations viewpoint, purchases represent an unconscious expression of self; from an analytic framework, we are unlikely to be able to significantly change our behavior until we examine the unconscious motives behind our consumption patterns. What would this mean in terms of our daily behavior?

We might decide not to go to the shopping mall because we recognize the temptations that would meet us there. We might even decide out of moral responsibility to forgo a particular purchase that we would enjoy making. But psychoanalytic theory would predict that resolutions made on these grounds will eventually fail. Our resolutions are likely to deteriorate, and our unresolved issues will express themselves eventually, either through more binge shopping, harsh criticism of somebody else's consumption behavior, or other substituted forms of consumption. It is not until we experience and integrate the deeper unconscious feelings that we will be able to reduce our consumption permanently. When I recognize that my interest in a new CD is really coming from an old feeling of being deprived or feeling powerless, I can choose to notice all the ways in which I am currently not deprived or am really powerful. When such feelings are made conscious, recognized, and integrated into the adult world, the new purchase looks and feels obscene and ceases to interest me.

Changing instinctually driven behavior will be difficult, but this does not mean that we should not start trying immediately. What it does mean is that our initial efforts are likely to be inconsistent. Moreover, it means that we should try to stay in touch with the *feelings* that motivate the purchase, that facilitate or deny the purchase, and with alternative means for expressing our sense of self. There are often more direct ways to sublimate the impulse than through buying unnecessary “goods.” For example, sometimes it is easy for me to forgo a sale. At other times, impossible. When I give in to my irrational impulse, it is difficult for me to remain conscious of what motivation is driving my action. When I do try, I notice that I am shopping not from real need but from an old psychological need for self comforting, edification, or importance. Then I can sublimate those needs far more effectively by doing something else that makes me feel good about myself. But from a psychoanalytic perspective, consciousness is crucial. Eventually, with several years of steady practice, my consumption patterns will change. But they will not change before I confront and become conscious of my deeper feelings for self-validation, pleasure, and aggression, finding other ways to sublimate those needs instead of through environmentally destructive behaviors.

Thus, from a Freudian perspective, you can begin to create a sustainable world by:

1. Being willing to experience your own despair, anxiety, sadness, or anger over a faltering physical world and the enormity of the global dimensions that drive its environmental crises, expressing those feelings fully in a safe place so that energy ordinarily used by defenses can be freed up and redirected to creative solutions.
2. Recognizing your own defenses and working gently with them; seeking out troubling information and noticing how uncomfortable it makes you; noticing your reactions that help you avoid discomfort, and gently choosing alternative behaviors.
3. Recognizing your own unconscious needs to express personal identity through material consumption; finding alternative ways to direct your energy and your needs for self-fulfillment.
4. Choosing a specific project for helping to create a sustainable world and allowing yourself the latitude to be inconsistent, ambivalent, anxious, or inefficient as you complete it. (For a short list of the necessary components of a sustainable world, see page 300.) Pursuing your project with gentle firmness. Supporting others to do so as well.

In conclusion, the psychoanalytic tradition gives us a rich set of ideas with which to consider our ecological predicament. Freud formulated important understandings of the role of the unconscious, of defense mech-

anisms, and of the bodily basis of our unconscious motivations. The object relations theorists extended his work to focus on the construction of the self and a way of thinking about variations in the self/world experience. In general, the Freudian tradition suggests that changing our sense of our selves in the world and our relationship to nature will not be an easy task. We have deeply rooted character and motivational reasons to believe that we are separate beings, competing for the resources of nature. Our traditional focus on males and masculinist ideas furthers our separatist visions. But the Freudian tradition greatly helps us to reconsider our views by demonstrating the unconscious and irrational mechanisms that support them.

As a determinist, and a pessimistic one at that, Freud saw little hope for the ability of human beings to survive and transcend the incontrovertible forces of nature that ply us at every turn. Freud well understood human efforts to fend against nature, and even glimpsed the destructive potential that our successful attempts might bring. By suggesting that “men [sic] have gained control over the forces of nature to such an extent that with their help they would have no difficulty in exterminating one another to the last man” (in the opening quote to this chapter) Freud recognized the anxiety that our control of nature elicits, even 20 years before the creation of the atomic bomb. Since it is no easier to control our own natures than it is to control the outer physical world, our illusion of technological control is both dangerous and frightening.

Yet we do not have to adopt either Freud’s determinism or his pessimism to use and profit from his ideas. To the extent that we are willing to experience some discomfort, we can begin to examine our own defense structure, and the underlying object relations pattern that it supports. Have you ever noticed that it is the more mature, self-aware, and insightful people who are able to note their limitations without being devastated by them? By noticing our own short cuts in thinking, our own attempts to justify our actions and ward off discomfort, our chronic orientation to the world around us, and our habitual attempts to soothe our vulnerable self-concept, we may become more mature, more conscious, and ultimately more likely to survive. Thus, in order to become conscious, we must learn about the ways in which we are unconscious. Such learning is not easy, but if, however, you have managed to sense a defense or two, or an ego pattern that you use, you are well on your way.

# 5

C H A P T E R

## *Behaviorism: Emphasis on the Environment*



What we need is a technology of behavior. . . . Better contraceptives will control population only if people use them. . . . New methods of agriculture and medicine will not help if they are not practiced, and housing is a matter not only of buildings and cities but of how people live. Overcrowding can be corrected only by inducing people not to crowd, and the environment will continue to deteriorate until polluting practices are abandoned.

B. F. Skinner, 1971<sup>1</sup>

**F**rom a behavioral perspective, our global threats are a result of inappropriate human behavior. Attempting to understand this behavior by looking at our unconscious conflicts is an unnecessary detour. Regardless of what people *say*, it is what they *do* that counts. Sooner or later our behavior must change if we are to extricate ourselves from our ecological predicament. The wizardry of our technological solutions might be impressive, but if we do not develop a *behavioral* technology to change what we actually *do*, everything else is fluff.

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<sup>1</sup>Skinner, B. F., *Beyond Freedom and Dignity* (Englewood Cliffs, NJ: Prentice-Hall, 1971), p. 5,4.



How can human behavior be changed? Most of us would probably first think of educating people, changing their attitudes and beliefs, so that they then could choose more appropriate behavior. We assume that people choose their behavior to be in line with their beliefs. Surprisingly, however, as we discussed in previous chapters, our beliefs and attitudes are only indirectly related to behavior. Trying to change people's behavior by changing their beliefs is often unsuccessful. In fact, behaviorists would not be surprised by the claims made in the opening pages of this book that we suffer from *knowing* about environmental problems, but not knowing what to *do* about them. Behaviorists have always argued that we might as well "cut to the chase" and target our efforts directly on behavior change. Getting distracted by trying to change hypothetical inner events like unconscious feelings or attitudes is a waste of precious time.

Instead, behaviorists have focused on the ways in which our outward behavior is controlled by the environment, especially by the rewards and punishments that follow what we do. When I say *environment* here, I mean the total physical, social, political, and economic situation in which a person behaves. This is a wider use of the term than has been employed up to now in this book. Previously, my use of the word has referred to the more physical dimensions of our habitat, such as resources and pollution, water and wilderness. But behaviorists have argued, for reasons described below, that our behavior is a result of the environmental stimuli that surround our behavior, especially the stimuli that cue us and reward us. Our behavior changes when the environmental stimuli change; conversely, we can change behavior by changing the relevant stimuli. Thus, our behavior changes the environment and the environment changes our behavior. Because of this two-way relationship, *we exist in a behavior/environment interactive system*. And because of this system, we cannot define who we are, or what we do, without examining the environment in which we behave. This idea of a functional unity between the person and the environment is a crucial contribution to which I will return at end of this chapter.

Although the behavioral approach in psychology is not as popular as it was several decades ago, I believe that its insights can significantly enhance our understanding of both our environmental problems and their solutions. In addition to the continuity between organism and environment briefly described above, behavioral theory gives us many useful concepts and principles with which we might redesign the environment to maximize environmentally appropriate behavior, and I describe many of these concepts in the middle part of this chapter. But first we need to look at what behaviorism is, and how it came to have such an enormous impact on the field of psychology. In fact, its influence has been so strong that some have even argued that it was too successful for its own good: important elements of the

behavioral viewpoint have been so thoroughly assimilated into mainstream psychology that they are not even discussed anymore. Measuring observable behavior is so common a feature of good research that we no longer call it behaviorism.<sup>2</sup>

As we saw in Chapter 4, Freud also made tremendous contributions to our modern way of understanding ourselves, to the beginning of clinical psychology, and to contemporary academic disciplines such as literary and art criticism. But eventually, his impact on psychology was eclipsed by the laboratory scientists of the 1930s and 1940s, especially the behaviorists. As we discussed in Chapter 4, Freud's concepts are useful for working with symbolic material, but they are difficult to test scientifically, primarily because it is hard to measure the activity of the "unconscious." In fact, the brash behaviorists have always argued that we should not even try. Psychology, itself a young and ambitious science by the turn of the century, required theory that could be translated into testable, measurable observations. Freud's theory did not deliver, but behaviorism did. By the late 1950s, behaviorism had become the dominant force in psychology and its principles still influence much of what psychologists do today.

**Behaviorism is defined as the science of behavior.** In the early days that meant behaviorists would not even talk about what went on inside the organism, like conflict or consciousness, ideas or images, attitudes or affects. Today, behaviorists are more willing to speak of behaviors that are "covert," but the focus is still on the outward, observable behavior of humans and other animals. To understand why, we need to look back to the beginnings of psychology and see what arguments were being pursued and by whom. The early decades of psychology were lively and contentious, and behaviorism emerged the victor only after many vicious battles between the representatives of different schools of psychology that were competing with each other.

## HISTORICAL BASIS OF BEHAVIORISM

Psychology as a discipline is generally acknowledged to have begun in 1879, when Wilhelm Wundt launched the first laboratory at the University of Leipzig. Wundt also edited the first journal in psychology and laid out the principles of his system, called **structuralism**, which quickly became the enemy against which the later schools fought. Structuralists sought to

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<sup>2</sup>Boring, E. G., *A History of Experimental Psychology* (New York: Appleton-Centry-Crofts, 1957).

understand the fundamental organization of human consciousness. Wundt asked his subjects to describe verbally the contents of their experience so their awareness could be analyzed and broken down into smaller elements. Structuralists approached consciousness as a chemist would approach a naturally occurring compound: the task was to isolate the elements and understand how they combined to form human experience. The structuralists wanted to map the structure of our awareness, and they did not care if our understanding of consciousness had any practical application or not. They worked hard at making introspection an objective, reliable method for producing data by training their subjects to report their experience according to strict rules. But the verdict of history is that they never succeeded. Structuralism could not satisfy its own requirements for objectivity no matter how sophisticated and arcane the method of introspection became.

Meanwhile, in America, psychology had a different flavor. In this energetic and lively new country, **functionalism** was being developed by psychologists who wanted to use the new discipline of psychology to help solve human problems and improve the human condition. Functionalists didn't worry about the theoretical structure of consciousness; instead they sought to understand the ways in which we adapt to our environment. Functionalists started with a pragmatic and applied approach and were willing to use many more methods than the strict introspection that Wundt had developed in Germany, so long as those methods produced reliable measurements. Their interests in human problems led them to work in applied areas, and they quickly developed the fields of educational and abnormal psychology. Representatives from the functionalist and structuralist schools engaged in vigorous debate that sometimes degenerated into bitter conflict. They fought about the purpose of psychology (should it be useful? should it be "pure"?), about its methods (should it rely on introspection? should it look only at observable behavior?), and its context (should it be based in the laboratory or in the field?).

Behaviorists were very much influenced by these American functionalists, not surprisingly because both behaviorism and functionalism were born in the United States. John B. Watson (1878–1958), usually named as *the* first behaviorist, argued vehemently that psychology should not waste time with so-called internal events like structuralists did, but should instead focus its inquiry on the directly observable, measurable, outward behavior of the organism. By the time Watson wrote his influential book on behaviorism in 1924, he had the work of Ivan Pavlov, a Russian physiologist, to draw on. Two decades earlier, Pavlov had conducted his research on the digestion process of dogs, where he had unknowingly laid out the basic vocabulary and approach of behavioral psychology.

Pavlov's work was ingenious (if brutal), and we can see now why his concepts became so important for behavioral psychology. Pavlov surgically externalized the salivary gland of a dog so that he could measure how much the dog salivated when a **stimulus** such as meat powder was presented. Strapping the surgically altered animal into a harness, Pavlov discovered, somewhat by accident, that the dog would also start to salivate to a neutral stimulus, such as a ringing bell, if that bell was followed by the meat powder several times. This procedure became known as **classical conditioning**. By pairing a neutral stimulus (the bell) with an **unconditioned stimulus** (the meat powder), a **conditioned response** (salivation) could be trained. Pavlov also demonstrated three additional principles of conditioning, which have become core "laws of behavior":

1. A conditioned response will disappear (**extinguish**) if the conditioned stimulus (bell) is repeatedly presented without the unconditioned stimulus (meat powder).
2. The organism will **discriminate** between two different conditioned stimuli (bells) if the unconditioned stimulus (meat powder) is presented only with one of the stimuli.
3. The organism will also respond (salivate) to a novel stimulus (a bell of a different tone), although not as strongly as it would salivate to the original bell. This spread of response to different but similar stimuli is called **generalization**.

These concepts—conditioned response, extinction, discrimination, and generalization—have become hallmark concepts of behaviorists and are still among the core behavioral principles used today.

A contemporary example of classical conditioning at work might be the public fear about nuclear accidents. News reports of the Chernobyl accident, and even footage from the Hiroshima and Nagasaki bombs of World War II, show the horrendous suffering that people have endured from radiation sickness. These pictures produce unconditioned responses of horror and anxiety in viewers. Such emotional responses become paired with images of nuclear power plants, and eventually the emotions are generalized to the concept of *all* nuclear power plants. Nuclear engineers are fond of calling this fear "irrational." They point out that so far, more people have died in accidents from hydropower and coal plants than nuclear plants.<sup>3</sup>

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<sup>3</sup>For example, see Fox, M. R., "Perspective in risk: Compared to what?" Paper presented to the American Society of Heating, Refrigeration, and Air Conditioning Engineers, Nashville, June 1987. Reprinted in *Vital Speeches of the Day* (September 15, 1987), pp. 730–732. Fox was a staff engineer for the Environmental Assurance Office, Westinghouse Hanford Co.

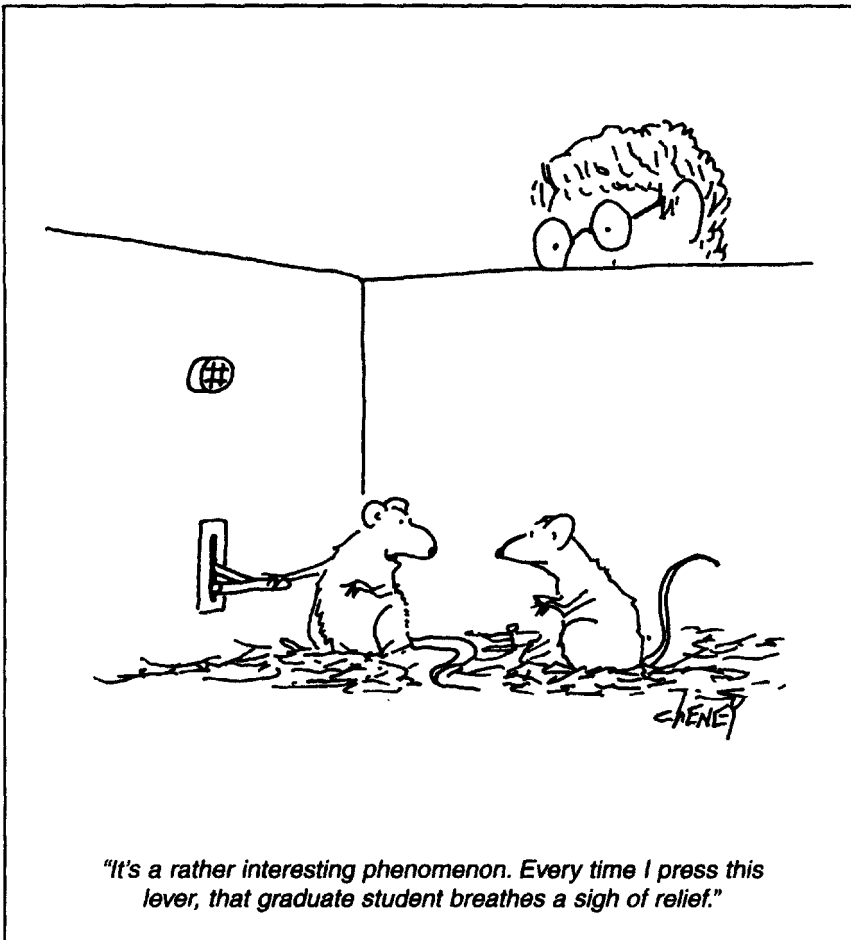
However, numbers cannot attenuate the very strong conditioned response to nuclear power plants. If the nuclear industry better understood the process of classical conditioning, it might have a clearer idea about the genesis of public fears. As it is, many people feel patronized when they hear nuclear officials call the public irrational or paranoid, and this reaction further exacerbates the problem of public trust in the nuclear industry. We will talk more about the issue of nuclear risk in Chapter 6. For now, this example echoes a major theme of this book, which is that information alone does not change behavior.

From a behavioral viewpoint, humans and “lower animals” condition according to the same laws, and Watson continued Pavlov’s work by demonstrating its application to humans. Watson showed that conditioned responses could be trained in small children, and he actually trained an 11-month-old baby, Little Albert, to emit a conditioned fear response (crying) to a previously neutral stimulus, a small furry white rat, by pairing the furry rat with a loud noise (unconditioned stimulus). Watson argued that all emotion is simply classical conditioning. But more importantly, he also argued that we can best understand behavior by looking at the antecedent conditions—the stimuli—that control it. Thus, behavior, he argued, is simply a series of *responses* to different stimuli, and our behavior changes when the arrangement of *stimuli* that precede it is changed. Furthermore, there is no need to waste time with any so-called mental events that may or may not be there. Studying the observable stimuli and measurable responses is good enough. Hence, **S-R** (stimulus-response) psychology was born.

## SKINNER’S OPERANT LEARNING PRINCIPLES

A number of important behaviorists followed, but it was B. F. Skinner (1904–1990) who did the most to catapult behaviorism to America’s most important approach in psychology by the middle of the 20th century. Skinner used the basic vocabulary created by Pavlov, but in the 1950s formulated his own version of conditioning to reverse the role of the environment. In addition to looking at behavior as a result of the environmental stimuli that precede it, Skinner emphasized the effects that behavior has *on* the environment. Skinner called this behavior/environment relationship **operant conditioning**, because in his experiments the organism “operated” on the environment and thereby changed it. The most obvious way in which this occurred was when an animal such as a rat was placed in a “Skinner box” equipped with a bar and a feeder. When the animal pressed the bar it operated the feeder, delivering a food pellet back to the “operator.”

Unsurprisingly, when behavior was reinforced with food, the behavior would increase. The consequences of the rat's behavior changed its behavior. Furthermore, the animal was able to control its environment by its behavior—its pressing the bar produced food. Thus, for Skinner, and the many behaviorists who followed, we can best understand behavior (animal as well as human) by studying not only the effects of the environment on behavior, but also the effects of behavior on the environment. If the behavior has reinforcing consequences, it will increase. If it has punishing consequences, it will decrease. Moreover, Skinner believed that it is better to control behavior by applying positive consequences (reward) than by applying negative consequences (punishment), because punishment often produces undesirable behavioral side effects, such as anxiety.



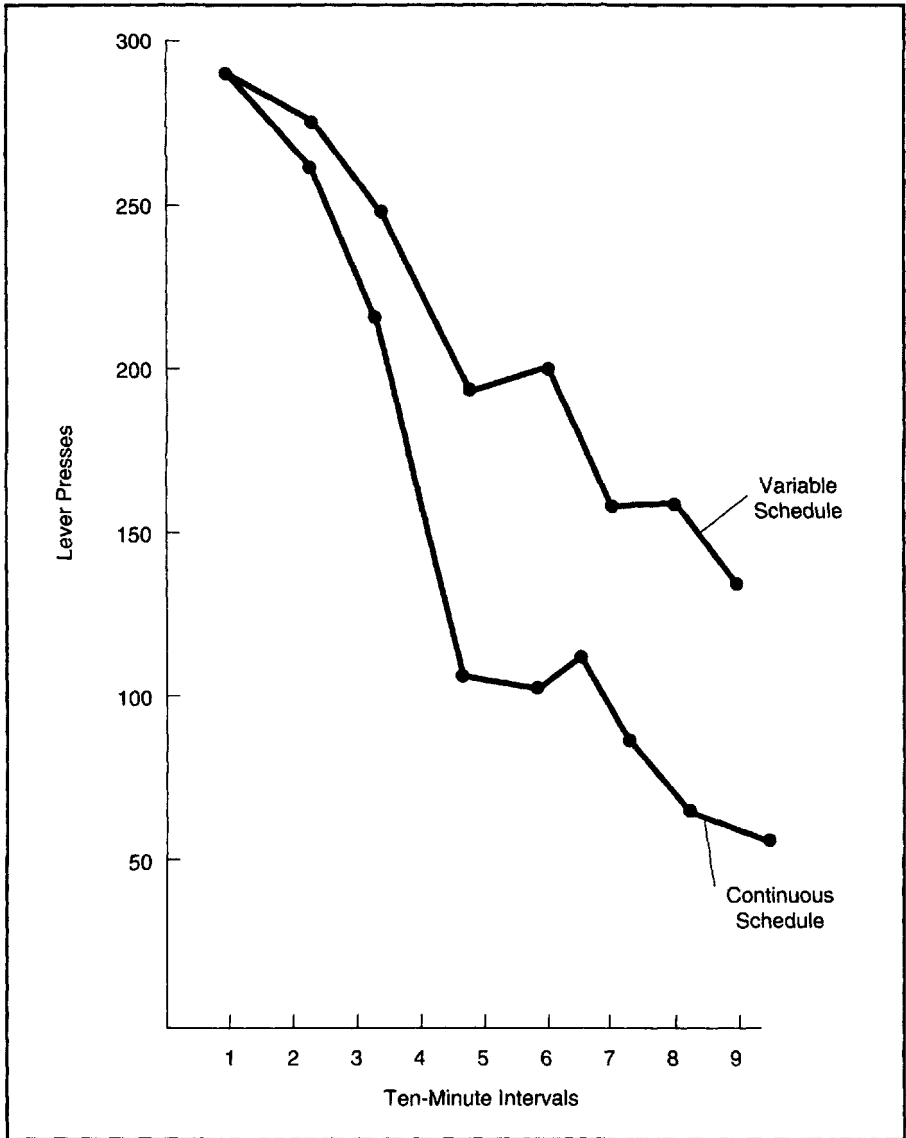
Not only does behavior change when rewards follow it, but the **schedule of reinforcement** makes a difference to the strength and durability (persistence) of the behavior. Behavior changes most quickly when it is constantly followed by reinforcers (called a **continuous reinforcement schedule**). But behavior will last longer when the reinforcers are withdrawn if the reinforcement schedule was intermittent rather than continuous (in operant terminology, behavior will extinguish more slowly). For example, inspection of industrial wastes from processing plants on inland waterways is done by the Coast Guard on a random schedule.<sup>4</sup> Companies do not know when the inspection will take place, just as I do not know when a patrol car will be checking the speed of my automobile as I drive to work. These random schedules are powerful forms of behavioral control. The industrial chemical company and I may not be patrolled for months, but since the schedule is intermittent, our transgressions are controlled for a longer time than if we had noticed the continuous presence of, and then the sudden disappearance of, the patrol boat or car.

There are several kinds of **intermittent reward** schedules, and they produce different behavioral results. For example, most people recycle their bottles on a **variable ratio schedule, a schedule in which the number of responses varies for each reinforcer**. When I bring my box of bottles into the recycling center and get paid for my effort, many separate behaviors of rinsing and saving bottles have accumulated to result in the monetary reinforcement. Sometimes I might bring in 40 bottles, sometimes 42, sometimes 48, depending on the size of my bottles and the degree to which the box is overflowing (often related to the amount of entertaining I have done and how long I have put the task off). If I brought my bottles every Saturday to a recycling center that was open only on that day, my behavior would be on a **fixed interval** schedule. Conservation of electricity is controlled by a kind of fixed interval schedule. Once a month (a fixed time interval) you receive a bill for the amount of energy you have used, no matter how many times you have turned off the light switch. Fixed schedules tend to produce slow rates of responding right after the reinforcement, and then higher rates as the next reinforcement opportunity approaches. For example, you probably do not study the textbook directly after taking a test in a course. Classroom tests are an example of fixed interval reinforcement schedule; they produce lots of studying just before the event and not very much directly afterward. On the other hand, **variable interval** schedules produce steady and high rates of responding. Both are relatively durable, that is, slow to extinguish (Fig. 5.1).

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<sup>4</sup>Cone, J. D., and Hayes, S. C., *Environmental Problems/Behavioral Solutions* (Monterey, CA: Brooks/Cole, 1980).

**Figure 5.1** Hypothetical Extinction data under a continuous versus a variable schedule.



Behaviors that have developed under optimal reinforcement schedules can become habitual and thus very durable. An example of my own behavior illustrates the power of both continuous and variable schedules. A few years ago I lived in Denmark for 7 months, a country in which people usually bring their own cloth shopping bags to the grocery store because the plastic bags at the counter cost close to \$1.00 a piece. It was easy for my be-



havior to change in Denmark because the reinforcement for doing so (saving \$1.00) was continuous, as well as sizable. When I returned to the United States, I came back to my home in the Pacific Northwest, where shopping bags are free, but deforestation is visible. Not only are stories about forest issues continually in the news, but driving across the state on our way home, I was shocked to see huge patches of clearcuts in what had been a rich forest cover when I left. Even though there were no monetary reinforcements for bringing my own bag, I believed that bringing my own bag was a more appropriate behavior because so much of our forest is lost to unnecessary paper use. In fact, through a community volunteer group, I helped set up a cloth bag project, making cloth shopping bags available in supermarkets, and trying to persuade my friends to use them instead of the paper and plastic bags given at the counter (I became known as “the bag lady”!).

Now here is where the intermittent reinforcement schedule came in. After having become known to my friends as a person committed to cloth grocery bags, it was embarrassing to me if I met one of them in a supermarket without having my cloth bags with me. I never knew when I would see one of my friends, but the chance of meeting one helped me maintain the habit of bringing my bag every time I entered the store. I can remember having to go back to my car to get the cloth bags because I felt uncomfortable without them. Now, bringing the bag is automatic, and I do not even think about whether I will meet a friend or not. The intermittent schedule helped keep my rate of responding so high for such a long time that the behavior has now become habitual, and it will be very resistant to extinction. Unfortunately, for others, no strong continuous rate of reward is available to shape the behavior in the first place, so intermittent schedules would not be useful. Grocers still give free paper and plastic bags, and even the 3-cent rebate once offered for customer’s bags has been dropped in many stores. Consequently, use of cloth bags has not been established in the general public. Even though many people have bought the bags, they find it difficult to remember to use them: a behaviorist would say that effective reinforcement schedules are not yet available for changing this behavior.

Like “lower animals,” humans discriminate stimuli by responding when reinforcement follows and not responding when reinforcement does not. For example, if a green light is turned on when pressing a bar produces food, and a red light is turned on when pressing the bar does not produce food, a rat will respond during green and not during red. Behaviorists call this a **discriminated response**. In humans, road-crossing behavior during red lights is punished (by threat of a jaywalking ticket), but not during green. Thus, humans also discriminate red from green lights, in this case,

traffic lights. In both humans and animals, behavior is controlled by **discriminative stimuli**, denoted as  $S^D$ s. Our environment is filled with  $S^D$ s, which include signals, prompts, and models, which we will discuss more fully below. For now, however, the point is that behavior is embedded in two different kinds of stimuli, those that signal the behavior, called  $S^D$ s, and those that reinforce the behavior, called  $S^R$ s. Because of the operation of these stimuli, Skinner said that behavior is under stimulus control. Thus, conceptually, behaviorists look at behavior as a series of responses (R) each with its discriminative and reinforcing stimuli. Thus, the units of behavior may be indicated by

$$S^D - R - S^R$$

## APPLICATIONS TO ENVIRONMENTAL PROBLEMS

While Skinner spent most of his career working with laboratory animals and writing about the empirical and philosophical implications of behaviorism, he also contemplated human issues; he was one of the first psychologists repeatedly to raise the issues of resource depletion, pollution, and overpopulation to human survival. His early best-selling book *Walden Two*<sup>5</sup> explored the question of utopia from a behavioral perspective, and is a thoughtful and provocative look at how behavioral principles can be used to design a healthier and more effective society. A more serious discussion of the behavioral approach to human problems appeared 24 years later in his book *Beyond Freedom and Dignity*.<sup>6</sup> In both works, he examined the problem of designing a sustainable culture, proposing that our impending ecological disasters stem from inappropriate human behavior. In both works he argued that we must redesign culture to shape more appropriate behavior—that is, we need a technology of behavior that focuses on maintaining the health of the environment in which behavior occurs.

Before we examine some of the specific ways in which behaviorists are developing a technology of environmentally appropriate human behaviors, let me raise a question about how a behaviorist might explain our environmental mess in the first place. How can our ecological troubles be due to inappropriate behavior if actions are simply products of the reinforcement contingencies and stimulus control at work in the environment? That is, behaviorists argue that our behavior is a result of the environment, not of

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<sup>5</sup>Skinner, B. F., *Walden Two* (New York: Macmillan, 1948).

<sup>6</sup>Skinner, B. F., *Beyond Freedom and Dignity* (New York: Alfred A. Knopf, 1971).

some inner events such as conflicts or values. Thus, behavior cannot be right or wrong—it simply reflects what is occurring in the situation in which we behave. Then how can it be so maladaptive?

Skinner argued that maladaptive behavior results when short-term consequences differ from long-term consequences. Our behavior is under the control of short-term reinforcers, even if it brings delayed aversive consequences. Eating chocolate may be bad for my weight, but the immediate reinforcement is so powerful that I do it anyway. Thus, sometimes, we must deliberately change the short-term consequences to bring them in line with long-term consequences. We will consider the specifics of how to do such behavioral modification toward the end of the chapter when we talk about self-control projects.

Another way to look at our inappropriate behavior is to consider the effects of culture. Skinner argued that culture changes faster than adaptive behavior.<sup>7</sup> Culture, a complex conglomeration of reinforcement schedules, changes faster than behavior because behavior is often slow to extinguish—that is, it outlasts changes in environmental contingencies. For example, reproductive behavior was for centuries highly rewarded by societies with small populations. Now, however, reproductive behavior is producing dangerous overpopulation. In most cultures, the threat of material scarcity encouraged families to accumulate extra resources; now overconsumption pollutes and depletes resources. For several centuries, Americans were reinforced for settling wilderness and “conquering nature”; by the 1990s, there is little wilderness left. What was once reinforced may no longer be, but behavior often outlasts the rewards that originally shaped it. Eventually, behavior that is not reinforced will extinguish, and the culture will discontinue the reinforcers (e.g., parents of large families may not enjoy as much social support as they once did). But the natural evolution of behavior and culture can take decades, if not lifetimes.

For these reasons, behaviorists believe that humans can and should facilitate behavior change by redesigning the environments in which environmentally relevant behaviors take place. The natural process of behavioral adaptation will be too slow. We can appreciate this point by remembering the exponential growth of our environmental difficulties; we simply may not have time to wait for the slower form of behavioral evolution to take place. The same point can be made about the reinforcers on economic behavior. As I will discuss in the latter part of this chapter, market forces may be too slow to change our purchasing behavior, and we may require additional price regulations for expedient adjustment.

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<sup>7</sup>Skinner, B. F., “To know the future,” *The Behavior Analyst*, 13 (1990): 103–106.

In any case, a behaviorist would look at our current environment to see how it is supporting our inappropriate behavior. Whether or not I believe that my use of fossil fuels is a problem (an attitude), I continue to drive to work because there are so many reinforcers contingent on my doing so: I do not have to spend time waiting for a bus, or risk being late because the bus is late; I can do an errand on the way if I choose; the car is comfortable; I can play the radio station I prefer; and gasoline is relatively inexpensive. Thus, regardless of my attitude about fuel consumption, I continue to engage in environmentally inappropriate behavior because the personal rewards for doing so far outweigh the penalties. In order for my behavior to change, something in my environment (e.g., the price of gas or the quality of public transportation) must change. My attitude is irrelevant.

How then can we use the principles of behavioral psychology to change our behavior? Obviously, we must change features of the environment in which our behavior takes place. In the words of E. S. Geller, an important environmental behavior analyst, we must change behavior through “modification or removal of contingencies currently reinforcing behaviors detrimental to the environment” and establish “new response-consequence contingencies to motivate the occurrence of behaviors beneficial to the environment.”<sup>8</sup> This approach, called “behavioral engineering,”<sup>9</sup> consists of two main strategies: (1) those that focus on the stimuli that signal behavior (S<sup>D</sup>s); this technique is called “stimulus control”; and (2) those that focus on the reinforcers that follow behavior (S<sup>R</sup>s); this technique is called “contingency management.” Both the reinforcers and the reinforcement schedule are important issues in contingency management. Sometimes these two approaches are called “antecedent” and “consequence” strategies because they focus on what comes before and what comes after behavior.

## ANTECEDENT STRATEGIES: CHANGING THE S<sup>D</sup>s

Let us consider the antecedent strategies first. Culturally sustainable behavior cannot be reinforced before it has occurred, so we must design an environment that is likely to signal an appropriate behavior through stimulus control. This means manipulating the S<sup>D</sup>s. Behaviorists have looked at three types of S<sup>D</sup>s: **prompts**, **information**, and **modeling**, and have

<sup>8</sup>Geller, E. S., “It takes more than information to save energy,” *American Psychologist*, 47 (1992): 814–815.

<sup>9</sup>Geller, E. S., “Applied behavior analysis and environmental psychology: From strange bedfellows to a productive marriage,” in Stokols, D. S., and Altman, I., eds., *Handbook of Environmental Psychology*, vol. 1 (New York: John Wiley & Sons, 1987), pp. 361–387.

shown that each can have some effect on enhancing appropriate behavior. **Prompts** are brief signals that communicate what actions are appropriate. They are verbal stimuli that provide instructional control. Signs placed over light switches, that remind users to turn off the lights when they leave a room, have reduced energy use. Research has shown that the more specific the prompt, the greater is its effectiveness. A sign that says "Faculty and students—please turn off lights after 5 p.m." is more effective than one that says "Conserve Electricity." Prompts that are polite are more effective than those that are demanding (the word "please" can make a difference), and the closer the prompt is to the behavior point, the better (a sign over a light switch is more effective than a sign across the room). Thus, polite, salient, and specific reminders do change behavior.<sup>10</sup>

Delivering more general **information** is less effective than specific prompts. The mere presentation of information through instructions, slogans, pamphlets, or articles is typically ineffective, even though huge amounts of money (and paper) are spent on such endeavors. Although common sense suggests that we need to educate people about environmental problems, research has shown that education by itself does very little to change behavior. Such an outcome is not surprising to behaviorists, who have argued all along that attitudes and awareness do not necessarily indicate much about actions. To a behaviorist, attitudes are forms of verbal behavior that may or may not be correlated with other nonverbal behaviors. Thus, there is no reason to believe that education alone would change behavior; and here the behaviorists are proven right by many studies showing that general information campaigns do little to change what people do.<sup>11</sup>

Information that is especially vivid and particularly focuses on outward behavior, however, is more effective. For example, in one study, information about energy conservation was shown on a video that demonstrated a person turning down a thermostat, wearing warmer clothes, and using heavy blankets. With this treatment, viewers reduced their energy use by 28 percent.<sup>12</sup> Demonstrating appropriate behavior is called **modeling**, and modeling works better than simply describing. A wonderful example of the

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<sup>10</sup>*ibid.*

<sup>11</sup>For example, Hirst et al. have shown that millions of dollars of information dissemination has resulted in only 2 to 3 percent energy conservation in the state of California. Hirst, E., Berry, L., and Soderstrom, J., "Review of utility home energy audit programs," *Energy*, 6 (1981): 621-630.

<sup>12</sup>Winett, R. A., Hatcher, J. W., Fort, T. R., Leckliter, I. N., Love, S. Q., Riley, A. W., and Fishback, J. F., "The effects of videotape modeling and daily feedback on residential electricity conservation, home temperature and humidity, perceived comfort, and clothing worn: Winter and summer," *Journal of Applied Behavior Analysis*, 15 (1982): 381-402.

power of modeling was provided by Aronson and O'Leary<sup>13</sup> in the men's shower at the University of California Santa Cruz field house. Although most students at UC Santa Cruz would describe themselves as "environmentalists," very few conserved water in the shower. Even when Aronson and O'Leary put up a sign asking users to "(1) Wet down. (2) Turn water off. (3) Soap up. (4) Rinse off." only 6 percent of users followed these water-conserving instructions. However, when the researchers asked a confederate to demonstrate the appropriate behavior whenever a user entered the shower room, compliance with the instructions rose to 49 percent. When two models were used, 67 percent of users imitated the models. Live modeling is undoubtedly (at least in this study) a powerful form of stimulus control, much more powerful than mere information or instructions.

### CONSEQUENCE STRATEGIES: CHANGING THE S<sup>R</sup>S

Although stimulus control strategies, especially modeling, can have some effect, most behaviorists are more interested in the **consequence strategies**, called "contingency management." If behavior is not reinforced, it will not be selected and strengthened. The most important priority for changing behavior, then, is to make sure that environmentally appropriate behaviors are rewarded by changing the S<sup>R</sup>s that follow them. Unfortunately, most of our current environmentally *inappropriate* behaviors are rewarded (through convenience, social status, comfort, and pleasure) and our environmentally appropriate behaviors are not. Behaviorists seek to rearrange these contingencies.

The most obvious way is to begin rewarding behavior that we want to see increased. For example, if people were to use public transportation instead of driving their own cars, fossil fuel consumption could be reduced enormously. Americans drive as many miles each day as the people in the rest of the countries in the world combined, and 69 percent of us drive alone.<sup>14</sup> By directly rewarding bus riding, Everett and his colleagues<sup>15</sup> were able to greatly increase bus ridership. These researchers set up two specially marked buses that gave tokens to passengers upon boarding. The tokens were redeemable for food, entertainment, or another bus ride. Not

<sup>13</sup>Aronson, E., and O'Leary, M., "The relative effectiveness of models and prompts on energy conservation: A field experiment in a shower room," *Journal of Environmental Systems*, 12 (1982-1983): 219-224.

<sup>14</sup>Miller, G. T., *Living in the Environment: An Introduction to Environmental Science*, 7th ed. (Belmont, CA: Wadsworth Publishing Group, 1992), p. 327.

<sup>15</sup>Everett, P. B., Hayward, S. C., and Meyers, A. W., "The effects of a token reinforcement procedure on bus ridership." *Journal of Applied Behavior Analysis*, 7 (1974): 1-9.

surprisingly, when tokens were given, bus ridership increased by 150 percent. Similar kinds of strategies have been used to get people to clean up litter. When adults were given raffle tickets for picking up litter, that behavior quickly increased, at least in recreational areas.<sup>16</sup> Other researchers have found that children can clean up litter more quickly and cheaply than a professional maintenance staff if the kids are given tickets for amusement rides when bringing in litter<sup>17</sup>; and adults clean up after football games if given prompts and a chance to win a prize.<sup>18</sup>

### Feedback as S<sup>R</sup>s

While reinforcing specific behaviors may be very effective, it can also be very difficult. Even if we could arrange for reinforcement to be given for every environmentally relevant behavior a person makes, it would become very expensive to do so. Furthermore, political problems often prevent arranging contingent rewards. For example, nine states have increased recycling of bottles to up to 97 percent through bottle bills, which promise consumers rebates for returning empty bottles. In most other states, however, bottle manufacturers have successfully lobbied against the passage of these bills because of the inconvenience posed to those involved in the manufacturing and distribution process. Similarly, cities have often reduced vehicular traffic and single-passenger automobiles on freeways by allowing cars with two or more passengers to travel in special lanes. Such programs, however, have also been cancelled because other drivers have been irritated about the loss of lane privileges and traffic delays in regular lanes. While positive reinforcement of specific environmentally conducive behaviors may be highly effective, substantial political difficulties often impede its use.

For these reasons, it is often easier to reward the *results* of behavior, rather than the behavior itself. And often, simply giving people feedback about their behavior is enough to reinforce it—you don't have to give them money or raffle tickets as well. **Feedback—information about the results of behavior**—can be just as powerful a reward. For example, stepping on the scale and reading your weight can be an effective reinforcer for

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<sup>16</sup>Powers, R. B., Osborne, J. G., and Anderson, E. G. "Positive reinforcement of litter removal in the natural environment," *Journal of Applied Behavior Analysis*, 6 (1973): 579–586.

<sup>17</sup>Casey, L., and Lloyd, M., "Cost and effectiveness of litter removal procedures in an amusement park," *Environment and Behavior*, 9 (1977): 535–546.

<sup>18</sup>Baltes, M. M., and Hayward, S. C., "Application and evaluation of strategies to reduce pollution: Behavior control of littering in a football stadium," *Journal of Applied Psychology*, 61 (1976): 501–506.

dieting. Someone doesn't have to give you a reward for the specific act of choosing nonfat milk; feedback about the effect of many behaviors can be reinforcing per se. Over the past 20 years, many researchers have investigated the power of feedback, most notably on energy consumption.<sup>19</sup> In general, giving consumers more information about their energy use helps them reduce it. This effect has been accomplished in many ways: more frequent billing and usage information, including graphs that demonstrate energy use over the past year; devices that signal consumers to turn off their air conditioners when outside temperatures drop below a certain point; and home energy audits. Home energy audits are particularly helpful in getting participants to insulate, install weather stripping and storm windows, and reduce fuel consumption, although the number of people who ask for the free audit is surprisingly small.<sup>20</sup>

Even feedback that informs the individual of a *group* behavior can be effective. When VanHouten and colleagues<sup>21</sup> displayed a sign showing the percentage of drivers *not speeding* the day before, the number of speeding drivers was significantly reduced. And other researchers<sup>22</sup> have demonstrated that littering behavior is decreased when the previous day's litter count is displayed on the front page of the local newspaper. Feedback is thought to be effective because it has both informational and motivational properties: it tells participants their progress toward a goal. Feedback also can be much cheaper than rebates and rewards, especially if it can be made relatively automatic.

As encouraging as some of these studies are, however, the larger view of the behavioral engineering literature is not, in my opinion, impressive. Most of the research shows small, short lived results, usually in the 10 to 15 percent range, and often much smaller. For example, attempts to reduce electricity consumption through frequent feedback resulted in only a 4.7 percent savings.<sup>23</sup> For the great majority of individuals, behavior does not

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<sup>19</sup>For reviews of the feedback literature, see Cone and Hayes, *ibid*, and Geller, E. S., Winett, R. A., and Everett, P. B., *Preserving the Environment: New Strategies for Behavior Change* (Elmsford, NY: Pergamon, 1982).

<sup>20</sup>Yates, S., and Aronson, E., "A social psychological perspective on energy conservation in residential buildings," *American Psychologist*, 38 (1983): 435-444.

<sup>21</sup>VanHouten, R., Nau, P., and Marini, Z., "An analysis of public posting in reducing speeding behavior on an urban highway," *Journal of Applied Behavior Analysis*, 13 (1980): 383-395.

<sup>22</sup>Schnelle, J. G., Gendrich, J. G., Beagle, G. P., Thomas, M. M., and McNees, M. P., "Prompting behavior change in the community: use of media techniques," *Environment and Behavior*, 12 (1980): 157-166.

<sup>23</sup>Hayes, S. C., and Cone, J. D., "Reduction of residential consumption of electricity through simple monthly feedback," *Journal of Applied Behavior Analysis*, 14 (1981): 81-88.



change at all. For example, only 5 percent of American householders have requested a free energy audit, which the 1978 National Energy Conservation Policy Act mandated be offered to the public. Less than 20 percent of those who did receive the audits have demonstrated behavioral changes, even when given their free, personalized, specific feedback about the energy waste in their homes.<sup>24</sup>

Furthermore, behavior that is changed by reinforcement contingencies over a short time often reverts back to its base-line level when the reinforcers are withdrawn (new behavior is easily extinguished). Behaviorists have often *purposely designed* studies to demonstrate the nondurability of behavior so they could show that new behavior is tied to the reinforcement contingencies. For example, in the bus-riding study described above, bus riding quickly fell off when token-giving ceased. (When programmed reinforcement contingencies are terminated, other naturally occurring ones come back into play, causing behavior to change back to previous rates.) Behavior that returns to base-line levels when reinforcers are withdrawn is an important methodological achievement, but it also shows how transitory new behavior is. Thus, although Americans learned to use less gasoline during the energy crisis in the early 1970s, by 1994, gas use was higher than ever before, since gasoline prices had fallen off again in real-dollar terms. Behavioral technologists must also design programs for maintenance and generalization (as in my grocery bag example above). However, for the most part, behavior change studies have been small scale, and their effects short-lived. And they are expensive.

So we have a gap between what the behaviorists have claimed is possible and what they have been able to accomplish. They have convincingly argued that inappropriate behavior stems from inappropriate environmental contingencies, but their efforts to change behavior by changing the contingencies have not been particularly persuasive. A behaviorist would argue that this is because they have not been able to change the really important stimuli yet. For example, extensive use of modeling could have powerful and durable impact, but until the behavior of a critical number of people is changed, modeling effects will be sparse.

### Prices as S<sup>R</sup>s

The main explanation for the small effects on environmentally appropriate behavior is that the really powerful S<sup>R</sup>s are still unchanged. One obvious form of S<sup>R</sup>s is prices. S<sup>R</sup>s in the way of prices and tax breaks would require government or social control of a much larger scale than that available to

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<sup>24</sup>Yates and Aronson, *ibid.*

the lone behavioral researcher. For the most part, behavior analysts have not brought their principles to discussions of public policies, in part because they see themselves as scientists rather than policy makers.<sup>25</sup> Difficult as it may be, we need to examine the ways in which financial incentives continue to reward environmentally inappropriate behavior.

For example, we continue to deplete resources because the real costs of consumption are not yet contingent on our actions. That is, we are rewarded for inappropriate behavior because we do not pay the real prices for goods and services. Instead we pay artificially low prices that do not reflect the cost of resource replacement or pollution clean-up involved in their production. Fossil fuel consumption is a classic example. Giving people a token to ride the bus is trivial compared to the real costs we should be charged to drive our cars. Gasoline prices reflect short-term market availability, and not costs incurred from air pollution, global warming, or ozone depletion, so we continue to drive cars that in reality we cannot afford. To quote environmental businessman Paul Hawken,

The marketplace gives us the wrong information. It tells us that flying across the country on a discount airline ticket is cheap when it is not. It tells us that our food is inexpensive when its method of production destroys aquifers, and soil, the viability of ecosystems, and workers' lives.<sup>26</sup>

From a behavioral perspective an important way to confront the depleting carrying capacity of the planet is to begin calculating and then charging real costs. We need to implement a system that induces the public to pay as we go rather than incur ecological debts to be paid by future generations. To do this, we must examine the monetary values of natural resource depletion and charge accordingly.

Calculating real costs involves a lot of guesswork, of course, but even approximations can help us envision how we might better control environmentally appropriate behavior. For example, Alan Durning<sup>27</sup> has provided a good example of how to begin thinking about and calculating costs of deforestation. Since 1950 we have increased our demand for tropical lumber by a factor of 15. Overall, almost half the world's forest cover is now gone, and only 5 percent of the original forests remain in the United States.<sup>28</sup> Many factors contribute to accelerating rates of global deforestation, in-

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<sup>25</sup>Geller, E. S., "Behavior analysis and environmental protection: Where have all the flowers gone?" *Journal of Applied Behavior Analysis*, 23 (1990): 269-273.

<sup>26</sup>Hawken, P., "A declaration of sustainability: 12 steps society can take to save the whole enchilada," *Utne Reader* (September/October, 1993): 54.

<sup>27</sup>Durning, A. T., *Saving the Forests: What Will It Take?* (Worldwatch paper no. 117) (Washington, DC: Worldwatch Institute, 1993).

<sup>28</sup>Miller, *ibid.*, p. 344.

cluding corruption, slash and burn agriculture, and urban development. But the most powerful reasons are economic: we simply do not yet pay the real price for lumber. Most governments subsidize their lumber industries by awarding timber contracts on the basis of power and political ties rather than open bidding.<sup>29</sup> In the United States the wood products industry outspent environmentalists in contributions to congressional campaigns by a factor of 6 to 1 during the years 1985 to 1992. During those same years, mandated cut levels from public lands were continuously raised by Congress, to outdistance even those recommended by the U.S. Forest Service. The Forest Service actually lost money in all but one of its regions while it seriously overcut its forests, failing to replant sufficiently to ensure sustainable yield.<sup>30</sup>

Less than 1 percent of the world's tropical forest timber is currently produced by sustainable procedures (sufficient replanting, selective cutting, and delayed harvesting),<sup>31</sup> making "good wood" (wood that is sustainably produced) very difficult to even procure.<sup>32</sup> And current practices make such wood seem expensive, even though in the long run, it is cheaper than wood extracted unsustainably. Unfortunately, we have not begun to charge the real costs of destroying intact forest ecosystems in our pricing of forest products. For example, Worldwatch Institute estimates that forests provide the following economic services: gene pools (including wild plants exported for \$24 billion in 1991); water regulation and flood control (estimated in India alone to be worth \$72 billion per year); watersheds that reduce soil erosion (worth \$6 billion a year in lost hydropower due to siltation of reservoirs); fish (the Pacific Northwest salmon industry alone is worth \$1 billion); climate control, through mitigation of greenhouse gases and carbon storage (worth \$3.7 trillion); and recreation (estimated in the United States to be worth more than timber, grazing, mining, and other commodities combined). Wood, then, that is extracted with unsustainable procedures, is astronomically expensive. A mature forest tree in India, for example, is estimated to be worth \$50,000. The real cost of a hamburger from cattle raised on cleared rainforest is \$200. And a wild Chinook salmon from the Columbia River is estimated to be worth \$2,150 to future sports and commercial fishers.<sup>33</sup>

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<sup>29</sup>Durning, *ibid.*, pp. 39–40.

<sup>30</sup>*ibid.*, p. 41.

<sup>31</sup>*ibid.*, p. 37.

<sup>32</sup>Difficult, but not impossible. A recently instituted "Smart Wood" program by Rainforest Alliance (65 Bleeker St., New York, NY 10012) certifies wood that has been grown sustainably. For a list of where such wood can be purchased see Makower, J., "Seeing the wood for the trees," *Co-op America Quarterly* (Fall 1994): 9.

<sup>33</sup>Durning, *ibid.*, p. 21.

If calculating real costs is difficult, charging them is even more problematic. Who can price their product in terms of ecological costs and stay competitive against others who do not? Some would argue that nobody can do it without government intervention. The U.S. Forest Service could stop selling lumber at below-cost prices. Alternatively, a series of graduated taxes could be implemented that would provide revenue to repair the damage caused by the most ecologically destructive products. For example, wood that is cleared from original intact forests, and/or is clear cut, could be taxed heavily; wood produced from secondary forests taxed less heavily; and wood produced from sustainable crops taxed least. Money that would be collected from such fees could be used to replant forests. Obviously tariffs would also have to be instituted so that ecological pricing would apply to international as well as domestic markets.<sup>34</sup>

Some call this approach to changing behavior a rational economic model. Consumers should act rationally in a way that reduces the costs while maximizing their purchases, and of course, most economic theory rests on this behavioral view of human nature. What is the evidence that people actually do change their behavior according to prices? The data are mixed, but the controversy they are creating is illuminating. Many environmental psychologists who have looked at the effects of price incentives have concluded that they have less effect than "nonfinancial factors," such as perception, norms, values, and attitudes. One of the reasons psychologists have come to this conclusion is that studies of energy consumption in the 1970s suggested that doubling the cost of either gasoline or electricity would lead to only about a 10 percent reduction in consumption.<sup>35</sup> More recently, others have argued that "because low energy prices have weakened immediate financial motives for conservation, appeals to nonfinancial motives" remain important.<sup>36</sup>

But both policy analysts and behavior analysts have questioned these conclusions, arguing that Americans have not yet been subjected to effective price controls.<sup>37</sup> For Americans, even doubling the price of gas or electricity still makes energy relatively inexpensive in the face of their enor-

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<sup>34</sup>*ibid.*, pp. 29–31.

<sup>35</sup>Fox, R. M., and Hake, D. F., "Gasoline conservation: A procedure for measuring and reducing the driving of college students," *Journal of Applied Behavior Analysis*, 10 (1977): 61–74. Also see, Winett, R. A., and Neale, M. S., "Psychological framework for energy conservation in buildings: Strategies, outcomes, directions," *Energy and Buildings*, 2 (1979): 101–116.

<sup>36</sup>Kempton, W., Darley, J. M., and Stern, P. C., "Psychological research for the new energy problems: Strategies and opportunities," *American Psychologist*, 47 (1992): 1213–1223.

<sup>37</sup>Geller, *ibid.*; Zoumaris, S. J., and O'Brien, T. P., "Consumption behaviors hinge on financial self-interest," *American Psychologist*, 48 (1993): 1091–1092.

mous wealth. Looking at data from other countries that have instituted stiff gasoline taxes, Zoumaris and O'Brien<sup>38</sup> have concluded that consumption is reduced when gasoline becomes relatively expensive. Europeans pay \$4 to \$5 per gallon and drive far less. Furthermore, taxes collected on energy expenditures could be used to reduce those collected for income or savings, thereby reinforcing nonconsumptive behaviors while discouraging consumptive ones. As it is, our current tax structure penalizes conservation (savings) while encouraging consumption.

Although price regulations are consistent with a behavioral viewpoint, not all behaviorists would propose price incentives and disincentives as the most effective way to change behavior.<sup>39</sup> Controlling market forces through central regulation of prices is obviously difficult, as the recent collapse of the Soviet Union suggests. This is because pricing mechanisms (and economic approaches in general) assume a rational economic<sup>40</sup> model of human behavior, where human beings act in logical ways to increase their monetary gain. As we shall see in the next chapter, there is very little evidence that this so-called rational model of human behavior is valid. Yes, behaviorists argue that reinforcers control our actions, but in the complex world of human behavior, there are many different kinds of reinforcers in addition to monetary ones. Consequently, human behavior is under the control of more factors than simply prices. In the words of energy analyst and social psychologist Paul Stern, environmentally appropriate behaviors are a product of

the human dimension, . . . the rich mixture of cultural practices, social interactions, and human feelings that influence the behavior of individuals, social groups, and institutions. . . . Instead of assuming that people invest in energy efficiency if and only if they expect to save money, [we should also] hypothesize that people invest because they have heard from people they trust that the investment will pay or because their friends have already made investments and are satisfied with the results.<sup>41</sup>

The most obvious problem with a price incentive strategy, however, is that it is difficult to change the reinforcement history of those who are responsible

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<sup>38</sup>Zoumaris and O'Brien, *ibid.*

<sup>39</sup>Price incentives and government regulations are rarely discussed by behavior analysts as methods for changing environmentally appropriate behavior. Geller has suggested that this is not only because they are cumbersome, but they often elicit negative attitudes. see Geller, E.S., "Solving environmental problems," in Staub, S., and Green, P., eds., *Psychology and Social Responsibility: Facing Global Challenges*. (New York: New York University Press, 1992), pp. 248–270; p. 259.

<sup>40</sup>Yates, S., and Aronson, E., *ibid.*

<sup>41</sup>Stern, P. C., "What psychology knows about energy conservation," *American Psychologist*, 47 (1992): 1224–1232, pp. 1224–5.

for *setting* prices. In order for political leaders to implement appropriate pricing, they must be willing to lose the financial support from industry and special interest groups that lobby to keep artificially low prices in place. Political leaders are on a short reinforcement schedule of 2 to 6 years, when they face the problem of financing their re-election campaigns. Disappointing their benefactors will end their opportunity to continue their careers. However, appropriate pricing requires a commitment to the effects of our collective behavior over a much larger time frame, perhaps the next 20 to 50 years. From a behavioral viewpoint, pricing mechanisms will not work because the reinforcement schedules of those who could implement them are inappropriate for the task.

## SOCIAL TRAPS AS REINFORCEMENT DILEMMAS

Although Skinner did not use an S-R framework to answer the question of why we should care about future sustainability, more recently others have. Their work has focused on the **social traps** we get in when we try to maximize our short-term payoffs and thereby suffer long-term costs.

The idea of social traps is based on a very influential article that ecologist Garrett Hardin published in *Science* in 1968. There he described “the tragedy of the commons,” in which farmers are allowed to graze their cows on a limited piece of common land. If too many animals were allowed on it, the land would be ruined by overgrazing.

It is to be expected that each herdman will try to keep as many cattle as possible on the commons. . . . The rational herdsman concludes that the only sensible course for him to pursue is to add another animal to his herd. And another; and another. . . . But this is the conclusion reached by each and every rational herdsman sharing the commons. Therein is the tragedy. Each man is locked into a system that compels him to increase his herd without limit—in a world that is limited. . . . Freedom in a commons brings ruin to all.<sup>42</sup>

A few years after Hardin’s thinking became widely discussed, behavioral psychologist John Platt suggested that we could understand the tragedy of the commons by analyzing it in behavioral terms. More specifically he suggested that a “social trap occurs . . . when there is an opposition between the highly motivating short-run reward or punishment, and the long-run consequences.”<sup>43</sup> In most environmental problems, the short-term rewards for overconsumption or pollution are more compelling than the long-term costs. The result is a damaged biosphere.

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<sup>42</sup>Hardin, G., “The tragedy of the commons,” *Science*, 162 (December 1968): 1243–1248, p. 1244.

<sup>43</sup>Platt, J., “Social traps,” *American Psychologist* (August 1973): 641–651.

Using a behavioral perspective, Platt has argued that environmentally inappropriate behavior regarding shared resources can be changed by altering the reinforcement contingencies that support it: reducing the interval between short-term reward and long-term punishment (for example, making the long-term costs clearer); adding reinforcers for environmentally appropriate behavior (for example, tax breaks for conservation behavior); and adding punishments for inappropriate behavior (for example, adding taxes for polluting behavior).

Follow-up research has shown both the merit and the limits of Platt's S-R analysis. Most of the work has been conducted through laboratory simulations in which undergraduates play a game with shared resources. For example, psychologists at Colorado State University ask their subjects to play a "tree game" in which subjects pretend they are managing 20 plots of trees with two other players. Each player can choose to harvest up to three plots in any given year (round), and are told that the plots will double on even-numbered rounds. Their goal is to maximize their own harvests. Evidence shows that players will quickly exhaust the shared plots, failing to derive a policy of sustainable yield. However, when verbal reinforcement for conservative harvests are given by the experimenter ("Good harvest strategy Player X"), players learned to minimize initial harvests and thereby maximize long-term yield.<sup>44</sup> Similarly, punishing overconsumption can reduce its occurrence.<sup>45</sup>

On the other hand, many studies have shown that people will forgo their immediate reinforcements for longer-term, group goals, especially if they identify with the group and feel responsible toward it.<sup>46</sup> While a behaviorist could argue that group identity gives a different kind of reinforcement, to do so is awkward, since group identity is more difficult to define and measure than reinforcers like game points or praise.<sup>47</sup> We will return to the importance of group responsibility in Chapter 6, when we consider

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<sup>44</sup>Birjulin, A. A., Smith, J. M., and Bell, P. A., "Monetary reward, verbal reinforcement, and harvest strategy of others in the commons dilemma," *Journal of Social Psychology*, 133 (2) (1993): 207-214.

<sup>45</sup>Bell, P. A., Petersen, T. R., and Hautaluoma, J. E., "The effect of punishment probability on overconsumption and stealing in a simulated commons," *Journal of Applied Social Psychology*, 19 (1989): 1483-1495.

<sup>46</sup>Dawes, R. M., "Social dilemmas," *Annual Review of Psychology*, 31 (1980): 169-193.

<sup>47</sup>Recently, behavior analyst E. S. Geller has formulated a model of environmental management that includes group goals, but this approach is unusual within the behavioral tradition. See Geller, E. S., "The human element in integrated environmental management," in Cairns, J., Crawford, T. V., and Salwasser, H., eds., *Implementing Integrated Environmental Management* (Blacksburg, VA: Virginia Polytechnic Institute & State University, 1994), 5-26.

group issues in environmental problems, but for now, let us go back to the natural place to lodge a behavioral analysis: at the level of the individual.

## BEHAVIORAL SELF-CONTROL

More congruent with a psychological viewpoint than manipulating economic regulations or group identity would be to focus on behavioral engineering that takes place at the individual, rather than the governmental, level. How can you and I as individuals use behavioral principles to change our behavior? Individual behavioral engineering can be implemented in three ways<sup>48</sup>: (1) modeling appropriate behaviors so that others can copy them, as in the shower study described above; (2) intentionally reinforcing another person's behavior through compliments and appreciations. When my father explained to me his ingenious system for saving water (recycling water from the sink, to tub, to toilet), I expressed my genuine admiration and approval to him directly. Social reinforcers are powerful controls on our behavior, and they provide the basis for entire cultural organization. Recently, E. S. Geller has developed a method for enhancing safety behaviors in the workplace through one-on-one feedback.<sup>49</sup> Expressing our reactions to others' behavior can help change it. Unfortunately, such expressions can also "backfire" and cause the recipient to feel manipulated or nagged, depending on how the reinforcer is delivered. For example, when one of my colleagues asked another to print his memos on both sides of the paper, he received a nasty (one-sided) note telling him to mind his own business! (3) Perhaps the most effective way to change individual behavior is to start by changing one's own. This approach, called **"self-control," occurs when an individual changes reinforcing and discriminative stimuli in order to change his or her own behavior.**<sup>50</sup> For example, I am hoping to increase my writing output. When I finish writing this section, I am going to take my friend out for Sunday breakfast. Although I generally am enjoying the process of writing this book, sometimes I have to discipline myself to get a certain number of pages written each day so that I finish the project before I return to my teaching job. In order to meet my deadline, I have made the pleasurable experience of taking my friend to breakfast contingent on my desired writing output. Similarly, I can select my own envi-

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<sup>48</sup>I am indebted to my colleague Jay N. Eacker for his thoughtful contributions to this discussion.

<sup>49</sup>Geller, E. S., "Ten principles for achieving a total safety culture," *Professional Safety*, 39 (1994): 18-24.

<sup>50</sup>Skinner, B. F., *Science and Human Behavior* (New York: Free Press, 1953).



ronmentally relevant behavior such as reducing the number of times I drive my automobile into town, and reward myself for reducing that number each week.<sup>51</sup>

If you have ever dieted or in some other way disciplined yourself to achieve some goal, then you have implemented a kind of self-control project. Athletes put themselves on training schedules, students on study schedules, and Christmas shoppers on saving schedules. But almost nobody has used a self-control approach to changing environmentally relevant behaviors. To see how it would work, let us take a closer look at the details of self-control and apply them to a behavior that has environmental repercussions.

Originally conceptualized by Skinner in 1953, several good sources are available for designing self-control projects (see Appendix). One version by Martin and Pear offers a six-step procedure that can be easily conceptualized and applied.<sup>52</sup> Let us work through a self-control project so you can see the procedure in enough detail to design your own.

The six steps that Martin and Pear suggest are:

1. **Define the problem**
2. **Make a public commitment**
3. **Observe base-line behavior**
4. **Design a stimulus control**
5. **Formulate a contract**
6. **Check on changed behavior.**

**Step 1:** The behaviorist would approach the project systematically, starting with defining a specific behavioral goal. Leaving our behavioral goals undefined is a mortal sin to a good behaviorist. We must go further than the typical intention to, say, reduce consumption, by defining our goal in behavioral terms. To reduce consumption is too vague. Instead the behaviorist would ask us to define that goal more specifically. The first step would be to choose a particular commodity or material for which you would like to reduce your use.

For many of us, paper use would be a good choice, since some 40 to 50 percent of what we throw away is paper. Meanwhile only one fourth of the world's original forest cover still remains and less than 5 percent remains in the continental United States. Each year the planet loses a forest area bigger than England.<sup>53</sup> Even little actions, if undertaken by many of us, could

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<sup>51</sup>For helpful guidance on how to design and implement self-control projects, see Watson and Tharp (1989) and Martin and Pear (1988), which are described in the appendix.

<sup>52</sup>Martin, G., and Pear, J., *Behavior Modification: What It Is and How to Do It*, 3rd ed. (Englewood Cliffs, NJ: Prentice-Hall, 1988).

<sup>53</sup>Postel, S., and Ryan, J. D., "Reforming forestry," in Brown, L., ed., *State of the World, 1991* (New York: W.W. Norton, 1991), 74-82.

significantly change our absurd plundering of the planet's forests. Thus, I can decide to focus my self-control project on the several ways in which I habitually waste paper.

But reducing paper waste is not really a specific behavior. I need to re-define "reducing paper waste" as more specific behaviors, such as the following:

- Photocopy on two sides of page
- Reuse envelopes for informal mail
- Use Sunday comic pages for gift wrapping
- Use scrap paper for lists, notes, and reminders
- Use cloth towels instead of paper towels
- Go to public library to read magazines instead of purchasing your own

**Step 2:** I make a public commitment to reduce my paper waste by telling someone about my project.

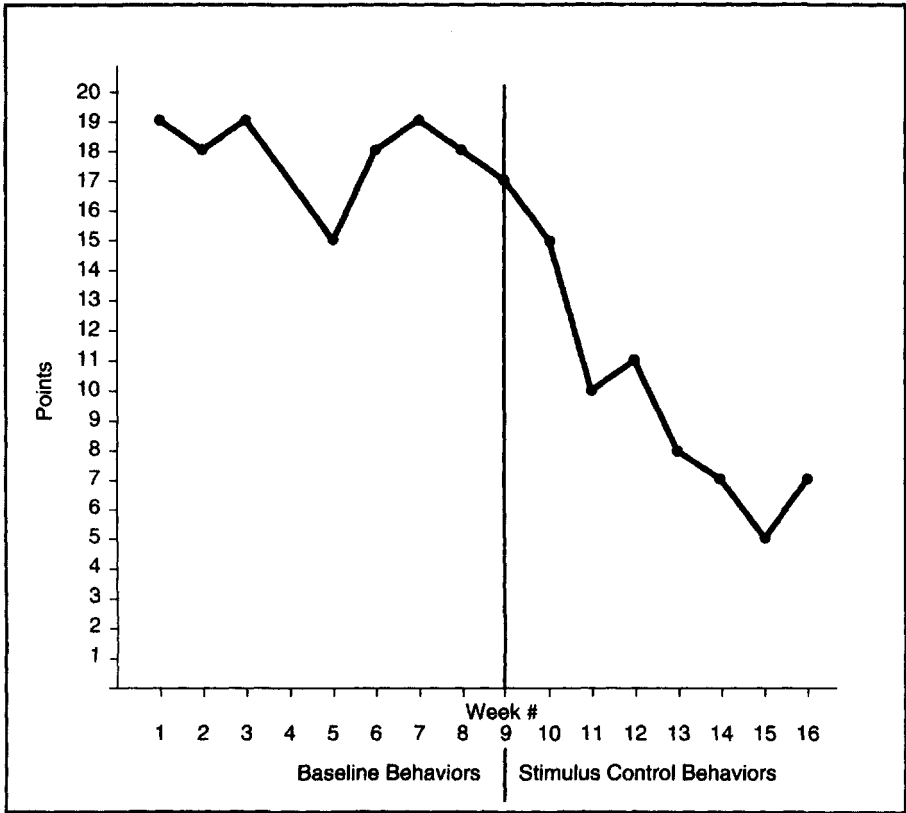
**Step 3:** In order to observe my paper-wasting behavior, I graph my behaviors over time. In order to do that, I assign points to each of the paper-wasting behaviors. Figure 5.2 shows how I set up the point system.

The next step is to count and graph these points over a reasonable time period, say two months. This provides a base-line measure of behavior as it is occurring with naturally occurring contingencies as shown in Figure 5.3 for the first 8 weeks.

With this picture of my unaltered behaviors, I begin to see what situations are likely to accompany them. I am good at photocopying on two sides, unless I get rushed. Because the photocopy machine is more likely to jam when making two-sided copies, I avoid doing it when I have to copy something a few minutes before class. Similarly, I find it easy to use cloth

**Figure 5.2** Paper wasting behaviors with assigned points.

| <b>Paper-Wasting Behaviors</b>       | <b>pts</b> |
|--------------------------------------|------------|
| Photocopy on 1 side of page          | 1/job      |
| Use new envelope for informal mail   | 1/env      |
| Use new wrapping paper for gift wrap | 1/pkg      |
| Use new paper for list, note         | 1/note     |
| Use paper instead of cloth towel     | 1/towel    |
| Buy magazine instead of use library  | 5/mag      |



towels instead of paper towels (by simply not buying the paper towels and having a clean supply of old bathroom towels in the kitchen) but have found it very difficult to go to the public library for magazines when they are so handy at the grocery check-out counter. Analysis of this kind might suggest that I overuse paper because of time pressure. It is easy to reduce paper use when time is not scarce; much harder when convenience becomes a priority.

**Step 4:** Change  $S^D$ s and  $S^R$ s. From this analysis, behavioral contingencies can be designed that would be likely to reduce paper use. For example, I can schedule a weekly trip to the public library, in which I spend two hours with magazines I would ordinarily purchase. Without placing the trip on a weekly schedule, I am unlikely to get there. Similarly, I can decide that all photocopying for class must be done three hours before the class meets. If I get into unanticipated trouble obeying this rule, I can make an over-

head transparency instead. I notice that it is easier to re-use envelopes that are opened with a letter opener than ones that get torn when I open them by hand. Thus, I can place a letter opener where I am most likely to open my mail. By designing such antecedent conditions, I can more effectively manage my behavior.

I might also try instituting a reward system. If I manage to change my behavior to specified levels, I can reward myself with a special treat—something that is environmentally appropriate. Perhaps inviting a friend over for lunch, swimming for an hour, or watching a rented video movie would be reinforcing events. Similarly, I could institute punishments. I might keep a running account of the cost of my paper waste: how much money I spend on gift wrapping, unnecessary photocopy paper, paper towels, and magazines. By adding up the cost, I can experience more directly the negative effects of my waste. If I am wealthy enough not to feel discomfort over these costs, I can decide to do something more active about my waste: donating money for tree-replanting projects, or better yet, replanting a certain number of trees myself for a certain amount of paper wasted.

**Step 5:** My behavioral change is more likely to be successful if I draw up a formal contract, such as the following:

I, Deborah Winter, will reward myself with a rented video if I bring my paper waste points down below 5 for any given week.

**Step 6:** The last step is to graph the paper wasting behaviors under altered new antecedent and consequent strategies so that I can judge the extent to which my project is successfully changing my paper use see Figure 5.3. Meeting predetermined goals indicates successful behavior change.

Self-control projects have an additional payoff besides changing the individual's behavior: they also provide the opportunity to model environmentally appropriate behavior for others. When I send a note on the second side of a piece of paper, reuse an envelope, or wrap a gift in the funnies, I demonstrate behavior to others that they may begin to enact as well. Modeling has been shown to be an effective form of antecedent control—remember the shower study.

Like the psychoanalytic perspective, the behavioral approach would not guarantee instant success. From a behavioral perspective, environmentally destructive behaviors, if not deeply motivated, are strongly habitual. Our past reinforcement histories have strengthened these inappropriate behaviors to a point at which they are difficult to change. Short-term reinforcers such as convenience maintain inappropriate behaviors and must be countered by stronger reinforcers such as rewards. Switching our behavior

will take practice. We would probably observe from our graphs that instant and permanent change does not happen. Our new behavior will be inconsistent and weak. However, weak behaviors can eventually become very consistent and durable, if reinforcement contingencies are appropriately maintained. Remember my cloth shopping bag example. Even though behavior change does not occur overnight, with conscientious and consistent practice, new habits can be firmly set.

Changing the consequences of our and others' behavior can be tricky, although waiting for natural forces to do it will be slow. Eventually, our behavior will change to adapt to environmental contingencies, but from a behavioral viewpoint, the question is, How long will it take? Can humans change the reinforcers controlling their own behavior? And even if we could, why should we forgo rewards and conveniences now in order to sustain a planet for future generations? From a behavioral point of view, what's in it for us?

Skinner directly posed this question in his book *Beyond Freedom and Dignity* when he asked "Why should I care whether my [culture or species] survives long after my death?" And Skinner's answer was "There is no good reason why you should be concerned, but if your culture has not convinced you that there is, so much the worse for your culture."<sup>54</sup> In other words, Skinner himself had no real answer to this question. Instead he suggested that evolution selects cultures that *do* manage to get people to care about the next generation. This does not tell us *why* we should care, but only that we probably do. The question of why may be more answerable outside the rubric of behaviorism, because it suggests the perceptual problem of embracing future generations. A worldview that emphasizes the responsibility we feel toward future generations may be required. Although worldview is not a typical concern of behaviorists, E. S. Geller, who has done the most extensive work applying behavioral principles to environmental problems over the past several decades, has recently proposed that behavioral interventions should be designed to increase people's "active caring" about environmental problems.<sup>55</sup>

## APPLICATIONS OF THE BEHAVIORAL APPROACH

The behaviorist takes the opposite view of the psychoanalyst. From a behavioral viewpoint, we shouldn't get distracted by so-called deeply buried instincts because nothing really changes until behavior changes. We might

<sup>54</sup>Skinner, B. F., *Beyond Freedom and Dignity* (New York: Alfred A. Knopf, 1971), p. 137.

<sup>55</sup>Geller, E. S., "Actively caring for the environment: An integration of behaviorism and humanism," *Environment and Behavior*, 27 (1996): 184–195. Also see Geller, E. S., "Integrating behaviorism and humanism for environmental protection," *Journal of Social Issues*, in press.

as well get started on the behavior changes immediately, because mucking about with deep, unconscious feelings will only waste our time.

As we discussed earlier, we can approach contingency management in several ways. Some approaches focus on the fact that contingencies are not yet powerful enough to change behavior, in part because they are still invisible. For example, we do not yet pay the true costs for most of our consumer purchases because they do not reflect the resource depletion, pollution, and human poverty that it takes to produce them. To make such costs more visible, we can urge lawmakers to institute real-cost pricing mechanisms that deliver the true long-term contingencies on our behavior, which at the moment are invisible to us. We can provide cues and feedback for ourselves and others that facilitate their behavior change, such as signs over light switches, feedback on energy use, or prizes for recycling.

All these methods are useful, but they can be expensive and difficult to accomplish on the individual level. Real-cost pricing brings us into the domain of economic policy, international trade agreements, and political negotiations. We should learn more about these processes, express our opinions to our elected leaders, and urge others to do so as well. Institutional changes can be addressed through task forces to examine energy use, conservation measures, recycling procedures, etc., and we can take initiatives here to influence our schools, workplaces, municipal agencies, etc.

Thus, from a behavioral perspective, climbing out of our environmental predicament will require that we change our behavior and facilitate the behavioral change of others. We can do this by:

1. Observing, counting, and graphing environmentally relevant behaviors over time; noticing the stimulus conditions under which they occur.
2. Manipulating the antecedent conditions such as cues, instructions, reminders, and convenient tools.
3. Manipulating the consequent conditions such as feedback, reinforcement, and punishment.
4. Focusing on our own behavior through self-control projects that will simultaneously model new behaviors to others.
5. Urging real-cost pricing mechanisms so that economic and political structures that maintain inappropriate behaviors can be changed.

## HEALING THE SPLIT BETWEEN SELF AND PLANET: FORGOING FREEDOM

Before we leave behaviorism to take up the more cognitive problem of beliefs about our environment, I want to emphasize the important contribu-

tions that behavioral analysis has made. First, behavioral principles help us to examine particular features of our environment that control behavior. Since human behavior has caused many of our environmental threats, human behavior must change if we are to extricate ourselves from them. Focusing on the particular elements of situations in which people behave gives us a strategy for changing behavior. In particular, examining both the S<sup>D</sup>s and S<sup>R</sup>s at work is a useful approach for planning change. The behaviorists have delivered a conceptual tool for designing a behavioral technology, even if changing the really powerful S<sup>R</sup>s gets us into the complicated social environments of interpersonal interaction and economic market analysis.

More importantly, however, behaviorists have demonstrated a fundamental premise of this book, and that is that the modernist vision of the autonomous human actor is outmoded and incorrect. From the behavioral perspective, our behavior is simply a result of the environment, which shapes and selects our actions according to discriminative stimuli and response consequences. There is no “human nature,” since what we see ourselves and others doing is completely determined by the environmental stimuli surrounding us when we do it. More radically, there is no such thing as an “individual” personality or character. An “individual” is a convenient verbal label, and we are strongly attached to it because of our cultural inheritance, which emphasizes individual freedoms, rights, and pursuit of happiness. Yet an individual is merely a reflection of her or his environment, an environment that shapes or diminishes what the society sees as appropriate behavior.

From the behavioral perspective, there is not only no need to focus our study on beliefs and attitudes, there is no need to worry about human nature or even human freedom, because in reality, there is no such thing. To posit individual freedom is to draw a separation between the self and the environment that is arbitrary and false. It is true that we like to *experience* ourselves as free, and generally we do, *if* the reinforcers controlling our behavior are positive and we realize what they are. That is, when we are controlled by known positive reinforcers, we usually experience ourselves choosing our behavior.<sup>56</sup> For example, at this moment I feel that I am choosing to write this book because I hope to communicate some ideas I

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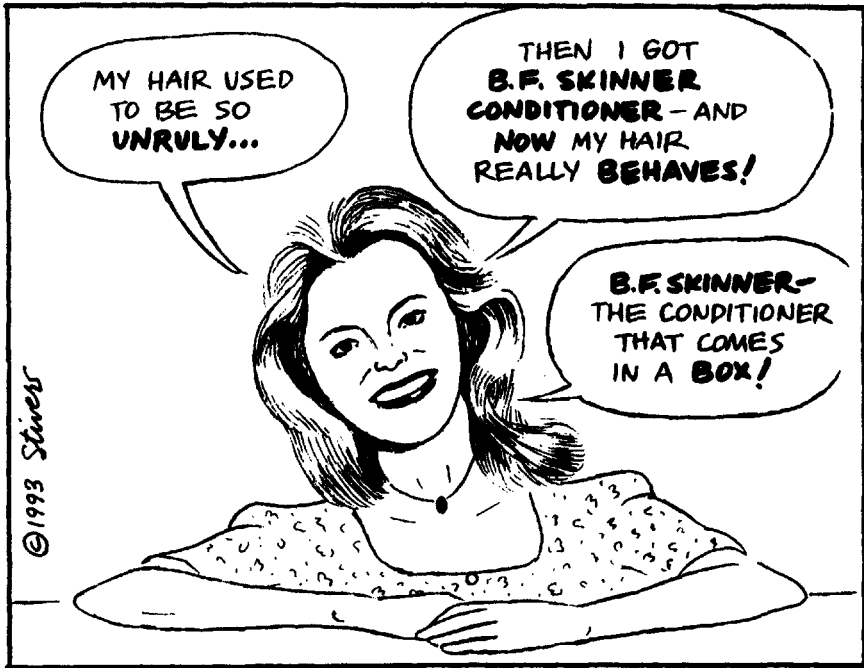
<sup>56</sup>There are exceptions of course: as my colleague Michael Wessels points out (personal communication, 1994), I would not feel free if I were kept very hungry and received food only through pressing a heavy lever 10,000 times. This point makes me think about laboratory animals in operant conditioning experiments. While I know it is “illegal” from a behavioral perspective to anthropomorphize and project feelings on them, I imagine they do not feel too free, either, even though their behavior is controlled through S<sup>R</sup>s.

have, which is a reinforcing experience I have had in the past and look forward to having again. On the other hand, imagine if I were threatened with losing my job if I did not write this book. In this case, I would not feel free to write it; my behavior would be controlled by negative  $S^R$ s, and I would feel controlled and manipulated. My behavior is controlled by  $S^R$ s either way, but whether or not I *feel* free depends largely on which kind of  $S^R$  it is. My experience of freedom also depends on my ability to verbalize which  $S^R$ s are in control. When I am completely ignorant of the stimuli controlling my behavior, I may feel free. For example, I feel free when I go to the supermarket and select between several brands of toilet paper. I do not know what controls my choice, so I misinterpret my ignorance as freedom. If I noticed that one was made of recycled products, I would select it, and experience my behavior as a choice to help the environment (an  $S^{R+}$ ). If someone told me to get it for him (and I would be punished if I returned without it) I would experience an  $S^{R-}$ . I would not experience my selection as a free choice. In both cases, my choices are not really free, but I feel free if I either do not know what the  $S^R$ s are, or if I am controlled by  $S^{R+}$ s. Our behavior reflects the environmental contingencies at play, whether or not we develop verbal behaviors to describe them.

As you can imagine, Skinner had a tough time convincing Americans of his views about individual freedom. Our attachment to the concept of personal freedom is a central feature of our democratic society. We experience personal freedom from our unusual degree of personal mobility (we drive cars, travel, and change residences far more than citizens of any other country); from our cultural heroes like Horatio Alger and Rocky Balboa, who teach us that anything is possible with personal effort; and from our political heritage, which emphasizes the pursuit of individual happiness. We not only think of ourselves as free, we feel belittled by the idea that we are not. Behavioral engineering elicits fears of Orwell's *1984* or Huxley's *Brave New World*. Sinister motives are invariably attributed to those who would implement behavioral technology, and Skinner himself has been badly misrepresented and misunderstood as the cold, cruel, crazed scientist who would lock us all into shock chambers.

While I find these reactions understandable, I also find them illogical and erroneous. All of us ask and pay for behavioral engineering when we send our children to school or hire consultants to help us solve problems. We revere teaching and learning, and expect others to derive methods for changing our behavior. To do so, we must temporarily acknowledge that we want others to "control" us. Since we are willing to see some behavior as controlled, is it not consistent to see all behavior as controlled, even if we experience personal choice? Such a view might cost us our traditional sense of "freedom"; it would also cost us our senses of "blame" and "accomplish-





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ment,” since we merely reflect the play of contingencies in our behavior. But in return we may come to reconceptualize ourselves as more deeply integrated into our environmental context than we had ever before imagined.

Our behavior exists in a feedback loop in which our actions change our environment and in turn the environment changes our actions. A clean delineation between self and environment is arbitrary and artificial. Consider the example of a “shy” person who does not produce socially appropriate behaviors of smiling, making eye contact, or initiating conversation. Because these behaviors are not produced, they are not rewarded by others. In turn, others are not reinforced for their social behaviors toward this shy person, and their smiling, initiating, and eye contact behaviors are extinguished for lack of reinforcement. Now the social *environment* in which our shy person behaves is changed, making it even more difficult for the shy person to behave in socially appropriate ways. When we ask “who is shy?” we must answer that not only the individual is shy, but also *the individual in transaction with the social environment* is shy.

Similarly, as more people change to environmentally appropriate behaviors, industry and organizations will adjust accordingly. Demand for recycled products will increase their availability, and as they become more

available, cost should come down, which will in turn increase their demand. Recycling is not only an individual action, it is a product of a social infrastructure (the recycling plant, the manufacturing and distribution of recycled products) that makes individual recycling possible. Thus, our actions depend on the environment and in turn change the environment in which we behave.

To see this point more clearly, imagine for a moment what a sustainable society might provide for transportation. All the cues that encourage driving alone would be gone. Nobody would be climbing into their car alone, cars would be expensive to operate, roads would be less convenient. People would either live within walking or biking distance to their workplace, commute in groups, or use public transportation. Electronic commuting would be far more frequent, with use of internet, fax, conference calls, and electronic mail to communicate with colleagues. Schools and shops would be arranged close by, like the village, allowing people to complete errands without the use of a car. A convenient system of vans or trams would supplement in cases of bad weather, heavy packages, or infirmed persons. Under such conditions, driving a car would be inconvenient, making more environmentally appropriate commuting behaviors easy to enact and maintain. We would not try to change out of moral responsibility or proenvironment attitudes. We would act out environmentally appropriate behaviors because the environment had been designed to support them.

Behaviorists offer us the opportunity to experience the unity of our relationship with the environment, to see ourselves not only as victims but as agents, consumers as well as restorers, reactors as well as designers. They help us meld the split between self and planet by illuminating the circular relationship between what we do and what is happening as we do it. As I argued in Chapter 2, much of our present difficulty stems from our having considered ourselves separate from, even above our natural environment. Instead, our actions are both a product of and a cause of the environment in which we behave.

# 6

C H A P T E R

## *Cognitive Psychology: Emphasis on Thinking*



Do you recycle aluminum cans? Why or why not? Please write down your reasons before reading on.

*I*f you answered yes to this question, your reasons probably included thoughts about the importance of saving natural resources. You may even have mentioned that it takes a lot of energy to extract aluminum from bauxite ore, but even if you did not know this technical fact, you probably contemplated the importance of conserving scarce resources. If you answered no, perhaps you reasoned that it does not really make that much difference. Or that recycling bins are never available when you need them. Or that recycling is just a fad. These kinds of responses illustrate a basic tenet of cognitive psychology: in order to understand behavior, we must understand people's thoughts. **Cognitive psychology**, which we will define here as **the study of thinking**, focuses on the way people make sense of their worlds. The typical

cognitive psychologist studies human behavior in a laboratory, running experiments so that hypotheses about mental functioning can be tested. Like behaviorism, cognitive psychology is conducted as a science. But unlike behaviorism, cognitive psychology focuses on what is going on inside people when they make decisions, formulate solutions, surmise meaning, etc. Unlike behaviorism, cognitive psychology studies the mind and how it works.

According to cognitive psychologists, we cannot understand human action until we understand what and how people think. The way people understand environmental problems is crucial for understanding their responses to them. If I believe there are endless supplies of old-growth timber left, I will not be particularly distressed to see logging trucks carrying massive trees to the lumber mill. If, on the other hand, I think that those trees come from the last 5 percent of our ancient forests (which I do), I will be more concerned. I will also be more likely to try to save old-growth forests by supporting groups who are trying to preserve them and finding ways to reduce my own use of wood products, such as paper. Consumption behaviors are determined by our knowledge and beliefs about the environment.

Or at least, so it would seem. Actually, what cognitive (along with social psychologists) have shown us is that the relationship between our beliefs and our behavior is much more complicated than we would suspect; that we like to think we are more rational and logical than we actually are; and that we are easily tricked by the limitations of our own perceptual and reasoning processes. Yet, our attempt to create meaning, no matter how faulty and botched, is an important organizing feature of our behavior. Just as the social psychologists showed that our irrational thoughts influence behavior, from the cognitive perspective, what goes on inside the organism is crucial for understanding behavior.

In this chapter we will examine the historical roots of cognitive psychology, discussing its most important principles to give you a clear sense of how the field looks at human behavior. In doing so, I will organize the discussion around an **information-processing model that assumes that our behavior is a function of the quality of our information, and how adequately we process it**. This information-processing model has been very productive in cognitive psychology and has delivered wonderfully intriguing insights about how our minds work. But as you will see, I also believe that there is a real danger in accepting the implications of this research at face value, a danger that can exacerbate an already serious split we experience between planet and self. Thus, I will conclude this chapter by analyzing this danger and suggesting ways to circumvent it. But let us begin by exploring how cognitive psychology came to be so important in the field of psychology in the first place. In a few short decades, the cognitivist viewpoint has replaced the behavioral one as the dominant viewpoint in psychology.

## THE COGNITIVE REVOLUTION

For many years, especially the 1950s and 1960s, behaviorism eclipsed all other approaches and schools in psychology. By the middle of the 20th century, behaviorists filled the halls of the country's most important academic institutions, and most psychologists believed that the behavioral approach would only continue to rise in importance. Behaviorism was so successful that to even speak about thinking, memory, mind, consciousness, or reasoning would signify one's allegiance to outdated and unscientific mentalism. The American Zeitgeist of the 1950s help bolster behaviorism's reign. In the U.S., public dismay over the Soviet Union's successful launch of the first space satellite helped fuel the "space race," making science and technology a matter of national priority. As psychology's most ultrascientific approach, behaviorism continued to have widespread appeal. Psychologists interested in mental events certainly continued their work, but were increasingly forced to a second-tier position beneath their behaviorist colleagues.

Several important trends in the 1960s, however, coalesced to weaken and finally overthrow the dominance of behaviorism, so that people often say that a revolution took place. That revolution, the cognitive revolution, put mind—or inner psychological events that cannot be directly observed—back on top again. In the 1990s, the ascendant force in psychology is the cognitive viewpoint, principles of which have spread to influence most other areas of psychology, such as child and school psychology, psychotherapy and counseling psychology, industrial and organizational psychology, and, especially, social psychology. (In that field, which was discussed in Chapter 3, Lewin's legacy ensured that mental life would be considered an appropriate matter for understanding the social behavior of the individual. The cognitive revolution simply re-emphasized that point.)

But why would mainstream psychology shift its direction so radically in just a few short decades? Whereas in the 1950s the majority of academic psychologists were doing experiments on laboratory animals, counting responses in mazes and Skinner boxes, the 1980s saw the majority working with human beings again, theorizing about what went on between those human ears that would account for their observable behaviors. Although it is much messier and riskier to test hypotheses about inner events of human beings (which cannot be directly observed, much less controlled) most scientific psychologists are back to it with the enthusiasm of Wundt, if not with his methods. What could account for this swift change? Is it, as many behaviorists insist, a regression to an earlier, less scientific psychology?

Whenever a major shift occurs in an academic discipline, many factors both within and outside the academy play a role. Within the field, the number of psychologists quickly grew as the affluence of post-war America allowed many people to pursue their interests in a flourishing discipline. Increasing

numbers brought increasing diversity of thinkers, who chafed against the elegantly reasoned behaviorism.<sup>1</sup> For example, many young psychologists became persuaded of behaviorism's limits when a psycholinguist at MIT attacked it vigorously for its difficulty in explaining children's language development. Noam Chomsky argued effectively that children could not possibly learn language by the S-R mechanisms of operant conditioning because their learning is far too quick and ordered.<sup>2</sup> That is, children's language errors show that they inherit the capacity to learn language by grammatical rules, allowing the child to produce statements that have never been reinforced. Children use rules efficiently, if not always correctly. When a child says "there are some mouses," she demonstrates an understanding of the rule "make a plural by adding 'es'" even though she never before heard or was reinforced for saying "mouses." Although Skinner's work on verbal learning, which had been written without access to Chomsky's attack, was a plausible answer to Chomsky,<sup>3</sup> it was not seen as entirely successful by many psychologists. The publication of both works in 1957 was a case of bad timing since it gave the appearance that Skinner was unable to reply convincingly to Chomsky's assault.

Chomsky's role also illustrated the importance of outside factors in debilitating the dominance of behaviorism. The late 1960s and early 1970s were tumultuous times in the country as well as the universities: the antiwar movement, of which Chomsky was a vigorous spokesperson, converged with social unrest over racism, poverty, sexism, and environmental problems to challenge the status quo both inside and outside academia. Beyond the rarefied atmosphere of the laboratory, behaviorism looked ill-equipped to answer the concerns of student and public social movements. Also, behaviorism contained an implicit ideology of control. Running animal subjects under tightly controlled laboratory conditions seemed artificial, if not distasteful. Skinner's arguments for better control of human social institutions directly opposed the romanticism that was surfacing in the larger culture, romanticism that celebrated human freedom and liberation from the dehumanizing institutions of the military, the corporation, and the "military-industrial complex". Despite Skinner's continued attempts to apply behavioral principles to social problems until his death in 1990, behaviorism's tenets began to appear increasingly brittle in the context of widespread social turmoil. These societal issues drew many people to social psychology, whose participants were always more cognitively and less behaviorally oriented than their colleagues in other subfields. In so doing, the role of human meaning and mental life assumed importance again.

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<sup>1</sup>Atkinson, R. L., Atkinson, R. C., Smith, E. E., and Bem, D. J., *Introduction to Psychology*, 11th ed. (Fort Worth, TX: Harcourt Brace Jovanovich College Publishers, 1993), p. A-12.

<sup>2</sup>Chomsky, N., *Syntactic Structures* (The Hague: Mouton, 1957).

<sup>3</sup>Skinner, B. F., *Verbal Behavior* (New York: Appleton-Century-Crofts, 1957).

## THE SCIENTIFIC STUDY OF THINKING: JEAN PIAGET

Even though behaviorism reigned through the midpart of the century, an important minority voice was expressed through the brilliant work of Jean Piaget (1896–1980). Piaget was a Swiss psychologist who never worked in the United States and never became influenced by the laboratory-based behavioral psychology that was so popular during his lifetime. Instead Piaget studied children, children at play, children at home, children doing what they do in ordinary settings. In his attempt to integrate biology, genetics, and philosophy, he formulated an enormously influential theory of cognitive development and became child psychology's most important theorist. His views about cognitive functioning had an important impact on how American psychologists looked at thinking, and his contributions helped lay the groundwork for the cognitive revolution.

Piaget developed most of his ideas from interacting with his own children, making what has been called “amazing discoveries . . . a host of fascinating, hardy phenomena which were under everybody's nose but which few were talented enough to see.”<sup>4</sup> For example, take the game of peek-a-boo, which most of us have played with a baby at some time or another. Piaget noticed, through painstaking analysis, that babies younger than about 9 months do not understand disappearing objects. As soon as you hide something (such as your face) behind a screen or a handkerchief, the young infant loses interest. But eventually, somewhere in the second 6 months of life, the baby would look for the occluded object, expressing surprise and laughter when it suddenly reappears. From these observations, Piaget theorized that as the infant matures, it develops a sense of **object constancy**, a belief that the object exists even though it cannot be seen. Like the object-relations theorists whom we discussed in Chapter 4, Piaget believed that the sense of object constancy is the pivotal achievement of the first stage of life, what he called the **sensorimotor period** (birth to 2 years). Through practicing motor actions, the child learns to internalize images. The child plays peek-a-boo because she or he has developed the ability to store images (like your face). This accomplishment lays the basis for all of thinking, for without the ability to internalize images, we could not do cognitive work “in our heads.”

Piaget went on to outline several more stages, all leading to the eventual capacity to think about and solve problems with less and less sensorimotor information and more internalized cognitive information. The abil-

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<sup>4</sup>Jerome Kagan, himself a widely renowned child psychologist, made this remark about Piaget, as cited by Hunt, M., *The Story of Psychology* (New York: Doubleday, 1993), p. 354.

ity to deal in more abstract terms accompanies what Piaget called the process of **decentration**, the ability to take in more information in the formation of a concept. We can understand Piaget's meaning of decentration by examining his most famous demonstration of cognitive development, the **conservation experiment**. The conservation experiment **tests the child's ability to recognize something is not changed, even though its physical appearance is different**. Imagine that a young child watches you pour milk into two identical glasses. You keep evening out the amount of milk until the child agrees that both glasses have the same amount. Then you pour one of the glasses into a taller, but narrower glass. You ask the child if both glasses have the same amount of milk. A child in the **preoperational stage** (2 to 7 years, roughly) answers that the taller glass has more because the milk is higher. Piaget believed this answer comes from the child's inability to keep track of more than one operation: pouring the milk into the skinnier glass created a higher surface level (one operation), but also a narrower width to the milk (another operation). Preoperational children focus only on one feature of the problem: the higher level of milk. If they could decentrate, they would realize that *both* the height and the width of the milk has changed, canceling out their effects on the total volume of milk, and resulting in a conservation of total volume. Piaget also observed that children in this age group endorse the concept of **animism**, the idea that everything, even nonliving objects such as a chair or a house, is alive. According to Piaget, cognitive development will ensure that the child outgrows animism as she or he cognitively matures.

Piaget's ideas about decentration and animism will be discussed in Chapter 7 as we consider the concept of identification with the ecological world. But for now, the important point is that Piaget's theory of cognitive development is based on the idea of **operations**. An operation is a **rule that is applied to a problem**. Notice the similarity of Piaget's thinking to that of Chomsky's—both emphasize that rules are used to arrive at decisions. This rule-based approach to thinking quickly became a dominant feature of cognitive psychology. It got momentum from other work that had been going on in the military during and after the Second World War on human perceptual problems. Studying how human beings detect signals, and how they respond to complicated machinery (such as an airplane display board when an enemy plane is sighted) engineering psychologists had laid out theory on how humans make quick response decisions. This way of looking at thinking as the application of rules provided a centrally important feature of the early cognitive psychology.<sup>5</sup>

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<sup>5</sup>Lachman, R., Lachman, J. L., and Butterfield, E. C., *Cognitive Psychology and Information Processing: An Introduction* (Hillsdale, NJ: Lawrence Erlbaum Associates, 1979).



## WHEN ALL YOU HAVE IS A COMPUTER, EVERYTHING LOOKS LIKE INFORMATION

The work of Chomsky, Piaget, and the engineering psychologists laid important groundwork for the fall of behaviorism. Of all the pressures on behaviorism, however, the most important one was the creation of the computer. Computers were developed directly from the high-speed calculating machines designed for military purposes during World War II, so that decisions could be made about where best to move troops and supplies. The first electronic computer was built in 1946 (called ENIAC, at Pennsylvania State University); computers quickly emerged as a principal tool for processing information in the postwar period. In 1948 a mathematician named John von Neumann and a neurophysiologist named Warren McCulloch attended a conference at the California Institute of Technology and presented the idea that computers could be compared to human brains.<sup>6</sup> The computer revolution in psychology had begun.

The metaphor of the brain as a computer had instant appeal. Both seem to depend on digital events: the firing of a neuron and the firing of a bit are on/off occurrences. More importantly, both the brain and the computer “process information”: data are fed in, transformed according to some rules or decisions, and outputted. The mind is assumed to work like a computer program: both implement a series of actions that depend on the outcome of preceding operations. In other words, both mind and computers are sophisticated calculating machines that can “decide” what to do next based on outcomes that have previously occurred. Complicated but orderly decision sequences allow both the machine and the mind to behave intelligently. Computer scientists such as Herbert Simon and Allen Newell soon set out to develop computer programs that could think, that would perform logical work like the kind humans do, which if you are a mathematician, meant proving theorems.

Soon the first artificial intelligence programs were developed that could prove logical theorems in about the same manner and at about the same temporal rate that humans do. The field of artificial intelligence demonstrated that, at least with some types of problems, the human mind did operate like a computer program. Work in artificial intelligence continued to grow, and by the late 1970s, cognitive psychologists increasingly saw psychology as the science of information processing. As historian of psychology Morton Hunt has noted, Herbert Simon (and others) believed “the

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<sup>6</sup>von Neumann, J., and McCulloch, W., Paper presented at California Institute of Technology conference “Cerebral mechanisms in behavior” (1948). Cited by Hunt, M., *ibid.*, p. 514.

computer [to be] as important for psychology as the microscope had been for biology; . . . other enthusiasts said the human mind and the computer were two species of the genus 'information-processing system.' ”<sup>7</sup>

Thus, from an information processing point of view, we humans input information, run various operations on it, and then act on the basis of our program outcomes. With this model, the unobservable “machinations” of the mind could now be studied by comparing them to computer programs. The fact that the mind is unobservable was no longer problematic: cognitive psychologists could infer the program by studying the observable input and the output. Seeing the mind as a machine fits comfortably with the Western worldview that we described in Chapter 2: the mind, like the world, is rational, knowable, and predictable; all we have to do is figure out its orderly workings.

## INFORMATION PROCESSING: THE CONSTRAINTS OF GIGO

There is a familiar saying in computer science: garbage in, garbage out (GIGO). No computer can do a good job if the incoming information is faulty. If our minds are like gigantic computer programs, our behavior is dependent on the accuracy of the information on which our programs operate. If the information is limited or distorted, our behavior will likely be inappropriate. One way to understand our continued environmentally destructive behaviors, then, is to see them as outcomes of faulty information. Among other problems, information can be inadequate because it is wrong, because it is limited, or because it is irrelevant. We will look at these three types of information problems in turn.

### Wrong Information

Obviously GIGO can result from bad information. Good decision making requires accurate knowledge, but information that appears accurate in the present can later be discovered to be inaccurate. For example, since the Second World War, the Atomic Energy Commission has continually lowered the maximum permissible radiation doses for both nuclear plant workers and the general public.<sup>8</sup> Early nuclear tests were conducted without adequate protection to workers in part because officials mistakenly believed that small and moderate doses were not harmful. Similarly, heated debates about logging in the Pacific Northwest hinge on widely varying es-

<sup>7</sup>Hunt, M. *ibid.*, p. 540.

<sup>8</sup>Gerber, M. S., *On the Home Front: The Cold War Legacy of the Hanford Nuclear Site*. Chapter 4: “Radiobiology: The Learning Curve” (Lincoln, NB: University of Nebraska Press, 1992), pp. 171–200.

timates of how much old growth timber is left, as well as the future sustainability of tree plantations that replace ancient forests. Because good forest management depends on good information, the Clinton administration in 1993 funded the Eastside Ecosystem Management Project, a comprehensive scientific study of the Columbia Basin region, so that management policy will be based on correct information. Similarly, Kai Lee has urged that environmental policy be derived from “civic science . . . irreducibly public in the way responsibilities are exercised, intrinsically technical, and open to learning.”<sup>9</sup> No information is perfect, but a commitment to improving information and revising environmental decisions accordingly is an important principle of good policy.

### Limited Information

There is good reason to believe that our information is inadequate because it is limited. First of all, we are limited by the hard wiring of our sensory apparati. We see only a tiny range of the entire spectrum of electromagnetic radiation, namely wavelengths between approximately 400 and 700 nanometers, which we call light; but the continuum of electromagnetic energy extends from short cosmic rays of 4 trillionths of a centimeter, to long radio waves, up to several miles. Thus, we are blind to the vast majority of this information: “instead of experiencing the world as it is, people experience only about one trillionth of outside events: a small world indeed!”<sup>10</sup>

Furthermore, the vast majority of us who are not visually impaired are **visual-dependent**. Our sight mechanism uses a greater part of our cortical brain than do our other senses—hearing, smell, touch, or taste—leading us to rely more heavily on visual information than any other kind. As researchers Ornstein and Ehrlich have noted,

tree-dwelling . . . made it inevitable that human beings would become predominantly “sight animals” rather than “smell” or “taste” animals. This sensory emphasis on sight has many consequences in today’s world. We notice the “visual pollution” of litter much more readily than we do carcinogens in automobile exhausts, potentially deadly chemicals in drinking water, or toxic contaminants in cooking oil.<sup>11</sup>

If we cannot see something we are not likely to find it important. This visual dependency makes it difficult to respond to ozone depletion or global

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<sup>9</sup>Lee, K. N., *Compass and Gyroscope: Integrating Science and Politics for the Environment* (Washington, DC: Island Press, 1993), p. 161.

<sup>10</sup>Ornstein, R., and Ehrlich, P., *New World, New Mind: Moving Toward Conscious Evolution* (New York: Simon and Schuster, 1989), p. 73.

<sup>11</sup>*ibid.*, p. 21.

warming. Since we cannot directly see greenhouse gases or chlorofluorocarbons (CFCs), it is less likely that we will notice their significance, or keep their importance paramount in our thinking. On the other hand, the invisibility of some hazards contributes to our fears, as we will see later in this chapter. Experiencing (even low-level) anxiety but not acting on it helps maintain a split between planet and self.

I certainly was not convinced of the toxic effects of cleaning chemicals and industrial pollutants, for example, until I got severely sick with a liver disease about 5 years ago. My immune system was very weakened, and for several months during my recuperation, I was able to tell if a room I walked into had been cleaned with chemical solvents because I felt dizzy and weak within a few minutes. I have never been sensitive to such chemicals before or since, so I tend not to think about them anymore. But I can remember at the time being appalled at the general sea of invisible toxins to which we are unconsciously subjected without our permission. I can remember thinking then that those wacky environmentalists who are fighting overuse of chemicals and pesticides have a darn good point, one that I had never "seen" before.

Most institutions concerned about public opinion employ the principle of visual dependency. Using the principle of "out of sight, out of mind," for example, the U.S. Forest Service, in its published guidelines for forest management, officially sanctions sets of cosmetic strips, that is, intact forests directly bordering public highways. The USFS calls these strips "viewsheds" and they are maintained in order that the public not be overly concerned about clear-cutting, since clear cuts are ugly and tend to arouse public reaction. In published planning documents for each National Forest, the size and placement of viewsheds are explicitly specified. Viewsheds are defined as

Areas (viewsheds) with high visual sensitivity (as seen from selected travel routes, developed use areas, or water bodies), manage to attain and perpetuate an attractive, natural-appearing landscape. Timber is managed on a scheduled basis and used to develop a large tree appearance and vertical diversity. Uneven-aged management is emphasized.<sup>12</sup>

Because so much clear-cutting has been intentionally hidden from public view, a Spokane, Washington, environmental group (called "Lighthawk") offers legislators free flights over the Pacific Northwest so they can see the extent of clear-cutting before voting on forest management questions. And in my own experience, I was not very concerned

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<sup>12</sup>U.S. Department of Agriculture Forest Service, *Summary: Final Environmental Impact Statement, Umatilla National Forest* (Portland, OR: Forest Service, 1990), p. S-29.

about deforestation, until I saw huge patches of shaved forests in the Cascades as I drove back and forth to Seattle from my home in eastern Washington.

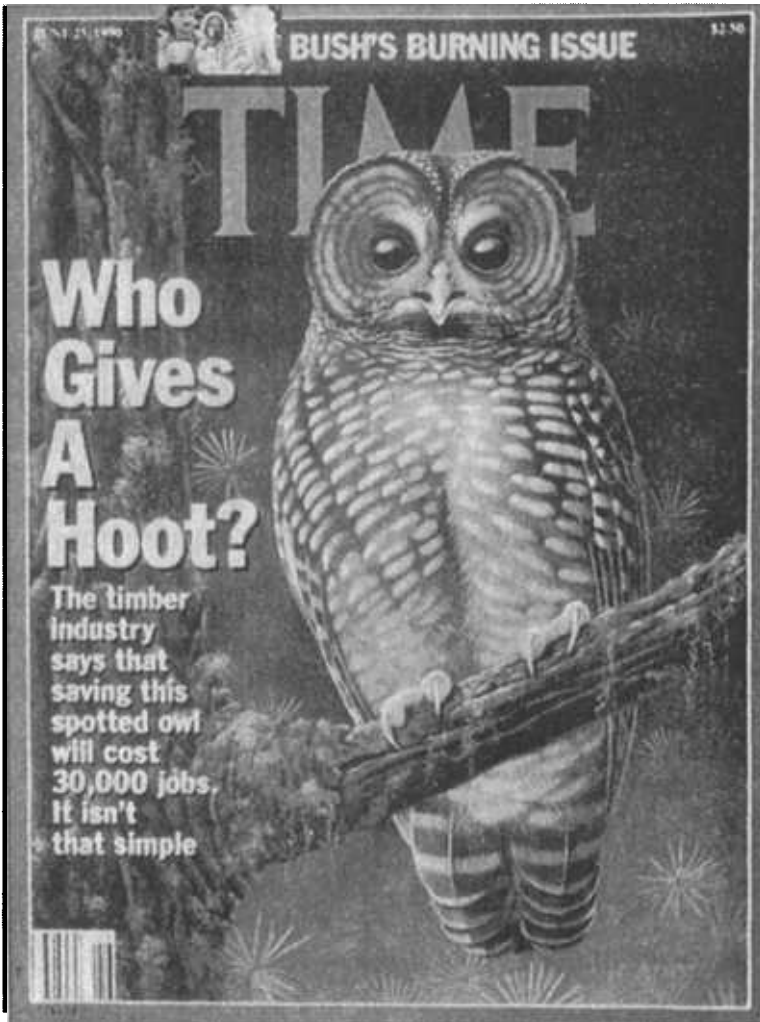
Visual dependency is a powerful principle of our information-processing system, a principle that has been exploited by all sides of environmental debates. Sometimes, however, our reliance on vision can backfire. Consider the “owls versus jobs” controversy, which the press has claimed signifies the debate about the forests of the Pacific Northwest. The debate is an example of the importance of how we frame questions. Spotted owls are believed to depend on old-growth forests, that is, forests that have not been previously cut and replanted. Old-growth forests are more complex ecosystems than are replanted forests, so spotted owls serve as an **indicator species**: their presence signifies the health of a complex system of interdependent species and habitat. Thus, from an ecological point of view, spotted owls are important not just because of the species itself, but because they serve as a measuring rod of the health of many other species that occupy the same rich environmental niche. Spotted owls were chosen to serve as the “canary of the mine shaft,” a signal species whose living existence demonstrates the ability of other species to survive. But any number of other species could have been selected, from the red-backed vole to the mycorrhizal fungi.<sup>13</sup> The only available legal means for saving the last old-growth forest was for environmentalists to argue that the 1972 Endangered Species Act protects the owl from extinction. Environmentalists were smart to choose the owl: the owl is a strong visual image and a lot cuter than a vole or a fungus. Its large eyes and small nose comprise what physiologists call a “neotenic face,” meaning a face that approaches the proportions of a baby’s face. We have a built in, genetically hard wired response to **neotenic faces**<sup>14</sup>—we find them “cute.” We like them, and we feel protective of them. But the owl’s visual appeal has also backfired. Because the visual image of the owl is so strong, it has been difficult for environmentalists to remind the public that the owl serves only as an indicator species.

When the debate is framed as “owls versus jobs” by a headline-hungry press, families whose livelihoods depend on the timber industry quite rightly ask how environmentalists could possibly think that saving some owls would be more important than feeding their children. Because of the owls’ visual power, it is difficult for the public to remember that the owl signifies an entire forest ecosystem, comprising hundreds, perhaps thousands

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<sup>13</sup>Maser, C., *The Redesigned Forest* (San Pedro, CA: R. & E. Miles, 1988). I am grateful to Shirley Muse for helping me with this reference.

<sup>14</sup>Ornstein and Ehrlich, *ibid.*, pp. 83–84.



Source: © 1989 Time Inc. Reprinted by permission

of species, on whose healthy functioning humans are also dependent. An *endangered ecosystem* is the issue, and some Congresspeople are working to revise the Endangered Species Act to an Endangered Ecosystem Act. Analogously, environmental philosopher J. Baird Callicott has articulated Aldo Leopold's assertion that we must learn to develop a "land aesthetic" that goes beyond our naive visual dominance. Our uneducated reliance on vision leads us to value wilderness only when it is pretty. Instead we must learn to perceive much more complex ecosystems, even if such perception requires seeing beyond prettiness. Such an aesthetic will require education:

The land aesthetic is sophisticated and cognitive, not naive and hedonic; it delineates a refined taste in natural environments and a cultivated natural sensibility. The basis of such refinement or cultivation is natural history, and more especially, evolutionary and ecological biology. . . . The beauty of a bog is a function of the palpable organization and closure of the interconnected living components. . . . Thus . . . an autonomous natural aesthetic must free itself from the prevailing visual bias.<sup>15</sup>

In addition to the limitations imposed by our visual dominance, two more principles of our perceptual system are likely to give us GIGO. The first is the principle of **selective attention**. Even though we perceive an extremely small range of electromagnetic information, if we were to notice everything in that range, our experience of the world would be chaotic—a “buzzing, blooming confusion” to use William James’ well-known phrase. Instead, our perception is quite selective. In order to make sense of the world, we must relegate large portions of it to “ground” as we focus on some “figure.” We unconsciously make these decisions all the time. I do not notice my left foot stretching in front of my right as I am walking—instead I am concentrating on where I am going. Similarly, I do not notice the fossil fuel burning in my gas tank as I drive, the electric power feeding my computer as I write, or the trees that have been used to build the room in which I sit. We are cognitive misers, delegating attention only to those items that need it, and tuning out the rest.

In Chapter 3, we discussed the role of motivated selective attention—e.g., defense mechanisms—which enables us to avoid potentially anxiety-provoking stimuli. But even without the role of anxiety reduction, we do not notice these and many other features of our environment because of a second principle of our nervous system. Because of its hard wiring, **habituation occurs if stimuli do not change**. Our nervous systems are built to signal changes in our environment, rather than constancies. Stimuli that do not change quickly lose their ability to fire neurons in our nervous system; consequently, situational features that remain the same fade from our awareness whereas those that change too slowly never reach our awareness at all. Like the frog who will jump out of a pot of very hot water if suddenly thrown in, but will allow itself to be boiled to death if placed in a very slowly heating pot, we humans will endure quite noxious environmental events if they are introduced gradually enough.

The smog level of Los Angeles is a good example of the role of habituation. As researchers Ornstein and Ehrlich put it

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<sup>15</sup>Callicott, J. B., “The land aesthetic,” in Chapple, K. C., and Tucker, M. E., eds., *Ecological Prospects: Scientific, Religious, and Aesthetic Perspectives* (Albany: State University of New York Press, 1994), pp. 178, 181.

a visitor to the L.A. basin, arriving on a smoggy day, is often immediately appalled by the quality of air he or she is expected to breathe. But, as with many other constant phenomena, the locals hardly notice. A few years ago one of us arrived at John Wayne Airport in Orange County in the early evening to give a lecture. Every streetlight was surrounded by a halo of smog, and his eyes immediately began watering profusely. As a visitor from the (relatively) smog-free San Francisco area, he felt obliged to kid his host: "Well, at least we have a nice clear night for the lecture." His host's serious response: "Yeah—you should have been here a couple of weeks ago. We had a lot of smog then."<sup>16</sup>

These two processes—selective attention and habituation—are crucially important in producing the GIGO problem that many of us blame on the media. Most of us are poorly informed about pressing environmental problems, having only glimpses of fleeting stories quickly taken up and then dropped by the press, television, and radio. But media officials defend their poor coverage by pointing out that the public has a very limited attention span, and will not attend to stories that do not change. The same old bad news—about population growth, about global warming, about resource depletion—does not sell papers or retain viewers. If there is nothing new, we will not pay attention. Yet most of us need far more intricate information than we are currently presented. Brief headlines that oversimplify issues ("owls vs. jobs" is a classic example) jeopardize our ability to make sophisticated decisions about complicated issues. When National Public Radio covered the confirmation hearings of Supreme Court Judge Breyer, Nina Totenberg demonstrated this problem. She described the Senate Judicial Committee's questions inquiring into his previous rulings against environmental regulations as "arcane and esoteric." Breyer's pro-business, anti-environmental record seemed to me the only interesting element of the otherwise rubber-stamped Congressional hearings, yet NPR (as did other media) failed to address the environmental implications of his appointment. No wonder the public has a similar difficulty.

### Irrelevant Information

Our information is often limited, but just as often, we have the opposite problem: too much information produces GIGO, especially if the information confuses us. Unfortunately, many of our reasoning difficulties come from the use of irrelevant information. If problems are presented simply enough, we can usually come up with an appropriate answer, but unfortunately, life is usually not very simple. More often, we get distracted by irrelevant information. For example, consider the following set of statements

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<sup>16</sup>Ornstein and Ehrlich, *ibid.*, p. 76.



(based on a problem that Henri Zukier<sup>17</sup> presented to his laboratory subjects):

1. Assuming you have access to sunlight, heating a house with passive solar heat costs 30 to 40% less over the lifetime of the house than heating with conventional systems, such as electricity, gas, coal, or oil. If you want to save money on heating, which system should you choose?
2. You are planning your dream home, which you plan to live in for the rest of your life. Assuming you have access to sunlight, heating a house with passive solar heat costs 30 to 40% less over the lifetime of the house than heating with conventional systems, such as electricity, gas, coal, or oil. Passive solar systems add 5 to 10% more to the construction costs. Some people believe that rooftop solar collectors are ugly and detract from the architectural design of a structure. In order to get the maximum efficiency from your passive system, you have to open and shut windows and shades to regulate heat distribution, although this could be accomplished by an inexpensive computer. Your access to solar energy could be disrupted if someone decided to build an interfering structure, since right now there are no laws to guarantee owner access to sunlight (such legislation has been opposed by builders of high-density developments). If you want to save money on heating, which system should you choose?

The irrelevant information (irrelevant to the question of saving money) contained in the second problem is likely to distract readers from the crucial sentence “heating a house with passive solar heat costs 30 to 40% less over the lifetime of the house than heating with conventional systems” and confuse the issue. Since most environmental questions are complex and involve many different considerations, it is difficult not to get waylaid.

The public’s tendency to use irrelevant information has recently become a concern among policymakers whose job it is to convince the public to reduce energy use. Most energy-conservation programs are designed with the assumption that the public is primarily interested in saving money and will act rationally to do so. This assumption has been called the “rational-economic model.” According to environmental psychologist Paul Stern, the rational-economic model rests on the “underlying behavioral assumption that technologies that will, over their useful life, save their owners and operators money will be adopted once the owners become aware of the benefits.”<sup>18</sup>

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<sup>17</sup>Zukier, H., “The dilution effect: The role of the correlation and the dispersion of predictor variables in the use of nondiagnostic information,” *Journal of Personality and Social Psychology*, 43 (1982): 1163–1174.

<sup>18</sup>Stern, P. C., “What psychology knows about energy conservation,” *American Psychologist*, 47 (10) (1992): 1224–1232. p. 1224.

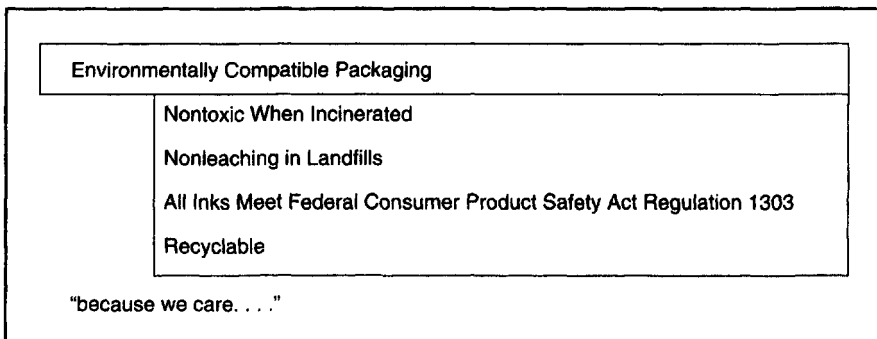
But research shows that instead of using a purely “rational-economic model” for decisions about conservation issues, most people rely on a “folk model” which looks *irrational* to energy experts. In the words of social psychologist Costanzo and his colleagues:

The “folk model” typically used by individual consumers calculates current dollar savings as compared to preadoption expenditures and fails to reveal that the initial cost of the investment is paid back faster because of rising fuel prices. Thus, folk calculations based on naive and “irrational” assumptions cause consumers to make fewer energy-saving investments than an expert analysis would recommend. In addition, a variety of non-economic factors (e.g., style, status, performance, safety, comfort, and convenience) influence decision making and contribute to the apparent irrationality of conservation behavior.<sup>19</sup>

These additional dimensions are important to consumers, often more important than price. Thus, the concept of irrelevant information suggests the question “irrelevant to whom?” We will return to this question at the end of this chapter when we discuss risk assessment. For now, let me simply make the point that when experts (either policy analysts or cognitive psychologists) define a problem, they typically do it in narrower terms than laypersons do.

Advertisers often employ irrelevant information to increase the desirability of their products. The information printed on a plastic bag I recently received from a shopkeeper demonstrates this tendency see Figure 6.1.

Figure 6.1



<sup>19</sup>Costanzo, M., Archer, D., Aronson, E., and Pettigrew, T., “Energy conservation behavior: The difficult path from information to action,” *American Psychologist*, 41 (5) (1986): 521–528, p. 525.

Ink regulation and incineration are irrelevant information, since plastic bags in landfills are rarely burned at high enough temperatures to be non-toxic. Claiming the product is “recyclable” borders on the fraudulent, since at present less than 1 percent of plastic bags are recycled at all, and this company neither recycles nor uses recycled bags. “Reusable” would have been a more appropriate term. Inaccurate and irrelevant information, however, is displayed in an attempt to make this company appear environmentally conscious.

But we do not need the efforts of advertising to become confused by irrelevant information. More distressingly, there are two ways in which we actively *pursue* irrelevant information. One is called the **confirmation bias**. When testing our hunches against incoming data, we make the egotistical mistake of looking for confirming information rather than disconfirming information. For example, P. C. Wason presented his subjects the number sequence 2, 4, 6, and asked them to discover the correct rule that described the pattern (in this case the correct rule is “any three increasing numbers”).<sup>20</sup> In order to discover the rule, they could generate other three-number sequences and ask the experimenter whether or not their new sequences fit the rule. When the subjects thought they had discerned the rule, they tried to name it. By testing out additional examples, most people confidently named a wrong rule (usually “add two to the previous number”) because the examples they generated were meant to *confirm* their hypothesis rather than disconfirm it. Unless you actively seek a disconfirmatory example, you are unlikely to discover the correct rule. Try this little experiment on a few friends and you will see the principle more clearly.

Seeking lots of confirmatory information feels good, but is not very useful. We generally do not like to experience disconfirmations, so we do not seek them. Consequently, we tend to read material that confirms our views [I subscribe to *High Country News*, *Utne Reader*, and *The Nation*, rather than *The National Review* and *Our Land* (a Wise Use movement publication)]. I have also had to force myself to ask colleagues whose opinions I know are different from mine to read drafts of this book. Their reactions are much more valuable, though not as comfortable, as responses from colleagues who already agree with me.

In addition to using confirmation biases, we tend to seek out irrelevant information out of our need to believe that we have some control over our world. We like to think that our actions have impact, and we are prone to

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<sup>20</sup>Wason, P. C., “On the failure to eliminate hypotheses in a conceptual task,” *Quarterly Journal of Experimental Psychology*, 12 (1960): 129–140.

over-interpret our behavior; hence, we overinterpret random events in terms of illusory correlations. Some people would consider the field of astrology, for example, and its data on planet positions, as useless information; completely chance or random events incorrectly interpreted by human beings seeking meaning. In the arena of environmental concerns, the principle of **regression toward the mean** leads us to interpret essentially random events as meaningfully related to some human action. Here is how it works: chance events fall on a normal curve, with extreme occurrences far less likely than more typical ones. Because extreme events are rare, the next event is likely to be less extreme, simply due to chance. For example, extremely hot days are more likely to be followed by cooler ones than by hot ones, simply by chance alone. But human beings, looking for meaning, are prone to explain occurrences in terms of human actions. In the words of environmental educator Kai Lee:

The significance of regression artifacts in environmental science may seem less important than in the allegedly “softer” social sciences, until we recall that environmental remedies are applied precisely because some aspect of the environment is in an extreme state. Regression to the mean predicts, for example, that after a species has been declared endangered it will tend to become more abundant. This is not an effect at all, but a reflection of the fact that the human decision to declare a population in bad trouble is based upon its being *in extremis*. To the extent that that condition is caused by a variety of factors—as is virtually always the case in the natural setting—some of them will fluctuate in the next year, and the fluctuations will on average tend to bring the population up. In the early years of the Columbia Basin program, before any of the rehabilitation measures could be carried out, there was a resurgence of salmon populations from the historic lows of the late 1970s, when the Northwest Power Act was passed. It took a special effort of political will *not* to take credit for this change, even though there was as yet no cause to which such an effect could be attributed.<sup>21</sup>

In other words, because human beings are prone to make up explanations for random events, we can easily misinterpret our actions as causing something that is happening by chance alone. Failure to recognize regression toward the mean is at the center of scientific debates about global warming. Are recent temperature rises due to human-caused increases in carbon dioxide, or are they part of a randomly occurring pattern of temperature changes? At present, scientists disagree on which explanation is most likely.

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<sup>21</sup>Lee, K. N., *ibid.*, pp. 71–72.

## INFORMATION PROCESSING: THE CONSTRAINTS OF FAULTY PROGRAMS

GIGO is not our only information-processing problem. Even when we do have comprehensive, relevant, and accurate information, we often have difficulty reasoning well. Cognitive psychologists have shown that what we do with information is often problematic because we commonly make several types of processing errors: we overuse our preconceptions and expectations, we employ illogical reasoning strategies, and our quantitative literacy is often limited. Let us look at each of these kinds of errors.

### Preconceptions and Expectations

Much as we might want to appear unbiased, total open-mindedness is not only impossible, but also unintelligent. Our learning and experience give us a framework for how to interpret information and situations, so that meaning is dependent on our pre-existing beliefs. The world would be totally chaotic without some pre-existing biases, or to paraphrase best-selling educator Alan Bloom, too much open-mindedness would make our brains spill out!<sup>22</sup> But while pre-existing beliefs are necessary, they can, of course, also get in our way. Cognitive psychologists have shown how prone we are to be fooled by our biases and expectations. For example, a classic study by Adelbert Ames demonstrated how easy it is to perceive a full grown adult as smaller than a nursery school child, if both are placed in a trapezoidal room. Even when we are told that the room is trapezoidal, we perceive it as rectangular because we expect it to be rectangular (Fig. 6.2).

Similarly when social psychologists showed a film segment of an incident in Lebanon involving the killing of civilian refugees, both pro-Israeli and pro-Arab audiences saw the portrayal as biased against their side.<sup>23</sup> And football fans have been shown to interpret the same call differently depending on its outcome for their team.<sup>24</sup>

Unsurprisingly, pre-existing biases play an important role in debates about environmental issues by potently affecting our perception and interpretation of an event. Consider how two different people interpreted the

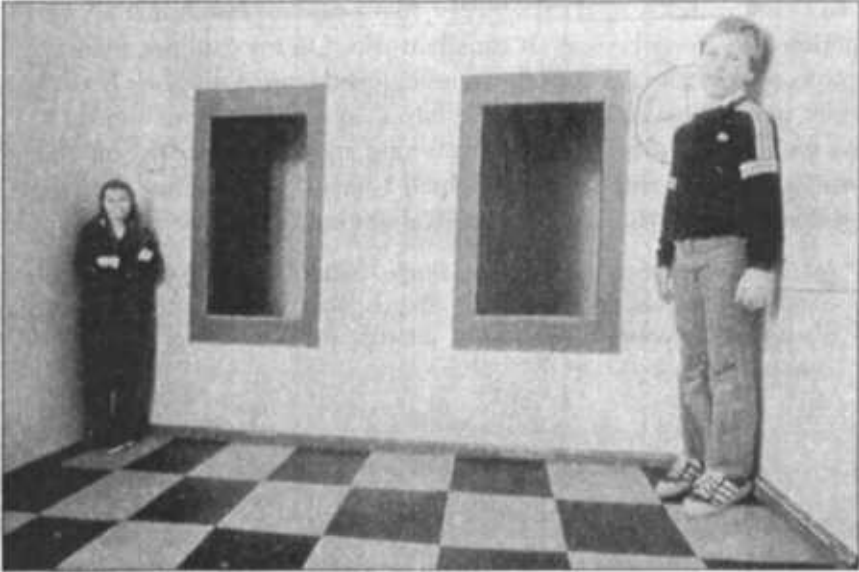
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<sup>22</sup>Bloom, A., *The Closing of the American Mind: How Higher Education Has Failed Democracy and Impoverished the Souls of Today's Students* (New York: Simon and Schuster, 1987).

<sup>23</sup>Vallone, R. P., Ross, L., and Lepper, M. R., "The hostile media phenomenon: Biased perception and perceptions of media bias in coverage of the 'Beirut Massacre,'" *Journal of Personality and Social Psychology*, 49 (1985): 577-585.

<sup>24</sup>Hastorf A. H., and Cantril, H., "They saw a game: A case study," *Journal of Abnormal and Social Psychology*, 49 (1954): 129-134.

**Figure 6.2.** Misperception of size is due to the assumption of a regular room. The room is trapezoidal in shape; the boy is actually much closer than the adult.



Source: Copyright Baron Wolman 1982.

same traffic accident on I-95 in Springfield, Massachusetts, involving a tractor-trailer carrying 11,000 pounds of radioactive uranium that overturned and burned:

A representative of the antinuclear group Nuclear Information and Resource Service [said] that “People should be plenty concerned,” since the accident signaled more trouble in the future: “Accidents happen at the same rate to nuclear shipments as for all other shipments—one per every 150,000 miles the truck travels.” In contrast, a representative for the U.S. Council for Energy Awareness, which is supported by the nuclear industry, took the accident as a signal of assurance: “The system works,” he said. “We had an accident including fire and there was no release of radioactivity.”<sup>25</sup>

Given humans’ proclivity for interpreting events to fit their pre-existing biases, it is no wonder that discourse about environmental problems is often divided, if not derisive.

<sup>25</sup>Cvetkovich, G., and Earle, T., “Environmental hazards and the public,” *Journal of Social Issues*, 48 (1992): 1–20, p. 8.

### Heuristics as Illogical Reasoning Strategies

In order to think about and comprehend a complex world, people depend on reasoning heuristics. A **heuristic is any reasoning device that helps us to think quickly and efficiently**, like a rule of thumb that allows us to function effectively because it usually works. On my campus, male administrators and faculty can usually be recognized from a distance because the former wear coats and ties, but the latter do not. But heuristics do not always work: they often lead us into wrong snap judgments. For example, consider the following problem, which I have formulated on the basis of cognitive psychologists Tversky and Kahneman's now classic experiment<sup>26</sup>:

John is a 31-year-old white male, single, outspoken, and very committed to environmental issues. He and his friends have demonstrated in many confrontational protests over logging, mining, and land-use operations. Which statement is more likely:

1. John is a bank teller
2. John is a bank teller and a member of EarthFirst!

Most people think statement 2 is more likely because of what cognitive psychologists call a **representativeness heuristic**. Because the description fits the stereotype of an EarthFirst!er, most people choose statement 2. But the conjunction of two events can never be more likely than either event alone. That is, any one event occurs more frequently alone than it occurs with another event. Thus, statement 1 is more likely. Representativeness heuristics lead us to reason poorly, and our language often implicates our poor reasoning. The frequency with which conservatives refer to environmentalists as "radical environmentalists," for example, suggests that their mental representation of an environmentalist does not include room for moderates or conservatives.

Representativeness heuristics can be created by one vivid experience, which produces a memory so strong that only it is available when we encounter that category. When this happens, it is called an **availability heuristic**. For example, recently I had the pleasure of meeting the parents of a student at my college in a downtown cafe. She introduced me to her parents, who were very pleasant, and we got to talking about a recent lecture we had all attended given by Dennis Hayes, founder of Earth Day. I mentioned that I had just written about much of the same material in the first chapter of this book (the earth's limited carrying capacity, the problems of overpopulation in the Third World, and overconsumption by the

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<sup>26</sup>Tversky, A., and Kahneman, D., "Extensional versus intuitive reasoning: The conjunction fallacy in probability judgment," *Psychological Review*, 90 (1983): 293–315.

industrialized countries). Her father expressed an enthusiastic interest in my book, and asked me to let him know when it comes out as he wanted very much to read it. As he handed me his card, I remember swallowing my shock: he is a high-ranking officer of the Weyerhaeuser Company, the largest timber company in the country. I found it surprising that he would be so pleasant and so genuinely interested in reading my book.

Why? Because I also, of course, rely, on my faulty mental images. When confronted with new information, I compare it to a mental image I have already formulated about that category. My mental representation of Weyerhaeuser officials was based on *one* presentation by a forest management executive 5 years ago, who I experienced as being rigidly technocratic, since his lecture was filled with endless tables, which he used to try to prove that Weyerhaeuser engages in sustainable forestry. I was unconvinced by his numbers and by the way he had handled questions from the audience. Consequently, I believed that all Weyerhaeuser officials would have the same rigid and technocratic manner. I formed an entire mental category from one vivid example, and used it to interpret new information—an availability heuristic. I was amazed by the warmth and interest of this new person with whom I was lucky enough to chat before I could apply my faulty availability heuristic. As David Myers describes in his social psychology textbook “people are slow to deduce particular instances from a general truth but are remarkably quick to infer general truths from a vivid instance.”<sup>27</sup>

It is possible, however, to use the availability heuristic positively, which Myers points out was done by researcher Marti Gonzales and her colleagues when persuading people to sign up for financing energy conservation home improvements:

They trained California home energy auditors to communicate their findings to homeowners in vivid, memorable images. Rather than simply point out small spaces around doors where heat is lost, the auditor would say “if you were to add up all the cracks around and under the doors of your home, you’d have the equivalent of a hole the size of a football in your living room wall.” With such remarks, and by eliciting the homeowners’ active commitment in helping measure cracks and state their intentions to remedy them, the trained auditors triggered a 50 percent increase in the number of customers applying for energy financing programs.<sup>28</sup>

<sup>27</sup>Myers, D., *Social Psychology*, 4th ed. (New York: McGraw-Hill, 1993), p. 55. I gratefully acknowledge relying on Myers’ thoughtful second chapter on social beliefs for much of the material in this section on reasoning problems.

<sup>28</sup>Myers, *ibid.*, p. 56, talking about a study by Gonzales, M. H., Aronson, E., and Costanzo, M. A., “Using social cognition and persuasion to promote energy conservation: A quasi-experiment,” *Journal of Applied Social Psychology*, 18 (1988): 1049–1066.



By drawing a vivid image of a “hole the size of a football in your wall” these researchers were much more convincing than when speaking in more abstract, conceptual terms. In both cases, the information is the same, but the more vivid example is more persuasive because it creates a more memorable image.

### Quantitative Illiteracy

Both our preconceptions and illogical reasoning heuristics weaken the performance of our information processing systems, and make us look, at least to the “rational experts,” like pathetically irrational beings. And if all these examples were not enough, our quantitative illiteracy makes us look even worse.

Unless we have some technical training in a quantitative field, most of us have difficulty conceptualizing very big and very small numbers. A billion may as well be a trillion or a gazillion—we do not deal in these types of numbers often enough to have a well-developed understanding of their differences. Consequently, when environmental problems are described in quantitative terms, many of us lose track of the numbers and reason poorly.

For example, the estimated cost of cleaning up the Hanford Nuclear Reservation’s plutonium, toxic chemicals, heavy metals, leaking radioactive waste tanks, ground water and soil contamination, and seepage into the Columbia River is estimated to be \$30 to 50 billion.<sup>29</sup> How does this number compare to the U.S. deficit? To the cost of Social Security? To federal expenditures on education? Most of us have no idea. In each case, we have probably heard the figures at some time, but they are too big to be meaningfully related.<sup>30</sup> Consequently, it is difficult for us to make good decisions about environmental clean-up relative to other societal projects.

Similarly, our pro-environment behaviors are often undertaken with less than optimal results because we do not understand their quantitative dimensions. For example, electric lights use about 5 percent of home electricity. In the 1970s the energy crisis induced many people to conserve energy by being very conscientious about turning off lights. When their behaviors failed to show impact on their electricity bills, people gave up trying to save energy altogether. Unfortunately, they did not realize that home heating and cooling uses 50 to 70 percent of domestic energy, so that turn-

<sup>29</sup>Seager, J., *Earth Follies: Coming to Feminist Terms with the Global Environmental Crisis* (New York: Routledge, 1993), p. 35.

<sup>30</sup>The figures are: the 1994 U.S. deficit was \$280 billion, the cost of Social Security was \$320 billion, and expenditures on education was \$50 billion. Source: *Statistical Abstract of the United States*, 114 ed. (Washington, DC: U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, 1994), Table 507, p. 332. For more comparisons on military vs. environmental expenditures, see Figure 3.3.

ing down one's thermostat in the winter and turning it up in the summer would save far more energy than conscientiously turning off lights. Choosing energy-efficient major appliances is the single most important class of behaviors; refrigerators alone use about 19 percent of household energy. Likewise, many people are quite conscientious about recycling but less aware that reducing use is a far more effective way to save natural resources. For example, buying products in refillable plastic containers (such as shampoo from local health foods stores) is far more important than recycling plastic bottles.

Inexperience with quantitative information makes us susceptible to **framing effects**, which are induced when the same information is structured in different ways. For example, consumers prefer ground beef described as 75% lean over that described as 25% fat, and more students rate a condom effective if it has a "95% success rate" in stopping AIDS than if it has a "5% failure rate."<sup>31</sup> Moreover, people appear to be more motivated to avoid a loss than to achieve a gain. For example, Suzanne Yates showed that people were more likely to invest in a water-heater wrap if it was presented as a way to avoid losing money, rather than as a way to save it!<sup>32</sup>

In summary, the picture that cognitive (and social) psychology paints of human beings is not an especially attractive one. We are easily duped by our prejudices, our heuristic errors, our need to justify our actions, and our inexperience in quantitative matters. We like to think of ourselves as rational and open-minded, but research shows that we are anything but. There are already emotional reasons to leave environmental decisions to the experts because of our anxieties and our defenses. Our intellectual limitations simply add another excuse. Since all this seems to undermine the sub-title of this book, healing the split between planet and self, let me add a very important point here.

Although we *all* are easily deceived by these processes (Amos Tversky once said: "we didn't set out to fool people; all our problems fooled us, too,"<sup>33</sup>) we do not have to be. Instead we can learn to avoid these errors by being taught how they function as well as how to use counteracting strategies. For example, in a classic study of pre-existing biases, Stanford University students were given mixed evidence on the deterrence effect of the death penalty. They interpreted the evidence to fit their pre-existing attitudes about capital punishment, showing clear distortions in their percep-

<sup>31</sup>Myers, D., *Psychology*, 4th ed. (New York: Worth Publishers, 1995), p. 335–336.

<sup>32</sup>Yates, S., Using prospect theory to create persuasive communications about solar water heaters and insulation. Unpublished doctoral dissertation, University of California, Santa Cruz.

<sup>33</sup>Quoted by Myers, D., *Psychology*, 3rd ed. (New York: Worth Publishers, 1992), p. 292.

tions and reasoning. However, when they were subsequently asked to imagine that the evidence supported the opposite position (to see the merit of the opposing side), they became much less slanted in their evaluation of the evidence. Thus, explaining the opposite view can reduce our proclivity for prejudice and bias.<sup>34</sup>

In my own experience of teaching psychology, I have seen students quickly become sensitized to the natural tendency to commit these reasoning errors. I like to demonstrate to students in class how they work and how easy they are to commit by giving students problems to work on, but I have to do it *before* they read the chapter in which the reasoning problems are described—otherwise, students will avoid making them. What this means is that we can easily learn to reason more effectively if we are taught to avoid our naive errors.

## USING COGNITIVE PSYCHOLOGY TO SOLVE ENVIRONMENTAL PROBLEMS

The main message of cognitive psychology is that our inappropriate environmental behaviors are due to our inadequate, mistaken, distorted, or missing information about the consequences of our actions. Some of the impoverished information stems from intentional efforts on the part of advertisers, government officials, and military establishments to keep us ignorant about the impacts of our actions; but a lot of our difficulties also come from our own illogical and self-defeating cognitive limitations, which lead us to ignore and/or mishandle important information.

Below I have listed some of the typical errors I discussed in this chapter. Before we discuss a specific example of how to work with them, you might find that reviewing their meaning will be useful now.

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| Perceptual Information Errors | Cognitive Information Errors |
|-------------------------------|------------------------------|
| Limited time frame            | Irrelevant information       |
| Visual dependence             | Confirmation bias            |
| Selective attention           | Illusory correlation         |
| Habituation                   | Expectations                 |
|                               | Availability heuristic       |
|                               | Quantitative illiteracy      |
|                               | Framing                      |

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<sup>34</sup>Lord, C. G., Lepper, M. R., and Preston, E., "Considering the opposite: A corrective strategy for social judgment," *Journal of Personality and Social Psychology*, 47 (1984): 1231–1243.

To demonstrate how these insights can be used to confront our environmental difficulties, let us return to the problem of overconsumption. Consider how frequently these types of errors lead us to make environmentally inappropriate choices of consumer items. Most of us have an extremely limited time frame and focus on the short-term utility of our purchases. Even if we do become more sophisticated about time span and consider the lifetime of the product, say, when we purchase a car or a refrigerator, the extended time frames are still much too short for intelligent behavior regarding our planetary predicament. Perhaps a more appropriate time frame would be that used by the Iroquois, a native American tribe who claim to practice decision-making in terms of the “7th generation”: will this choice benefit or damage the 7th generation of my descendants?<sup>35</sup> Although it is not clear exactly what decisions the Iroquois made on this criterion, it is clear, from our own culture, that most decisions we make about environmental issues use a much shorter time frame than what is needed. On both the personal as well as the policy level, we rarely think beyond a few years into the future. As we discussed in Chapter 5, elected decision-makers are concerned with re-election on a 2- to 6-year cycle, which makes their commitment to longer-range solutions difficult to maintain.

Related to the problem of shortened time frame is the problem of visual dependency. We are seduced into thinking that what is pretty is what is good because we have so little information about the invisible effects of what is pretty. A beautifully landscaped golf course is environmentally harmful because of the overuse of water and chemicals that are expended to maintain it. Because it is pretty, people are more apt to vote for protecting photogenic wilderness than wilderness that is not, like a bog. Most people cannot “see” the biodiversity dependent on the bog. And our dependence on fashion drives an enormous amount of overconsumption so that we can procure the latest and the newest rather than the most long-lasting or the environmentally friendliest. Part of our need for the new is due to the process of habituation. We grow tired of what we are used to and long for the stimulation of something new. Making better choices will require decisions based on sustainability: intentional focus on longer time frames, hidden effects, and learning to value what is familiar more than what is new.

For example, our consumer choices are continually fed by poor information, which we do little to counteract. A common example would be our choice of food. Most of us have very little idea where our food is grown, and would be dismayed to learn of how much wasted energy, especially fossil

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<sup>35</sup>Lyons, O., “The Iroquois perspective,” in Willers, B., ed., *Learning to Listen to the Land* (Washington, DC: Island Press, 1991).

fuel, went into getting it on our grocer's stand. Our ignorance makes it seem like the food just appears there, and that the costs of its production or waste products are innocuous, or covered by the price of the food. Just the opposite, however, occurs. I live in one of the most highly productive areas in the world for growing apples (Washington state). However, the choices of apples available to me in the chain grocery stores include only apples that have been shipped thousands of miles. Local apples are not available because they are being shipped to other regions. Apples seem like a responsible choice of food because I know that they are locally produced; the availability heuristic misleads me to think that so are the apples in my local supermarket.

In more general terms, the way we frame food choices helps keep us ignorant of the environmental consequences of our choices. When selecting foods at the store, we generally consider price, menu, quality, and convenience. More recently, governmental agencies have required food labeling to inform the consumer of the nutritional dimensions of those choices: fat content, calories, and chemical additives are now listed. No information is yet made available, however, about relevant environmental concerns: number of gallons of gasoline used to grow and distribute this food product; number of people injured by the pesticide addition; and whether or not the food was produced in the United States or on foreign soil where environmental regulations are more lax. Reforming food choices in these terms would lead to the obvious conclusion that buying strawberries in January is a less appropriate action than buying them at the local farmer's market in June.

Making more appropriate consumer choices on food and other products will not be easy, especially as we are intentionally kept ignorant of the environmental consequences of our choices by advertising and industry. Asking questions about the environmental costs of certain products often gets one vague, confusing, or inadequate answers. For example, I decided to ask some questions about a regular purchase I make every month: coffee. Living in the Pacific Northwest, I have become something of a coffee addict, and I enjoy drinking my morning latte (espresso and steamed milk) as one of my favorite activities of the day. While researching for this chapter, I ran across some material describing the horrendous conditions under which many Latin American coffee growers work. Forced off of their small farms by escalating debt, many peasants now labor on coffee plantations that pay poorly, force workers to endure harmful agricultural chemicals, and provide inadequate housing. Moreover, large coffee plantations typically entail huge monocrops; trees that do not produce coffee are removed. Such trees provide nesting places for bird populations, so that coffee production undermines biodiversity. I wanted to know if my coffee company

bought directly from farmers or from plantations, how much of their price went to the growers, whether they could get organic coffee, and whether the coffee was grown in diverse crops along with shade trees. After five long-distance phone calls, I finally had one returned. The answers to my questions involved a lot of complicated information about buyers, markets, coffee trade agreements, etc. I finally learned that my coffee company buys the best quality beans for the lowest price possible, meaning that it buys from large plantations produced in monocrops with pesticides. I also learned that they put 4 percent of their profit back into social programs. Unfortunately, this small percentage of company profits goes toward solving social problems that the company itself helps create. I have decided to order from the Alternative Trade Organization next time because Alternative Trade Organizations (see Appendix) buy coffee direct from farmers so that they can remain on their own land and make a decent living. These small farms retain the shade trees and produce coffee without harmful pesticides to workers.

Demanding better information is only part of our problem. What we do with the information we do have is probably an even bigger part. Because of strong biases to retain basic core beliefs, we are likely to distort, diminish, or otherwise degrade information that contradicts them. Forcing ourselves to argue for an opposing viewpoint is a critically important strategy for avoiding such reasoning errors. Recall the Stanford study in which students were asked to argue against their own position on the death penalty. When they did so, they were able to evaluate relevant evidence far more objectively.

Arguing the opposite viewpoint is not easy, but its effects are valuable in exposing our reasoning errors. Pick an environmental issue about which you have a strong opinion and put yourself through the same exercise. For example, I strongly believe that we ought not allow oil and gas development in the Arctic National Wildlife Refuge in Alaska (ANWR). The coastal area to which oil and gas companies have asked Congress for access is home to several hundred animal species, and 7000 indigenous people who live sustainably in that complex ecosystem. Degrading this priceless refuge for an unknown supply of nonrenewable energy seems unnecessary to me, a matter of sheer greed on the part of oil and gas companies.

Forcing myself to argue the opposite viewpoint has disclosed several reasoning errors I have made about the information I have, as well as the inadequate information that I do have. Let me run my counterbelief argument past you, so you can see my cognitive difficulties. Here is my best effort at arguing that the oil companies should have access to the Alaska Refuge:

The United States needs to develop its domestic oil production. Currently we import about half our oil, principally from the Middle East. Look at what our dependence on the Persian Gulf led us to in January of 1991: a war with Iraq. If we calculate the cost of imported oil to include the military costs we spend to insure it, we pay about \$100 a barrel, over three times as much as the market price. Developing our own reserves would produce much cheaper oil and alleviate our dependency on a politically dangerous neighborhood of suppliers who can arbitrarily raise the price at will. Our need for oil will only increase in the next decades as our population and use of automobiles continues to climb. The Department of Energy estimates that by the year 2000 we could be importing 60 to 70 percent of our oil, which would increase our debt and lead to severe inflation, widespread economic recession, and perhaps even a major depression. Drilling for oil in the ANWR will help ensure our national security—by strengthening our economy as well as reducing our involvement in the politically volatile Middle East. Preventing the exploration is an example of how the federal government has failed to develop a coherent energy policy for the next decades.

First, forcing myself to make the counterargument has illuminated the relationship between energy consumption and military costs. When President Bush claimed that Iraq's invasion of Kuwait "threatened our American way of life" he was referring to our enormous dependence on oil from the Middle East. Limiting our own production of oil increases our military involvement in this dangerous geographical area. I had not seen the military implications of the ANWR before making this counterargument. I had framed the issue as one of oil company greed versus wildlife and indigenous culture preservation, two images available from media representations of the debate. Forcing myself to make the counterargument makes it easier for me to see the military and national security issues that are also relevant, though rarely discussed.

Second, the problem of a federal energy policy is a real one, I think, and I appreciate the oil companies' frustrations with a chaotic series of rules and regulations that subsidize some parts of the industry while denying growth to others. In part because of President Bush's previous work as an oil company executive, I had thought of the oil industry and the federal government as far too chummy. I pictured lavish business lunches where government and oil officials work out cozy arrangements to profit the oil industry. President Bush triggered an availability heuristic that made me estimate the closeness between federal and oil company administrators. Arguing the oil companies' position about the ANWR forced me to see the gap between government and oil officials and appreciate that the latter feel they have been discriminated against on this aspect of their industrial development. As long as I had access only to my own point of view, it was easy to minimize the differences between it and the point of view of others.

Third, I pictured drilling for oil as killing land animals and dislodging people from their native land. Actually the proposed drilling would take place off shore, where the greatest deposit of oil appears to be. Such drilling would cause some environmental damage, especially to the marine environment, but not the sort I had pictured, which was on-land drilling.

After going through this exercise, I am not convinced of the safety or wisdom of opening up the ANWR, but I am more open to listening to the arguments in its favor. Furthermore, I have more sense of the information I need to make an informed decision: How much would it really reduce our dependency on the Middle East? Would our national security be threatened because foreign military sabotage of the Alaska pipeline is easier to accomplish than interrupting our supplies from the Middle East? What kind of marine wildlife damage would occur? What would happen to the indigenous cultures? These are questions that did not occur to me before I forced myself to argue the opposite position. I also notice that it is easy for me to use the availability heuristic and to minimize the differences between other viewpoints relevant to the topics about which I have strong opinions. Basically, I am prone to overgeneralizing, and I can become a more thoughtful and effective individual by being vigilant about that tendency.

To summarize, from a cognitive viewpoint we can change our environmentally inappropriate choices by getting better information about the effects of our actions. To notice that institutional structures intentionally keep us naive requires that we begin asking better questions and pursuing uncomfortable answers. All institutions have some vested interest in their own point of view, and intentionally or unintentionally distort information in order to maintain it. This is no less true of environmental groups than it is for businesses, governments, military organizations, or local landowners. In general, we need to get better information and make better judgments about it. We can do this by:

1. Asking difficult questions about environmental issues. Pursuing answers, even when they are not forthcoming. Learning more about the environmental consequences of our actions, especially our consumer choices. A number of good guides are now available that give information about the environmental impact of consumer goods. (I have described some of them in the Appendix.) Expressing our preferences to store managers for organic, nonpolluting, locally produced products, and for bulk items without unnecessary packaging. Shopping at locally owned farmers' co-ops. Choosing products with as little packaging as possible.
2. Forcing ourselves to make a counterargument in order to discover our reasoning errors. Noticing the reasoning errors we are most likely to make, and keeping vigilant about them. Being willing to ad-



mit that our information and/or reasoning is flawed and being open to learning more about our limitations.

3. Being confident enough about our intelligence to learn more about complicated environmental issues, and refusing to leave them entirely to experts.

This last point is so important to healing the split between planet and self that I want to spend the rest of the chapter looking at it in more detail. If we are to use the insights of cognitive psychology effectively we will have to examine where they have been used against us.

### RISK ASSESSMENT: WHOSE QUANTIFICATION PROBLEM IS IT?

One of the arenas in which the public's poor reasoning ability has been most frequently noted is their attitudes about environmental hazards. Since the publication of Rachel Carson's *Silent Spring* in 1962,<sup>36</sup> which persuasively documented the toxic effects of chemical pesticides (such as DDT) on air, water, and wildlife, public concern about environmental hazards has continuously grown, becoming an important issue in government and industry circles. The Environmental Protection Agency (EPA) was founded in 1970, shortly after the National Environmental Protection Act (NEPA) was passed in 1969. NEPA requires formal environmental assessments by any federal agency proposing actions that have environmental impact. The EPA is charged with enforcing over 9000 environmental regulations and protections. Its jurisdiction has steadily grown as federal regulations on air, water, and endangered species protection have been passed. In 1991, the EPA employed about 17,000 people, over three times the original workforce that formed the agency in 1970. Both the NEPA and the EPA supply an important market for the form of applied cognitive psychology called "risk assessment."

**Risk assessment** involves four factors: identifying hazards, estimating probabilities of damage, reducing risks, and communicating them to the public. From the start, a salient issue in risk assessment has been the discrepancy between what the public and what the experts regard as hazardous. For example, a 1979 study by cognitive psychologists Slovic, Fischhoff, and Lichtenstein<sup>37</sup> showed that two amateur groups—the League of Women Voters and college students—judged the seriousness of 30 hazards significantly differently than did a group of experts. The follow-

<sup>36</sup>Carson, R., *Silent Spring* (Boston: Houghton Mifflin Co., 1962).

<sup>37</sup>Slovic, P., Fischhoff, B., and Lichtenstein, S., "Rating the risks," *Environment*, 21 (1979): 14–20, 36–39.

ing table lists some of the more striking discrepancies. Note especially the first item, nuclear power. Whereas the two nonexpert groups rated it as the highest risk among the 30 hazards (indicated by the number 1), the experts rate it quite low (20th of 30). The public thus fears nuclear power much more than the experts do.

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| Judged Rank<br>of 30 Hazards<br>(low rank = high risk) | League of<br>Women Voters | College<br>Students | Experts |
|--------------------------------------------------------|---------------------------|---------------------|---------|
| Nuclear power                                          | 1                         | 1                   | 20      |
| Pesticides                                             | 9                         | 4                   | 8       |
| Motor vehicles                                         | 2                         | 5                   | 1       |
| Hunting                                                | 13                        | 18                  | 23      |
| Skiing                                                 | 21                        | 25                  | 30      |
| Mountain climbing                                      | 15                        | 12                  | 29      |
| Electric power                                         | 18                        | 19                  | 9       |

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From Gifford<sup>38</sup>

In related studies, these researchers have also shown that public fears are caused by the **availability heuristic**: we tend to overestimate the incidence of infrequent events (such as botulism) and underestimate the incidence of frequent ones (such as automobile accidents). We remember the extremely unusual if it gets much press, but we tend to forget, and thus underestimate, the likelihood of more commonplace, less publicized occurrences. Consequently, we may fear the unlikely more than likely hazards.<sup>39</sup>

Data like these are frequently cited by risk management professionals as documentation of the public's ignorance, even irrationality, about risk issues. In the words of environmental psychologists Cvetkovich and Earle:

The public's frequent divergence from the conclusions of technical risk assessments has been said to reflect judgment "biases," and to indicate inconsistency and perhaps an inability to understand complex scientific and technical issues. Characterized in this way, public reactions to hazards are seen as a reflection of a general "scientific illiteracy." Proposals for better science education often follow in the wake of such characterizations. Other commentators have painted even darker images of the public as basically irrational and suggested that public responses should be excluded from hazard management

<sup>38</sup>Gifford, R., *Environmental Psychology: Principles and Practice* (Boston: Allyn and Bacon, 1987), p. 254.

<sup>39</sup>Fischhoff, B., "Psychology and public policy: Tool or toolmaker?" *American Psychologist*, 45 (5) (1990): 647-653.

decisions altogether. Public opposition to the development of nuclear power has often been described in this way.<sup>40</sup>

By illuminating the common reasoning errors of human beings, cognitive (and social) psychologists run the danger of disempowering the public. As Fischhoff has noted, “psychologists can contribute to a sort of disenfranchisement—by reducing the perceived need to let the public speak for itself.”<sup>41</sup> One does not need to look far to find instances of public officials dismissing the public’s credibility or its ability to reason. A former director of the Hanford Nuclear Reservation in Washington State once “described public concerns about nuclear power development as ‘mass paranoia.’”<sup>42</sup> During William K. Reilly’s confirmation hearings as director of the EPA, New York Senator Daniel Patrick Moynihan warned him: “Above all, do not allow your agency to become transported by middle-class enthusiasms.” Reilly claimed to interpret this to mean “pay attention to science; don’t be swayed by the passions of the moment.”<sup>43</sup> However, it could just as easily have been interpreted to mean “Don’t let public concern dissuade you from what your experts tell you.” To some degree, it probably was.

Although I do not mean to imply that the public is always right, I do believe that the tendency for many experts to disparage public viewpoints is a troubling feature of professional hazard assessment. Risk assessment can be useful, but it can also be used to justify harmful environmental practices to which the public is subjected without consent. For these reasons, it is crucial for the public to understand the rubric of risk assessment so that it can retain its voice in policy decisions. It is also imperative that risk experts see their work in the context of people’s daily lives. For this, they need the public’s voice.

Although the field of risk assessment becomes quantitatively complicated very quickly, the discrepancies between public and expert estimates can be understood in basic terms. And this basic difference is at stake in more than risk assessment—it is also fundamental to the way environmental issues are addressed in our society. At the bottom line, it is at the heart of our split between planet and self. Let me show how.

Most fundamentally, the public and the experts use different definitions of risk. Professionals usually define risk as the number of deaths

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<sup>40</sup>Cvetkovich and Earle, *ibid.*, 1–20.

<sup>41</sup>Fischhoff, *ibid.*, p. 647.

<sup>42</sup>Cvetkovich and Earle, *ibid.*, p. 5.

<sup>43</sup>Reilly, W. K., “Why I propose a national debate on risk,” *EPA Journal* (March/April 1991). Reprinted in Goldfarb, T. D., ed., *Taking Sides: Clashing Views on Controversial Environmental Issues*, 5th ed. (Guilford, CT: Dushkin Publishing Group, 1994), p. 93.

caused by that hazard in 1 year (or some other time unit): 150,000 deaths from smoking; 17,000 from handguns, 100 from nuclear power per year. Thus, by this index, smoking is said to be 1500 times more risky than nuclear power. Number of fatalities per year is easy to count, and thus easy to think about. When one has a quantitative background, it is especially easy to think that everything that is important can be quantified. This illusion is furthered by using complicated formulas that estimate exposure rates, event probabilities, financial costs, and other effects. For example, a recently developed computer program called "Demos" can estimate the number of excess deaths caused every year by a hazard, against the price of regulation controls and the dollar value of one death. Demos, like other risk-assessment programs, requires that a number be given for the value of one human life. Social costs are then calculated to be a sum of the control and the mortality costs.

Because of this kind of quantitative effort, some people, such as former EPA policy analyst Ken Bogen, call risk assessment a form of "probabalistic cannibalism"<sup>44</sup> that trades lives for dollars. Abstract numbers can hide the effects of environmental hazards; as risks become quantified their social dimensions get lost. For example, consider the issue of pesticides. In the words of environmental studies expert G. Tyler Miller,

According to the National Academy of Sciences, pesticides account for 2.1% of all U.S. cancer deaths each year. That means that pesticides licensed for use in the United States legally kill about 10,000 real, but nameless, Americans a year prematurely from cancer, without the informed consent of the victims.<sup>45</sup>

People who are harmed by environmental hazards are often uninformed and nameless. They are also unequally distributed among the population; there is extensive evidence to show that environmental risks are incurred more often by lower-income groups, minorities, and children.<sup>46</sup> These considerations, disappear, however, when risks and risk outcomes are quantified. Furthermore, these considerations are likely seen as irrelevant to risk analysts. But they are not irrelevant to the public.

The public often uses a different definition of risk than do experts. Remember the example given earlier in this chapter about passive solar heat-

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<sup>44</sup>Quoted by Miller, G. T., *Living in the Environment: An Introduction to Environmental Science*, 7th ed. (Belmont, CA: Wadsworth Publishing Co., 1993), p. 552.

<sup>45</sup>*Ibid.*, p. 552.

<sup>46</sup>Opotow, S., and Clayton, S., "Green justice: Conceptions of fairness and the natural world," *Journal of Social Issues*, 50 (1994): 1-12; also see Laituri, M., and Kirby, A., "Finding fairness in America's cities? The search for environmental equity in everyday life" *Journal of Social Issues*, 50 (1994): 121-140.

ing: human beings tend to make decisions on the basis of a lot of information, information that experts might narrowly define as “irrelevant.” But “lay-people have different, broader definitions of risk, which in important respects can be more rational than the narrow ones used by experts.”<sup>47</sup> More specifically, public estimates of risk are correlated with their

view of how well the question is understood, how equitably the danger is distributed, how well individuals can control their exposure and whether risk is assumed voluntarily. . . . When people are asked to order well-known hazards in terms of the number of deaths and injuries they cause every year, on average they can do it pretty well. If, however, they are asked to rank those hazards in terms of risk, they produce quite a different order. *People do not define risk solely as the expected number of deaths or injuries per unit time.*<sup>48</sup> (emphasis added)

Thus, when one looks more fully at how the public does make risk assessments, one sees that the public are not stupid, although the model they use for risk assessment is more like the “folk model” than the “rational-economic” model described earlier in this chapter. Rather than interpreting the discrepancy between public and expert estimates of risk as indications of public irrationality or paranoia, it can be understood as the experts’ failure to adequately assess the public’s definition of risk, which includes the degree to which it affects innocent bystanders and whether the risk has been voluntarily undertaken. A more accurate model of public risk assessment has been generated by Morgan<sup>49</sup> in Figure 6.2, which illustrates public perception of risk along two different dimensions: degree of controllability (including fatality, equitability, risk to future generations, and voluntariness) and the degree of observability (including knowledge to those exposed, delay of effects, and amount of scientific knowledge available). This model of risk space has been shown to predict public perceptions of risk and their calls for government regulation of them. For example, risk space explains why the public is so concerned about nuclear accidents, even when the fatality estimates are only 100 per year. What makes nuclear accidents so frightening is their catastrophic consequences, their high risk to future generations, their involuntary exposure, and the secrecy with which their probabilities are protected from public scrutiny.

But matters of observability, voluntariness, equitability, and knowledge are much more difficult to quantify than are number of deaths per year. Some critics of risk assessment suggest that we will never be able to quan-

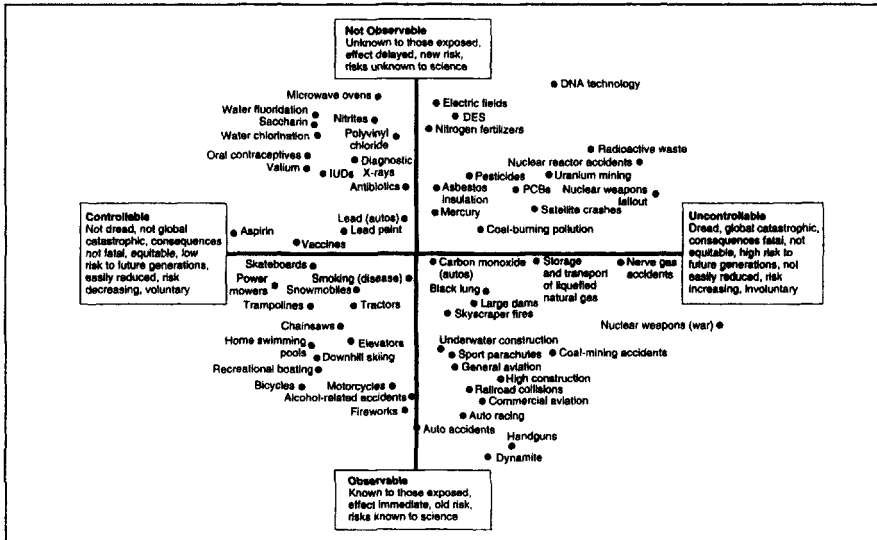
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<sup>47</sup>Morgan, M. G., “Risk analysis and management,” *Scientific American* (July 1993): 32–41, p. 32.

<sup>48</sup>Morgan, *ibid.*, p. 35.

<sup>49</sup>Morgan, *ibid.*, p. 41.

Figure 6.3 Risk space has axes that correspond roughly to a hazard's "dreadfulness" and to the degree to which it is understood. Risks in the upper right quadrant of this space are most likely to provoke calls for government regulation.



Source: Illustration by Johnny Johnson from "Risk Analysis and Management" by M. Granger Morgan. Copyright © 1993 by Scientific American, Inc. All rights reserved.

tify them adequately, and so should not use risk assessment to make major policy decisions. For example, Senator David Durenberger (R-Minnesota) has argued that it is impossible to compare risk hazards. "How does one compare a case of lung cancer in a retired petrochemical worker to the loss of cognitive function experienced by an urban child with lead poisoning?"<sup>50</sup> Others argue that risk assessment is an inadequate, even a dangerous way to make policy decisions because it fools us into thinking that we can make rational, objective decisions based on numerical formulas. "Risk management is, fundamentally, a question of values. In a democratic society, there is no acceptable way to make these choices without involving the citizens who will be affected by them."<sup>51</sup>

Such controversies over the method of risk assessment have recently been described by environmental philosopher K. S. Shrader-Frechette as

<sup>50</sup>Durenberger, D., Mott, L., and Sagoff, M., "A dissenting voice," *EPA Journal* (March/April 1991). Reprinted in Goldfarb, *ibid.*, p. 98.

<sup>51</sup>Morgan, *ibid.*, p. 32.

portraying two fundamentally wrong approaches to human issues: the “naive positivist approach,” which assumes that all dimensions of human decision making can be objectively quantified, and therefore that logical decisions can be made (although probably only by trained experts); and the “cultural relativists” who argue that since values are impossible to avoid in risk decisions, all risks are simply social constructions. Both approaches, she believes, are wrong because they underestimate or overestimate the role of values. The naive positivists assume that values can be avoided; the cultural relativists assume that *everything* is a matter of values, since the process of risk assessment is itself a socially constructed proposition.

But while values cannot be avoided, there are still physical events which kill people, whether or not one has conceptualized them with a risk assessment model. Furthermore, risk assessment can help us think about hazards if we do not lose track of its limitations. Therefore, I appreciate Shrader-Frechette’s thinking when she says

the challenge, for any risk evaluator who holds some sort of middle position (between the cultural relativists and the naive positivists), is to show how risk evaluation . . . can be rational and objective, even though there are no completely value-free rules applicable to every risk-evaluation situation . . . [I] argue [for] a “middle position,” which I call “scientific proceduralism.” This . . . account is based on the notion that objectivity in hazard evaluation . . . is tied to at least three things: 1) the ability of risk evaluations to withstand criticism by scientists and laypeople who are affected by the hazards; 2) the ability of risk evaluations to change, as new facts about probabilities are discovered; and 3) the ability of risk evaluations to explain and predict both risks and human responses to them.<sup>52</sup>

In other words, I doubt that we can afford to dispense with the service that risk assessment performs—forcing us to explicate our assumptions, empirically measure what we can, and consider the diversity of concerns that different people will bring to the problem—simply because some terms in the formula are difficult to measure. Risk assessment should be improved, not abandoned; moreover, the public needs to participate more effectively in decisions based on risk assessment. The danger of both the naive positivist and the cultural relativist positions is that they both lead to risk management by experts who have increasingly narrow and distorted understandings of public concern. They both threaten our democratic rights and responsibilities.

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<sup>52</sup>Shrader-Frechette, K. S., *Risk and Rationality: Philosophical Foundations for Populist Reforms* (Berkeley, CA: University of California Press, 1991), p. 8.

## HEALING THE SPLIT: RETAINING A VOICE

Even though the Department of Energy recently approved a grant for \$85,000 to a Washington, DC, psychiatrist to help “counter the public’s irrational fear” about nuclear power,<sup>53</sup> public attitudes regarding nuclear power continue to be skeptical. Does that mean that the public is irrational? If public fears about nuclear accident are irrational, one wonders why the nuclear utilities would need the Price-Anderson Act, which limits the liability of nuclear energy companies to \$7 billion, a small fraction of the estimated damage from a worst-case accident. Critics point out that the law is an unfair subsidy of the nuclear industry; since the industry could never afford to pay for total cost coverage, it would not have been able to develop without this law. More disturbingly, since the nuclear industry claims that it would go bankrupt without this legislation, they must believe that nuclear accidents are likely. If they are likely, the public is not so irrational.<sup>54</sup>

Most of us do not yet have adequate information to make an informed decision about the safety of nuclear power, or about any number of other pressing environmental hazard issues. Many of us assume the experts know what they are doing, even though public trust in the industry officials is not high.<sup>55</sup> Leaving important risk decisions to experts while not entirely trusting them is a good example of our split between planet and self: we assume the questions are too complicated, too enormous, and too overwhelming for us as individuals, and so it becomes easiest to let others make the decisions for us.

In many areas, leaving decisions to experts makes sense. For example, automobiles and buildings should be designed by engineers and architects with far more knowledge than the public could ever be expected to possess. And because we live in a representative democracy, we entrust elected and nonelected leaders alike to be good stewards of society, to be educated in their areas of influence, and to make responsible decisions. But engineering problems and risk assessments are fundamentally different areas because the latter involve human values. There is no reason to think that experts can make the crucial judgments about the monetary value of human

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<sup>53</sup>Shrader-Frechette, *ibid.*, p. 14.

<sup>54</sup>Shrader-Frechette, *ibid.*, p. 15.

<sup>55</sup>Covello, V. T., “Public confidence in industry and government: A crisis in environmental risk communication,” in Miller, *ibid.*, p. 572. See also, Pilisuk, M., and Acredolo, C., “Fear of technological hazards: One concern or many?” *Social Behaviour*, 3, (1988): 17–24; also Cvetkovich, G., and Earle, T. C., “The construction of justice: A case study of public participation,” *Journal of Social Issues*, 50, (1994): 161–178.



life any better than can the layperson. What would make it any easier for an industry official than a housewife to make decisions about how many lives are worth risking for any particular technological advancement?

Risk assessors, like everyone else, are prone to minimize concerns that are not visible. For example, in June 1990, the Nuclear Regulatory Commission proposed that most of the low-level nuclear waste be exempted from federal regulation. Deregulation would mean that the waste would be treated like ordinary trash, dumped in landfills, burned, or recycled into manufactured consumer products. The NRC admitted that exposure to such radiation would probably cause 2500 more cancer deaths per year among Americans, but that this loss of life would be acceptable since it would save the nuclear industry at least \$1 billion over the next 20 years.<sup>56</sup> To many laypersons, killing 2500 people to save the nuclear industry money looks irrational, especially, as in this case, one death is valued at \$20,000. Who is more irrational, the public or the experts?

My point is that neither is irrational, but both are likely to use different criteria for evaluating rational decisions. Certain decisions, such as the dollar value of human life, are not answerable from a numerical formula, even though it would be easier if they were. It is well worth monitoring the way in which experts think about and document risk assessment because without public input, their judgments (like everyone's) are likely to be distorted by the institutions that train, hire, and pay them.

In response, risk experts argue that daily life involves all kinds of risks that we ordinarily do not think about. For example, one of the riskiest things we do is to get in our cars and drive. Every time I get in my car, I decide that driving is worth the risk of dying. Motor vehicles kill about 50,000 Americans per year, almost three times as many as handguns (which kill 17,000).<sup>57</sup> Since every time I drive, I risk dying in an accident, and that risk is accumulated over a lifetime, the chances of dying within a driving history of 50 years becomes more than 1 in 10. Driving is far riskier than being exposed to nuclear waste or pesticides, yet we do it every day without thought. Many risk experts would point out that a rational response to risk assessment would be to put more money into driving safety than into gun safety (and much less into nuclear safety).

On the other hand, driving involves something of an informed risk choice. If asked, most people realize that they take a risk when they drive so that it at least seems possible to reduce risk by not driving. People do not

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<sup>56</sup>Miller, *ibid.*, p. 493.

<sup>57</sup>Slovic, P., Fischhoff, B., and Lichtenstein, S., "Rating the risks," *Environment*, 21 (1979): 14–20. Reprinted in Glickman, T. S., and Gough, M., eds., *Readings in Risk* (Washington, DC: Resources for the Future, 1979).

have that same sense of choice when they undergo the risks of nuclear power. No one asked them if they were willing to undertake these risks, or gave them an alternative in case the answer was no. I believe that when we ask people to undergo risks from technological hazards, we ought to listen to and take seriously their definition of risk. The public's perception of a hazard's invisibility, controllability, and unfair distribution should be addressed. And in the process of public discussion, the public needs to learn more sophisticated thinking about how risk assessment is conducted and how risks are assessed. Again, my point is not that the public is always right and the experts always wrong, but that both need to be educated to the others' way of thinking when decisions about risks are made in a democratic society.

The larger question here, however, is the matter of abdicating our responsibility, and with it, our connection with the future of our ecosystem, by making the facile assumption that it is all too complicated for our little selves to deal with. Industry and government officials will unconsciously encourage this split because public involvement in decision making makes their lives more difficult. To the extent that cognitive psychology has illuminated the perceptual and cognitive limitations of human beings, it too has colluded with our split, and it too has jeopardized our democratic institutions as well as our psychological well-being. But cognitive psychology has also shown that people can learn to reduce their mistakes, and "given balanced information and enough time to reflect on it, they can do a remarkably good job of deciding what problems are important and of systematically addressing decisions about risks."<sup>58</sup> Each of the biases I have discussed in this chapter can be overcome, *if* we are alerted to them and practice methods of subverting them. Unless trained to do otherwise, experts are just as likely to make these errors. We *all* need to address problems of sustainability with a rigorously attuned intelligence, an intelligence that is strengthened, rather than undermined, by learning about our cognitive limitations.

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<sup>58</sup>Morgan, *ibid.*, p. 40.

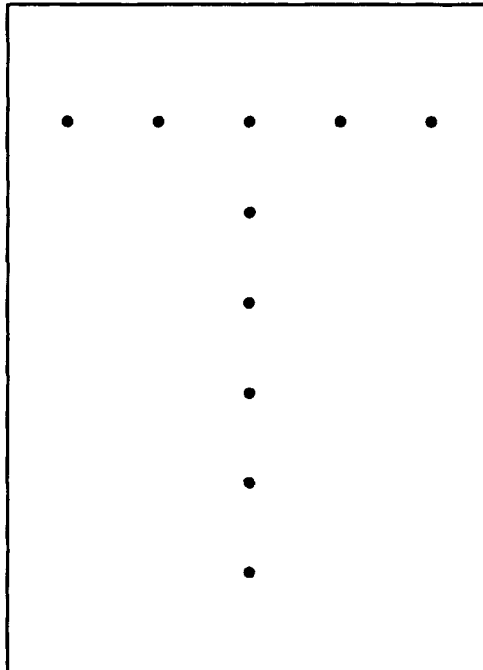
# 7

C H A P T E R

## *Holistic Approaches: Gestalt and Transpersonal Psychology*



**W**hat would you call the following?



If you answered “T,” you are responding to the relationship between these dots, rather than to the dots themselves. Instead of answering “ten dots” you perceived a meaningful configuration of them, based on the way they are organized.

Your response illustrates the central theme of this chapter: the relationship between parts can often be more important than the parts themselves. If I presented the same configuration of small x’s, you would still respond with “T,” even though all of the separate elements have changed. Both of the psychologies we will talk about in this chapter emphasize this principle of **holism: the whole is more than the sum of its parts**. You cannot understand how a person would answer “T” if you insisted on reducing the study of this configuration to the study of ten separate dots or nine separate x’s.

Likewise, from the perspective of both of the psychologies in this chapter, mainstream psychology, like mainstream Western culture, puts too much emphasis on separation: separation of experience into smaller elements; separation of individual selves from each other; or separation of people from their culture or from the natural world. Since Wilhelm Wundt introduced structuralism in the late 19th century, psychologists have attempted to analyze and understand human experience by reducing it to its more basic elements. Yet, to study something by breaking it down to its simpler parts, we often lose complexity, and thereby its essential meanings. Just as you cannot totally understand how a watch works by simply taking it apart and observing its different components, so we cannot fully understand human beings by reducing our subject matter to its separate elements. Instead, important meaning resides in the relationship or organization between the parts. Just as your answer “T” resided in the organization between the dots, both of the psychologies in this chapter are nonreductionistic: they emphasize the importance of studying the whole instead of separating them into constituent items. The whole, whether it is a “T” or a “self” or a human species dependent on its ecological niche, requires that we develop nonreductionistic methods for understanding our subject matter.

Because of this emphasis on nonreductionism, gestalt and transpersonal psychology focus on aspects of human experience that are more difficult to measure than those of the behavioral or cognitive approach. Consequently, some psychologists would argue that these psychologies are not *real* psychology, because they are not *real* science.<sup>1</sup> Science is a method of

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<sup>1</sup>For example, see Banaji, M. R., and Crowder, R. G., “The bankruptcy of everyday memory,” *American Psychologist*, 44 (1989): 1185–1193. They argue that unless one can control variables, one cannot produce generalizable knowledge.

knowing that tests hypotheses with empirical observations, observations that are typically quantified. Since it is more arduous, perhaps impossible, to measure some of the topics that interest psychologists in these systems, hypotheses often cannot be tested against numerical data. Consequently, both of these psychologies have had difficulty achieving mainstream status. They have often been thought of as marginal, even tangential approaches in contemporary psychology. Yet they are marginalized because, as I have been suggesting throughout this book, psychology sits in the wider cultural context of our modern worldview. Both our modern worldview and contemporary psychology assume a basic unit of separate individuals whose behavior can be understood as a reaction to separate stimuli. Consequently, it should be no surprise that these psychologies are marginalized, but we should certainly not dismiss them simply because they are. Rather, their marginalization expresses their potential contribution: an alternative way of looking at psychology that has so far been underrepresented. As counterpoint voices in the discipline of psychology, they have something important to contribute to a new ecological way of seeing ourselves.

In this chapter we will discuss both these approaches in light of their historical development, their important contributors, and their central concepts. As we do so, we will examine some of the controversies that have raged in psychology throughout its century-long history, debates that continue to claim attention today. I hope you will be able to see how gestalt and transpersonal approaches have important insights to contribute to a revised worldview in which human beings are part of, rather than rulers over, a complex ecological system. To see humans as fundamentally dependent on a larger ecosystem is to practice what I will call an *ecological psychology*. In Chapter 8, I will outline the features of this new psychology, but in the meantime, let us see how both transpersonal and gestalt psychology contribute something important to the study of who we are in our biosphere.

## GESTALT PSYCHOLOGY: STUDYING PERCEPTUAL WHOLES

**Gestalt** is a German word that does not have an easy equivalent in English, but we can roughly define it as **form, whole, structure, or meaning**. The “T” you saw in the dot formation above is a gestalt—a form or whole. The term *gestalt* was first used by Christian von Ehrenfels, who in 1890 had pointed out the idea with melodies.<sup>2</sup> If you transpose a tune from the key

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<sup>2</sup>von Ehrenfels, C., “Ueber Gestaltqualitäten,” *Vierteljahresschrift Wissenschaftlicher Philosophie* 14 (1890): 249–292. Cited by Boring, E. G., *A History of Experimental Psychology* (New York: Appleton-Century-Crofts, 1950), p. 453.

of C to the key of D, every note would change, but the melody would still be recognizable. Thus, the melody is defined by the *relationship between* the notes, rather than the notes themselves. The whole is more than the sum of its parts. The melody forms a gestalt, independent of its notes.

Twenty years later, the term *gestalt* was retrieved by a young psychologist named Max Wertheimer, who was riding a train from Vienna to the Rhineland for a vacation. Intrigued by the perceptual phenomenon of watching fence posts whiz past while more distant hillsides move slowly, he contemplated the problem of **apparent motion**, motion which is created by human experience (the fence posts do not really move relative to the hillside). According to historical reports, Wertheimer never had his vacation in the Rhineland because when his train stopped at Frankfurt, he jumped off and went to a toy shop to buy a stroboscope, which he played with all night in his hotel room. Next morning he went to see one of his old professors about his ideas. The professor brought in two lab assistants, Kurt Koffka and Wolfgang Kohler, and the three of them developed the basics of gestalt psychology over the rest of their lifetimes, which they spent in both Germany and America.<sup>3</sup>

The stroboscope that Wertheimer spent all night playing with, like the tachistoscope (its more precise laboratory version), enabled the researchers to display images quickly to laboratory subjects. The psychologists discovered that if two images were presented for very short periods in adjacent locations, alternating their presentation at an optimal interval would induce the perception of apparent motion: the image seemed to move between one location and the next, like the animated light displays in Las Vegas. Wertheimer called this perception the **phi phenomenon**. It is, of course, what we experience every time we go to the movies or watch television. We create the experience of motion from the quickly changing series of still events projected before us. The important point about the phi phenomenon is that it cannot be explained by the individual events; instead it depends on the relationship between them, in this case, the timing of their presentation. If the movie projector runs too slowly you will see a series of still images. If it runs too quickly, you will see a blur. The perception of apparent motion depends on the images being presented in optimal temporal relationship.

Wertheimer formulated the original idea of the phi phenomenon as a demonstration of the principle of gestalt, but it was Kohler and Koffka who extended the principle by writing frequently about its application to perception of objects and forms, as well as to learning. As in the “T or ten dots”

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<sup>3</sup>Hunt, M., *The Story of Psychology* (New York: Anchor Books, 1993), p. 285–286.

example above, for example, Kohler argued that the perception of meaningful forms from separate elements depends on certain rules of organization. More specifically, we group elements when they are proximal, similar, or continuous, as the examples of Figure 7.1 demonstrate.

The gestaltists argued that we perceive these wholes because they produce a structurally similar pattern of firing in our brains. That is, our visual perception is produced by a physiological response that is organized in a similar way to the visual object. Thus, we do not have to “learn” to perceive wholes. We learn which forms to perceive (a Chinese person would not see a “T”), but the ability to see forms per se is inbuilt. Wholes are perceived because of the way our brains are organized.

Kohler also described learning as perceptual organization. In his famous studies with apes and chimpanzees, he put bananas out of range of the hungry monkeys. In order to reach the fruit, they had to stand on boxes or ladders and use sticks as tools to knock the bananas down. Kohler noticed that his animals learned how to solve these problems quite differently from the way a behaviorist would predict. The behavioral approach would emphasize the reinforcement effect of the banana and predict that the correct behavioral solution to the problem would gradually become strengthened as the number of reinforced trials accumulated. However, Kohler saw a different pattern in the monkeys’ behavior. Instead of a gradual change, the monkeys roamed around for a while and then suddenly placed the objects in the correct position to reach the bananas. Moreover, once the monkeys had solved the problem, they could quickly solve it again. Kohler argued that his monkeys showed **insight learning**: a sudden perceptual

Figure 7.1 Gestalt laws of perception.

| Law:                                                                                                          | We See:                            |
|---------------------------------------------------------------------------------------------------------------|------------------------------------|
| Proximity<br>example:<br>... ..                                                                               | Three groups of 3 dots, not 9 dots |
| Similarity<br>example:<br>X X X O O O                                                                         | 3 Xs and 3 Os, not 6 items         |
| Continuity<br>example:<br> | 2 lines: AB and CD not AB and DC   |

reorganization of the field so that a box was no longer seen as a box but as a stepping stool. With these demonstrations, Kohler asserted that learning is not a consequence of associated responses built up over time, as the behaviorists argued. Instead learning depends on perception; it is a consequence of perceptual organization. In Kohler's words:

Let somebody read a few times the following pairs of nouns: lake–sugar, boot–plate, girl–kangaroo, pencil–gasoline, palace–bicycle, railroad–elephant, book–toothpaste. Learning of this series will be considerably easier than that of the same number of nonsense syllables. . . . Gestalt psychology offers a[n] interpretation. When I read those words I can imagine, as a series of strange pictures, how a lump of sugar dissolves in a lake, how a boot rests on a plate, how a girl feeds a kangaroo, and so forth. If this happens during the reading of the series, I experience in imagination, a number of well-organized, though quite unusual, wholes. It may be that learning is here so easy because a material of this kind readily lends itself to organization.<sup>4</sup>

The gestalt approach, then, emphasizes the holistic nature of perception, the importance of studying the relationship between elements, and the human proclivity for creating meaning through seeing the form or pattern that exists between separate elements. From this vantage point, our modernist vision of seeing ourselves as separate individuals limits our ability to perceive the meaningful relationships in the larger whole. Likewise, our environmental problems are in part a product of focusing on the autonomy of the individual without seeing the relationship of individuals to each other and to the larger ecosystem in which they are embedded. Changing our environmentally problematic behavior will require a perceptual shift of seeing ourselves as embedded in a group, as well as in a complex ecosystem.

For example, my niece Danielle (age 9) visited me last week. While we were hanging up our towels on the clothesline outside, she asked me why we did not just put them in the electric dryer. I explained that we should always let the sun do whatever work it can because when we use electricity instead, we create problems. Electricity comes from hydroelectric dams, and those dams are killing salmon. So whenever we use a dryer without needing too, we also contribute to the killing of fish without needing to. Danielle's response was "Oh no, I don't want to kill those fish," and she enthusiastically helped me hang up the towels. Kohler would say that she experienced a sudden perceptual reorganization that allowed her to see her behavior related to the well-being of another species. Her response was an enthusiastic embrace of more environmentally responsible behavior.

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<sup>4</sup>Kohler, W., *Gestalt Psychology: An Introduction to New Concepts in Modern Psychology* (New York: New American Library, 1975) pp. 156, 157.



### Laboratory Confirmation: Group Effects in Social Dilemma Games

If gestalt principles apply to environmental issues, we ought to see people behave in more environmentally appropriate ways when they are reminded of their group membership. Individuals who act from pure self-interest would be more likely to deplete a resource base than those who realize their behavior affects the well-being of the group. In general, research with social dilemma games supports this principle.

Remember from Chapter 5, that laboratory research has validated Garrett Hardin's notion of "the tragedy of the commons." When laboratory psychologists have asked subjects to play games that simulate management of common resources, people usually behave quite individualistically, grabbing as much as they can quickly, and exhausting the commons so that its resources are quickly depleted. Thus, subjects will overharvest their trees,<sup>5</sup> or forfeit other long-range payoffs<sup>6</sup> (or overspend their credit cards) in order to procure smaller but more immediate individual rewards.

When these games are played without reminding subjects of their group membership, they do suggest a Hobbesian view of human behavior, validating our modern Western worldview that we are individuals locked in competition against each other (in Chapter 2 we discussed the impact of Hobbes' work on our modern view of ourselves). Not only do we selfishly hoard as much as possible, but this self-defeating behavior can be enhanced by the perception of scarcity. Resource depletion can be driven by the fear that others will use it first.<sup>7</sup>

This principle was illustrated to me one summer when I served as a camp cook for my husband's geology field camp. Although I did my best to estimate group uses of various foods, within a week in the wilderness area, I realized that we were running low on hot chocolate mix. I hoped that as scarcity became apparent to other camp members, its value would go up and we would be more careful about using it, rationing it until the end. Instead, as soon as scarcity became apparent, the remainder of the hot chocolate mix disappeared very quickly, much faster than it was used before scarcity was obvious. Camp members wanted to be sure they got their share before it completely ran out. Being somewhat of a hoarder myself, I wanted to put the

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<sup>5</sup>Bell, P. A., Petersen, T. R., and Hautaluoma, J. E., "The effect of punishment probability on overconsumption and stealing in a simulated commons," *Journal of Applied Social Psychology*, 19 (1989): 1483-1495.

<sup>6</sup>Dawes, R. M., "Social dilemmas," *Annual Review of Psychology*, 31 (1980): 169-193; Edney, J. J., and Harper, C. S., "Heroism in a resource crisis: A simulation study," *Environmental Management*, 2 (1978): 523-527.

<sup>7</sup>A ghastly example of a culture in which scarcity led to devastating competition is described by Turnbull, C. M., *The Mountain People* (New York: Simon and Schuster, 1972).

chocolate away and use it only on special occasions, so that it would last. However, I learned that people use shared resources in different ways than I use my privately owned ones, where rationing is more likely. Social psychologist Stephen Worshel has shown that simply describing a commodity as scarce will increase demand for it,<sup>8</sup> as in the clever waiter who strategically hints to his customers that they should preorder the Baked Alaska because there aren't many left, and then sells a record-breaking number of them.

Although scarcity can drive self-defeating competitive behavior, a huge number of studies show that cooperation can replace competition if group membership is highlighted. There are at least three ways to make group membership more obvious: first, limit the size of the group so that individuals feel more responsible to it; second, allow group members to communicate with each other; and three, appeal to altruistic norms. We will briefly examine the evidence for each of these.

**Small Is Beautiful: Limits to Group Size.** At least in the laboratory dilemma game, the smaller the group, the more cooperatively players behave. Two-person groups are more cooperative than three persons, and three persons more cooperative than six persons.<sup>9</sup> Researchers have concluded that this is because in the small group, people feel more identified with each other, and with the group's success. Michigan State University psychologist Norbert Kerr suggests that smaller groups give people an "illusion of efficacy." Kerr manipulated both group size, as well as the required number of members who must invest in order for the group to realize its group payoffs, and found that group size affected the subjects' sense of personal control, even though the required number of investors was actually more crucial. "Subjects generally perceived smaller groups to be more efficacious than larger groups, even though under certain conditions precisely the opposite was true."<sup>10</sup>

**Communication Between Players.** To quote one of the most extensive reviews of the social dilemma literature, "the salutary effects of communication on cooperation are ubiquitous."<sup>11</sup> Whenever experimenters allow their players to talk to each other about their choices and strategies, cooperative

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<sup>8</sup>In Lynn, M., "Scarcity's enhancement of desirability: The role of naive economic theories," *Basic and Applied Social Psychology*, 13 (1) (1992): 67-78. Also, Lynn, M., "Scarcity effects on desirability: Mediated by assumed expensiveness?" *Journal of Economic Psychology*, 10 (1989): 257-274.

<sup>9</sup>Dawes, *ibid.*, pp. 186-187.

<sup>10</sup>Kerr, N. L., "Norms in social dilemmas," in Shroeder, D., ed., *Social Dilemmas: Psychological Perspectives* (New York: Praeger, 1989).

<sup>11</sup>Dawes, *ibid.*, p. 185.

behavior is increased. Even partial communication is helpful. When players' choices are made public to other players, their behavior is more cooperative than when they are allowed to behave competitively in private.<sup>12</sup> Communication is thought to increase cooperation through several processes: humanization of other players, better understanding of the dilemma situation, and commitment to cooperative policies. Attempts to separate these explanations has focused on the importance of interpersonal commitments. One study, for example, showed that cooperative behavior was increased by discussion only when all members promised to cooperate.<sup>13</sup>

**Appeals to Altruistic Norms.** Although Garret Hardin argued that we cannot solve our commons problems by appealing to altruistic norms, research on laboratory gaming has suggested that he is wrong. While it is true that players often get trapped into what they know is self-defeating and group-defeating behavior, when moral appeals are given prior to group play, cooperative behavior can be dramatically increased.<sup>14</sup> We can certainly think of many examples of self-sacrificing behavior by people who are committed to others: parents sacrifice for their children, soldiers for their country, and donors for their charity.

Thus, from a gestalt perspective, we can reason that our ecological predicament has been exacerbated by mistakenly thinking of ourselves as separate individuals whose behavior has little effect on other humans, much less on the biological and physical dimensions of our planet. For many centuries in Western thought we have assumed that what human beings do will have no impact on the ecosphere. The thought that humans could actually change our atmosphere would have seemed absurd two decades ago; now the human-induced depletion of our ozone is a troubling reality. The perceptual shift of seeing our own behavior embedded in a larger system rather than separated from it, will be required before we will be able to change to environmentally appropriate behavior. We will pick up this theme again when we discuss transpersonal psychology at the end of this chapter.

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<sup>12</sup>For example, see Jerdee, T. H., and Rosen, B., "Effects of opportunity to communicate and visibility of individual decisions on behavior in the common interest," *Journal of Applied Psychology*, 59 (1974): 712-716; Also Fox, J., and Guyer, M., "'Public' choice and cooperation in n-person prisoner's dilemma," *Journal of Conflict Resolution*, 22 (1978): 468-481.

<sup>13</sup>Orbell, J. M., van de Kragt, A. J., and Dawes, R. M., "Explaining discussion-induced cooperation," *Journal of Personality and Social Psychology*, 54 (1988): 811-819.

<sup>14</sup>Dawes, *ibid.*, p. 188.

## Two More Applications of Gestalt: Perls and Lewin

You may have heard of **gestalt therapy**, a form of group and individual psychotherapy that became popular in the 1970s and is still widely practiced in the United States and Britain today. Gestalt therapy was founded by Frederick (Fritz) Perls (1893–1970), who, like Kurt Lewin, was a Jew, born and educated in Germany, and immigrated to the United States in the 1940s. Unlike Lewin, however, Perls was trained as a psychiatrist, was psychoanalyzed by Wilhelm Reich (who had been analyzed by Freud), and worked as a clinician rather than as an academic. We can understand Perls' work as a synthesis of gestalt and Freudian theory.

As a neo-Freudian, Perls' first concern was the unconscious. Perls agreed with Freud that much of what we do is based in unconscious motives. According to Perls, unconsciousness results from a fragmentation of various parts of the psyche. Awareness brings about an integration of these dissociated parts. Perls used Freud's concept of projection to describe how we see our fragmented parts in others when we judge them harshly. Hostility arises from our inability to recognize the same shortcomings in ourselves. When I notice in myself the same greed for which I am deriding somebody else, I am less likely to be so judgmental.

So far, this kind of recognizing and transcending the defenses is not so different from Freud's approach. But Perls' use of gestalt brought him into sharp disagreement with Freud, and he spent a great deal of energy criticizing classic psychoanalysis. According to Perls, in order to become conscious, one must more effectively examine the *present*, rather than erecting entertaining but irrelevant explanations from the *past*. Our full integrity actually exists in the present, but we are unaware of it because we block out so much of what is actually happening right now. We stay unaware by refusing what Perls called **contact**. Contact is the sensual registering—seeing, hearing, smelling, touching, and moving—of the present. By shutting down our contact, we become numb to our unified being. We also become victim to intellectual abstractions that cannot access or communicate a unity of being. Instead, overintellectualizing and underexperiencing our present moment leads us into neurosis.

For Perls (and the ecological psychologists we will consider in Chapter 8) the way out of our neurotic plight is through direct sensory experience of the here and now. Stopping the endless chatter that goes on in our heads (our thoughts, hopes, worries, judgments, attributions, excuses, explanations, etc.) and opening up to the more direct, nonverbal ways of knowing lead us to the experience of ourselves as whole persons. Holistic experience releases energy because energy that was previously used to maintain the defenses is freed for growth, vitality, and creative imagination. Gestalt therapy has contributed a valuable set of methods for sponsoring holistic expe-

riences, particularly nonverbal exercises that increase personal sensory awareness.

Finally, we cannot leave our discussion of gestalt psychology without noting that its other most prominent spokesperson was none other than Kurt Lewin, social psychology's most important founder. I mentioned this fact briefly in Chapter 3, but now we can say a little more about how Lewin used gestalt principles to stimulate the discipline of social psychology. Like Perls, Lewin stressed the here and now—the “eternal present,”<sup>15</sup> as it has been called in social psychology. Unlike Freud, Lewin staunchly believed that everything you need to know to understand human social behavior is in the present situation. To access the important features, one must understand the individual's experience of the present. Lewin was forever drawing topological figures to demonstrate his reasoning. Sketching ovals, (which his students irreverently called “bathtubs”) he would fill them with symbols that denoted the individual's experience of situational pushes and pulls—fears, needs, expectations, goals, etc. The play of these psychological forces were diagrammed and became known as **vector psychology**, because, as in physics from where the idea was drawn, the sum of vector forces could be used to predict and explain what the person did in the particular situation. Thus, like Perls, Lewin's goal for understanding human social behavior was complete awareness of the here and now. Unlike Perls, however, Lewin was concerned with predicting, rather than healing, the person, and so gave more importance to the mental “chatter”—the thoughts, desires, excuse, etc. because he believed they were the compelling aspects of experience.

Both Perls and Lewin stressed the unity of personal experience as it is embedded in the immediate present. They both used gestalt theory to formulate their ideas, and in their own arenas they were very influential, although gestalt theory per se never captured the mainstream of psychology as a whole. But although Perls and Lewin did not address ecological problems per se, their theories are relevant to the building of an ecological psychology, which I will discuss at more length in Chapter 8.

### From Gestalt to Ecological Psychology: Gibson and Neisser

The applicability of gestalt principles to ecological psychology was first articulated by two of Kohler's students, J. J. Gibson and Ulrich Neisser. To understand their formulations we need to backtrack a little bit to the laboratory demonstrations of social traps. Recall that research has illustrated

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<sup>15</sup>Schellenberg, J. A., *Masters of Social Psychology: Freud, Mead, Lewin, and Skinner* (New York: Oxford University Press, 1978), p. 82.

how reminding someone of his or her group membership can mitigate the tendency to get caught in a social trap and deplete the group's resources. But do such laboratory games really tell us about the behavior of real people in real settings? If you experienced some skepticism about the artificiality of laboratory experiments, you are thinking along with Kohler. Kohler was one of the first psychologists to argue that the laboratory does not tell us very much. Laboratories simplify and reduce our complex world and when psychologists try to study important processes there, they are likely to miss the most interesting dimensions. Since Wundt and the structuralists, psychologists have been largely committed to laboratory study of psychological phenomena. By simplifying and controlling variables in the laboratory, psychologists design scientific experiments to test their hypotheses. For example, psychologists have for many decades attempted to study learning by giving people lists of nonsense syllables to memorize in the laboratory. But nonsense syllables lack the rich meanings that real words, such as "lake," "sugar," "boot," etc. carry. "On this ground," wrote Kohler, "nonsense syllables must be regarded as the worst material that could be chosen if the essential nature of association was to be discovered."<sup>16</sup>

Distrust of the artificiality of laboratory experiments has been a recurring issue throughout the history of psychology, and it provides the basis of "ecological psychology" as formulated by Kohler's younger colleagues J. J. Gibson and Ulrich Neisser. Gibson, a colleague of Kurt Koffka, resembled Wertheimer by drawing many of his early insights from the experience of riding trains. In Gibson's words "at the age of eight I knew what the world looked like from a railroad train and how it seemed to flow inward when seen from the rear platform and expand outward when seen from the locomotive."<sup>17</sup>

Perhaps because of these early experiences on trains, Gibson was always fascinated by movement perception and the perception of complex objects in continuously changing relationships to each other. Regarding the artificial world of laboratory perception research, he came to believe that "nobody ever really sees a flat form in life, that is, a picture of a thing. One sees a continuous family of perspective transformations, an infinity of forms, that somehow specifies the solid shape of the object."<sup>18</sup> Gibson believed that the flat, simplified world of the laboratory perception experi-

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<sup>16</sup>Kohler, *ibid.*, p. 157.

<sup>17</sup>Quoted by Hunt, *ibid.*, p. 467.

<sup>18</sup>Gibson, J. J. "Gibson, J. J.," in Boring, E. G., and Lindzey, G., eds., *A History of Psychology in Autobiography* (New York: Appleton-Century-Croft, 1967), p. 138.

ment was so artificial as to be largely uninteresting, if not totally irrelevant. He urged psychologists to move out of the laboratory and develop what he called an “ecological psychology,” that is, a psychology that is about the complex, embedded relationships of objects in constant transformation.

When the laboratory is abandoned, visual information is very complex. Yet we usually have no problem discerning objects as separate entities, moving in three-dimensional space. How are we able to make order out of constantly changing visual information? Gibson argued that we do it by keeping track of textured gradients (visual patterns) as they change with our own movement. Our body movement becomes the key to ordering physical space. Even minor movements change the flow of information and cue us to see the world as a meaningful place of usable objects. For example, turn your head slowly to the left and notice the visual information you receive as you do so. That information is continuously changing, but it presents an ordered pattern of changes, changes related to your head movement. Without our own body movement, we would have much more trouble discerning meaningful organization. For Gibson, and his younger colleague Ulrich Neisser, our ability to perceive depends on our success in ordering the complex relationships between objects as we move about in our world. Conceptualizing the world in this way only makes sense in the complex nonlaboratory visual array of information. Thus, a true understanding of perception must be based on nonlaboratory phenomena—an **ecological psychology** in which the human observer is constantly embedded in a rich and complex world of organized visual information.

Both Gibson and Neisser have become known as the founders of ecological psychology. Their term stems from their (and Kohler’s) concern that laboratory studies do not have ecological validity. In Neisser’s words:

Contemporary studies of cognitive processes usually use stimulus material that is abstract, discontinuous, and only marginally real. It is almost as if ecological *invalidity* were a deliberate feature of the experimental design. Subjects are shown isolated letters, words, occasionally line drawings or pictures, but almost never objects. These stimuli are not brought into view in any normal way. . . . They . . . lack all temporal coherence with what preceded or what will follow them. They also lack any spatial link with their surroundings, being physically as well as temporally disconnected from the rest of the world. They cannot be touched, cannot be heard, and cannot be glanced at more than once. The subject is isolated, cut off from ordinary environmental support, able to do nothing but initiate and terminate trials that run their magical course whatever he [sic] may do. Although the data obtained under such conditions can serve as the basis of much ingenious theorizing, the resulting theories may mislead us. Experimental arrangements that eliminate the continuities of the ordinary environment may provide insights into certain processing

mechanisms, but the relevance of these insights to normal perceptual activity is far from clear.<sup>19</sup> (emphasis his)

Neisser and Gibson have defined their form of **ecological psychology** as the study of perception in the complex world in which it ordinarily occurs. In the next chapter I will be extending this term to encompass the study of human experience as a function of the relationships in the complex network of other organisms and physical systems. In both cases, the word *ecological* refers to the recognition that separating and simplifying phenomena will not lead us to the most important observations. In both cases, reductionism is rejected.

The broader definition of ecological psychology to be discussed will overlap with Neisser's concept of the "ecological self." In his words, the ecological self is

the self as perceived with respect to the physical environment: 'I' am the person here in this place, engaged in this particular activity. . . . What we perceive is ourselves *as embedded in* the environment, and acting with respect to it. Moreover, the distinction between perception and action can be made only at the level of theoretical analysis; in ordinary behavior they are inseparably fused. Except in special cases, we do not first perceive and only then proceed to move. We perceive *as we act* and *that we act*; often, our own actions constitute the very characteristics of the ecological self that we are simultaneously perceiving.<sup>20</sup> (emphasis his)

Thus, the self in relation to the physical environment is highlighted. To understand who we are in the physical world we must look at our behavior, at the way in which we act in the world. Our movement provides crucial information about our location and existence in physical reality. This may seem an obvious point, but for the most part, psychologists do not focus on body movement or the resulting sensations that inform us of our physical position. Partly because of the modernist tradition that we discussed in Chapter 2, psychology has paid more attention to goal behavior than to the process of moving in the physical world. Body movement is considered a tangential and esoteric question to most psychologists. Neisser's and Gibson's emphasis on the ecological self is broader than most psychologist's notions of self.

As you will soon see, however, ecological psychology as I and others are defining it has an even broader definition. Whereas Neisser has empha-

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<sup>19</sup>Neisser, U., *Cognition and Reality* (San Francisco: W. H. Freeman and Co., 1976), pp. 34, 35–36.

<sup>20</sup>Neisser, U., "Five kinds of self-knowledge," *Philosophical Psychology*, 1 (1988): 35–59, pp. 36, 40.



sized the self in the immediate physical space, relying on both visual and kinetic information as the self moves in the immediate moment, I (along with others) want to broaden the meaning of ecological self to include more conceptual and even spiritual dimensions. To understand what I mean by spiritual, we now turn to the work of the transpersonal psychologists.

## TRANSPERSONAL PSYCHOLOGY: THE SELF BEYOND THE SELF

Like gestalt psychology, transpersonal psychology rejects both reductionism and the artificial study of human behavior in controlled laboratory settings. Unlike gestalt and ecological psychology, however, transpersonal psychology focuses on the spiritual and mystical dimensions of human experience. **Transpersonal psychology is the study of transcendent experiences, those that illuminate the parts of our being that lie beyond our individual, unique, or separate sense of self.** To grasp why and how these experiences are studied, we must talk about the origins of transpersonal psychology in the early 1970s in America and how it grew out of the humanistic psychology that was prevalent at the time.

Humanistic psychology became popular the 1960s and 1970s. Those decades were marked by social turmoil: the antiwar, women's liberation, and civil rights movements underscored a widely held belief that people are often oppressed by unjust social forces. A revival of romantic spirit swept American culture in the 1960s, celebrating the good, positive, and loving parts of the human being, parts that were ignored or denied by corporate, military, and institutional structures. Dropping out of the establishment in one way or another, many people endorsed so-called free love, "flower power," even Richie Havens singing "Freedom, Freedom" at Woodstock—and all were examples of this romantic spirit. **Humanistic psychology, the study of the most human aspects of human beings,** was formulated during this time of social ferment. Abraham Maslow (1908–1970), one of humanistic psychology's important originators, argued that up to that point, psychology had unduly focused on the negative, damaged, diseased parts of the human personality. Both Freud and the behaviorists had reduced the human personality to that of a lower animal, blindly adjusting to the challenging demands of a capricious environment. Freudians and behaviorists saw human beings in terms that were mechanistic, deterministic, and often pessimistic. Instead, humanistic psychology, called "Third Force psychology" as a contrast to both psychoanalysis and behaviorism, focused on healthy people, and the factors that contributed to their health. Abraham Maslow set out to define and study psychological health in what he called **self-actualized** persons.

When you select out for careful study very fine and healthy people, strong people, creative people, saintly people, sagacious people—in fact, exactly the kind of people I picked out—then you get a different view of mankind [sic]. You are asking how tall can people grow, what can a human being become. . . . Self-actualizing people are, without one single exception, involved in a cause outside their own skin, in something outside of themselves. They are devoted, working at something, something which is very precious to them—some calling it vocation in the old sense, the priestly sense. . . . [And] all in one way or another, devote their lives to the search for what I have called the “being” values, the ultimate values which are intrinsic, which cannot be reduced to anything more ultimate . . . [such as] truth and beauty and goodness of the ancients and perfection, simplicity, comprehensiveness, and several more.<sup>21</sup>

Maslow also observed that self-actualized persons frequently had what he called “peak experiences.” You can understand what Maslow means by this term by taking a moment to think of a single experience in which you were especially happy or ecstatic. Maslow found that people’s reports of these experiences were quite varied, but shared some common characteristics:

1. A sense of the perfection of things—a sense of fulfillment, as if nothing else is needed because the universe is perfect as it is.
2. An altered sense of time, so that the experience in some way seems timeless.
3. A sense of ineffability—the quality of inexplicableness so that most people find it difficult to fully describe the experience or the sense of its significance.

Through this kind of inquiry into the most fully functioning individuals and their experiences, Maslow theorized about human personality growth in terms that supplied a positive, even inspirational picture of human potential. Humanistic psychology grew rapidly. As it did so, Maslow began to feel that the concept of self-actualization put too much emphasis on the self. Self-actualizers were indeed healthy, but they still saw the world in terms of their own ego needs. Growing increasingly uncomfortable with the focus on self, in 1968, Maslow drew a distinction between the “merely healthy” self-actualizers and those whom he called “transcenders,” who “find it easier to transcend the ego, the self, the identity, to go beyond self-actualization.” The term **transpersonal**, meaning beyond the personal, beyond the sense of the individual ego, was used to describe this new psychology. In differentiating transpersonal from humanistic psychology, Maslow wrote

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<sup>21</sup>Maslow, A., *The Farther Reaches of Human Nature* (New York: Viking Press, 1971), pp. 43–44.

I consider Humanistic, Third Force Psychology to be a transitional, a preparation for a still 'higher' Fourth Psychology, transpersonal, transhuman, centered in the cosmos rather than in human needs and interest, going beyond humanness, identity, self-actualization, and the like.<sup>22</sup>

Maslow's long-time friend and colleague Anthony Sutich (1907–1976) founded the *Journal of Transpersonal Psychology* in 1969 and the Association for Transpersonal Psychology a few years later in 1971 (a year after Maslow died). In the opening pages of the *Journal*, transpersonal psychology was defined by Sutich as

the study of . . . unitive consciousness, peak experience, B-values, ecstasy, mystical experience, awe, being, self-actualization, essence, bliss, wonder, ultimate meaning, transcendence of the self, spirit, oneness, cosmic awareness, individual and species-wide synergy, etc.<sup>23</sup>

Thus, transpersonal psychology was officially launched by the early 1970s, although it has not gained acceptance as an official division within the American Psychological Association, which denied its application in 1985, 1986, and 1987. Some argued that it was too similar to humanistic psychology (which has had a division since 1972), while others argued that it is not real psychology because it does not use scientific methods. Since other divisions within the APA, such as the Division of Theoretical Philosophical Psychology and Division of Humanistic Psychology, do not use scientific methods any more often, however, it seems more likely that resistance to transpersonal psychology has more to do with its subject matter than with its methods. More specifically, I think that to many mainstream psychologists, transpersonal psychology elicits an image of quackery, drugs, hippies, or magic. These connotations are disturbing and dangerous because psychology has had a long history of trying to differentiate itself from philosophy and religion by demonstrating its status as a "hard-nosed" laboratory science. The extent to which psychology appears in trade bookstores to offer guidance to the paranormal does not help either. Transpersonal psychology threatens both the identity of the discipline as well as the identity of some psychologists.

Even without APA divisional status, however, transpersonal psychology has grown. Transpersonal psychologists have extended Maslow's study of peak experiences to the study of other states of consciousness that give insight into these transcendent moments. Transpersonalists assume that our

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<sup>22</sup>Maslow, A., *Toward a Psychology of Being*, 2nd ed. (Princeton, NJ: D. Van Nostrand, 1968), pp. iii–iv.

<sup>23</sup>Sutich, A., "Some considerations regarding transpersonal psychology," *Journal of Transpersonal Psychology*, 1 (1) (1969): 11–20, p. 16.

normal waking consciousness gives us only limited information about who we are. Our modern Western culture is unique among the world's cultures in disregarding information from altered states of consciousness (ASCs) such as dreams, hypnosis, trance, prayer, meditation, or drug-induced states. Transpersonalists often study the methods and meanings of ASCs as a way to understand the transcendent potentials of human experience, and they are far more willing (even enthusiastic) about traveling to other cultures to study their shamanistic rituals, healing practices, and mystical techniques.

Transpersonal psychologists are not the first psychologists to study ASCs. Two important psychologists who preceded them did so much earlier. Carl Jung (1875–1961) and William James (1842–1910) both focused on the spiritual or mystical dimensions of human experience, each theorizing about the significance of transcendent experiences. William James' beautifully written *The Varieties of Religious Experience*<sup>24</sup> still stands as a model phenomenological study of mystical states. Carl Jung took dreams quite seriously, and traveled frequently to the American Southwest to study how native American cultures induced and supported dreams and other ASCs. Jung argued (in line with current transpersonal psychologists) that our European-based Western culture differentiates itself from all other cultures in the world by taking all its important meanings from a normal waking state. Other cultures, especially traditional cultures, take seriously the information from ASCs and regularly use methods to induce them. From Jung's and other transpersonalists' viewpoint, our normal waking state is quite narrow and restricted, and thus gives us a narrow and restricted sense of self. We mistakenly believe that we are only our individual, personal selves because we lack experiences that give us glimpses into our larger, more spiritual selves. Jung called this larger self the **collective unconscious**, which he believed contained universal, cross-cultural understandings shared by all human beings. Like Maslow, Jung believed that we are drawn to experiences of the collective unconscious, because they open us to a larger sense of who we are, but we are also ambivalent about them because we have little cultural support to embrace them.

To give you an example of what Jung and the other transpersonalists mean by this larger self and our Western resistance to it, let me tell you about an experience I had while in Tibet. At an altitude of over 13,000 feet the Tibetan capital of Lhasa is an unworldly place: intensely dry, cold, crisp, and colorful. Many Tibetan Buddhists practice a form of spiritual worship called *kjangchag*, prostrating themselves all the way to the Jokhang Temple in Lhasa. This practice may involve a year-long journey over hundreds of

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<sup>24</sup>James, W., *The Varieties of Religious Experience* (New York: The Modern Library, 1929).

kilometers from one's home village. Worshipers stand with feet together, then drop to the ground and prostrate, stretch their arms forward, rise, walk three steps to the place where their hands were, and repeat the movement until reaching the sacred temple. The entrance of the temple has special significance, and other worshippers do repeated prostrations there, as well. Standing in front of the temple one morning, I watched with fascination as the worshippers created a beautiful dance of bending, flattening, rising, each in their own space. Their concentration was intense, their clothes colorful, their energy powerful. Suddenly, an old Tibetan woman put a rug in front of me and invited me to join in. Instantly, I was pulled in two directions. The part of me that appreciated the Buddhist practice wanted to drop down immediately, experience that beautiful dance from the inside, becoming part of something bigger, more humbling and more powerful than I could ever be alone. I felt a sudden urge to drop my "self" as I dropped my body. The other part of me thought "I can't do that—it would be totally ridiculous for a Westerner to try to imitate that Tibetan practice; I'd look foolish; moreover, I'd feel foolish." I could see my "self" dressed in those Western clothes looking like an impostor, and feeling like an idiot.

I looked at the woman in befuddled helplessness, not knowing whether to refuse or join in. She smiled graciously, and whether she understood my predicament, I do not know. In the next moment, I thought "What the hell, why not try it?" and I did a few prostrations, and experienced a strange mixture of adventure and discomfort. My point in relating this experience is that we can become aware of both our smaller, self-conscious, individualized self, along with the larger, transcendent self. Because our Western culture has very few structures to encourage and support the experience of a more expansive sense of self, we are resistant to it. Yet there is often something that draws us to it. I think some of the happiness experienced at sporting matches includes this experience; screaming with wild abandon with crowds at a football game or a political rally are the closest approximations most people in our culture get.

### From Transpersonal Psychology to Deep Ecology

The transpersonal emphasis on the larger, less individualized, more universal self is very similar to that sense of self to which deep ecologists refer. The term **deep ecology** was formulated in 1973 by a Norwegian philosopher named Arne Naess (1912– ). Naess used the designation to distinguish it from "shallow ecology," which he claims does not examine the "deeper" questions about human beings and their relationship to nature. In Naess' words, deep ecologists

ask why and how, where others do not. For instance, ecology as a science does not ask what kind of a society would be the best for maintaining a particular ecosystem—that is considered a question for value theory, for politics, for ethics.<sup>25</sup>

Rather than focusing on narrow technological solutions to environmental problems, deep ecologists question the human institutions and values which have led to those problems. They also emphasize learning to live in harmony with nature, simplifying our material needs, using small-scale technology, and protecting biodiversity. Some deep ecologists emphasize the importance of protecting biodiversity by protecting wilderness, arguing that human beings have no right to assume that we are more important than other creatures in our ecosystem. Deep ecologists would support the Endangered Species Act of 1973, which we talked about in Chapter 3.

Since Naess' formulation, deep ecology has become an important part of the environmental movement. It specifically rejects the anthropocentric assumption that the reason to conserve resources or clean up pollution is for the betterment of human beings. Instead deep ecologists see human beings as embedded in a complex web of biological life, rather than at the apex of a biological hierarchy. Our true identity is in relationship with the larger ecosystem of which we are a part.

From this perspective, the ecological self is much bigger than the personal self. It leads to environmentally appropriate behaviors, not out of a sense of self-sacrifice or self-denial, but out of a sense of love. In Naess' words:

We need environmental ethics, but when people feel they unselfishly give up, even sacrifice, their interest in order to show love for nature, this is probably in the long run a treacherous basis for conservation. Through identification they may come to see their own interest served by conservation, through genuine self-love, love of a widened and deepened self.<sup>26</sup>

How could we possibly become so identified with nature that we protect it as we would protect ourselves? Ecophilosopher Warwick Fox has argued that we do this by developing identification through experiencing the joys and pains of others. Small children learn to identify with others as they observe others' happiness, disappointment, anger, or joy. Similarly, we

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<sup>25</sup>Naess, A., "The shallow and the deep, long-range ecology movements: A summary." *Inquiry*, 16 (1973): 95–100. Quoted by Devall, B., and Sessions, G., *Deep Ecology* (Salt Lake City: Peregrine Smith Books, 1985), p. 65.

<sup>26</sup>Naess, A., "Self realization: An ecological approach to being in the world." Paper presented at Murchock University, 12 March 1986. Quoted by Devall, B., *Simple in Means, Rich in Ends: Practicing Deep Ecology* (Salt Lake City: Peregrine Smith Books, 1988), p. 43.

identify with the natural world when we experience commonality with it. I find it easy to identify with my dog Max because his emotional reactions of happiness or shame are clearly expressed. It is more difficult to identify with a slug that crawls into Max's food dish. But if I studied the slug's reactions more carefully, I might be able to do so. In either case, however, Fox makes a point to differentiate identification from identity:

The experience of commonality with another entity does imply a sense of similarity with that entity, even if this similarity is not of any obvious physical, emotional, or mental kind; it may involve "nothing more" than the deep-seated realization that all entities are aspects of a single unfolding reality. What identification should not be taken to mean, however, is identity—that I literally am that tree over there, for example. What is being emphasized is the tremendously *common* experience that through the process of identification my *sense* of self (my experiential self) can expand to include the tree even though I and the tree remain physically "separate."<sup>27</sup>

Fox goes on to differentiate types of identification, which we will discuss below. But since the general concept of identification might sound somewhat abstract, let me pin it down with a personal experience. A few years ago I attended several meditation weekends over the course of a summer. The days and evenings were filled with sessions of sitting meditation, silent walking, silent meals, or silent gardening of the lawn and flower gardens. Sitting in the meditation hall one of those afternoons, I grew very quiet and heard many sounds that I do not normally hear: the creek babbling nearby, a bird's wings flapping, a dog snoring across the yard. Someone walked by on the lawn and I was filled with tenderness as I felt the blades of grass being crushed. It wasn't that I felt those boots crushing me, but I could feel them crushing the grass. I felt the vulnerability and the fragility of the natural world—a feeling with which I am ordinarily not in touch. In Fox's words, I identified with the grass, although I did not feel an identity with it. I knew that I was Deborah, sitting in the meditation hall, and that the grass was outside being crushed. But I felt an enormous commonality with that grass, as if I could feel what happened to it, as if I could feel it happening to someone whom I deeply loved.

In this sense the ecological self is an integration of two selves: both the separate physical self, which is what we normally experience as people in the Western world, *as well as* the larger self, which identifies with the ecosphere. We cannot trade a small separate self for a larger spiritual self. Instead, the larger self is integrated with the normal smaller self. In this sense

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<sup>27</sup>Fox, W., "Transpersonal ecology: 'Psychologizing' ecophilosophy," *Journal of Transpersonal Psychology*, 22 (1) (1990): 59–96.

transpersonal and deep ecology builds on the insights originally outlined by object-relations theorists (discussed in Chapter 4). We construct our sense of self out of our relationships with others. Object-relations psychologists, transpersonal psychologists, and deep ecologists would agree here. The transpersonalists and deep ecologists would go further, however, to argue that this constructed self is an arbitrary and limited one when it stays at the level of the separate individual. Deeper inquiry of any kind, be it ecological, spiritual, political, or psychological, demonstrates our interdependence and embeddedness within a larger social and ecological system. This embeddedness can be experienced at a conceptual level easily enough. When we experience it in an emotionally meaningful way, our sense of self changes.

Thus, from both the transpersonal and deep ecology perspective, our standard sense of self as a separate, autonomous being seriously jeopardizes our ability to live harmoniously within our ecosphere. Our environmental problems are not so much a crisis of technology as they are a crisis of insight: mistaking our social or bureaucratic identity for our core sense of self, we quite naturally abuse the environment with which we feel no identification. However, through a deeper inquiry into our true dependence on other people and other species, we may come to a more intelligent, deeper sense of our relationship to the ecosphere, which gives us a sense of common identification. When we act from our ecological self, we do not have to *try* to make environmentally responsible choices. Instead, our choices are naturally less intrusive, more sensitive, less toxic because we appreciate the larger context for our behavior. Just as Maslow's study of self-actualizing people shows that they make good choices out of caring rather than out of moral injunctions, so people acting from their ecological self, behave in environmentally appropriate ways out of love, rather than out of moralistic persuasion.

### Two Examples: Eco-psychology and Transpersonal Ecology

With so much common conceptual ground, it is not surprising that theorists are beginning to synthesize transpersonal psychology and deep ecology. Interestingly, both of the most well-known attempts come from theorists whose primary training is not psychology: cultural historian Theodore Roszak and ecophilosopher Warwick Fox. Perhaps their perspective from outside the discipline provides more freedom and vision to take seriously the work of transpersonal psychologists. Let us examine their contributions.

**Ecopsychology.** Theodore Roszak is widely known for his best-selling books over the past several decades that comment on American culture (*Where the Wasteland Ends*, *The Making of a Counterculture*). In one of



his most recent books *The Voice of the Earth*<sup>28</sup> Roszak formulates a new term, **eco-psychology**, to “bridge our culture’s longstanding, historical gulf between the psychological and the ecological.”<sup>29</sup> Roszak sharply criticizes traditional psychology, especially its Freudian elements, as being part and parcel of urban madness.

In cities, our alienation from nature and from each other is allowed to flourish, so that modern psychiatry has ignored the most primal part of our psyche: our **ecological unconscious**. For Roszak, the ecological unconscious is similar to Jung’s concept of the collective unconscious, but is more focused on the physical environment and our evolutionary history in it, than on the common symbols across cultures. In Roszak’s words, “the contents of the ecological unconscious represent . . . the living records of cosmic evolution, tracing back to distant initial conditions in the history of time.”<sup>30</sup>

This emphasis on the early, prehuman memories in our unconscious gives us an “inherent sense of environmental reciprocity”<sup>31</sup> so that “when the Earth hurts, we hurt with it.”<sup>32</sup> To heal ourselves with the “voice of the Earth” we need eco-psychology. A central element of eco-psychology is therapy, therapy that recovers the child’s “enchanted sense of the world,” our deeply rooted sense of ethical responsibility to the planet and to other people. Roszak argues that as we come back to our original understanding of the world, we also drop our compulsively “masculine” character traits that lead us to dominate nature as if it were an alien realm. In this healing we will find ways to design small-scale social forms and personal empowerment that nurture our ecological selves and withdraw from the insanity of the “gargantuan urban-industrial culture.” In doing so, Roszak asserts that eco-psychology uses the best of technology, because it is post-industrial, not anti-industrial. Moreover, eco-psychology suggests that “the needs of the planet are the needs of the person, the rights of the person are the rights of the planet.”<sup>33</sup>

There are several dimensions to Roszak’s argument that I would like to underscore. First, Roszak resurrects Plato’s concept of **anima mundi**, “the whole of the cosmos as a single great organism,”<sup>34</sup> an organism with feeling, intelligence, and soul. Although the concept was eventually split off as a

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<sup>28</sup>Rozzak, T., *The Voice of the Earth* (New York: Simon and Schuster, 1992).

<sup>29</sup>*ibid.*, p. 14.

<sup>30</sup>*ibid.*, p. 320.

<sup>31</sup>*ibid.*,

<sup>32</sup>*ibid.*, p. 308.

<sup>33</sup>*ibid.*, p. 321.

<sup>34</sup>*ibid.*, p. 139.

form of feminine spirituality, practiced in secret rituals by women in the groves and forests of Greece, and eventually to disappear as the Enlightenment replaced the spirit universe with a mechanical one, Roszak argues that we are all born with knowledge of this principle. Children instinctually know it, which is why Piaget called their thinking “animistic.” To Piaget, and the other traditional psychologists who followed, animism represents an immature and confused stage of cognitive development. To Roszak and other eco-psychologists,<sup>35</sup> animism represents an earlier and wiser stage of cognitive development. I believe this point is controversial because it will offend many mainstream scientific psychologists.

Rozsak and other eco-psychologists argue that animism is *more*, rather than *less* sophisticated, by drawing on the work of astrophysicists James Lovelock and Lynn Margulis. Their Gaia (pronounced Guy-yuh) hypothesis, formulated in 1970, is based on just the kind of scientific evidence that traditional psychologists would need in order to see that Roszak is not urging us toward cognitive regression. The Gaia hypothesis proposes that the Earth is a living system. In Lovelock’s words, it states that

the atmosphere, the oceans, the climate, and the crust of the Earth are regulated at a state comfortable for life because of the behavior of living organisms. Specifically, the Gaia hypothesis said that the temperature, oxidation state, acidity, and certain aspects of the rocks and waters are at any time kept constant, and that this homeostasis is maintained by active feedback processes operated automatically and unconsciously by the biota. Solar energy sustains comfortable conditions for life. The conditions are only constant in the short term and evolve in synchrony with the changing needs of the biota as it evolves. Life and its environment are so closely coupled that evolution concerns Gaia, not the organisms or the environment taken separately.<sup>36</sup>

In other words, the system of living organisms (the biota) is so intricately tied to the inorganic systems through feedback loops and homeostasis that the earth’s entire organic–inorganic system can be considered a living being. Lovelock and Margulis named this living system “Gaia” after the Greek goddess of the Earth. Their subsequent discussions with scientists have led them to emphasize the changing features of Gaia, noting that the evolution of life forms has undergone large periods of homeostasis, sprinkled by quantum leaps of change, so that homeostasis is a relative, not an absolute,

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<sup>35</sup>For example, see Mack, J., “Inventing a psychology of our relationship to the earth,” in Staub, S., and Green, P., eds., *Psychology and Social Responsibility: Facing Global Challenges* (New York: New York University Press, 1992).

<sup>36</sup>Lovelock, J., *The Ages of Gaia: A Biography of our Living Earth* (New York: Bantam, 1990), p. 19.

principle. The central feature of Gaia, however, still holds: that “there is no clear distinction anywhere on the Earth’s surface between living and non-living matter.”<sup>37</sup> Lovelock thus calls for a discipline called geophysiology, which would study the earth’s systems as a single living organism. From this perspective, our environmental problems are symptoms of “Gaia’s disease”: the “carbon dioxide fever” of global warming; “the acid indigestion” of pollution; “the dermatologists’ dilemma” of ozone depletion. Seeing the earth as a living being helps us identify with its (in this case, her) well-being. However, Lovelock also states that

It is the health of the planet that matters, not that of some individual species of organisms. This is where Gaia and the environmental movements, which are concerned first with the health of people, part company. . . . [Environmental problems] are real and potentially serious hazards but mainly to the people and eco-systems of the First World—from a Gaian perspective, a region that is clearly expendable. It was buried beneath glaciers, or was icy tundra, only 10,000 years ago.<sup>38</sup>

In other words, Gaia will go on. If “her” systems take a sudden turn for the worse (worse to humans, that is), other species will evolve to fill the available niches, whether or not humans survive. Human existence is thoroughly dependent on the current balance of Gaia’s regulatory systems; human survival is certainly not assured.

Roszak’s embrace of the Gaia hypothesis with its decidedly feminine connotation, brings us to another point of discussion. I find his attention to gender bias throughout his argument a troubling contribution. Calling our urban madness an outgrowth of the “patriarchal ego,” Roszak argues that our Western preoccupation with separation and autonomy is a direct outgrowth of our masculinist values. “The trouble with men,” Roszak suggests, is that they continually inflict their separation needs (remember Chodorow’s work, which we discussed in Chapter 4) on the institutions and ideas they create. Thus, a Newtonian atom “separate, impenetrable, and only extrinsically and accidentally related to others as it bumps into void”<sup>39</sup> is a bedrock concept of a patriarchal culture. Women, through childbearing and childraising,<sup>40</sup> through being allowed to stay in longer relationship with the mother,<sup>41</sup> or through their responsibilities as family caretakers and sus-

<sup>37</sup>Lovelock, *ibid.*, p. 40.

<sup>38</sup>*ibid.*, p. xvi.

<sup>39</sup>Keller, C., “Toward a postpatriarchal postmodernity,” in Griffin, D. R., ed., *Spirituality and Society* (Albany: SUNY Press, 1988), p. 72. Quoted by Roszak, *ibid.*, p. 241.

<sup>40</sup>Dinnerstein, D., *The Mermaid and the Minotaur* (New York: Harper & Row, 1976).

<sup>41</sup>Chodorow, N., *The Reproduction of Mothering: Psychoanalysis and the Sociology of Gender* (Berkeley: University of California Press, 1978).

tainers<sup>42</sup> may have, as we discussed in Chapter 3, a more deeply rooted sense of relationship as their core experience.

But while I appreciate both Roszak's and Lovelock's casting our ecological selves as somehow more feminine in spirit, I am skeptical about the wisdom of labels for planet earth in gender terms. Not only is it likely to leave out men, who need to be reminded of their primal identification with the planet, but as I discussed in Chapter 3, the terms *Mother Earth* and *Gaia* (to the extent that people understand *Gaia's* feminine identity in Greek mythology) will also carry with them our unconscious sexist attitudes about the status and abilities of women and men. If mothers and women are seen as endlessly generous, attending, and caring, we will be more likely to overestimate the regenerativity of the planet. Alternatively, seeing nature as a wanton, recalcitrant female as both Freud and the Enlightenment thinkers did, will encourage our attempts to control and constrain "her." In a world still saturated with gender bias, both terms carry unnecessary risks.

**Transpersonal Ecology.** Similar to Roszak's eco-psychology, Warwick Fox has proposed an integration of ecology and psychology that he terms **transpersonal ecology**, meaning **the study of the ecological self beyond the human identity**. In his thoughtful book *Toward a Transpersonal Ecology: Developing New Foundations for Environmentalism*,<sup>43</sup> Fox provides a good overview of both deep ecology and transpersonal psychology in order to craft his formulation of their synthesis. Like the deep ecologists, Fox agrees that solving our ecological problems will require a shift from seeing human beings as central to, human beings as part of, a larger ecosystem. Transpersonal psychologists have done the most to inquire about this larger sense of self. But Fox distinguishes transpersonal psychology from transpersonal ecology on the basis of the relationship of human beings to other life forms. Fox openly criticizes such well-known transpersonal psychologists as Ken Wilber for his claim that cosmic evolution "is completed in and as human evolution,"<sup>44</sup> that is, that humans are the pinnacle of evolutionary history. In Fox's words,

transpersonal ecologists reject such views outright. They point out that it

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<sup>42</sup>Jacobson, J. L., *Gender Bias: Roadblock to Sustainable Development* (Worldwatch Institute paper no. 110) (Washington, DC: Worldwatch Institute, 1992), p. 7.

<sup>43</sup>Fox, W., *Toward a Transpersonal Ecology: Developing New Foundations for Environmentalism* (Boston: Shambhala, 1990).

<sup>44</sup>Wilber, K., *Eye to Eye: The Quest for the New Paradigm* (Garden City, NY: Anchor Books, 1983), p. 100; and Wilber, K., "Odyssey: A personal inquiry into humanistic and transpersonal psychology," *Journal of Humanistic Psychology* 22 (1) (1982): 57-90. Quoted by Fox, W., *ibid.*, p. 200.

shows a total lack of evolutionary (and hence, ecological) understanding to think of viruses, eucalyptus trees, flies, salmon, frogs, eagles, dolphins, and humans as members of a series that can meaningfully be compared along some linear scale (or Great Chain of Being) of developmental perfection. Rather, evolution has to be thought of as a luxuriously branching bush, not as a linear scale that is filled in by greater and lesser examples of some ideal end point. The fact that all life forms are the products of *distinct* evolutionary pathways and ecological relationships means that, at any given point in time, they should be thought of as more or less perfect (complete) examples of *their own kind*.<sup>45</sup> (emphasis his)

Central to Fox's notion of transpersonal ecology, then, is the degree of identification that one's ecological self is able to incorporate. Whereas transpersonal psychologists emphasize *human* identification, seeing universal human experience at the core of the collective unconscious or transpersonal self, Fox believes this identification is too limited. Human beings are just one species embedded in a complex ecological network. Overidentifying with human beings, even at the transcendent level of consciousness, occurs because of what Fox calls **personally based identification**, that is, identification based on personal involvement. Like my example with my dog Max and the slug who visits his food dish, personally based identification is a product of our personal experiences. Eventually, I could learn to identify with the slug, as Keller did with the corn cell (recall the discussion of feminist science in Chapter 3), but personally based identification could never bring me to identification with *all* of life—we just do not have enough time to experience that many personal involvements. Instead, Fox outlines two other types of identification: ontologically based and cosmologically based. The first, **ontologically based identification**, "refers to experiences of commonality with all that is, brought about through deep seated realization of the fact *that things are*" (emphasis his).<sup>46</sup> Although Fox recognizes that this notion is difficult to describe in language, he does a good job (at least for me) of communicating it as a recognition of

the utterly astonishing fact that things *are* . . . , that all that exists seems to stand out as foreground from a background of nonexistence, voidness, or emptiness—a background from which this foreground arises moment by moment. . . . Things are! There is something rather than nothing! Amazing! If we draw upon this experience we can then gain some insight into why it is that people who experience the world in this way on a regular or semi-regular basis (typically as the result of arduous spiritual discipline) find themselves tend-

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<sup>45</sup>Fox, *ibid.*, p. 200.

<sup>46</sup>*ibid.*, p. 250.

ing to experience a deep but impartial sense of identification with *all* existents.<sup>47</sup> (emphasis his)

Because most of us will not have experienced this ontological identification, Fox comes to put more weight on what he calls **cosmological based identification**, the realization “that we and all other entities are aspects of a single unfolding reality.”<sup>48</sup> Instead of relying on mystical training to produce ontological identification, cosmological identification proceeds directly from a clear understanding of evolutionary theory. Evolution illuminates the original unity of all beings because

ancestral species do not change *into* new species; rather, newer species radiate out (branch away) from ancestral species, which can continue to exist alongside the newer species. This ‘budding off’ process occurs when populations of a particular kind of organism become in any way reproductively isolated. . . . The image of a branching tree is relevant to forms of development that involve increasing differentiation over time.<sup>49</sup>

Stephen J. Gould makes the same argument in a recent *Scientific American* article (Figure 7.2) when he notes that life’s history is best expressed as a “tree—or rather copiously and luxuriantly branching bushes—rather than ladders and sequences. . . . Most of us are still unwilling to abandon the comforting view that evolution means . . . progress . . . [with] human consciousness either virtually inevitable or at least predictable. . . .”<sup>50</sup> But we must give up our parochial perception.

Thus, transpersonal ecology, as does modern-day biology, sees life as a branching network, rather than as a Great Chain of Being (i.e., a linear hierarchy). The linear hierarchy, which leads humans to focus myopically on their own needs, is a concept that Fox believes is left over from Aristotle’s **scala naturalis**, and the Christian Church’s Great Chain of Being (as discussed in Chapter 2). If one sees humans at the apex of evolution, then one is more likely to think that humans are entitled to dominate the rest of nature—that is, everything that rests “below” them. Instead, Fox develops the metaphor of a tree and its leaves as an expression of the organization of life. The tree image works on a number of levels. First, it expresses that all of life has arisen from a single seed that has grown and differentiated over time. Second, the idea of leaves expresses the need for life forms to be nurtured—damaging a branch will kill creatures closely related in evolu-

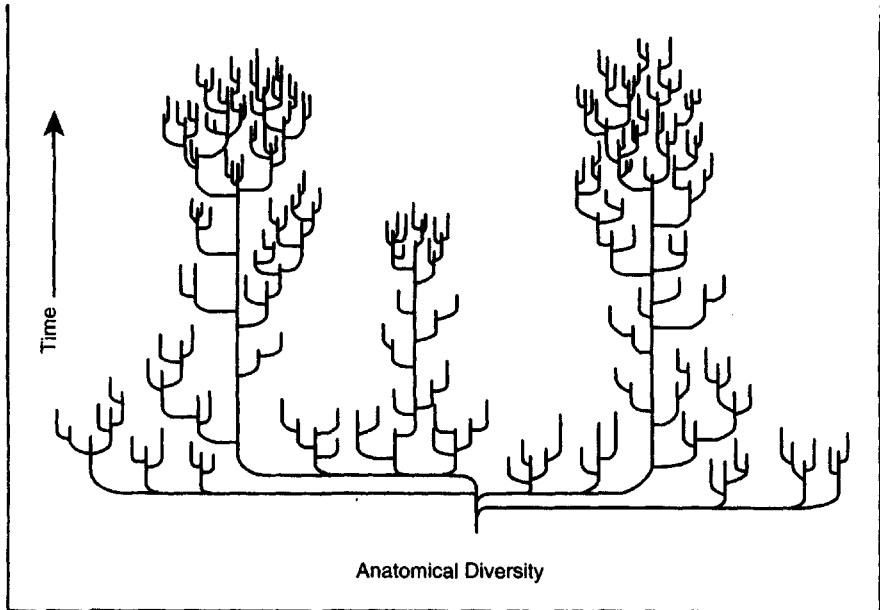
<sup>47</sup>*ibid.*, p. 251.

<sup>48</sup>*ibid.*, p. 252.

<sup>49</sup>*ibid.*, pp. 253–254.

<sup>50</sup>Gould, S. J., “The evolution of life on the earth,” *Scientific American*, 271 (4) (1994): 85–91.

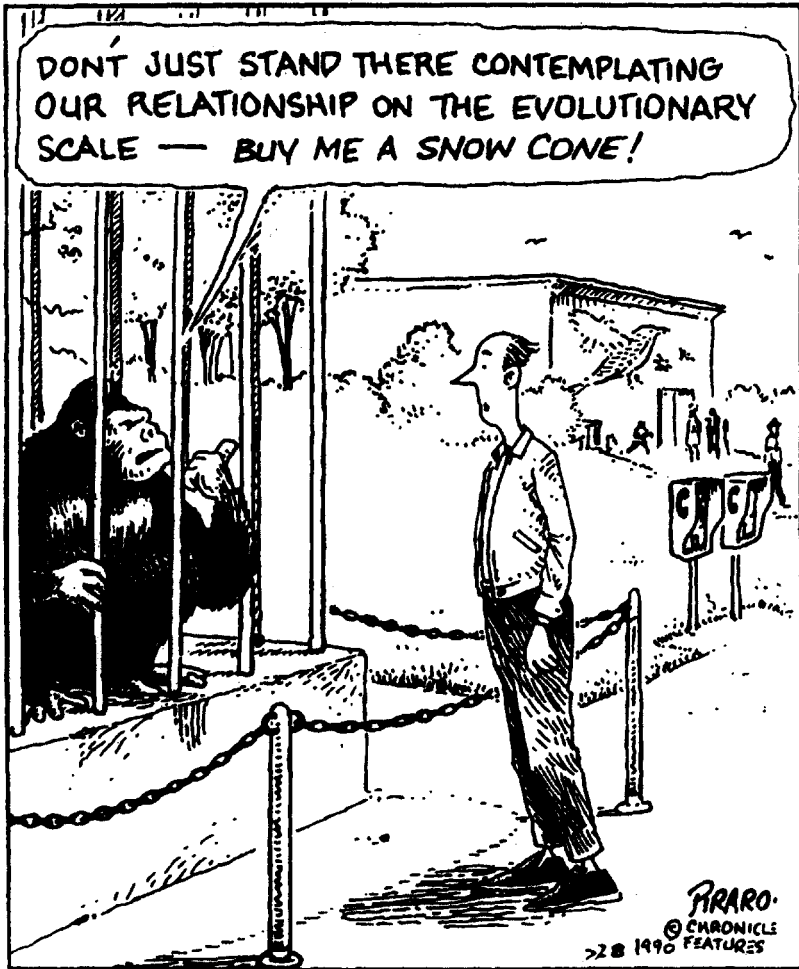
**Figure 7.2** Biological evolution is more accurately diagrammed as a tree than as a chain because diversity in anatomical forms branches over time.



Source: Illustration by David Starwood from "The Evolution of Life on Earth" by Steven Jay Gould. Copyright © 1994 by Scientific American, Inc. All rights reserved.

tionary history. Third, the relationship between tree, branches, and leaves suggests varying levels of continuity. Although leaves will come and go, the tree itself will endure over a much longer period. The larger web of being both supports and is supported by our particular species. Humans are but a leaf on the tree of life.

I am writing this a few days after Christmas. My Christmas tree still stands in my living room. I wonder about the tradition of having a Christmas tree, especially since it means killing so many trees. Why do we have Christmas trees anyway? Why cut them, haul them, decorate them, and then stand around with delight to admire their beauty, warmth, and dazzle? Do their green needles symbolize our worship of life when "the dead of winter" prevails? Moreover, does the needles' organization symbolize our understanding of the interconnectedness of all life? A social psychologist would look at the social influence of other people and simply suggest that we do it because others do. A transpersonal psychologist would look at the more universal meanings expressed by that particular symbol and suggest that the tree symbolizes our connection with all of life.



I am intrigued by the transpersonal explanation because of an another unanswered question I had on my trip to Nepal. I traveled to the southern village of Janakpur to study the paintings that the Mitali women paint on the outside walls of their mud huts. By far the most common image was that of a tree. When I asked what the tree signified, no one seemed to know. The women paint the images to welcome friendly spirits, but no one knew why they painted *trees*. My guide suggested that they paint them because it is the tradition. Like our tradition of Christmas trees, I wonder? We worship them without knowing why. Perhaps we worship it because of some unconscious cosmological identification.



Whether cosmological, ontological, or personal, these larger forms of identification can be seen as a natural extension of Piaget's notion of decenteration. Recall from Chapter 6 that Piaget described cognitive development as decenteration—the ability to take in more information in our understanding of the world. In line with this concept Fox suggests that we are emerging from a “kind of collective egocentrism—‘I’ll agree to believe that we’re incredibly important in the larger scheme of things if you will.’”<sup>51</sup> Piaget thought animism is a sign of cognitive *immaturity*. But we can use his concept of decenteration to flip the metaphysical table and see cosmological identification as an *advanced* stage of cognitive development, an advanced stage of decenteration. Clearly, our psychological development proceeds from total narcissistic identification with our own self and its needs, to gradual recognition of the others—the family, the community, the nation, all human beings, the planetary ecosystem. On what psychological basis would it be possible to draw a halt to the naturally occurring decenteration of psychological growth? Transpersonal ecologists see none, and I must say that I don't either.

### Biodiversity from a Transpersonal Perspective

From a transpersonal perspective, the planet's diverse species are precious, and saving them from extinction is crucial. As we discussed in Chapter 1, however, we are losing species at a rate that experts have called “mind-boggling.”<sup>52</sup> Current losses are estimated at about 100 species a day, faster than any since the end of the dinosaurs, some 65 million years ago. Humans are watching the greatest episode of extinction ever to occur since we have been on the planet.<sup>53</sup> Scientists have catalogued about 1.4 million species; estimates of how many species exist vary from 10 million to 80 million. Since we do not know how many species we are destroying before we destroy them, our losses are literally incalculable.

Why should anybody care about the end of a species that we do not even know about? With 80 million (or even 10 million) one would think there are plenty to spare. Variations in answers to this question reveal the particular vantage point of the transpersonal perspective. Most frequently, lawmakers and scientists give answers in economic terms. A clear example was given in Chapter 5, where the dollar amounts of tropical deforestation were listed:

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<sup>51</sup>Fox, W., personal communication, November 1994.

<sup>52</sup>Ryan, J. D., *Life Support: Conserving Biological Diversity* (Worldwatch paper no. 108) (Washington, DC: Worldwatch Institute, 1992), p. 5.

<sup>53</sup>Rodgers, W. H., *Environmental Law*, 2nd ed. (St. Paul, MN: West Publishing Co., 1994), p. 5.

Forests provide the following economic services: gene pools (including wild plants exported for \$24 billion in 1991); water regulation and flood control (estimated in India alone to be worth \$72 billion a year); watersheds which reduce soil erosion (worth \$6 billion a year in lost hydropower due to siltation of reservoirs); fish (the Pacific Northwest salmon industry alone is worth \$1 billion); climate control, through mitigation of greenhouse gases and carbon storage (worth \$3.7 trillion) and recreation (estimated in the U.S. to be worth more than timber, grazing, mining and other commodities). Wood, then, which is extracted with unsustainable procedures, is astronomically expensive. A mature forest tree in India, for example, is estimated to be worth \$50,000. The real cost of a hamburger from cattle raised on cleared rainforest is \$200. And a wild Chinook salmon from the Columbia River is estimated to be worth \$2150 to future sports and commercial fishers.<sup>54</sup>

Even if biodiversity is not translated into such specific monetary terms, most tropical forest advocates argue that species should be saved because of their as-yet unknown utility to humans, for their potential contributions to meeting future human needs. For example, forest specialist Norman Myers argues that tropical forests are essential as sources of new foods, pharmaceutical medicines, and energy products such as green gasoline, as well as important regulators of climate and producers of the global oxygen supply.<sup>55</sup>

Transpersonal (or deep) ecologists would give a different answer. Deep ecologists have argued that

all things in the biosphere have an equal right to live and blossom and to reach their own individual forms of unfolding and self-realization within the larger Self-realization. This basic intuition is that all organisms and entities in the ecosphere, as parts of the interrelated whole, are equal in intrinsic worth.<sup>56</sup>

Species are important to save, not by virtue of what they can do for us humans, but because they are part of an intricate ecosystem to which we belong, but which we do not own. And that ecosystem is our larger transpersonal self. To kill off that complexity is to kill off something crucial to human beings.

Norman Myers hints at this viewpoint in his discussion of "mystical versus material" rationales for preserving forests.<sup>57</sup> Saying little more, except

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<sup>54</sup>Durning, A. T., *Saving the Forests: What Will it Take?* (Worldwatch paper no. 117) (Washington, D.C.: Worldwatch Institute, 1993), p. 21.

<sup>55</sup>Myers, N., *The Primary Source: Tropical Forests and Our Future* (New York: W. W. Norton, 1984).

<sup>56</sup>Devall, B., and Sessions, G., *Deep Ecology: Living as if Nature Mattered* (Salt Lake City: Peregrine Smith Books, 1985), p. 67.

<sup>57</sup>Myers, *ibid.*, p. 354.

that in the long run a mystical rationale is far more powerful than a materialist rationale, he calls on his colleague Daniel Jansen to explain the mystical understanding more fully. Jansen argues that the sense of being alive is something akin to the sense of color or music, the perception of which makes us human:

If I told you that I was going to magically introduce a gene into the human population that would make all your grandchildren and all their descendants color blind, you would be less than pleased. The same is true of a gene that would eliminate all awareness of music. But what are color vision and music awareness? Traits that you would never know you had if the world was not colored and the air not filled with complex sonorous sounds. I maintain that you, dear reader, are an animal rich in mental and physical receptors for the complexity of nature; and by destroying that nature, you condemn your offspring to the sleep of never even knowing those receptors exist—and by destroying tropical nature, you destroy easily the majority of the signals those receptors are designed to receive. Of course, humans are good at generating mild complexity in their workings. But the level of complexity generated by humanity is to the complexity of a tropical forest as a mouse's squeak is to all of human music. . . . If your response is, well, that what he doesn't know won't hurt him, then I suppose that you won't mind if I eliminate color vision from your children at birth, and all their children after them. Humans have spent rather many millions of years inventing the ability to be very aware of what is around them. How ironic that just about the time they get themselves to where they can sit back and gawk rather than fear all of that, their quintessential human trait is removing the very thing that made them what they are. A human without senses is not even an animal.<sup>58</sup>

Although Myers and Jansen do not reference transpersonal theory, their thoughts ring of transpersonal ideas. To claim that the diversity of species “makes [humans] what they are” is to speak to the importance of the larger ecological self. Although transpersonal notions may seem somewhat esoteric, my point in quoting these forest scientists is to show their widespread understanding.

The passion that human beings feel toward wildlife has been noted even in an environmental law textbook by William Rodgers. In introducing a discussion of the Endangered Species Act, Rodgers notes that our relationship to

wildlife touches the deepest wellsprings of human emotion and behavior. . . . It is a source of inspiration and art, recorded from the Paleolithic cave works to the contemporary cartoons of Gary Larson. It is the font and fodder of reli-

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<sup>58</sup>Jansen, D. H., Paper for the Office of Technology Assessment, U.S. Congress. Cited by Myers, *ibid.*, pp. 354–355.

gion, as no one would doubt who has seen images of the spotted owl nailed to the cross in the heart of logging country in Forks, Washington. It is the crucible that forges the best thinking about human ethics and morality. It is the subject of a worldwide network in trade that is staggering in its scope, avariciousness, and destructiveness. And it is the arena in which some of the most passionate performances of contemporary environmental conflict are played out, in the dangerous and violent confrontations to protect marine mammals at sea, in the no-holds-barred sabotage and other “monkeywrenching” activities on land, and in the courageous and lonely undercover work necessary to beat the poachers at their own game.<sup>59</sup>

In other words, our connection with wildlife taps into our deepest core. The religious and spiritual dimensions of protecting biodiversity is not only recognized by transpersonal ecologists, but by experts in law and forestry. Those spiritual dimensions lead us to protect the Grand Canyon, the Acropolis in Athens, even Central Park in New York City, which would otherwise be seen as “economic wastes of top-value real estate.”<sup>60</sup>

But, as Rodgers also notes, the religious dimension fuels “passionate performances” by people on both sides of the issues. Members of Earth-First! who chain themselves to trees express their deep conviction about the importance of saving wilderness, just as those who nail a spotted owl to a cross express their similarly intense, though opposite, convictions. Rigid, unbending zealotry about wilderness has been criticized by Wise Use advocate Ron Arnold in his antienvironmental manifesto *Ecology Wars*. Arnold blames environmentalists for what he calls the religion of “wildernism”:

Wildernism . . . provides most if not all the characteristics of a standard religion as recognized by scholars of the subject: a sense of distinctiveness and community, of awe and cosmic unity, standards of morality and irreproachable beliefs, rituals, tests of faith and grounds for expulsion, a central dogma that must be protected and so on. The adherents of wildernism are convinced of their moral and ethical superiority, are blind to reason on the questions of dogma, and feel that they have an exclusive hold on the truth. It all adds up to religious behavior, and one does not expect objective rationality from religious behavior, one expects devotion, and at the extreme, zealotry.<sup>61</sup>

For these reasons, we can expect controversy over the Endangered Species Act (ESA), which we talked about in Chapter 3, to become quite passionate. The ESA is one of the world’s toughest environmental laws,

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<sup>59</sup>Rodgers, *ibid.*, pp. 993–995.

<sup>60</sup>Myers, *ibid.*, p. 354.

<sup>61</sup>Arnold, R., *Ecology Wars: Environmentalism as if People Mattered*. (Bellevue, WA: The Free Enterprise Press, 1993), p. 44.

making it illegal for the United States to engage in any practices that endanger a species, such as buying, selling, hunting, killing, collecting, or injuring. Species listed as threatened or endangered by the Fish and Wildlife Service or the National Marine Fisheries Service are thereby legally protected. The law also makes it illegal to engage in habitat destruction, which is why the listing of the Northern Spotted Owl in 1990 by the Fish and Wildlife Service has produced such fury. Because the owl depends on old-growth forest, environmentalists argued that continued destruction of the last 5 percent of forest will mean extinction of the owl. Logging sales have been held up in court, logging companies have lost access to timber, and logging families have suffered layoffs. Although environmentalists argue that the layoffs have been caused more by automation than regulation, logging companies insist that loss of jobs has been produced mainly by loss of wood. Consequently, many companies are lobbying Congress to amend the ESA to take economic considerations into account in the classification of endangered species. The Republican "Contract for America," which Republican Congressional candidates drafted for their landslide election in the fall of 1994, specifically mentions amending the ESA for economic considerations as one of the immediate agenda items for its next Congressional session.

No matter how oversimplified the dilemma of "owls versus jobs" may be, the debate over the ESA brings us to the heart of the transpersonal approach. Should species be protected for their economic and utilitarian features, or simply because they exist and have a "right to unfold"? Deep ecologists argue that humans have no right to reduce the richness and diversity of the planetary ecosystem "except to satisfy vital needs."<sup>62</sup> The term *vital need* is left deliberately vague to allow for latitude in judgment. And this is precisely where the debate seems to lodge. Timber industrialists, mill workers, and Republican drafters of the "Contract for America" would be likely to define economic growth as a vital need. Deep ecologists question what they call an addiction to economic growth and suggest that it is a non-vital, greed-induced, selfish need. They, like Myers, Jansen, and Rodgers above, would emphasize the vital need of biodiversity for maintaining our full humanity.

In light of what I have previously said about overconsumption, I appreciate the question about what constitutes vital need. From my perspective, much of the abuse of our environment comes from the attempt to fulfill emotional and spiritual needs with material possessions, an attempt that results in both ecological and psychological deterioration. But I also appreciate the desperation of families whose livelihood depend on continued

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<sup>62</sup>Devall and Sessions, *ibid.*, p. 70.

logging, mining, ranching, etc. I wish that the transpersonal and deep ecologists would have more to say about our responsibilities for supporting working families through traumatic economic transitions, peasant families who are increasingly forced to deplete the resources on less and less land, and the underlying population problems that drive illegal poaching, as well as slash and burn agriculture on tropical forests. As Worldwatch researcher John Ryan has noted, "To intelligently limit the amount of the planet we dominate . . . will entail tackling two of the most intractable and fundamental forces in the modern world: galloping per-capita consumption and rapid population growth."<sup>63</sup> Transpersonalists have had somewhat more to say about the former than the latter.

I also wish that transpersonal ecologists would take on the tough questions of environmental protection and regulation policy more systematically. In my mind, transpersonal psychology is limited by its tendency to stay somewhat conceptual, and not dirty itself in the everyday world of environmental politics. Although psychologists occasionally call for such action,<sup>64</sup> I have never seen psychologists systematically discuss environmental policy from their discipline. While reconceptualizing our identity may be an important ingredient for building a sustainable world, recognizing our embeddedness in nature will not necessarily mean saving it. The complicated questions of how to sustainably extract the earth's resources will need the insights of transpersonalists. But transpersonal ecology and eco-psychology should become more sophisticated with the nit and grit of specific environmental debates.

Working on specific issues would also have spiritual payoffs. Without interacting with people on the opposite side of an issue, it is easy for both environmentalists and industry people to demonize each other, and incorrectly believe they are opponents in some kind of ideological war. ("The goal in our ecology war should be to defeat environmentalism," argues Arnold.<sup>65</sup>) A transpersonal approach reminds us that we are fundamentally the same, and that many of our core values are fundamentally the same. Yes, we have different experiences and opinions, but we are not divided into "good guys and bad guys." There are rigid ideologues and genuinely "good folks" on both sides of the ideological spectrum. To the extent that we are allowed to stay abstract with ideas, instead of testing them in real settings, we risk polarizing each other into caricatures, rather than working

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<sup>63</sup>Ryan, *ibid.*, p. 45.

<sup>64</sup>For example, see Mack, J., "Inventing a psychology for our relationship to the earth," in Staub, S., and Green, P., eds., *Psychology and Social Responsibility: Facing Global Challenges* (New York: New York University Press, 1992), pp. 245–246.

<sup>65</sup>Arnold, *ibid.*, p. 113.

out viable solutions to complicated questions that need multiple perspectives. I will say more about this in Chapter 8 when I lay out a critique of psychology in general.

### HEALING THE SPLIT BETWEEN PLANET AND SELF: APPLICATIONS FROM GESTALT AND TRANSPERSONAL ECOLOGY

The basic principle to be drawn from both gestalt and transpersonal psychology (and their recent forms of eco-psychology and transpersonal ecology) is that our ordinary experience of ourselves as separate autonomous beings is incomplete and inaccurate. Recognizing our embedded role in the larger ecosphere will require a perceptual shift (emphasized by gestalt psychology) and/or a shift in consciousness (the transpersonal emphasis) from the smaller, autonomous, ego-oriented self to the wider and deeper ecological self. Transpersonal psychologists, eco-psychologists, and transpersonal ecologists argue that such a shift is more than a cognitive event—it is also a directly perceptual and/or spiritual event. One feels identified with the planet and with other species and peoples on an experiential, rather than simply an informational, level.<sup>66</sup> This shift is more powerful, and also more ineffable than simply taking in new knowledge. It is less about information and more about identification. Less of a decision and more of a dropping into a fuller experience of oneself. Less about behaving, and more about being. Less about knowing and more about appreciating. Thus, the ecological self is an expanded, more gracious, more spacious sense of self.

In this way, these traditions emphasize the noncognitive, experiential dimensions for discovering a more sustainable way of living on the planet. Direct experience in nature is usually required for these deeper kinds of spiritual understandings. We usually cannot feel the full depth of our ecological being from information on paper. For example, naturalist Terry Tempest Williams claims that wilderness experience is required for us to make appropriate environmental decisions because such experience opens us to our feelings, to a deeper sense of caring, to matters of the heart. In a testimony to Congress regarding the logging of the Pacific yew tree, valu-

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<sup>66</sup>Robert Lifton makes a similar though more limited version of this point when saying that we need to develop a species mentality to solve our global problems. See Lifton, R. J., "From a genocidal mentality to a species mentality," in Staub and Green, *idem*.

able because of its potential in treating breast cancer, she urged her listeners to make their decisions from this more direct heart experience:

I am asking you as members of this subcommittee, as my lawmakers, my guardians of justice, for one favor. Will you please go visit the trees? See them for yourself—these beautiful healing trees growing wildly, mysteriously, in the draws of our ancient forests, and then go visit the adjacent clearcuts, walk among the wreckage, the slash piles, forage through the debris, and look again for the Pacific yew. Think about health. Think about the women you love—our bodies, the land—and think about what was once rich and dense and green with standing. Think about how our sacred texts may be found in the forest as well as in the Psalms, and then, my dear lawmakers, I ask you to make your decision with your heart, what you felt in the forest in the presence of a forgotten language. And if you cannot make a decision from this place of heart, from this place of compassionate intelligence, we may have to face as a people the horror of this nation, that our government and its leaders are heartless.<sup>67</sup>

From this perspective, our difficulty stems from our limited experiences of the complexity, beauty, magic, and awesome power of the natural world. Our hearts and our spirits are closed down because our culture emphasizes separation and autonomy, convenience and efficiency. Housed in separate homes, often not even knowing our neighbors, much less the natural physical world that surrounds us, we maintain psychological separation from each other and from the ecosystem of which we are an integral part. Decisions about how much timber should be harvested out of ancient forests in the Pacific Northwest are made by officials thousands of miles away, in concrete cities, in artificially lighted rooms, staring at abstracted information on videoscreens. But we will need more than our severed intellects, no matter how information-rich they are, to make wise decisions about the sustainability of the planet. Our decisions must also be based on a deeper identification with the natural world, a sense of the interconnectedness of all people and species, and a sense of awe for the exquisite beauty of creation. These sensitivities just cannot be produced in an office, with abstracted information as our only experience.

To assume that logic and rationality are the only bases for intelligent decisions is to continue what neurologist Antonio Damasio has called, in the title of his book, *Descartes' Error*.<sup>68</sup> Without essential anatomical knowledge, Descartes believed that the body and mind could be separated

<sup>67</sup>Williams, T. T., *An Unspoken Hunger: Stories from the Field* (New York: Pantheon Books, 1994), pp. 130–131.

<sup>68</sup>Damasio, A. R., *Descartes' Error: Emotion, Reason, and the Human Brain* (New York: G. P. Putnam's Sons, 1994).



into two dichotomous realms, the body housing the emotions and the mind housing rational intellect. Yet modern brain research shows the complex interconnections between emotional and cognitive centers in the brain, making intelligent decision-making dependent upon emotion and passion. As Damasio claims, "Absence of emotion appears to be at least as pernicious for rationality as excessive emotion."<sup>69</sup>

This is not to say that everyone must experience wilderness directly in order to reap the spiritual wisdom it can teach us. Artists and writers also deliver this awareness through evoking a feeling for our connection with the natural world. There is a large literature from lyric poets such as Walt Whitman, Tennyson, Keats, as well as more modern poets and writers such as Gary Snyder, Annie Dillard, Wendell Berry, and Barry Lopez, which powerfully communicates the awareness of ecological selfhood. Whether we find this consciousness through literature or in wilderness, the experience delivers a sense of reverence and respect for the natural world, "a profound courtesy, an unalloyed honesty,"<sup>70</sup> to use Barry Lopez's words. This respect will mean seeing nature less as a commodity and more as a teacher, less as property and more as a shrine.

A similar point has been made by Roszak in his book *The Voice of the Earth*.<sup>71</sup> eco-psychology

deeply questions the essential sanity of our gargantuan urban/industrial culture. . . . Now thoroughly rationalized and accepted as "normal," the city dates back to the fantasies of megalomaniac pharaohs and conquering god-kings. It was born of delusions of grandeur. . . . The walls and towers, pyramids and ziggurats of ancient cities were declarations of a wishful biological independence from the natural environment. For many centuries that isolation was only partial; the wild environs were never far away. With the passage of time and the growth of technology, we have gained the power to reify the wish. Soon there will be no great beasts that are not in zoos or on reservations; there will be no tribal peoples who remember a different relationship to the planet than that of the urbanites.<sup>72</sup>

For these reasons, an essential dimension of human experience that must be restored is the aesthetic appreciation of the natural world. Eco-psychologists would urge us to increase our time outside. Most of us have very little opportunity to spend any time in wilderness, but when we do, it is often in national parks with other campers, radios, even televisions, etc.

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<sup>69</sup>Damasio, A. R., "Descartes' error and the future of human life," *Scientific American*, 271 (4) (1994): 144.

<sup>70</sup>Lopez, B., *The Rediscovery of North America* (New York: Vintage Books, 1990), p. 49.

<sup>71</sup>Rozsak, *ibid.*

<sup>72</sup>Rozsak, *ibid.*, pp. 219–220, 321.

The typical car camping vacation in the national park is like trying to experience wilderness on television.

*An important quality of direct experience is silence*, either through solitude, or shared silence. Silence is often denied through our attempts to provide entertainment, convenience, and comfort. But solitude or shared silence is an enormously important feature of the deeper identification experience. Fritz Perls would have endorsed this point, as he frequently noted the ways in which head “chatter” blocks our fuller experience of wholeness. Because this experience rarely occurs while people are chatting, we are more likely to “fall into it” when we allow ourselves to become very quiet, as in my experience described earlier in the meditation hall. When we are quiet, our senses open, our perceptions grow richer, our acuity sharpens, and we become aware of the subtleties and richness of the natural world which is missed when we are thinking or talking.

But what, you might ask, will enable people to experience their larger ecological selves? Any experiences that allows them to encounter the natural world directly, such as wilderness experiences. Another approach is to design rituals to increase awareness. For example, some deep ecologists have developed an educational technique called “A Council of All Beings.”<sup>73</sup> In this workshop, each participant role-plays a different creature in the ecosphere by expressing for the creature its unspoken reaction to human impact on their habitat. Through fantasy, role-play, and dialogue, participants develop a deeper identification with creatures whose reactions are ordinarily not heard or recognized. Most people who complete this workshop experience it as deeply powerful in shifting them from a complete identification with the smaller separate self to a larger, ecological self. However, as in all workshop experiences, the new awareness fades within a few weeks, as we resume our normal functioning in a culture that ignores the ecological self and emphasizes the consumer self. Other rituals that could be used would be singing or chanting to celebrate the rising of the full moon, gatherings to mark the changing of the seasons (such as equinox and solstice); or simply taking time to go outside to appreciate a summer rain, a snowfall, a sunset, or a sunrise.

It is not difficult to imagine that most of us enjoy and even crave these kinds of experiences, yet find them difficult to schedule in our increasingly busy lives. As the field of horticultural therapy now demonstrates, growing geraniums is a healing activity. Going for a walk, relating to a landscape or a non-human being is inherently restorative. Eco-psychologists would simply remind us to expand these activities, promoting experiences in which

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<sup>73</sup>Seed, J., Macy, J., Fleming, P., and Naess, A., *Thinking Like a Mountain: Towards a Council of All Beings* (Philadelphia: New Society Publishers, 1988).

we learn about and appreciate the biotic world (without trying to manipulate or change it) and other animals (without owning them).

As the larger ecological self claims more of our existence, the environmentally depleting, smaller self claims less. We will want to commit ourselves to more environmentally appropriate actions and activism, not from a sense of guilt or moral ideology, but out of a sense of love and devotion. As we identify ourselves as part of the larger unity, our environmental activism becomes a natural extension of our sense of self.

These holistic perspectives would approach the problem of overconsumption from a very different perspective than the previous psychologies. From this vantage point, the consumer culture is a sign of our spiritual affliction; it arises from and feeds on our small, segmented selves, which make us feel impoverished and hungry for something to fill the void. Our driven, materialist society runs on a core experience of emptiness, and we use consumer products to try to satiate that inner vacuum. Thus, overconsumption is caused by greed, craving, and lack of understanding of our truer selves. When we experience our ecological selves, however, we are filled with a sense of perfection and completion. We stop craving, wanting, scheming, worrying. We rejoice in the incredible beauty of the ecosystem and our role in it. We do not have to *train* ourselves to stop overconsuming because experiencing our ecological selves replaces that inner craving with a deeply satisfying sense of wholeness and abundance. From this perspective, the way out of the shopping mall is back into our earlier connection with the natural world, through silence, ritual, art, or simply spending more time outside in biotically richer settings. As all spiritual traditions of the world teach, fulfillment comes with simplicity and quiet awareness, not with material wealth.

This kind of spiritual awakening will also lead to dissatisfaction with the status quo, however, because seeing the larger picture will illuminate the social injustice and environmental deterioration that afflicts our planet. Freed from the compulsion of satisfying our own cravings, we will naturally focus more energy on solving bigger problems, and we will be naturally drawn to environmental projects that heal both the planet and ourselves. An eco-psychologist would encourage us to become active in local, regional, national, or global environmental issues, working with them from a sense of devotion and caring, as well as playfulness and lightness. Since we are connected to the whole, we are also part of that which appears to us as “the enemy”—the unconscious guzzling consumer, the advertising executive, the “wise use” advocate, the anti-environmentalist, the slash and burn farmer, or the weapons manufacturer. Social action not only helps solve a pressing environmental problem, but it helps us heal ourselves. As we come into contact with others who do not share our views, we are forced to

remember our underlying connection, our human bond with each other and with the ecosystem on which we depend. Social action is a way to practice these basic spiritual values. Hence, healing the planet and healing ourselves are both possible if we undertake environmental activism as spiritual learning. Our ecological goals can heal the psyche; our psychological values can heal the planet.

Thus, from a transpersonal viewpoint, we can solve our environmentally destructive split by

1. Putting ourselves in situations that facilitate the direct experience of the natural world: being outdoors with solitude, shared silence, ritual, or gatherings that focus on the ecosystem; practicing meditations that sensitize us to our deeper identification with our ecosystem.
2. Undertaking projects that address our global problems, and doing them as part of our spiritual work, work that awakens us to our fundamental unity with all persons and species.
3. Scaling down and living simply as a way to remove the complications and clutter from our lives so that we may enjoy our deeper connection with all persons and species.
4. Practicing the principle and value of sufficiency, as a way of reminding ourselves of the fundamental plenitude of our planet's potential.

While these principles are different from those that we have derived from our previous four psychologies, I hope to show you that they are complementary, instead of contradictory. In the next chapter, I will compare and contrast the contributions from each of our five psychological approaches, and propose some general operating principles for increasing psychology's potential to help us design a sustainable world. That task will give us a chance to look both backward at the history and forward to the future of psychology, to lift away from the details of these five different approaches and to look at the discipline as a whole. Just as a species contributes an important role to the health of an ecosystem, we will address the gifts that each of our psychologies makes to the overall functioning of the discipline.

# 8

C H A P T E R

## *Psychology for a Sustainable World: Ecological Psychology*



One day fairly soon we [will] all go belly up like guppies in a neglected fishbowl. I suggested an epitaph for the whole planet: . . . “We could have saved it, but we were too darn cheap and lazy.”

Kurt Vonnegut, 1990<sup>1</sup>

**I**n this book I have described the seriousness of our environmental problems and tried to show how psychology can help us solve them. That assumes, of course, that our problems are solvable, that our human civilization is worth saving, and that we could save it if we really want to. I believe each of these assumptions. And yet, I am not convinced that we will sur-

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<sup>1</sup>Vonnegut, K., “Notes from my bed of gloom: Or, why the joking had to stop,” *New York Times Book Review* (April 11, 1990), p. 14. Quoted by Mack, J., “Inventing a psychology of our relationship to the Earth,” in Staub, S., and Green, P., eds., *Psychology and Social Responsibility: Facing Global Challenges* (New York: New York University Press, 1992), p. 246.

vive. In order to do so, we will have to confront the dangerous direction we are going. And we will need a robust psychology to help us make crucial changes in our behaviors, thoughts, feelings, and values.

In this chapter I will summarize our journey through psychology by asking what psychology can contribute to the building of a sustainable world. But before doing that, I want to look backward to see where psychology has come from, so that we can look forward to discern where it should be going. Taking a broader view of the discipline as a whole will enable us a more sophisticated look at how to use, as well as evolve, the best that psychology can offer for *healing the split between planet and self*.

## A BRIEF LOOK BACK

Psychology has a 100-year history of focusing on the individual person as its basic unit, studying behavior, thoughts, perceptions, and feelings of individuals in various laboratory and clinical situations. While most psychologists would agree to define psychology as “the scientific study of behavior and mental life,” many would not. Debates about psychology’s main subject matter have never disappeared. For example, in opposition to cognitivists, behaviorists drop “mental life” out of the definition and focus entirely on behavior. In contrast, humanists would rather define psychology as the study of human experience, dropping behavior out of the definition as well as inquiry on nonhuman species. Transpersonalists focus on consciousness, and Freudians on the unconscious. And social psychologists will look at almost anything as long as there is some social influence remotely related to it.

Without a core question to address, psychologists have developed diverse lines of inquiry, competing theoretical models, and contradictory goals for knowledge. For example, one of the most fundamental disagreements psychologists still have is over the fact/value dilemma—should psychology be a pure science, investigating “facts” regardless of their application? Or should psychology be an applied discipline, developing its knowledge base in order to improve the human condition? This question still claims enormous attention in the American Psychological Association, whose mushrooming clinical membership sparked a secession by many scientists a few years ago. Fed up with the increasingly clinical emphasis of the APA, these scientists resigned and founded their own organization, the American Psychological Society. (The majority of scientists still maintain their membership in the APA, however, and many belong to both organizations.)

I want to argue that the question of survival on the planet could become psychology’s core question, offering an intellectual coherence to a discipline increasingly fragmented by diverse concerns. To narrow its focus on sustainability, however, psychology must broaden its focus to consider

dimensions of human behavior that rest beyond the individual: namely, the political and the spiritual determinants of individual actions. Although sustainability will require changes in persons, those changes must be supported by changes in the political, economic, technological, and cultural realms. I do not believe we can really address the personal level without a more sophisticated understanding of the larger structures in which our behavior is embedded. Isolated individual actions by individuals in the industrialized world will do little to mitigate the global trends toward environmental deterioration. Yet psychology has a difficult time addressing such questions because of its solid footing in the modernist tradition.

## PSYCHOLOGY AS A MODERNIST LEGACY

Psychology is both a tool and a symbol of our modern worldview. Its conduct continually reinforces the unconscious framework of our Western tradition, and as global “development” proceeds, we can expect psychology to become a more global enterprise. Psychology has a very recent history of only a little more than 100 years. It is impossible to imagine that a discipline like it could exist without the firm ground that the modernist tradition provides. This claim can be supported by examining three important characteristics of psychology: its focus on the individual; its devotion to the scientific method; and its application for the “improvement” of human welfare.

### Psychology Focuses on the Individual

Psychology is often contrasted with other social sciences by its focus on the individual organism. Whereas sociology, political science, and economics look at how institutions and social structures affect the behavior of many people as an aggregate, psychology takes as its unit of study the individual person or animal. Key topics in psychology such as learning, motivation, perception, cognition, emotion, etc. are seen as phenomena inside the person, rather than within the group. The individual is regarded as a self-contained unit, influenced by other self-contained units, certainly, but still self-contained, to be understood as an isolated receptacle of the social or informational or reinforcement or instinctual forces to which one is subjected. Thus, most psychology examines individuals one at a time. Nonsense syllables are memorized by the individual subject; motivation is assessed from the individual’s verbal statements; feelings are measured from the individual’s heart rate; bar presses are counted from the individual rat. Without the individual as the core unit of analysis, psychology would not be a discipline.

It is not surprising then that the birth of psychology parallels the modernist worldview. By the beginning of the 20th century, the industrial revo-

lution was in full swing in both Europe and America. Mass migration to the cities, where the discipline of psychology was born, was replacing agrarian rural life, which tended to elevate group over individual values. Immigration from the Old World brought people seeking religious freedom, economic opportunity, and freedom from the tighter social structures of their native countries. As people left the community and family for jobs in the New World, and especially in the city, the sense of individual life grew more dominant. Alienation from the social group and from the religious community also increased. Psychology would make sense only in a society where the individual was more important than the social group. In this way, psychology is premised on the split between individual and the community (and thus, not inconsequentially, the split from the environment and planet).

### Psychology Is Defined as a Science

The academic form of psychology became increasingly defined as a science in the early 20th century. Although there have always been important theoretical and nonempirical works done in psychology, most psychologists today would define themselves as scientists. The empirical and experimental tradition of the German academy came to dominate psychology's method by the end of the 19th century. Like the modernist culture in which they were embedded, psychologists also believed that nature was mechanical and would respond in an orderly fashion to manipulation and control by the experimenter.

The first laboratory in experimental psychology was built by Wilhelm Wundt in 1879 at the University of Leipzig. Wundt is often recognized as the founding father of psychology because of his founding the first laboratory. Yet the definition of psychology as a science was not an easy one: there were important arguments against the idea that one could measure and manipulate the mind just as one could measure and manipulate the physical environment. Remember that Descartes had three centuries earlier proposed that the universe was a machine, but that the human mind housed a soul and so was of a different order than the mechanical universe. Giving a jump-start to medicine and physiology, Descartes went ahead and included animals as well as the human body in this mechanical universe. Since they are like machines, our bodies could be studied with the methods of science. But Descartes saved the mind from this mechanization, arguing that the soul was of a different substance and order (which was of God) and so could not be studied as if it was a machine. A hundred years later, Immanuel Kant (1724–1804) made a similar case, saying that the mind lacked matter, and so could not be studied empirically. For these great thinkers, the Church was to retain some jurisdiction. The successive carving up of the Church's sovereignty was dangerous business: Galileo had suffered, as had others, by de-



fying the Christian worldview. A relatively safe argument was that our minds and souls were to be understood through the teachings of the Church; thus, the material world could safely be given over to science.

As you might have guessed, with the increasing mechanization of nature described in Chapter 2, it was just a matter of time before the mind would also be wrested from the Church's domain and seen as a legitimate topic of scientific study. The most important player in this transfer of the mental life to the realm of science was Gustav Fechner (1801–1887). Fechner, a mathematician and a philosopher, spent many decades wrestling with the mind/body dualism proposed by Descartes. After a long intellectual struggle, he awoke suddenly from a dream with the passionate realization that the mind could be studied empirically because its sensations could be measured. More specifically, Fechner developed what has come to be known as **psychophysics**. By subjecting the human being to different stimuli (such as lights of varying intensity) he demonstrated measurable, predictable, and orderly human perceptual responses. He showed, in particular, that our ability to perceive differences between stimuli depends on the ratios between them; that is, we can discriminate between stimuli if their difference is large enough. With this psychophysical approach, Fechner demonstrated that mental life could be measured in controlled settings and clarified by careful manipulation of variables. A better recipe for a psychological science could not have been written.

Psychology's reliance on the scientific method has become a crucial part of its identity. In 1891, the American Psychological Association carved itself away from the American Philosophical Association, its parent organization. As many psychologists point out, empirical data are what separate psychology from its close intellectual siblings, philosophy and religion. The first half of psychology's history was often an explicit attempt to demonstrate that psychology could rely on "hard data" instead of the "soft data" of philosophy and religion. Efforts to disavow any topics that resemble spiritual questions were vehement<sup>2</sup> during the first half of psychology's history and are still relevant in contemporary skepticism toward transpersonal psychology, as discussed in Chapter 7. Furthermore, the gender implications of the terms "hard data" and "soft data" suggest an unconscious alignment of science and technology with the masculine (which is embraced), and intuition and spirit with the feminine (which is scorned). That psychology has tried to emulate physics—and shows an unsubtle "physics envy"—makes a similar point about the gendered dimensions of psychology's history.

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<sup>2</sup>Coon, D.J., "Testing the limits of sense and science: American experimental psychologists combat spiritualism, 1880–1920," *American Psychologist*, 47 (1992): 143–151.

Along with the vehemently scientific approach to the study of mental life, came also a necessary reliance on reductionism. Thanks to our old friends, the British philosophers like Locke and Mills, mental life was seen as arising from experience, and it was made up of smaller bits like sensations and ideas. All one really needed to do to study the mind was to observe carefully the way in which it responded to the environment. These responses could be analyzed as the combinations of how the elements of the mind—the sensations—behaved. The clear assumption was that after knowing a lot about the smaller elements and the way they combined, one could eventually understand the whole. Minds were composed of mental elements (sensations), just as matter was composed of smaller elements (atoms). Similarly, people (just like elements and atoms) were individuals who could be meaningfully separated from their social context. Individual people are the basic subject matter of psychology, and their functioning could be isolated and studied in the same way that sensations and atoms could. Furthermore, people respond predictably and mechanically to their environment. Psychology became a science because it shared the mechanistic worldview that had developed in the West.

### Psychology Is a Tool for the Improvement of Human Welfare

If psychology became a science, it would, in the industrialized West, also have to become a technology. In a culture addicted to the idea of progress, psychology would have to demonstrate its power to improve human welfare. Although many academic psychologists continue to conduct research for the “pure” reason of increasing knowledge, the great majority of psychologists are engaged in applying this knowledge to solve practical problems. Psychology quickly moved into many arenas of public service, including education, war, health reform, and social policy. Its methods became widely used, and its influence spread.

One notorious example of the contagious use of psychology has been mental testing. Originally developed in France by Alfred Binet (1857–1922) for the purpose of classifying slower learners for enhanced educational experiences, the IQ test quickly became an American tradition. The use of the intelligence test was first codified and popularized by the U.S. government, which in 1917 recruited the assistance of the American Psychological Association to develop a “Plan for the Psychological Examining of Recruits to Eliminate the Mentally Unfit.”<sup>3</sup> Through quick and efficient

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<sup>3</sup>Yerkes, R., Psychology in relation to the war. Presidential Address to the American Psychological Association, 1917. As reported by Sarason, S. B., *Psychology Misdirected* (New York: The Free Press, 1981), p. 107.

means, hundreds of thousands of Army recruits were tested, classified, and if below the criterion selected, rejected for military service. Public use of IQ tests continued to grow through the 1960s, and public school children were routinely tested for academic potential. Not until the early 1970s did the massive critique of the mental testing movement attack the fundamental asocial assumptions of the IQ test. Critics argued that the tests were inherently biased because they ignored the social and cultural context of those being tested; furthermore, by ignoring these supra-individual factors, IQ tests served to promote the existing social order by discarding those who did not fit it, instead of challenging the social structure to accommodate them. To the extent that these tests consistently show racial differences in performances they continue to support racial discrimination. By 1974, the use of IQ tests alone for placing students in special education programs was ruled illegal. Controversy about their use and abuse still continues, and it has recently reached another intense pitch with the publication of Herrnstein and Murray's *The Bell Curve*.<sup>4</sup> One can easily imagine the use of IQ tests in India, which are now being brought in by British-trained Indian psychologists to "help" place Indian school children according to ability. As one culture adopts the culturally based tool of another, the older culture is seen as out of date and irrelevant. Psychology becomes a tool in the displacement of non-Western cultures.

My purpose in discussing the complicated question of IQ tests is not to suggest that they are either evil or useful, but to demonstrate psychology's traits of assuming that the individual is the unit of analysis, which leads psychology to conserve the social order, even as it attempts to help the individual. Ironically, psychology's goal of helping the individual backfires when it fails to address the larger political problems that contribute to individual problems. In the words of Tod Sloan,

In general, the enterprise of psychology has supported the goals of adjustment rather than social transformation, therapy rather than prevention (or revolution) and private solutions to collective problems.<sup>5</sup>

Because "you cannot stop your imagination or tell your world picture to take a vacation"<sup>6</sup> psychologists continue to promote the implicit values that permeate the society in which they work. By assuming the sanctity of the individual, psychology has difficulty asking questions about "structure, role, tradition, history, values, boundaries, culture, interconnections, society"<sup>7</sup>—

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<sup>4</sup>Herrnstein, R. J., and Murray, C., *The Bell Curve: Intelligence and Class Structure in American Life*. (New York: Free Press, 1994).

<sup>5</sup>Sloan, T. S., "Psychology for the third world," *Journal of Social Issues*, 46 (1990): 1–20.

<sup>6</sup>Sarason, S. B., *Psychology Misdirected* (New York: The Free Press, 1981), p. 53.

<sup>7</sup>*ibid.*, p. 114.

the very questions that are at stake as we consider the larger dimensions of our environmental crises. Psychology represents the modernist mindset. In Seymour Sarason's words, "we live in a society organized around a market economy, associated and suffused with competitiveness, underlying which is an individual psychology that takes for granted the benefits of achievement motivation, 'success,' and the garnering of material wealth."<sup>8</sup> That psychology should be focused on promoting these values should come as no surprise. But what should concern us here is the degree to which psychology has contributed and will continue to contribute to the promotion of the social order, a social order that ensures psychology's place of importance as it encourages individuals to ignore environmental problems brought on by industrialization.

Psychology is much less relevant to traditional societies because the family fulfills many of its functions:

The extended family was, before the white man [sic] came, far more than a means of linking people into a cooperative work force and a source of mutual support in time of need. It was an educational institution, often placing children in the care of their grandparents, who were rich in the knowledge and wisdom of maturity. It was a judicial system in which elders, who knew everyone intimately, resolved grievances and disputes in preference to meting out harsh punishments. It was a forerunner of psychiatry, giving comfort, advice, sympathy and tolerance to people who were troubled. Through ceremony and tradition it linked people to the forces of nature upon which their existence depended.<sup>9</sup>

But market economies displace families so that psychology is needed as first aid. By serving the social structure that disrupts the traditional culture and its kinship relations, psychology helps create a clientele of disenfranchised, alienated individuals for whom traditional forms of psychiatry are now no longer available.

I am not arguing that a return to family or "family values" will solve all our psychological problems, just as I am not arguing that regressing to a pre-industrial society will solve our environmental problems. Such reversals are not possible, even if we tried to choreograph them. What I am saying is that so far, psychology in the Third World has been a simplistic transfer of American concepts to aid in adjustment to modernization.<sup>10</sup> For this reason, calls for "indigenous psychology . . . which appreciates the value of

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<sup>8</sup>*ibid.*, p. 7.

<sup>9</sup>Gladwin, T., *Slaves of the White Myth: The Psychology of Neocolonialism* (Atlantic Highlands, NJ: Humanities Press, 1980), pp. 260–261. Quoted by Sarason, *ibid.*, p. 170.

<sup>10</sup>Moghaddam, F. M., "Modulative and generative orientations in psychology: Implications for psychology in the three worlds," *Journal of Social Issues*, 46 (1990): 21–42.

indigenous cultures as guides to human action . . . in that culture” have recently been made.<sup>11</sup> Looking at the social disintegration of our Native American population, for example, we can see that psychology might be more useful if it helped strengthen the traditional culture, while it treats the drug abuse, violence, and despair that results when the traditional culture is lost. Just as I have previously argued that development ought to be a two-way process, with traditional and modern cultures sharing insights, so too should psychologists seek to integrate methods from both cultures when cultural displacement occurs. As transpersonal psychologists have demonstrated, psychology has much to learn from traditional cultures, and much to contribute in return.

## PSYCHOLOGY: CULPRIT OR SOLUTION? COMPARING THE FIVE APPROACHES

By now you might be wondering if psychology can possibly offer any help in thinking our way through our massive environmental problems. If psychology is part and parcel of the modernist worldview that has promulgated our crises, how can we use it to help us alleviate them?

I hope that your reading of Chapters 3 to 7 has convinced you that each of these different psychological approaches has something important to contribute to the project of changing individual behavior, thoughts, feelings, and beliefs. On the surface, it is true that they do not seem to go much beyond our modernist vision. Most of them are vehemently focused on the individual, on the merit of science and reductionism, and on the separation of human and natural worlds. Yet deep within their insights we find important wisdoms that suggest the illusion of our separation from nature and from our planetary home. Let me review some of these points, comparing and contrasting the contributions from each approach.

**Chapter 3: Social Psychology.** Social psychology underscores the importance of the immediate situation as well as our cultural legacy of environmentally relevant behaviors. Processes that seem quite personal are directly linked to global environmental destruction. For example, gender stereotyping has impacts on global environmental destruction through its effects on Third World development, global militarization, and our concept and use of nature. In this way, social psychology demonstrates that the personal is political, that what we do and think has global implications. It also

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<sup>11</sup>Heelas, P., and Lock, A., *Indigenous Psychologies: The Anthropology of the Self* (London: Academic Press, 1981).

demonstrates how powerful is the immediate social setting for determining our behavior. Norms, roles, and reference groups continually exert their potent influence on what we mistakenly assume are private, personal views. By demonstrating the degree to which we like to maintain a consistent, coherent view of the world, social psychology offers insights into how to change people's attitudes by subtly changing their behavior first. Social psychology also highlights the importance of prejudices and stereotypes in shaping our environmentally relevant behavior. Although I detailed the way sexism operates, similar portraits could be drawn for racism, classism, and ethnocentrism in shaping our worldview and our treatment of nature.

On the other hand, by emphasizing the situational and cultural determinants of behavior, social psychology skims over individual differences between people. In any given setting, people show enormous variation in their responses. Theories that explain individual functioning are also needed.

**Chapter 4: Freudian Psychology.** By focusing on the more personal level of functioning, Freud contributed a great deal toward helping us understand the uniqueness as well as the irrationality of individual human behavior. Without Freud's notion of defense mechanisms and their various manifestations, I believe we would be less likely to notice our own and other's environmentally destructive behaviors and excuses, less able to correct them, and less willing to notice the uncomfortable feelings the defenses occlude. Knowing more about our own personal patterns of defenses allows us to be less habitual in our use of them. Also, without Freudian perspective, we might be too impatient about our attempts to solve environmental problems because we would not understand the deeply rooted instinctual needs the problems represent. Although Freud himself dismissed the larger ecological self as an illusion, his ideas about the unconscious and its defenses paved the way for other psychologists to apply insights to the split between planet and self. By allowing ourselves to experience our discomfort and some of the defense mechanisms we habitually use to stay away from it, we open ourselves to the experience of our larger identification with the planet. Freud's delineation of defenses helps us recognize and transcend our own.

On the other hand, Freudian theory is culturally limited and unjust and inaccurate in its treatment of women. Nor does it give much direction about what to do about our environmental difficulties once we have noticed the instinctual basis for them. If we focus completely on explaining our mess rather than on developing solutions to it, we would have a lot of insight, but not much change in our behavior.

**Chapter 5: Behavioral Psychology.** The focus on behavior is what I especially value about behaviorism. Behavioral psychology insists that we exam-

ine and change the environmentally destructive behaviors without worrying about their deeper causes. The emphasis on specification, measurement, and stimulus control helps us quickly become more conscious about what we are doing and where we are doing it. Skinner advanced an insight developed by social psychology by emphasizing the importance of the situation on our behavior. Skinner extended this principle by arguing that what we do (and who we think we are) are functions of the reinforcers that act on us. Thus, the concept of the individual self is an illusion. Although we experience ourselves as free individuals, our behavior is a reflection of the environmental reinforcers that continually shape our behavior.

Focusing on the specifics of behavior and accompanying stimulus conditions, however, can lead us into a myopic perspective that misses the larger patterns of behavior, especially the institutional structures (global, political, and economic dimensions) that shape our responses. It can also lead us to “symptom substitution,” whereby we learn to control one behavior while developing another destructive substitute. Like the recovering alcoholic who becomes addicted to smoking when staying sober, we might find that reducing the use of one resource accompanies increased consumption of something else, because the root causes of consumption (needing to feel loved, important, deserving, etc.) are unaddressed. Historical analysis of voluntary simplicity movements show that they often end up in consumption binges that more than equal the previous reductions.<sup>12</sup> Without examining inner experience, we could mislead ourselves into being satisfied with small and superficial changes.

**Chapter 6: Cognitive Psychology.** The cognitive approach can help us become more aware of our inner experiences by focusing on our thoughts and beliefs. By improving the quality and use of information we can become more informed and sophisticated about our decisions, rationalizations, and perceptions. Much of our environmentally destructive behavior is maintained by erroneous beliefs and attitudes, which can be easily corrected when we become aware of our ignorance, errors, and misunderstandings. As a product of the information age, this approach is congruent with our common sense ideas about the value of education and information. Our behavior is a product of the information we have and how we process it. Although we are prone to make many cognitive errors, becoming alert to their function helps us make better judgments about complex situations.

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<sup>12</sup>Shi, D., *The Simple Life: Plain Living and High Thinking in American Culture* (New York: Oxford University Press, 1985), as discussed by Durning, A., *How Much Is Enough? The Consumer Society and the Future of the Earth* (New York: W. W. Norton, 1992), p. 142.

Cognitive psychology is valuable, but it also underscores our irrational need to think well of ourselves, to take cognitive and perceptual shortcuts, to oversimplify and overgeneralize. In this way, the cognitive approach runs the risk of disempowering us in the face of “experts” who conceptualize environmental problems in different terms than do the lay public. It also assumes that the key to our difficulties rests in better information. But because we know much more than we are willing to act on, information cannot be our only problem.

**Chapter 7: Gestalt and Transpersonal Psychology.** The gestalt and transpersonal approaches pick up where the cognitive approach leaves off. By emphasizing the experience of relationship and wholeness they help reduce our mistaken experience of separation, greed, and craving. Much of our worldview is determined by these kinds of deeper experiences. Although our ordinary experience of ourselves is as segmented and autonomous beings, gestalt psychology and transpersonal psychology emphasize our embeddedness in the larger world. Because of their nonreductionism, these approaches have not achieved mainstream importance in traditional psychology, which is rooted in the modernist tradition. Yet their insights are significant for building an ecologically based psychology. As psychology’s voices for holism, these schools can lead us out of our modernist worldview and into what I will call an ecological psychology that offers a new integration of both scientific and spiritual understandings for the building of a sustainable culture.

I do believe, however, that we must supplement the insights from these approaches with more complicated, practical political and economic considerations. Peasants in Nepal might prefer to save a rare form of alligator, but not if it means that their families will starve. Global patterns that drive both the very wealthy and the very poor to destroy our ecosystem must also be addressed. On the other hand, in most traditional cultures, people attend to *both* subsistence needs *and* connection with their fellow community members (human and nonhuman). In our Western capitalist culture, Maslow may be right: we cannot focus on more spiritual matters before basic security needs are met. But as discussed in Chapter 2, in traditional cultures, such pre-eminence of the economic realm is unusual.<sup>13</sup> As international development proceeds, we might hope that our materialistic culture could learn from the less materialistic ones ways in which to find spiritual connection without insurance policies, retirement programs, and stock portfolios.

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<sup>13</sup>See, for example, Mander, J., *In the Absence of the Sacred: The Failure of Technology and the Survival of the Indian Nations* (San Francisco: Sierra Club Books, 1991).



Each of the psychological approaches we have talked about in this book can help us understand our current predicament and suggest ways out of it. I have tried to demonstrate their applicability and show how they could be used to build a sustainable world. You may at this point be wondering, which is most useful? Which is the best?

Because I value each of the approaches examined, I attempted to demonstrate their value without disparaging others. The century-long history of psychology is filled with intriguing as well as bitter debates and intellectual struggles, and you can easily find proponents of one view who will vitriolically diminish the others. The differences that have propelled these arguments are not resolved; indeed I do not believe they ever will be. You probably have some sense of what they are by now:

1. Is behavior completely learned (nurture) or innate (nature)? Does it come from our genes or from our environment?
2. Are we more conscious or unconscious? Rational or irrational? Selfish or altruistic?
3. Should we study human beings by focusing on the smaller, more elemental parts (reductionism) or look at behavior in its complexity (holism)?
4. Do we need to understand what goes on in people's heads? Or can we just focus on behavior as the most direct route to understanding?
5. Can we effectively focus our attention on the individual, or must we also pay equal attention to the larger sociological, political, and economic structures within which individuals behave?

Different psychological approaches have different answers to these questions, and we could spend our time discussing and debating them. Instead what I have chosen to do is emphasize their relevance to our environmental problems by concentrating on their utility. Although differences between theories are intellectually entertaining and intriguing, I believe our educational system has focused too much on differences as a way of underscoring individualism, autonomy, and independence. Focusing on differences emphasizes the individual's opportunity to choose the psychology that best fits oneself. Yet, **common vision is also possible because common fate is ensured.** The physical world will not care if we spend our time debating the relative merits of behavioral or cognitive theory, nor which theory wins the most followers. The ecosystem will collapse whether we win our intellectual debates or not. Only changing our behavior will make any difference to the outcome of our crisis. Although it is intellectually useful to focus on either emotions, behavior, information, or consciousness for theoretical starting points, I believe that each of us is really whole already. So that choosing to change our behavior will in turn change

our feelings, our thoughts, *and* our consciousness. Similarly, no matter where we begin, changes will occur on the other levels as well. The important point is that we begin. From this perspective it does not matter which theory you choose to act on; the more important point is that you choose to act.

## TOWARD AN ECOLOGICAL PSYCHOLOGY

Using these insights, I would like now to weave them together to suggest a new direction for psychology's future: ecological psychology. I am defining **ecological psychology** as the study of human experience and behavior, in its physical, political, and spiritual context, in order to build a sustainable world. As you have seen in our discussion of Gibson and Neisser's work in Chapter 7, I am not the first one to suggest this term, although my use of it is somewhat different from theirs. I believe that psychology can profit from much of what has been done already, as it broadens its focus on the pivotal question: how to survive in an increasingly fragile ecosystem.

Let us begin by looking more closely at the term *ecology* before saying more about ecological psychology. The word *ecology* was coined by Haeckel in 1866 to mean "that branch of science which attempts to define and explain the relationship between living organisms and their environment."<sup>14</sup> For the most part, ecology has proceeded as a physical, rather than a social, science. Ecologists tend to study population counts, characteristics of niches, successions of populations, and the like, with little attention to the impact of humans on these systems. The more isolated the ecosystem from human effects, the more ecologists like to study it. In the words of Martin Holdgate, Director General of the World Conservation Union,

The conscious or subconscious aim of all 'real' ecologists [is] to study plant and animal communities as little disturbed by human influence as possible. . . . [Yet] it was the recognition of the interdependence of human society and the environment, and the need for development of environmental resources to meet human needs in a sustainable way, that brought about the largest ever gathering of heads of State and Government, less than 2 years ago [The United Nations Conference on Environment and Development in Rio in 1992]. While all this was going on, scientific ecology stalked off into the wilderness—almost literally.<sup>15</sup>

<sup>14</sup>Holdgate, M. W., "Ecology, development and global policy," *Journal of Applied Ecology*, 31 (1994): 201-211.

<sup>15</sup>*ibid.*, p. 202.

Although ecologists are uncomfortable seeing their ideas applied to political issues, the ecology movement and the recent UN meeting in Rio illustrates how prevalent their application has already been. There is widespread understanding within the general public that our human survival is jeopardized by a weakened ecosystem, that populations cannot keep growing indefinitely, and that they will die out if they cannot adapt to changing environmental conditions. It seems time for psychology also to confront our ecological existence and to direct its efforts to ensuring our continued survival.

Ecological psychology would extend many of the understandings from the five kinds of psychology we have discussed in this book. Environmentally destructive behaviors are a result of our mistaken viewpoint: thinking of ourselves as separate beings whose actions have no effect on our ecosystem. But whereas traditional psychology focuses on improving information, reinforcements, norms, and consciousness surrounding our actions, the ecological approach would *also* focus on wider and deeper levels of experience: wider because of the attention to global, political, and economic dimensions of our behavior, and deeper because of the focus on spiritual matters. Let us look at the global context first.

## GLOBAL CONTEXT OF ENVIRONMENTALLY APPROPRIATE BEHAVIOR

As I mentioned in Chapter 1, environmentally destructive behavior is caused by more than my own personal attitudes. When I drive to work every morning, my environmentally irresponsible behavior is rooted in many structural dimensions beyond my immediate control: my office is 20 miles from where I live; there is no mass transit system available; purchasing and operating a car is financially affordable because of massive government subsidies to car makers and an international trade system that makes petroleum and automobiles inexpensive for me; roads are built and maintained by tax dollars that I did not allocate; etc. I live with the split of knowing that I perform environmentally irresponsible actions because there are so many ways in which political and economic institutions sponsor them.

For these reasons, changing our behavior to counteract these structural forces is not easy. The difficulties we encounter often lead to defensive reactions because we are easily overwhelmed by the complexity and enormity of our problem. For example, recall my experience of purchasing a handcrafted purse in Thailand, which I described in Chapter 3. I was personally upset to find that I had directly supported the sex industry and peasant poverty with my actions, yet I did not know the repercussions of them un-

til after I acted. Although my behavior is embedded in a global pattern of gender bias, industrial development, and environmental degradation, I did not see how my actions directly contributed to them. My first response was a lot of guilt and confusion. If I cannot have a massage or buy a hand-crafted purse (both of which seem like environmentally benign purchases) what *can* I do? I remember thinking that I might as well just stay home and twiddle my thumbs. *Everything* else I do seems damaging.

I hope you can see the defensive nature of my reaction. Through my hurt and frustration, I managed to tell myself that because I had made these mistakes, I should give up entirely. Similarly, I know several people who believe that because they cannot save the world, they should not try to do anything. Such reasoning is a good example of rationalization. We give ourselves a reasonable-sounding but actually inaccurate explanation for our lack of response. More likely our apathy stems from a lack of commitment, rather than a lack of effectiveness. Actually it was only by acting that I was able to become aware of the larger dimensions of my behavior. Being open to the feedback from our actions is a crucial psychological requirement for behaving in an ecologically responsible manner.

Given the global systems that shape our behaviors, as well as determine their effects, we must become more knowledgeable about global systems, as my coffee example demonstrates in Chapter 6. We need to pursue information so that we can better understand the impact of our choices. That is a start. But seeing ourselves as global citizens also means living with uncomfortable but necessary insight about our place in the world economic order. It also means resisting the guilt that may accompany such recognition. My own recent experiences traveling in the Third World filled me with uneasy recognition of the way in which our culture wastes resources while much of the world's population lacks minimal subsistence. But guilt is no more helpful than greed. Instead, global systems analyst Donella Meadows offers a more viable way to discern our global citizenship:

As a child in the middle-class Midwest, I lived out of a subconscious sense of *abundance*. That sense permits security, innovation, generosity, and joy. But it can also harbor insensitivity, greed, and waste. After returning from India, I lived out of a sense of *scarcity*. That is fine when it fosters stewardship, simplicity, and frugality, but not when it leads to grimness, intolerance, and separation from one's fellows. Now I try to base my life on the idea of *sufficiency*—there is just enough of everything for everyone and not one bit more. There is enough for generosity but not waste, enough for security but not hoarding. Or, as Gandhi said, enough for everyone's need, but not for everyone's greed.<sup>16</sup> (emphasis hers)

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<sup>16</sup>Meadows, D. H., *The Global Citizen* (Washington, DC: Island Press, 1991), p. 17.

Living with a global ecological awareness means balancing our knowledge of the complexity of our problem with a commitment to working diligently on it. It also means rethinking our own consumption in light of the billions of people who now live in destitution. Understanding the way in which our overconsumption sponsors unnecessary suffering means that we will want to disentangle ourselves from our consumer culture in order to promote self-reliance and cultural integrity among all people on the planet. This goal implies a serious and difficult look at the planet's distribution of wealth, power, and environmentally damaging patterns, and a personal commitment to changing these dangerous patterns, no matter how difficult such a goal may seem. It also means that in order to heal the split between planet and self, we will need to work on personal and policy dimensions simultaneously.

To recognize our embeddedness in a larger system, however, is not always a pleasant experience. It can put us in touch with the falsity of our ordinary small self, a self that is constructed and limited, and can lead us to a further sense of alienation and anxiety. This is the viewpoint of the postmodern psychologists. Let us examine their argument, so that we can use it to further develop the premise of ecological psychology.

## POSTMODERN PSYCHOLOGY: THE CONSTRUCTED SELF MEETS THE CONSTRUCTED WORLD

In the past few years, a critique of psychology known as postmodern psychology has brought several important conceptual issues to light. **Postmodernist psychology focuses on the way in which we construct our experience, especially our sense of self, from messages in our quickly changing culture.** Whereas the modern worldview gave us a picture of individuals as separate, stable entities in competition with each other for economic gains (see Chapter 2), from a postmodern perspective, the self is not separate or stable. Instead, it is continually changing as new information becomes available.

As students of the individual person, psychologists have frequently examined the concept of the self and emphasized the ways in which the meaning of the self is constructed, rather than given. For example, in Chapter 4, we discussed the object-relations view of the self, which is that we construct our self-concept from the interactions that we have with others, especially the mother during the earliest feeding experiences. In Chapters 3 and 6 we talked more about some of the distorting ways in which we use information about ourselves, largely to make ourselves feel better and more competent than we might feel if we did not use defense mechanisms.

This idea that the self is a construction has been an important theme throughout the history of psychology. Perhaps the earliest versions appeared in the work of Charles Horton Cooley who in 1902 coined the phrase *the looking glass self*.<sup>17</sup> We do not see ourselves directly: instead we infer our self-concepts from the imagined perceptions of others. Similarly, George Herbert Mead argued that

A self can arise only where there is a social process within which this self has had its initiation. It arises within that process. For that process, communication and participation . . . is essential. That is the way in which selves have arisen.<sup>18</sup>

Sudden changes in the way we think others see us can produce uncomfortable identity issues. For example, most first-year college students suffer a shift in their academic self-concept. In high school, it was easy to see oneself as smart as compared with other students; in college, surrounded by only strong students, most first year-students suddenly feel much less talented. When our performance declines relative to others, or when our comparison group changes, our sense of self is threatened. But it is also threatened by any sudden change in our cultural context or incoming information. My 8-month trip around the world provided a good example for me. As I traveled through many countries and cultures, I experienced a gradually accumulating sense of dislocation and meaninglessness. I adored the opportunity to see so much that was different from my own culture, but I also remember the sense of confusion and emptiness, as well as the ecstasy of returning home: at home, I “know” who I am. Through the stable and familiar interactions with others, I am grounded and coherent in a way that I can never be while “on the road.”

To aid our inquiry into the way postmodern psychology looks at the self, take a moment to write down some answers to the question: “Who are you?”

If you are like me, you might have answered in some sociological, demographic terms, like gender, age, class, and race. I am a 47-year-old white female professional. Then other dimensions come to awareness. I am a wife, a daughter, an “auntie,” and a college professor. I am a writer, a tennis player, a gourmet cook, and an exdancer. Our roles, both family and work-related, our activities, and our history gives us clues as to who we are. In all these cases, I comprise my sense of self out of interactions with others.

<sup>17</sup>Cooley, C. H., *Human Nature and the Social Order* (New York: Scribner, 1922).

<sup>18</sup>Mead, G. H., “The problem of society—how we become selves,” in Strauss, A., ed., *George Herbert Mead on Social Psychology* (Chicago: University of Chicago Press, 1964), p. 42.

Moreover, the strength of our self-concept derives from the specific comparisons we make of ourselves relative to others: I am a weak tennis player because I am the newest one on the courts with my longtime tennis-playing colleagues, but I am a good cook, because, although I have friends who are also good cooks, I cannot think of anyone I know who cooks a lot better than I do. We know ourselves by comparing ourselves to others. There are thousands of research studies in social psychology that demonstrate the ways in which people use comparative information in the formation of their self-concept, and this work has formed a core topic in social psychology.

More recently, however, the idea that our selves are constructed through the interactions with others has been extended by a group of psychologists working out what they call a “postmodern psychology.” From the postmodern perspective, our modern worldview (which was discussed in Chapter 2) leads us to see the individual as a discrete, separate, predictable, rational self, working in competition with others to maximize economic gain. In the **postmodern perspective, the self is not discrete or predictable**. A stable self concept cannot be maintained because the information we receive is too unstable. Instead, because of the onslaught of quickly changing, pluralistic information, the postmodern self is incoherent, even empty. In the words of postmodernist Kenneth Gergen:

Social saturation furnishes us with a multiplicity of incoherent and unrelated languages of the self. For everything we “know to be true” about ourselves, other voices within respond with doubt and even derision. This fragmentation of self-conceptions corresponds to the multiplicity of incoherent and disconnected relationships. These relationships pull us in myriad directions, inviting us to play such a variety of roles that the very concept of an “authentic self” with knowable characteristics recedes from view. The fully saturated self becomes no self at all. . . . In the postmodern world we become increasingly aware that the objects about which we speak are not so much “in the world” as they are products of perspective. Thus, processes such as emotion and reason cease to be real and significant essences of persons; rather, in the light of pluralism we perceive them to be impostors, the outcome of our ways of conceptualizing them. Under postmodern conditions, persons exist in a state of continuous construction and reconstruction; it is a world where anything goes that can be negotiated. Each reality of self gives way to reflexive questioning, irony, and ultimately the playful probing of yet another reality. The center fails to hold.<sup>19</sup>

If we are filled with an uneasy anxiety about our identity and existence, the postmodernists argue that it is because we are disconnected and frag-

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<sup>19</sup>Gergen, K., *The Saturated Self: Dilemmas of Identity in Contemporary Life* (New York: Basic Books/HarperCollins, 1991), pp. 6–7.

mented by the recognition that what we believe (about ourselves and about everything else) is a construction, fabricated out of a limited and continuously changing set of messages from a disorganized social world. Our wealth and mobility have delivered us into an age of overwhelmingly disparate information. Insight into the ways in which we construct ourselves out of quickly changing incoming information, leads us to deconstruct ourselves ("the center no longer holds" to use Gergen's rephrasing of Y. B. Yeats). Just as I cannot hang onto a concept of myself as a professor while I am traveling through various countries, nobody can create a stable sense of self while subjected to the enormous complexity of modern life. The inability to answer the question "Who am I?" creates meaninglessness. No longer able to hold onto a reliable and coherent self-image, we suffer from deconstructing not only our self and our experience, but also our world.

To give you an example of how the postmodernists' argument fits my own experience, when I finished the first draft of this chapter, I went through a very unhappy spell saturated with negative feelings about this book. I saw the book as a hopelessly biased, myopically middle-class approach to environmental problems. I recognized how my liberal subculture of academia has shaped my values. I feared that the book was nothing but a superficial scholarly attempt to express the millennium paranoia that pervades many cultures nearing the end of a century, paranoia that the world is coming to an end. In other words, by recognizing the cultural influences on my thinking, I began to deconstruct my work, my self, and my world. I lost what Erik Erikson meant by "ego integrity," which I mentioned in the introduction: the ability to recognize that one's deepest values are arbitrary and accidental, while being willing to stand by them with utmost sincerity. By deconstructing my work and myself, I experienced meaninglessness and a "center that failed to hold."

In those moments of despair, many people find strength in religion. I do not disparage the strength that religion can provide, but I think there is another intellectually sensible way out from the deconstructionist hell. It is this way that I now want to consider.

### **Critique of the Postmodernist Position**

From the vantage point of the deconstructionist, nothing is real. Everything we know is a result of our limited and distorted constructions. This is a very problematic position, both from the perspective of the individual who suffers from increasing nihilism and absurdity, but also from the perspective of the future of human existence. For if nothing is real, there is little sense in committing oneself to any particular set of values, including the value of sustaining human existence on the planet. The environmental threats that seem to be upon us are figments of our cognitive processing,



and our worry about them is more likely a displacement of the anxiety we feel about our empty selves. More seriously, from the deconstructionist position, there is no sense in trying to counteract environmental trends, much less to worry about them, since the trends themselves are simply artifacts of our construction process. Mind precedes matter.

In contrast, for the ecological psychologist, matter precedes mind. Physical things are real and we do a pretty good job of juggling complex information in order to discern them in approximately accurate ways. In the words of Ulrich Neisser,

Perception is where cognition and reality meet. I do not think the nature of that encounter is well understood by most psychologists. The prevailing view of it tends to glorify the perceiver, who is said to process, transform, recode, assimilate, or generally give shape to what would otherwise be a meaningless chaos. This cannot be right; perception, like evolution, is surely a matter of discovering what the environment is really like and adapting to it.<sup>20</sup>

Thus, quite a different picture of humanity in relation to the physical world is suggested by ecological psychology. Physical reality sets limits; it results in unpredicted ramifications when we act on it; it behaves whether or not we are smart enough to understand either it or the effects that our actions have on it. The ozone layer of our atmosphere is disappearing whether or not we “process, transform, recode, or assimilate” the fact.

Similarly, I want to argue here that the ability to confront our environmental crises necessitates the assumption that the physical world is real, and that it will have an impact on human existence whether or not we are smart enough to conceptualize or control those impacts. I recently had an insight about this metaphysical problem of constructed reality while at the Grand Canyon. As we looked up at the cathedral-like canyon above us, we could see 2 billion years of the earth’s 4.6-billion-year history. The canyon stretched above us a mile high. If we assume humans have a half-million-year history, their existence would have occurred during the layering of the top 7 inches of the mile-high canyon. Less than one quarter of 1 percent of the planet’s history has us human beings in it. Social scientists take a very small-time perspective, say an inch or two of that geological time piece, and so have the luxury of seeing human experience as the be-all and end-all of existence. But from a larger geological time frame, human existence is very brief. It prevails because of a very delicate and recent set of physical conditions that support human life. From the geological perspective, the physical world is pre-eminent, and our ability to exist, to understand, and to sur-

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<sup>20</sup>Neisser, U., *Cognition and Reality: Principles and Implications of Cognitive Psychology* (San Francisco: W. H. Freeman and Co., 1976), p. 9.

vive within its parameters is not assured. From the ecological position, postmodernists fail to appreciate the physical backdrop given by this larger time frame. Because their time frame is so limited, postmodernists fail to notice the physical world that allows for human existence, *per se*, much less for the existence of various human reactions to information about the world.

The common future of humanity and the question of its outcome, then, provides a basis for “a center that holds” to use Gergen’s and Yeats’ phrase. It posits that the physical world comes first and that the sustainability of human beings on the planet is worth working for, though not assured. Whether or not an individual is a member of the middle class, approaching the end of a century, or socialized by a liberalist subculture, the future is still not assured. In contrast to deconstructive postmodernism, then, *physical reality precedes mind, not the other way around.*

In my opinion, however, postmodern psychology’s insight that our intellectual knowledge is distorted by the political, economic, and even spiritual dimensions of the culture in which the knowledge is formulated, is an essential contribution. Just as knowledge does not exist in an “objective” vacuum, so human existence does not exist in a “mental” vacuum. Instead, from an ecological viewpoint, knowledge (as well as the humans who produce it) depends on a complicated set of interacting systems that are usually not considered *germane to psychology*. The political world and the spiritual world are two of them. Let us examine each of these knowledge dimensions to show their relevance to ecological psychology.

**The Political Order.** As the postmodernists have argued, knowledge is a product of political forces. Earlier, I discussed some of the political ramifications of the conduct of psychology, including conserving the social order and reinforcing features of capitalist economic organization. For example, because the IQ test in part measures enculturation, its use supports the dominant cultural group to the detriment of members from minority subcultures who are likely to be labeled less intelligent. Furthermore, psychology, like the modernist culture in which it was formulated, assumes as its unit of analysis the individual, separated from her or his social context; thus, psychology contributes to a worldview in which individuals are seen primarily in competition with each other over scarce goods and resources. Reconceptualizing the self as a thoroughly embedded and relational being has political ramifications that are in some ways at odds with a Western worldview.

Nevertheless, knowledge always has political dimensions, whether one wishes to denote them or not. While it may be easy to sense this quality in the social sciences, it is not any less true of the natural sciences. Given that

much scientific research is funded by government agencies directly responsive to military needs it is not surprising that the biggest scientific achievements have had direct military use: the computer, nuclear power, space programs, etc. In any institutional culture in which scientific experiments are conducted, implicit beliefs and values determine the direction that research takes. When some questions are asked, they are seen as important and intriguing; when others get asked, they are seen as irrelevant; other questions simply never get asked.

For example, let us go back to the nuclear issue. Research on environmental safety and health at Hanford Nuclear Reservation illustrates the cultural and political dimensions of scientific research. In 1959 Herbert Parker, Manager of the Hanford Works, told the U.S. Congress that scientific research at Hanford had demonstrated that use of single-shell storage tanks of nuclear waste could be continued indefinitely. He did not mention that 6 months earlier 35,000 gallons had leaked from such a tank, or that a then-recent U.S. Geological Survey study questioned the tanks' durability. At Hanford, as in many weapons-production facilities, the culture emphasized the idea that nuclear waste disposal procedures were safe, and scientists believed this proposition, conducting research to demonstrate it. I am not saying that these scientists consciously lied or fudged the data. Instead, I am saying, along with nuclear scientist Dr. Alice Stewart, that

the data were right as far as they went. But a more inquiring mind would naturally ask the next question. But these next questions never got asked. So what you have is half-baked data. Its true as far as it goes and that's it.<sup>21</sup>

Thirty-five years after Parker's testimony, we now know that there are 149 single-shelled tanks, the majority of which are leaking, and that their clean-up is a top priority, which will cost the U.S. taxpayers tens of billions of dollars. Scientists are currently spending one million dollars on each tank simply to find out what is in it so that safe disposal can be designed. The research questions have changed as a result of the political and economic changes that have gone on in the country. Ending the Cold War in the late 1980s gave us the opportunity to redirect money from plutonium production to clean-up. Now the question of how to clean up nuclear waste is a priority that does not have easy answers. Science clearly has political dimensions.

Hanford may be an extreme example, but it should not occlude the inevitable contaminating effects of any social institution in which science is conducted. In my own experience, I have been told to "conduct more

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<sup>21</sup>Quoted on a *Nova* television program entitled "The Bomb's Lethal Legacy," Public Broadcasting Co., 1988.

mainstream research” as a way of demonstrating my academic competence. Science is conducted in cultures that dictate which questions are interesting, serious, and important and which are tangential or nonsensical. Data are collected in cultures that dictate which observations are plausible and which are impossible. Yes, the scientific method is designed to reduce human bias; but because humans conduct the scientific research, no study can be completely objective. As you will see, however, I am not arguing that we should abandon science because it can never be objective; instead I am arguing that we need to become more sophisticated about the political dimensions of our scientific questions and answers.

**Spiritual Dimension of Scientific Knowledge.** The second dimension of knowledge that we should not ignore is what I have previously called the “spiritual dimension.” When I use the word *spiritual*, I mean two things:

1. having to do with the teachings of the world’s spiritual traditions, such as Buddhism, Taoism, Christianity, Islam, etc.
2. having to do with consciousness, especially the experience of a larger, more expansive consciousness than our normal experience.

These two meanings overlap because the world’s spiritual traditions focus on the meanings of and methods for producing greater consciousness.

Thanks in large part to both Galileo and Descartes, our modern Western culture has regarded spiritual and scientific knowledge as separate and distinct. Galileo’s tragedy in the 17th century was that he provided empirical evidence to support Copernicus’ idea that the sun is the center of our solar system, rather than the earth. This model directly contradicted the teachings of the Catholic Church, and Galileo paid: he died under house arrest, a prisoner of a fascist church that would not allow scientists to seek knowledge with which it disagreed. Descartes, being no dummy, saved himself from similar persecution by drawing a clear distinction between the spiritual realm (mind, soul, and salvation), which he clearly acknowledged belonged to the church, and the scientific realm (the physical world), which could be addressed by science.

The separation of church and science became a strongly held practice in Western intellectual traditions, and to some degree the separation makes sense. As scholars, most of us would not want to have to seek approval for our data or scholarship from a pontiff in Rome. The importance of “academic freedom” is a staunchly held value in academia, allowing scholars to discuss unpopular views without fear of punishment from academic, governmental, or religious institutions. But the severe split between science and spirituality also has its costs. The split discourages us from asking certain questions about our subject matter, questions such as those described

in Chapter 7 that Abraham Maslow asked about what makes saintly personalities. Moreover, the split has led us to mistakenly assume that we can do value-free science, and falsely believe that mind is separate from matter.

Modern theoretical physics, however, has brought us an understanding of the physical world that is no longer distinct from the teachings of the world's spiritual traditions. For example, the Heisenberg uncertainty principle has demonstrated that measuring subatomic particles changes their behavior. It is impossible to precisely predict the movement of a particle because our effort to know it affects its course. Thus, mind and matter are inseparable because we cannot know the particle objectively. That is, particles do not exist separately from our attempts to know them. Instead of seeing physical reality as a collection of stable objects, modern theoretical physics sees it as an integrated process. This view of material reality is similar to that of several eastern religions.

In the dynamic world views of Eastern mysticism and of modern physics there is no place for static shapes, or for any material substance. The basic elements of the universe are dynamic patterns; transitory stages in the 'constant flow of transformation and change.'<sup>22</sup>

Thus, from an ecological perspective, the concept of the separate self, like the concept of the separate object, is an illusion made possible only by a limited range of perspective. When we inquire more deeply into who we are (the subject matter of psychological and spiritual work) or what physical matter is (the subject matter of physical sciences) we come to the same answer: it is all energy, energy that is in flux, in transition, in process. Moreover, particles interact just as selves do, so that conceptualizing the world as a collection of separate selves or separate objects is sensible only at a limited range (the middle range). This middle range is powerfully compelling, and our notions about separate objects work reasonably well when we stay within it. But the smaller (subatomic) and larger (astronomical) ranges show a different physical reality, a unified and dynamic one. Without specialized techniques to see beyond the middle range (high-level mathematics, or strenuous spiritual practice) most of us continue to stay within it. However, with deeper inquiry, we come to see the world as a unified, dynamically ordered whole. This perception requires a shift of perspective, a shift that has traditionally been taught by the spiritual traditions. But in the 20th century, it is also realized through empirical inquiry into physical matter. In this sense then, the division between the spiritual and the physical is

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<sup>22</sup>Capra, F., *The Tao of Physics: An Exploration of the Parallels between Modern Physics and Eastern Mysticism* (Berkeley, CA: Shambhala, 1975), p. 204.

illusory. Knowledge, even knowledge obtained from scientific method, has a spiritual dimension.

### Constructive Postmodernism

Postmodern psychology has given us important insights about the embeddedness of psychological knowledge in the larger culture in which it exists. Yet, because postmodernism emphasizes the fragmentation and meaninglessness of modern culture without the unifying backdrop of a physical reality, it sees the self and the world that the self tries to know as also fragmented and meaningless. Postmodernism deconstructs our experience by showing that any worldview is arbitrary and distorted by political and self-serving notions. Is it possible to salvage the insights of postmodernism without giving way to the inevitable nihilism to which it seems to lead?

I believe it is, and so do a small group of other thinkers calling themselves "constructive postmodernists." In the words of philosopher David Griffin:

Constructive [postmodernism] . . . seeks to overcome the modern world view not by eliminating the possibility of world views as such, but by constructing a postmodern world view through a revision of modern premises and traditional concepts. This constructive or revisionary post modernism involves a new unity of scientific, ethical, aesthetic, and religious intuitions. It rejects not science as such, but only that scientism in which the data of the modern natural sciences are alone allowed to contribute to the construction of our world view. . . . The term *postmodern*, however, by contrast with *premodern*, emphasizes that the modern world has produced unparalleled advances that must not be lost in a general revulsion against its negative features.<sup>23</sup>

In other words, by demonstrating the subjective dimensions of science, deconstructive postmodernism tends to reject science because it can never be totally objective. Constructive postmodernism instead recognizes the powerful tool of science, but recognizes it as one, though not the only, method of knowing. Just as we have required scientific methods to recognize our global environmental problems, we will need science to help us ascertain the best strategies for solving them. However, postmodernism recognizes that science alone cannot ensure our survival. Technology alone will not solve our environmental crisis. We must pursue rigorous inquiry into the physical, psychological, political, and spiritual dimensions of building a sustainable culture.

One of the reasons that we have difficulty conceptualizing a constructive postmodernism is that our modern institutional structures militate

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<sup>23</sup>Griffin, D. R., "Introduction to SUNY series in constructive postmodern thought," in Griffin, D. R., ed., *The Re-enchantment of Science: Postmodern Proposals* (Albany: State University of New York Press, 1988), pp. x, xi.

against realizing integrative knowledge. For example, the modern university illustrates the fragmentation of knowledge by housing scholars in different departments, reading different journals, teaching different subject matter, and asking different questions. The argument phrased in the opening pages of this book, that environmental problems have psychological dimensions, is an unusual argument in part because of the artificial distinction that the academy builds between questions. When I tell people I am writing a book on the psychology of environmental problems, the usual reaction is a puzzled expression—what on earth could *that* be? (I use the pun intentionally, but my listener does not!)

Constructive postmodernism will require a loosening of the artificial boundaries between subject matters, as well as a strengthening of general education among our populace. Poets who cannot use numbers, and engineers who cannot read poetry are both victims of modern educational practices; their mutual ignorance will impede the building of a constructive postmodern world. I am not saying that everybody must study everything, or even the same thing. What I am saying is that we need structures that purposely smudge the lines between subject matter, particularly the artificial and dangerous line between science and humanities. My attempt to consider environmental issues beyond the traditional parameters of psychology, and to bring both scientific and spiritual understandings to them, is an example of what I am saying.

This is the point at which I distinguish my version of ecological psychology from J. J. Gibson and Ulrich Neisser's, as well as from Theodore Roszak's eco-psychology and Warwick Fox's transpersonal ecology. Each of these subject matters provides valuable insights into our embedded nature, into our mistaken view that we are separate from the global context. Yet, because of the larger global and political structures that shape our behavior, I do not find them broad enough. In my opinion, they do not put enough emphasis on the global political and economic structures such as international development, Third World poverty, and industrial countries' overconsumption that drive environmental deterioration. I believe that healing the split between planet and self cannot simply be a matter of personal transformation, though it must be that as well. Learning how to build a sustainable world must be undertaken as a project with political and economic policy dimensions, as well as spiritual and psychological ones.

## ECOLOGICAL PSYCHOLOGY: FOUR OPERATING PRINCIPLES

Consequently, I would like to propose some rudimentary principles of a truly ecological psychology. Remember that I defined ecological psychology earlier as "the study of human experience and behavior, in its physical,

political, and spiritual context, in order to build a sustainable world." Ecological psychology should be conducted with the following assumptions:

**1. The goal of ecological psychology is to learn how to develop a sustainable culture.** Although psychology has confronted many important human problems (such as how the Nazi holocaust could have happened; how information is processed; how to best treat mental illness, etc.) it has not yet faced the most serious one: how to ensure survival of life on our planet. It would be both naive and pretentious to suggest that all psychologists should immediately drop what they are doing and attend to this question. But from an ecological viewpoint, this is *the* single most important issue. There are many other important questions that psychologists investigate, but none more important than how to reverse our environmentally dangerous behaviors, thoughts, feelings, and values.

With this goal in place, we can specify that ecological psychologists should study and promote human behaviors that "tend to maintain the ecological integrity, sustainability, and diversity of Earth's life-support systems for us and other species."<sup>24</sup> Behaviors that do not promote sustainability also must be studied, and alternative behaviors need to be outlined and strengthened.

**2. The physical world exists, whether we understand it or not.** Congruent with the ontological assumptions of science, ecological psychology rests on the assumption that the physical world exists. Physical matter is real. Our knowledge of it is constructed, dynamic, limited, and, hopefully, improving. Moreover, the damage that human beings have caused to its global systems threatens human survival, whether we conceptualize those threats or not. Ecological psychologists need to become more sophisticated about the way in which the physical world works. A strong background in the natural sciences is crucial for a sophisticated inquiry into the psychological dimension of human survival. Human behaviors that are most problematic to the sustainability of ecosystems and of the human species need to be identified, analyzed, and changed.

**3. Our knowledge of reality is continually changing as our political, emotional, and intellectual knowledge changes.** Although the physical world exists, we can never know it in an entirely accurate or objective way. Ecological psychologists can become more sophisticated about knowledge as we pay serious attention to the political dimensions of the questions we ask and the answers we seek. Similarly, there are emotional,

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<sup>24</sup>Miller, G. T., *Living in the Environment: An Introduction to Environmental Science*, 7th ed. (Belmont, CA: Wadsworth Publishing Co., 1992), inside front cover.



intellectual, and physical limits to our understanding, and these limits continue to change as our knowledge evolves. For this reason, ecological psychologists need a strong background in the humanities and social sciences. No one method of knowing will be sufficient.

**4. The connections between systems are more important than their separations.** We have a heritage of looking at separations; it is important to focus on connections. Ecological psychologists are interested in the relationship between human existence and the larger context in which it is embedded. Just as no one discipline will be sufficient, ecological psychologists must learn to work between disciplines, integrating knowledge from different departments and traditions, asking questions that highlight connections, being comfortable with uncertainty and ambiguity as new connections are forged. Similarly, ecological psychologists must work on several different levels simultaneously, acknowledging both the reality and the illusion of the separate self, the causal system, the contained unit. Interdisciplinary inquiry is crucial.

As a holistic discipline, ecological psychology will be difficult to define in more precise terms; it should be pluralistic in its methodology and creative in its conduct. Sophisticated about the limits of objective knowledge, ecological psychologists will need to be rigorously attuned to the distorting effects of their own political, emotional, and intellectual blinders. As we become more conscious of our limitations, so will we become more empowered to transcend them.

## ENVISIONING A SUSTAINABLE WORLD

In this book, we have discussed the myriad ways in which our world is currently unsustainable. As a psychologist concerned with individual behavior, it is often disconcerting to discover how big our problem is. Government, military, corporate, and national interests seem to overwhelm the difference that any one individual could make. By this time, it is easy to feel discouraged by the enormity of our difficulties. A real liability of ecological psychology is that by focusing on the ways in which our environmental problems are driven by social, political, and psychological structures, it may seem that we will never be able to reverse our trends.

Yet interconnection has its benefits as well as its handicaps. Interconnection means that no matter what you do, you will effect some change somewhere, and that change is likely to have impact in areas you never considered. Like my experience in the Chiang Mai market (Chapter 3), unpredicted effects will not always be good, but by acting, we will learn about their effects and sometimes they will be more good than bad. Since we can-



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not know all the effects before we act, we will not effect any change by insisting that every action work perfectly or be entirely predictable. We can only do what seems best and learn from it. In any event, nothing will change until our behavior changes, so the only way to begin is to begin.

What I suggest as a good beginning is to envision a sustainable world. We know that our environmental deterioration is driven by poverty, by sexism, by overpopulation, and by consumerism. With these factors in mind, what would a sustainable world look like?

Lester Brown and his colleagues at Worldwatch Institute have recently outlined one view. They begin by defining a sustainable society as the recent United Nations Conference on Environment and Development did, that is, a society that "satisfies its needs without jeopardizing the prospects of future generations."<sup>25</sup> They go on to claim that if we are going to build a

sustainable world, we will have to do so in within the next 40 years; after that, environmental deterioration will intensify in an uncontrollable downward spiral. Since the most our planet can support at a comfortable level would be 8 billion people, a sustainable world in the year 2030 would have up to 8 billion of us living in rather different circumstances than what we know today in our “throwaway culture.”

More specifically, Brown and his colleagues suggest that we will be

1. depending primarily on solar energy (because the other obvious form of renewable energy, nuclear, will prove too expensive and dangerous)
2. living in weather-tight and highly insulated homes
3. using more diverse forms of public transportation
4. living closer to our jobs
5. reusing and recycling many materials
6. using much less food packaging
7. using more human sewage for compost
8. using more rural lands for crops than for grazing or wilderness
9. growing more diverse crops and polycultures; eating more locally grown food; eating lower on the food chain
10. implementing extensive replanting programs for timber use
11. distributing human populations more evenly across livable land
12. spending much less on military expenditures
13. cooperating much more with other nations on solving transnational environmental problems
14. prizing sustainability rather than economic growth as the core value in decision making
15. looking back on materialism as an outdated and unfashionable period in human history
16. and from the previous discussion, I would add that in a sustainable society, women will be having fewer babies and playing a larger role in the decision making of all social institutions.

In a World Resources Institute piece, Jose Goldemberg claims that the world will never be able to support the life style of current-day Americans, but that it could support a population that lives at about the level of West Europeans: modest but comfortable homes, refrigeration for food, and ready access to public transit, augmented by limited auto use.<sup>26</sup> For most of us, what this would require is purposive down-scaling, conscious choices to

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<sup>25</sup>Brown, L. R., Flavin C., and Postel, S., “Picturing a sustainable society,” in Brown, L. R. et al., eds., *State of the World, 1990* (New York: W. W. Norton, 1990), p. 173.

<sup>26</sup>Goldemberg, J., Johansson, T. B., Reddy, A. K., and Williams, R. H., *Energy for a Sustainable World* (Washington, DC: World Resources Institute, 1987.)

consume less, reuse more, and recycle everything possible. It would also mean working less, spending less, enjoying more time, more creative community activities, and more personal and interpersonal meaning. Or to put it quite simply, in the words of ecopsychologist Theodore Roszak: "Scale down, slow down, democratize, decentralize."<sup>27</sup> These ecological goals can heal the psyche; these psychological values can heal the planet.

## THE COST OF INACTION

One of the ways in which we are allowed to maintain our split between planet and self is through knowing a lot but not acting on that knowledge. Education is traditionally conducted along these lines. Action and activism are not included as key features of education for fear that we will create ideological robots of our students. I appreciate the importance of carefully considering our actions before doing them, but I also have tried to show how it is impossible to know completely the results of our behavior before undertaking it. I also believe, along with John Dewey,<sup>28</sup> that we do not really understand an idea until we apply it. We learn more about an idea from experiencing how it works, especially if we remain diligently open to feedback from our experience.

Moreover, I believe that our split between planet and self is maintained by the convenience of not getting around to action. Inaction will ensure that business proceeds as usual; action will change us as well as the world. Sometimes we will make mistakes, but we will not learn from them if we never make them.

The Appendix lists some of the most valuable sources now available for designing your own responses, joining others in groups or in agencies, re-considering your consumer choices, and helping to solve specific resource or pollution problems. As you consider which actions to take, remembering a few simple rules will help:

1. Reduce, reuse, recycle: prioritize your attention in this sequence. In order of importance, reducing your use of materials is more effective than reusing; reusing is more important than recycling. Avoid throw-away products.
2. Because individual behaviors are influenced by structural dimensions, choose a combination of both personal and policy goals. Create a letter-writing kit (a notebook of addresses and a list of con-

<sup>27</sup>Roszak, T., *The Voice of the Earth* (New York: Simon and Schuster, 1992), p. 311.

<sup>28</sup>Dewey, J., *The Quest for Certainty* (New York: Capricorn Books, 1929).

cerns) to aid in regularly expressing your views to government and business officials.

3. Pick one of the features of a sustainable society (discussed above) and focus your energy on helping to achieve it.

No matter what action you decide, becoming aware of your behavior, your thoughts, your feelings, and your consciousness will significantly facilitate your healing the split between planet and self. But you cannot do anything for the planet or for yourself until you begin.

As you select your actions for healing yourself and the world, you will likely experience many of the defenses I have discussed in this book. Keep track of them, but be careful about giving them too much power. You may feel overwhelmed. Feeling overwhelmed is a constant, recurring liability in this work because as we learn more, we learn how interconnected and colossal are the structures driving us toward ecological destruction. Focusing on specific behaviors can help mitigate the experience of feeling overwhelmed, even though those feelings are likely to recur. Yet allowing ourselves to slip into despair or helplessness is the *most* destructive path—destructive because it undermines our own growth and maturity, and destructive because it ensures a planetary outcome that justifies our despair. Just as we can best confront our feelings of being overwhelmed by action, so too is despair best confronted through action. In Barry Lopez' words

If we become the prisoners of our own minds, if we think ourselves into despair, we can step onto wounded ground with a shovel and begin to plant trees. They will grow. They will hold the soil, provide shelter for birds, warm someone's home after we are gone. If we lose faith in ourselves, we can in those moments forget ourselves and dwell on the future of the larger community, on the blessing of neighbors.<sup>29</sup>

And so it is essential to proceed gently, with conviction, patience, perseverance, and most of all, with trust, trust in yourself, as well as in the interconnected wholeness that embraces you. "If you take one step with all the knowledge you have, there is usually just enough light shining to show you the next step."<sup>30</sup>

May your steps be steady, graceful, revealing, and rewarding, and may you know them as part of the greater ecological dance.

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<sup>29</sup>Lopez, B. H., *The Rediscovery of North America* (New York: Vintage Books, 1990), p. 53.

<sup>30</sup>Williams, T. T., *An Unspoken Hunger: Stories from the Field* (New York: Pantheon Books, 1994), p. 94.

# Appendix

## What To Do

**T**here are many excellent guides available for how to implement more environmentally responsible behavior. The quickest and easiest to examine is the list of “101 Ways to Save the Planet,” which appears on page 308. But I also recommend the following books, periodicals, and organizations. They provide compelling information as well as good practical suggestions; I have found something useful in each of them.

### BOOKS

Berkowitz, B., *Community Dreams: Ideas for Enriching Neighborhood and Community Life* (San Luis Obispo, CA: Impact Publishers, 1984).

This is a delightful and rich list of ideas for helping create neighborhoods which are healthy for both the environment as well as the psyche.

Christensen, K., *Home Ecology* (Golden, CO: Fulcrum Publishing Co., 1990).

A humorous and useful guide for personal changes you can make in your home or residence.

Domingues, J., and Robin, V., *Your Money or Your Life: Transforming Your Relationship with Money and Achieving Financial Independence* (New York: Viking Penguin, 1992).

This book, and the six-tape audio course "Transforming Your Relationship With Money and Achieving Financial Independence" are both available from the nonprofit New Road Map Foundation, P.O. Box 1581, Seattle, WA 98115. They both focus on helping people get off the production/consumption treadmill by examining personal financial attitudes, practices, and identities. A powerful tool for achieving financial independence and lowered consumption habits. The Foundation also publishes a list of 150 organizations and leaders in the sustainable lifestyles movement called "Network to Reduce Overconsumption: Director of Organizations and Leaders." The 182 page list is available for \$10.00 from the Foundation.

Elington, J., Hailes, J., and Makower, J., *The Green Consumer* (New York: Penguin, 1990).

A good guide to environmentally responsible consumer products, including cars, garden and pet supplies, home energy and furnishings, personal care products, and travel. This book also has an excellent section on how to get involved with environmental organizations, agencies, and local issues. Although it lacks a critical discussion of overconsumption, it has a lot of other good information to offer.

Hollender, J., *How to Make the World a Better Place: A Guide to Doing Good* (New York: William Morrow, 1990).

As the title suggests, Hollender offers well-researched guidance on how to work on a variety of environmental and social problems, including resource conservation, pollution, food, consumer choices, peace, and human rights.

Hollister, B., Will, R., and Marlin, A.T., *Shopping for a Better World: The Quick and Easy Guide to All Your Socially Responsible Shopping* (San Francisco: Sierra Club Books, 1994).

This is a very useful and easy-to-read-in-the-store guide to how companies perform on environmental, community, and family responsibilities. Using this guide, you can select products made by companies with strong commitments to social and environmental concerns.

Lamb, M., *Two Minutes a Day For a Greener Planet: Quick and Simple Things You Can Do to Save Our Earth*. (New York: HarperCollins, 1991).

A useful guide to hundreds of easily implemented actions, along with some helpful background discussion.

Margolin, M., *The Earth Manual: How to Work on Wild Land without Taming It* (Berkeley, CA: Heyday Books, 1985).

Practical advice for how to care for land that is "touched by civilization but far from conquered" such as woodlots, parks, or backyards. Techniques for stopping erosion, curing injured trees, increasing wildlife, and otherwise working with, rather than against, the wildness of the land.

Martin, G., and Pear, J., *Behavior Modification: What It Is and How to Do It*, 3rd ed. (Englewood Cliffs, NJ: Prentice-Hall, 1988).

A clear guide to using behavioral principles to change your own behaviors as well as others'.

Rifkin, J., *The Green Lifestyle Handbook: 1001 Ways You Can Heal the Earth* (New York: Henry Holt & Company, 1990).

There are some blue-ribbon environmentalists contributing to this handbook, including Frances More Lappe, Thomas Berry, and Robert Rodale. The book is packed with useful information and practical suggestions on everything from recycling to personal financial investments.

Watson, D., and Tharp R., *Self Directed Behavior: Self-Modification for Personal Adjustment* (Pacific Grove, CA: Brooks/Cole Co., 1989).

This is a detailed text and discussion for how to arrange self-control projects. Although the authors do not deal with environmental behaviors in particular, their approach is easily applied. It is particularly useful for attempts to change the most habitual behaviors.

Yates, B.T., *Self-Management: The Science and Art of Helping Yourself* (Belmont, CA: Wadsworth Publishing Co., 1985).

Another quite useful manual for designing self-control projects, this one with detailed applications on studying, substance abuse, social skills, and career skills.



*50 Simple Things You Can Do to Save the Earth* (1989) and the companion volumes *The Next Step: 50 More Things You Can Do to Save the Earth* (1991); *50 Simple Things Your Business Can Do To Save the Earth* (1991); and *50 Simple Things Kids Can Do To Save the Earth* (1990).

Available from The Earth Works Group, P.O. Box 25, 1400 Shattuck Ave., Berkeley, CA 94709 (510) 841-5866, these are popular, well-written lists of suggestions with background rationale. The Earth Works Group gives group rates for educational or business use.

## MAGAZINES AND NEWSLETTERS

*In Context: A Quarterly of Humane Sustainable Culture* (Context Institute, P.O. Box 11470, Bainbridge Island, WA 98110). Subscriptions \$24/year.

Each issue of this wonderful magazine is composed of thematically related articles on some dimension of sustainable living (and no advertisements). Past issues have dealt with communities, economics, consumerism, health care, spirituality, and families. I especially appreciate their issue "What's Enough" (Fall 1990), which included "50 simple things you can do instead of shopping."

*Co-op America Quarterly: A Magazine for Building Economic Alternatives* (Co-op America, 1612 K Street NW, #600, Washington, DC 20006).

An incisive and insightful guide to restructuring economic power for creating a sustainable world. The Fall 1994 issue on globalization is particularly valuable. The magazine also prints information on socially responsible investment, financial services, and boycotts.

## ALTERNATIVE TRADE ORGANIZATIONS

North American Alternative Trade Organization (c/o The Crafts Center, 1001 Connecticut Ave. NW, Suite 1138, Washington, DC 20036).

Promotes alternative trade in the United States.

International Federation of Alternative Trade (c/o Self Help Handicrafts, P.O. Box 500, Akron, PA 17501).

Promotes alternative international trade.

Equal Exchange (101 Tosca Dr., Stoughton, MA 02072).

An alternative trade organization that sells coffee, including that organically grown with shade trees, that is bought at a fair price directly from the growers.

## CAREERS TO BUILD A SUSTAINABLE WORLD

Ehrlich, P.A., and Ehrlich, A. H., *Healing the Planet: Strategies for Resolving the Environmental Crises* (Reading, MA: Addison-Wesley, 1991).

The last chapter of this book discusses vocations that can most effectively contribute to environmental solutions. Especially helpful on science careers, but includes a discussion of social science as well.

Sharp, W., *The New Complete Guide to Environmental Careers* (Washington, DC: Island Press, 1993).

Helpful information on job hunting, career descriptions, volunteer programs, and internships in areas such as solid waste management, air and water quality, natural resource management, land and water conservation, fisheries and wildlife management, parks and outdoor recreation, and forestry.

Kinney, J., and Fasulo, M., *Careers for Environmental Types and Others Who Respect the Earth* (Lincolnwood, IL: VGM Career Horizons, 1993).

A guide to working in environmental education, greening corporate America, government at the federal, state and local levels, environmental entrepreneurs, nonprofit sector, and green communications.

## SOCIALLY RESPONSIBLE INVESTING

Several useful resources are available for how to invest money in companies which show good records on environmental and social dimensions of their operations. Here are a few:

Harrington, J. C., *Investing with Your Conscience: How to Achieve High Returns Using Socially Responsible Investing* (New York: John Wiley & Sons, 1992).

A very useful review of the principles, tools, and resources needed for making socially responsible investment decisions.

Good Money Quarterly Report (Box 363, Worcester, VT 05682 (800) 223-3911).

This short but easy-to-read newsletter provides investment information for a variety of businesses.

Social Investment Forum (Box 2234, Boston, MA 02107 (617) 451-3369).

This group publishes a \$35 newsletter on the performance of socially responsible mutual funds.

## **101 WAYS TO HEAL THE EARTH (A GUIDE TO PERSONAL ACTION): SLOWING DOWN CLIMATE CHANGE DEPENDS ON ALL OF US DOING OUR PART**

What can you do for the planet? The answer is: a lot. Here is a list of 101 suggestions, which are in no way exhaustive. They are meant as a creative jumping off point for you to come up with your own solutions. The unifying themes are to reduce impact, protect and restore resources, and to facilitate a deep personal commitment. The point is not to feel guilty for not doing all of them, but to use the list to empower yourself and your friends to take action. Find one thing you can do, do it, and then find another.

This list is distilled from and reprinted with permission from three sources: The Greenhouse Crisis Foundation, the Transmission Project for the U.N. Environment Programme, and Context Institute (Publishers of *In Context Magazine*—see Appendix).

1. Insulate your home.
2. Buy energy-efficient appliances.
3. Caulk and weatherstrip doors and windows.
4. Install storm windows.
5. Close off unused areas in your home from heat and air conditioning.
6. Wear warm clothing and turn down winter heat.
7. Switch to low-wattage or fluorescent light bulbs.
8. Turn off all lights that do not need to be on.
9. Use cold water instead of hot whenever possible.
10. Opt for small-oven or stove-top cooking when preparing small meals.
11. Run dishwashers only when full.
12. Set refrigerators to 38°F, freezers to 5°F, no colder.
13. Run clothes washers full, but do not overload them.
14. Use moderate amounts of biodegradable detergent.
15. Air-dry your laundry when possible.
16. Clean the lint screen in clothes dryers.
17. Instead of ironing, hang clothes in the bathroom while showering.

18. Take quick showers instead of baths.
19. Install water-efficient showerheads and sink-faucet aerators.
20. Install an air-assisted or composting toilet.
21. Collect rainwater and graywater for gardening use.
22. Insulate your water heater. Turn it down to 121°F.
23. Plant deciduous shade trees that protect windows from summer sun but allow it in during the winter.
24. Explore getting a solar water heater for your home.
25. Learn how to recycle all your household goods, from clothing to motor oil to appliances.
26. Start separating out your newspaper, other paper, glass, aluminum, and food wastes.
27. Encourage your local recycling center or program to start accepting plastic.
28. Urge local officials to begin roadside pickup of recyclables and hazardous wastes.
29. Encourage friends, neighbors, businesses, local organizations to recycle and sponsor recycling efforts.
30. Use recycled products, especially paper.
31. Reuse envelopes, jars, paper bags, scrap paper, etc.
32. Bring your own canvas bags to the grocery store.
33. Encourage local governments to buy recycled paper.
34. Start a recycling program where you work.
35. Limit or eliminate your use of "disposable" items.
36. Urge fast-food chains to use recyclable packaging.
37. Avoid using anything made of plastic foam. It is often made from CFCs, and it never biodegrades.
38. If your car gets less than 35 mpg, sell it, buy a small fuel-efficient model, and spend whatever money you save on home energy efficiency.
39. Maintain and tune up your vehicle regularly for maximum gas mileage.
40. Join a car pool or use public transportation to commute.
41. Write to automobile manufacturers to let them know that you intend to buy the most fuel-efficient car on the road.
42. Reduce your use of air conditioning.
43. Encourage auto centers to install CFC recycling equipment for auto air conditioners. Freon is released during servicing to become both a greenhouse gas and an ozone layer destroyer.
44. Remove unnecessary articles from your car. Each 100 lb of weight decreases fuel efficiency by 1 percent.
45. Do not speed; accelerate and slow down gradually.
46. Walk or use a bicycle whenever possible.

47. Urge local governments to enact restrictions on automobile use in congested areas downtown.
48. Enjoy sports and recreational activities that use your muscles rather than gasoline and electricity.
49. Buy products that will last.
50. Rent or borrow items that you do not use often.
51. Maintain and repair the items you own.
52. Use colored fabrics to avoid the need for bleach.
53. Use natural-fiber clothing, bedding, and towels.
54. Do not buy aerosols, halon fire extinguishers, or other products containing CFCs.
55. Write to computer chip manufacturers and urge them to stop using CFC-113 as a solvent.
56. Invest your money in environmentally and socially conscious businesses.
57. Avoid rainforest products, and inform the supplier or manufacturer of your concerns.
58. Use postcards instead of letters for short messages.
59. Eat vegetarian foods as much as possible. Meat makes less efficient use of land, soil, water, and energy—and cows emit 300 liters of methane per day.
60. Buy locally produced foods; avoid buying foods that must be trucked in from great distances.
61. Read labels. Eat organic or less-processed foods.
62. Start a garden; plant a garden instead of a lawn.
63. Water the garden with an underground drip system.
64. Support organic farming and gardening methods; shun chemical fertilizers, herbicides, and pesticides.
65. Compost kitchen and garden waste, or give it to a friend who can.
66. Inform schools, hospitals, airlines, restaurants, and the media of your food concerns.
67. Stay informed about the state of the earth.
68. Talk to friends, relatives, and coworkers about preventing global climate change.
69. Read and support publications that educate about long-term sustainability.
70. Start a global climate change study group.
71. Educate children about sustainable living practices.
72. Photocopy this list and send it to 10 friends.
73. Go on a citizen diplomacy trip and talk with those you meet about averting global climate change.
74. Get involved in local tree-planting programs.

75. Join an environmental organization. If they are not involved with climate change, get them involved.
76. Support zero population growth.
77. Support work to alleviate poverty. Poverty causes deforestation and other environmental problems.
78. Donate money to environmental organizations.
79. Support programs that aim to save rainforest areas.
80. Support solar and renewable energy development.
81. Work to protect local watershed areas.
82. Pave as little as possible. Rip up excess concrete.
83. Encourage sewage plants to compost their sludge.
84. Write your senator *now* in support of S. 201, the World Environment Policy Act.
85. Write your congressperson *now* in support of H.R. 1078, the Global Warming Prevention Act.
86. Support disarmament and the redirection of military funds to environmental restoration.
87. Write letters to the editor expressing your concern about climate change and environmental issues.
88. Support electoral candidates who run on environmental platforms.
89. Run for local office on an environmental platform.
90. Attend city council meetings and speak out for action on climate change issues.
91. Organize a citizens' initiative to put a local "climate protection program" into place.
92. Learn how to lobby. Lobby your local, state, and national elected officials for action on climate change and environmental issues.
93. Organize a demonstration at a plant that uses CFCs.
94. In place of TV and the stereo, spend time reading, writing, drawing, telling stories, making music.
95. Live within the local climate as much as possible, rather than trying to isolate yourself from it.
96. Strive to establish good communications with friends, neighbors, and family, including learning conflict-resolution skills.
97. Spend time seeing, hearing, and rejoicing in the beauty of the earth. Feel your love for the earth. Make serving the earth your first priority.
98. Learn about the simpler, less resource-intensive lifestyles of aboriginal peoples.
99. Think often about the kind of earth you would like to see for your grandchildren's grandchildren.
100. While doing small things, think big. Think about redesigning cities, restructuring the economy, reconceiving humanity's role on the earth.
101. Pray, visualize, hope, meditate, dream.

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