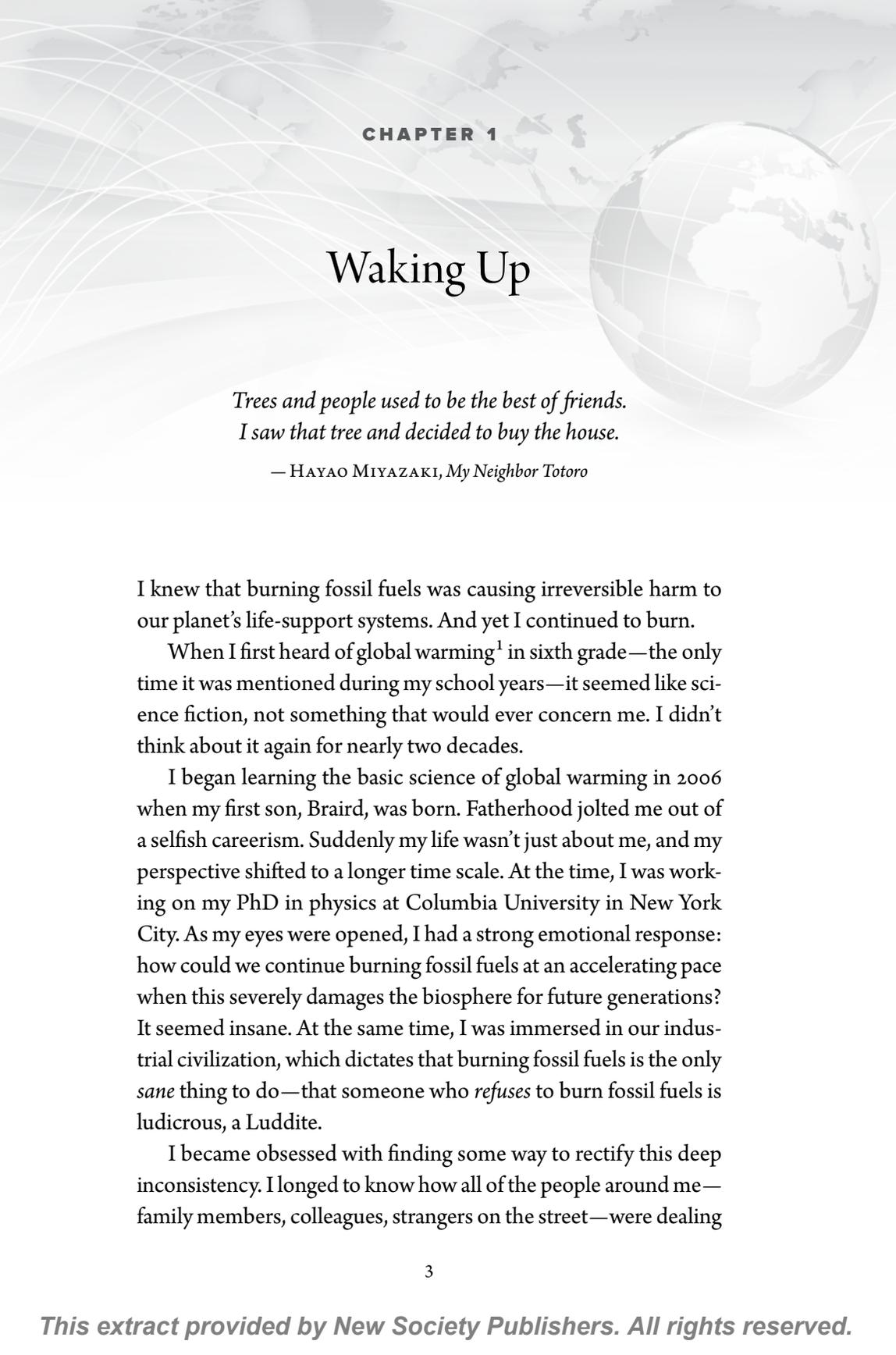


PART I

PREDICAMENT

*Full fathom five thy father lies;
Of his bones are coral made;
Those are pearls that were his eyes:
Nothing of him that doth fade
But doth suffer a sea-change
Into something rich and strange.*

— WILLIAM SHAKESPEARE, *The Tempest*



CHAPTER 1

Waking Up

*Trees and people used to be the best of friends.
I saw that tree and decided to buy the house.*

— HAYAO MIYAZAKI, *My Neighbor Totoro*

I knew that burning fossil fuels was causing irreversible harm to our planet's life-support systems. And yet I continued to burn.

When I first heard of global warming¹ in sixth grade—the only time it was mentioned during my school years—it seemed like science fiction, not something that would ever concern me. I didn't think about it again for nearly two decades.

I began learning the basic science of global warming in 2006 when my first son, Braird, was born. Fatherhood jolted me out of a selfish careerism. Suddenly my life wasn't just about me, and my perspective shifted to a longer time scale. At the time, I was working on my PhD in physics at Columbia University in New York City. As my eyes were opened, I had a strong emotional response: how could we continue burning fossil fuels at an accelerating pace when this severely damages the biosphere for future generations? It seemed insane. At the same time, I was immersed in our industrial civilization, which dictates that burning fossil fuels is the only *sane* thing to do—that someone who *refuses* to burn fossil fuels is ludicrous, a Luddite.

I became obsessed with finding some way to rectify this deep inconsistency. I longed to know how all of the people around me—family members, colleagues, strangers on the street—were dealing

with this glaring disconnect without any apparent difficulty. Did they know about global warming? Had they made peace with it somehow, or did they simply not think about it? I felt afraid of the future, lost. I had so much emotional static that I struggled to connect with people.

Like a splinter in my psyche, this disconnect required me to *do something*. But what?

I first tried converting people with facts. The people around me were acting as though there wasn't a problem: perhaps they simply didn't know. If I could only communicate with greater clarity, people would "get it." I felt like I had the truth, that my job was to wake everyone up.

Like most attempts to convert, though, mine were sanctimonious and alienating. It was impossible for anyone to listen to me, or for me to listen to anyone else. (My wife, Sharon, had to put up with a lot; it's not easy being married to someone who wants to convert you.) This led to even more disconnection. Alone with my angst, at a loss for what to do, I was panicking.

I now realize that few people respond to facts. I also realize that I can't respond meaningfully to our predicament with my intellect alone. I also doubt that even our society's collective intellect, our best scientists and brightest policymakers working within their delineated roles, will be enough. While intellect certainly plays a role, it's a rather small one. Our dire ecological crisis calls us to go deeper.

Going deeper

A few years passed before I began to develop a more coherent response. In 2008, our second child, Zane, was born, and we left New York so I could take an astrophysics job at the California Institute of Technology. But before leaving New York, I was offered a job in atmospheric science at NASA's Goddard Institute for Space Studies (GISS), which at the time was led by James Hansen. Had I accepted it, I'd have worked to improve the representation of clouds in the GISS global climate model. But I didn't feel ready

for such a big career change, and my ongoing work of searching for gravitational waves—ripples in the fabric of spacetime—was incredibly exciting. So, after much soul searching, I accepted the Caltech job and continued my work of sifting through LIGO data for scientific gold. Sharon and I moved to Altadena, a suburb northeast of Los Angeles in the foothills of the San Gabriel Mountains where parrots roam the skies and orange trees abound. I felt like I'd landed in paradise.

We chose a house because of the magnificent avocado tree in the backyard. I bonded with this tree. I began to think of it as a friend, and I still do. This relationship with a tree began to change me: I began to understand plants as beings.²

After a year of renting, we bought the house. For the first time in my life, I owned a tiny patch of land. I decided to cancel the mow-and-blow landscaping service and tend my own yard. The land seemed alien; I didn't know what any of the plants were called or how to take care of them. But I did know that I love to eat tomatoes, so I planted some tomato plants. I enjoyed their company so much—their smell and their just-perceptible daily growth, their being-ness—that I felt called to plant other little beings. I dismantled a small deck by my back fence that we never used, took a sledgehammer to the underlying concrete (quite a joyous task, it turned out), and turned the scrap lumber into six raised beds. I'd caught the gardening bug. Before long I ripped out the grass of my front lawn to make space for other, more interesting and useful plants.

This, then, is how I started to use my hands: the land drew me in. The land was like a painter's canvas, full of possibility and potential. I could plant things on it. Choosing what to grow, and how, required a new kind of wisdom from me, something essentially human. It asked for more than intellect. It asked for connection and for humility, and it offered simple gifts. I fell in love with the land.

I could see a path stretching far into the distance, and I've come to understand that learning how to tend the land takes a lifetime.

Around this time, in 2010, I began to meditate seriously. Sharon and I had started meditating back in New York, but we simply weren't able to maintain our practice while caring for babies. But one morning, after four years of diapers and inadequate sleep, I remembered how important meditation had been. So I went to a ten-day meditation retreat and started practicing again. This is how I started to know myself more deeply. My eyes opened to what was right in front of them. A few months later, Sharon went on her own retreat, and we began sitting together daily.

I began observing my daily life and changing it to be more aligned with what I knew. When faced with some daily task—commuting to work, planning a trip, eating, showering, whatever—I began perceiving how it connects to our industrial system's preferred way of doing things, how it affects other beings and too often harms them. I began searching for alternative ways of doing things. This exploration often blossomed into adventure: unpredictable, fun, and satisfying.

As my scientific interest in global warming increased, it eventually occurred to me that I'd be happier studying it full-time. So I finally left the beautiful, giddy world of astrophysics. This was a sacrifice, and it meant sitting on the sidelines during humanity's first detection of gravitational waves—an endeavor to which I've given nearly a decade of my life. But I simply could no longer concentrate on astrophysics; it felt like fiddling while Rome burned. I'm now an Earth scientist studying the role of clouds in a warming world. I've also reduced my personal CO₂ emissions from about twenty tonnes per year (near the US average) to under two tonnes per year. Overall, this hasn't been a sacrifice. It has made me happier.

Head, hands, and heart

The path I'm on has three parts. One is intellectual understanding: the head. The head allows me to prioritize. It helps me navigate to my goals, although I find it's not always good at *choosing* those goals. One of the lessons I've learned is that I'm limited, in time,

energy, and ability; if I'm to make any progress, I need to choose my path wisely. This means asking the right questions, gathering information about reality as it is (which is often different than how it appears to be, or how I want it to be), and drawing conclusions objectively. The head is a scientist.

Another part of my path is practical action: the hands. As we'll see, society's business-as-usual trajectory is carrying us toward disaster. If we wish to avoid disaster, we must take action. Since I can't change the entire global trajectory single-handedly, I perform practical and local actions, changing myself and how I live right here and right now. Direct practical action is empowering; it brings measurable, tangible change. It's fun, and therefore I can sustain it easily. It also provides its own guidance. Time and again I've found that only by taking a step—making some actual change—is the next step revealed. I find that all the planning and intellectualizing in the world can't substitute for just doing something. There's wisdom in doing.

A third part of my path is seeing from the heart. This third part is what connects me to myself, to other people, and to nature. Without it, action can become compulsive, joyless. Connection brings purpose and meaning to thought and action.

I have a specific and concrete practice for this third part: I meditate by observing my body and mind in a particular way. Meditation allows me to be joyful (most of the time) even while studying global warming every day at work. Meditation helps me connect to the sea of everyday miracles around me—the plants growing, the sun shining, my older son lovingly putting his arm around his brother's shoulders. I find great strength in this awareness.

These three parts support and balance one another. In shaping a response to our predicament, each part is important.

Aligning with the biosphere

The changes I've been making to my own life are simple, but they go far beyond recycling or green consumerism. I came to see

that the business-as-usual ways of industrial society are bankrupt. So I actively replace those parts of my everyday life that feel unsatisfying with new ways of living that I do find satisfying.

Such changes don't require sacrifice so much as exchange, swapping daily actions that aren't satisfying for ones that are. In this way, my everyday life has gradually come into harmony with my beliefs. My experience has been that congruence between outer and inner life is the key to happiness. I'm no good at fooling myself.

I also came to see how deeply I'd been influenced by the subconscious whisper of culture, how little I questioned my everyday actions, and how completely I accepted the illusion that the way things are is the only way they could be. My old mindset was separation; my emerging mindset is connection. I'm learning that acceptance and detached observation of my own mind is the basis of compassion. I'm learning how to become sustainable, internally.

We could coin a word for this path of inner and outer change: *becycling*, beyond recycling. Becycling entails restoring cyclical natural processes at the local scale. It requires getting busy instead of passively hoping that "they will think of something." It means accepting responsibility for your own everyday actions and changing those that harm other beings in our planet's biosphere. It means actually being the change.

Straightforwardness

My path is straightforward: if fossil fuels cause global warming, and I don't want global warming, then I should reduce my fossil fuel use.

Similarly, if I don't like conflict, killing, and wars, then I should reduce my own addiction to anger and negativity. This seems obvious to me now, but it didn't always. My need to be right used to be blindingly strong, and fear and defensiveness led me to react to anger with more anger, to negativity with more negativity. If we

say we want a world without wars, then we shouldn't add hostility to the world ourselves! Yet wherever I go I see people arguing, fighting, and spreading negativity.

In our society, this kind of straightforwardness is often dismissed as idealistic, impractical, and out of reach. But *my own direct experience* says that it is possible to drastically reduce my fossil fuel use, and that it is possible to come out of conflict and negativity. What's more, the personal rewards for doing both are tremendous: a less stressful, more satisfying life.

These two seemingly disparate things—reducing my own fossil fuel use and increasing my ability to love—are actually intimately interconnected. As I learn how to love more, it becomes increasingly clear that I am connected to everything. How, then, can I voluntarily harm the rest of the life on this planet? How can I harm the children who will be born 100 years from now? When someone else suffers, I also suffer. There is no separation between me and the rest of the life on this planet.

To be clear: I'm not saying that selfless love is the near-term answer to global warming. Unfortunately, there are many who, for whatever reason, will never strive to love selflessly; there's no time to wait for them. And even for those who do so strive, it's a long path. This is why we also need sensible policies and technologies that result in cheaper alternatives to fossil fuels.

But for those who are ready to walk on the straightforward path, the path of love, it's certainly worth doing. It may even help to hasten the sensible collective action we desperately need.

Why walk on this path?

I'm aware that the changes I'm making to my daily life will not solve global warming or stave off global economic collapse. How could they? We're rapidly approaching eight billion people on the planet,³ and I am only one of them.

However, my actions do make me happier, and that's reason enough to do them. I also suspect that, for most of us, individual

and local-scale actions are the most skillful means to effect global-scale change. This is a paradox of scale. Our individual actions don't make much of an immediate difference in the global response to our predicament, but they are pieces in a vast puzzle. As more pieces get added, more people will get excited by the emerging picture and begin to add their own pieces.

The prevailing mindset in our industrial society is to search for a silver bullet solution, some brilliant techno-fix that allows us to avoid personal change (which is assumed to be undesirable). After decades of searching by the world's brightest minds, however, it seems likely that there is no such silver bullet. Personal change will therefore likely be necessary. Here are the reasons I'm an early adopter of personal change:

It's enjoyable

In my experience, cutting back on burning fossil fuels became possible—easy, even—when I began to realize that I enjoy my life more when I live mindfully and burn less. I realized that I don't want to burn so much, and I don't need to burn so much. And I genuinely enjoy the changes I've made, such as biking and gardening.

It's empowering

Back when I was concerned about global warming but still burning lots of fossil fuels, I was suffering from cognitive dissonance, living inconsistently. This made me feel depressed and confused. Now I live in a more consistent way, which is empowering. It's the key to connecting with others: my life is my calling card.

I want to help others, not harm them

Burning fossil fuels warms the planet, which harms others. It's that simple. Although the processes involved are distributed globally, accrue over decades, and are statistical in nature—and therefore difficult for our brains to connect directly back to our individual actions—the harm is nonetheless real.

Burning fossil fuels should be unacceptable socially, the way physical assault is unacceptable. The harm it does is less immediate, but just as real.⁴ We need to start speaking this truth—burning fossil fuels harms others—so that society can begin realizing it.

It leads to connection and gratitude

Living with less fossil fuels leads to more connection with the land and with my community. It leads to increased awareness that food, water, fuel, and friends are precious. This connection and gratitude makes me happy.

Small actions lead to larger actions

We need to use our unique talents and interests to make a difference, and changing ourselves can reveal how to do this. Small actions gradually led me to two major actions that might have some impact beyond my local community: becoming an Earth scientist and writing this book. These efforts of mine may have larger impact, or they may not. Either way I'll keep making simple changes to my life, while simultaneously looking for opportunities to catalyze collective change.

I've known passionate environmentalists who dreamt of "saving the planet" but who weren't willing to begin changing themselves. But how can we reasonably expect to contribute meaningfully in the larger arena if we can't be bothered to make small changes to our daily lives? If I want to contribute to a change in the narrative, I must begin with myself.

It demonstrates a new story

Few people in the US realize that it's possible to live without fossil fuels. This is a huge failure of imagination. By changing ourselves, we demonstrate what's possible. We explore the new story, and we tell it.

Cynicism and inaction at the national level is nothing more than the collective expression of cynicism and inaction of individuals. When enough of us change ourselves, large-scale change

is bound to happen. And when it comes to global warming, our actions speak louder than our words.

It's meaningful

Meaningful work is a great joy. And what could be more meaningful than exploring a new way for humanity to live, in harmony with the biosphere?

As Gandhi wrote: "We but mirror the world. All the tendencies present in the outer world are to be found in the world of our body. If we could change ourselves, the tendencies in the world would also change. As a man changes his own nature, so does the attitude of the world change toward him. This is the divine mystery supreme. A wonderful thing it is and the source of our happiness. *We need not wait to see what others do.*"⁵

Limits, patience, and grief

When I say that I can't save the world, and that I'm aware I have limits, climate activists often misunderstand. They say that I need to stay optimistic, and that I won't inspire anyone by talking about my limits. When they tell me this, I realize that they're operating from one story, and I'm operating from another.

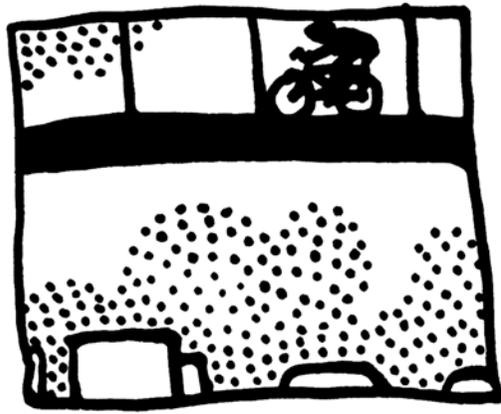
I know that I can change the world; indeed, I am changing the world. What I can't do is save it.

That I have limits is a fact, and I accept it. I don't expect my changes to have a big impact. (I don't expect anything, actually.) If what I do has impact, I know this impact arises only from an existing resonance, a resonance that grows through interacting with many other people in turn. We are like water molecules in a wave: we simultaneously transmit the wave and are moved by it. No one water molecule causes the wave, but together an enormous number of water molecules carry the wave. It's all of us together, carried by a resonance, that will effect great change.

In other words, I operate from the story of the wave, not the story of the hero.



I operate from the story of the wave,
not the story of the hero.



As I ride my bicycle on the overpass over the freeway,
the traffic below looks impermanent.
The way our society lives now feels ephemeral to me.

Sometimes, when I say we need to be patient, activists tell me that the situation is urgent and we have no time for patience. When they say this, I realize they don't know what to do, and that they're panicking. I know because I used to feel that way myself. But in my daily life, patience helps me get tasks done more quickly, not less quickly. Why would responding to global warming be any different? Patience is usually the fastest way to get somewhere worth going to.

I'm aware of how serious our predicament is. I've gone through a process of grief. My grief was deep and intense. It felt like I was part of the ocean, like I was connected to everything. Every now and then this grief comes back to remind me why I do what I do. It purifies and clarifies. I doubt that anyone who understands the seriousness of global warming can avoid this grief.

However, this grief is very far from despair. Grief comes from love, while despair comes from fear. I don't despair; instead I feel joy. It's true that we've lost a lot—a lot of wondrous species, a lot of beautiful places, a lot of opportunities—and that we'll lose even more. But even through this loss, we can experience how much there is to love, how much there is left to save. Our grief and love can lead us to move forward with more creativity and more joy than we ever thought possible.

I have no blind hope that "they will think of something," and yet I still feel optimistic in my own way. My particular optimism comes from the direct experience of connection.

Lifting the illusion

It used to be difficult for me to imagine living in another way, to imagine this land around me in Southern California without free-ways, parking lots, or gas stations; to imagine the world without the constant noise of cars, helicopters, planes, and leaf blowers. These seemed like permanent fixtures. I took the conveniences of modern industrial life for granted—the frozen foods aisle, the cheap airplane flights, the internet, the constant distractions. I was attached to them; I wanted more of them. I kept hoping that more

would make me happy. More stuff, more money, more clickbait, more convenience. After all, that's what our culture of industrial civilization—*petroculture*—constantly whispers to our subconscious: more of this and you will finally be happy.

Now, as I ride my bicycle on the overpass over the freeway, the traffic below looks impermanent. The way our society lives now feels ephemeral to me.

While I used to see the future as more, I now see it as less. Far from feeling scary to me, less feels right. I've learned that wanting more actually gets in the way of happiness. The feeling of "more and then I'll finally be happy" is an illusion.

I now see the imminent transformation of all that's around me not as an end but as a beginning. This shift in my way of thinking has grown over time out of many moments of simple connection to nature and to other people. Even on a warmer planet, even after today's global industrial civilization is no more than legend, there will still be mountains and sunsets, forests to walk in and oceans to sail, and good people to enjoy it all with.

But there's lots of work to do to prepare for the coming storms. Happily, the work is fun.

Beyond Green

*If we feel helpless or overwhelmed,
if we have anger, fear, or despair,
then no matter what we do to heal ourselves or the planet,
it will not succeed.*

— THICH NHAT HANH, *Love Letter to the Earth*

Language both reflects and shapes how we see the world. The words we use to talk about our predicament reveal fundamental assumptions in how we perceive and relate to nature. Taking words for granted leads to confusion, and worse.

In this chapter, I discuss a few words and concepts we may be better off abandoning, and suggest some alternatives. In doing so, I hope to provide insights into some limitations of current environmental thinking, and to develop a new mindset that will better serve us as we revise humanity's relationship with the biosphere.

Nature and environmentalism

The word *environment* (as typically used by environmentalists) implies a dualism, a competition between the needs of humans and the needs of a nonhuman environment. It has become interchangeable with the word *nature*, which no longer signifies the totality of the physical universe, but instead signifies the domain of nonhumans. This dualism contributes to human exceptionalism, the idea that humans are outside of nature, unbound by natural laws, special among all species.

The reality, though, is that we're one among millions of species supporting each other (while simultaneously competing with each other) in the diverse web of relationships that is the biosphere. The human species depends on this biosphere just like every other species on Earth. The biosphere gives us food, water, oxygen, and a climate in which we can survive. At this level of understanding, there is no dualism. We are nature, and nature is us.

The dualism in the word *environment* manifests on the left as the idea that the environment needs to be saved, and on the right as the idea that the environment is humanity's to extract and exploit. These worldviews are actually two sides of the same coin, stemming as they do from a false sense of separation and human exceptionalism.

Biospherism

When we talk about the environment, we're usually talking about the biosphere or some part of the biosphere. Why not just say "biosphere"?

Whereas environmentalism seeks to protect the environment from humans, *biospherism* seeks to transition to a way of life that respects the limits of the biosphere and all life.

Whereas environmentalism implies duality, biospherism implies unity. Whereas environmentalism is reactive, chasing after

the latest disaster, biospherism is proactive, seeking to transform the way we think and live. Whereas environmentalism treats the symptoms, biospherism treats the underlying cause.

What's at issue in fact is not an environment; it's a living world.

— DAVID QUAMMEN

Humans will always have an impact on the biosphere, and biospherism doesn't seek to eliminate our impact. Biospherism accepts that the biosphere just is the sum of the impacts of individuals (human and nonhuman, from any of the kingdoms of life) comprising it. It seeks to reduce human impact to sustainable levels by changing our priorities.

Biospherism seeks balance. It's the word I'll use in place of *envi-*

ronmentalism. Someday I hope we can drop such terms altogether and simply say that we're human, and it will mean we live aligned with the biosphere, with each other, and with ourselves.

Beyond fear-and-guilt environmentalism

Environmentalism has had a strong tendency to use shame, guilt, and fear in an attempt to motivate action. But guilt and fear don't motivate me—they discourage me.

It's common for mainstream environmental speakers and writers to put a long and fearsome litany of climate change consequences front and center.¹ These presenters assume their audiences aren't aware of how scary global warming is (because if they were, the assumption goes, they'd certainly act). They therefore communicate fear with visions of hellfire and brimstone. At the end they tack on a few superficial suggestions, "ten things you can do" such as changing light bulbs or shopping at farmers' markets. Finally, they add a thin veneer of hope: "there's still time, but we must act now."

Hellfire and brimstone don't inspire us to change; they lead to guilt. Guilt is a coping mechanism that allows us to merely limp along with our anxiety. It's what we feel when we engage in some action that goes against our deeper principles, but that we don't actually intend to change. Guilt is an insincere self-apology for a painful internal fracture. It leads us to symbolic actions that allow us to function with this fracture. Why not just heal the fracture?

Interestingly, some of the most prominent leaders in the environmental movement reveal this inconsistency between their actions and their edicts. They tell us to stop burning fossil fuels, and yet they themselves have outsized carbon footprints. This hypocrisy might help to explain why the movement itself swirls with guilt. It may also help to explain why it has been ineffective. I suspect that most people notice hypocrisy at some level, and that it has a paralyzing effect. People think, "If even prominent environmental leaders can't reduce their carbon footprints, then it must be impossible."



What an incredible thing, a miraculous thing—
and now we know, a harmful thing—
to fly in an airplane.

While we do need to change ourselves, we also need to forgive ourselves. Those of us who were born into industrial society entered a powerful system that determines our beliefs and daily actions. Socialization colors how we see the world and makes it difficult, maybe even impossible, to see objectively. For example, until recently I drove cars and flew in airplanes without realizing their harmful consequences. Isn't it remarkable that as a society we take flying in airplanes for granted? What an incredible thing, a miraculous thing—and now we know, a harmful thing—to fly in an airplane.

It's time to move on to a more mature advocacy focused on developing a vastly deeper response to the predicament we face, beyond recycling and shopping for "green" cars and carbon offsets. Let's instead learn how to live in alignment with the biosphere, both as individuals and as a collective. This practice demands that we change our everyday lives, how we think about ourselves and our place on this planet.

Earth is a wondrously beautiful place, and will remain so even as we pass through this ecological crisis and ultimately come out the other side. Let's not fear our mother when she's sick. Instead, let's learn to feel compassion for her, and remind ourselves how precious her gifts are. Let's cultivate fierce and fearless love. And for goodness sake, let's stop performing the daily actions that are sickening her! We can stop burning fossil fuels out of a sense of compassionate love. *This* is the action we must perform. The second part of this book is about *how* to do this.

Let's not go green

The word *green* has been thoroughly co-opted by corporate marketing. Maybe it was useful once, maybe not, but now it zombie-walks through environmental discourse.

The word has no precise meaning in an environmental context, yet it strongly signifies vague environmental virtue. This makes it the perfect word for corporations seeking to profit from environmental guilt: "Go green! Buy our product (and feel better about

yourself).” The corporations even get to decide what counts as green; in the US there’s no regulation of green advertising. Corporations that do great damage to the biosphere regularly brand themselves as green, including car makers, airlines, and fossil fuel producers. It sometimes seems as if the more damaging a corporation is, the greener it claims to be.

Buying green stuff promotes the *status quo* consumer mindset. Green allows us to feel like we’re responding to our predicament without needing to change. Green precludes meaningful action, and in this way does more harm than good. Our predicament is deep, and it demands a deeper response from us than shopping.

Low-energy

I propose *low-energy* as a replacement for *green*.

Using less energy at the global scale would reduce greenhouse gas emissions and serve as a bridge to a future without fossil fuels. Using less energy in our individual lives would equip us with the mindset, the skills, and the systems we’ll each need in this post-fossil-fuel world.

If the adjective *low-energy* replaced *green*, its specificity would encourage meaningful collective action, such as using less energy. Furthermore, it could not be co-opted. Low-energy could not be used to sell airplane flights, air conditioners, or other fixtures of a high-energy lifestyle.

Many of the changes I’ve made to my daily life originated from realizing how precious energy really is. I think most people are afraid of a low-energy lifestyle because we equate quality of life with quantity of energy use. My experience has been the opposite: low-energy living is more fun and satisfying.

Sustainable and regenerative

The word *sustainable* is everywhere, but what does it actually mean? The literal meaning is “able to endure.” Sustainability therefore involves both a time scale and an object: something is sustained, for some length of time. Thinking about sustainability,

then, means thinking about change. This makes it clear that nothing sustains forever.

When we talk about sustainability, we're usually talking about a way of living, a relationship between humans and the biosphere. What time scale should we choose? We need a time scale that reflects the changing biosphere. One hundred years is too short, only a couple of human generations. Fifty thousand years is too long: there's already evolutionary change on this time scale. Indeed, we evolved to become cognitively human only 50,000 years ago. I suggest we aim for a way of living that we can sustain for 1,000–10,000 years. We can use this working definition to evaluate specific human behaviors.

Exponential population growth at a rate of 1.7% (the long-term historical rate; see Chapter 4) is no longer sustainable. After 1,000 years, at this rate we'd have 176 million billion people—which works out to 1,200 people on every square meter. We humans wouldn't even fit on the planet. So our growth will necessarily change—and, in fact, it is changing. Roughly speaking, having more than two children is not currently sustainable for our planet.

Our path to long-term sustainability is to stop growing and to find balance: to pull back to a global consumption and population that the biosphere can sustain. This will require a deep cultural shift, especially within affluent societies and minds. And if we don't make this change, the biosphere will do it for us, for example through global warming-induced disease or famine.

We can go a step further and think in terms of *regeneration* rather than sustainability. Doing so neatly sidesteps the need for a time scale, and it embraces the concept of change. Regeneration means bringing some part of the Earth, or some part of the human way of life, back into alignment with the biosphere. Regeneration calls us to do more than merely sustain: it calls us to heal, and to make our lives expressions of love for all beings.

What would a regenerative society look like in practice? For starters, it would respect the regeneration rate of every resource. Its food system would not depend on fossil fuels, and regions using

groundwater would do so at a rate less than the aquifer's regeneration rate. Energy use would be essentially limited to what we could glean from the sun and wind. Metals would be entirely recycled. The population size would remain steady at a biospherically appropriate level, and economies wouldn't depend on growth. Huge swaths of land and ocean would be allowed to rewild. Science and technology would continue to thrive, but their focus would shift: science might be more interested in understanding the relationship between fungi and plants and might no longer concentrate capital for ever-larger atom smashers; technology might focus on doing more with less. A regenerative society would necessarily be more just and equitable. Accumulating wealth would no longer be the main goal of life.

Whether humans are capable of this transformation or not remains an open question. But changing yourself is one way to vote for it.

Recycling

Somewhere within our industrial mindset, there's a place called Away. When something breaks, or bores us, we throw it in the garbage and trash collectors take it Away. We flush a toilet and invisible pipes take it all Away. However, we are slowly learning that Away was always really just Somewhere Else, because everything is connected. But despite our increasing awareness, most of us still haul our bins to the curb and flush our toilets. It feels like we have no other choice. (There are other choices. See Chapters 12 and 13.)

This explains why industrial society fetishizes recycling. Recycling seems like a good thing on the surface, but it contributes to the broken *status quo*. Doesn't recycling help to keep the concept of Away alive in some sense? I know it does for me. I throw a plastic bottle into the recycling and I like knowing it goes Away—but to some better Away. Recycling helps me feel good about Away and allows me to go on consuming as before.

I'm not saying we shouldn't recycle. I'm saying that we shouldn't let recycling stunt our awareness of the impacts of our

consumption. Recycling is Garbage 2.0. Let's reduce what goes in the recycling bin, as well as what goes in the garbage bin.

Independence, self-reliance, community-reliance

Independence is an illusion. If you truly depended on nothing, it would mean that you could float out in deep space by yourself, alive and happy. We certainly depend on our biosphere. We also depend on each other. If you depend on some tool for survival, a parka or a knife perhaps, doesn't this mean you depend on the people who made that tool, and the people who made it possible for those people to make the tool? And would life be meaningful if it were lived in isolation, apart from any other person?

Self-reliance differs from independence. I'm self-reliant when I rely on myself first. Ironically perhaps, self-reliance can make an individual a more valuable member of the community. A self-reliant person can solve problems and find new ways of doing things; has a wide array of skills; is confident and optimistic; is strong and able to help others.

In my experience, *community-reliance* grows out of self-reliance. Community-reliance means contributing to community, so that the community is strong and there for you when you need it.

I reject selfish survivalism, heading to the hills with guns and a supply of food. While I do think we need to first look to ourselves for our security (self-reliance), we need to do this within the context of community. Selfish survivalism is ultimately a losing strategy.²

Problem, predicament, challenge

I used to think that climate change, overpopulation, and biospheric degradation were *problems*. In identifying them as problems, I assumed there were solutions, which kept me from seeing that my way of life had to change. I really believed that the future

A civilization that tried to turn all its predicaments into problems has been confronted with problems that, ignored too long, have turned into predicaments.

— JOHN MICHAEL GREER

would look like *Star Trek*, a comforting belief. Perhaps there were solutions a few decades ago. For example, we could have avoided climate change if we'd started seriously addressing it in 1986, the year Ronald Reagan ordered the solar panels on the White House roof be taken down.³

At this point, though, we can't avoid climate change for the simple reason that it's already here. Global surface temperatures have already increased by more than one degree Celsius, and additional warming is guaranteed no matter how quickly we reduce our fossil fuel use. What was a problem with a solution in 1986 has become a *predicament*. We probably can't solve it, but we can choose how we respond to it and how bad we let it get.

A predicament is an existential challenge. We cannot make it go away. Death, the archetypal predicament, challenges us to respond by finding meaning in our brief lives. Likewise, I think our collective socio-ecologic predicament challenges us to find out who we really are and what it means to be children of this Earth, in harmony with ourselves, each other, and the rest of the biosphere.

Re-minding

I doubt we'll come through our predicament without a deep change of mindset, a kind of rebirth of our shared existential worldview. Maybe this change will originate within us, or maybe the change will originate externally, catalyzed by the disasters we are bound to experience as our predicament deepens. Either way, we will be re-minded of what is important.

The energy that changes mindset from within is *mindfulness*. Mindfulness means every moment awareness—being aware of reality as it is, as manifest in the mind and the body, from moment to moment. When mindful, I'm present for the reality of this moment, not rolling in thoughts of the past or the future, or wishing for something other than what is. I'm aware of the action I'm engaged in and its consequences, not acting on autopilot; and this awareness of the present moment and its consequences is what drives self-change.

However, in my experience it's not possible to simply decide to "be mindful." Developing mindfulness takes dedicated practice, as I'll discuss in Chapter 11.

Happiness

When I experience some success, my mind is excited and full of a pleasant sensation. I feel larger, like there's more of "me." I've learned that this feeling isn't happiness. Rather, it's the ego being inflated.

I think that we often mistake this sort of ego-excitation for happiness. This is a mistake: it causes us to chase after things that ultimately increase our suffering. Real happiness doesn't depend on external situations. Instead, it's a sense of peace and wellness, of satisfaction and wholeness, a sense that it's wonderful to be alive, a joy in the happiness of others. Real happiness has no anxiety or craving. It vibrates with gratitude, and translates into an eagerness to help others, to spread happiness. Unlike ego-excitation, which is directed toward the self ("I win!"), real happiness is directed toward others, and all of life ("It's a miracle to walk on this Earth!").

As I become happier, the roller-coaster ride of my ego becomes less wild. The lows become less severe: when I fail I find myself smiling with kind laughter, as with a child who is learning to walk. The highs become opportunities to serve. I ask myself "how can this success help others?"

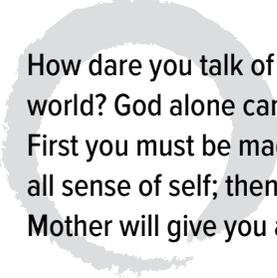
Saving the planet, saving the world

"Saving the planet" is a fantasy for society's collective ego. It allows us to continue in our false belief that we're separate from the biosphere, that what's happening to "the planet," while sad for polar bears, somehow won't affect us.

If you feel discouraged, maybe you're trying to save the world. It's discouraging to have an impossible goal. I think there are a lot of people who subconsciously want to save the world. But saving or not saving is a false binary, and arises from the same instant

gratification mindset that got us into this predicament in the first place. Saving the world is a fantasy for our egos.

The opposite of wanting to save the world is having sincere patience. With patience comes humility, openness, and a more skillful capacity for positive change.



How dare you talk of helping the world? God alone can do that. First you must be made free from all sense of self; then the Divine Mother will give you a task to do.

— RAMAKRISHNA

We each have the power to make the world better, or worse. Each of us can choose to push the world toward a warmer temperature, or pull back. I used to want to save the world. I've finally accepted that I can't, and this has brought me peace. Instead, I try to live a good life so that I can *change* the world.