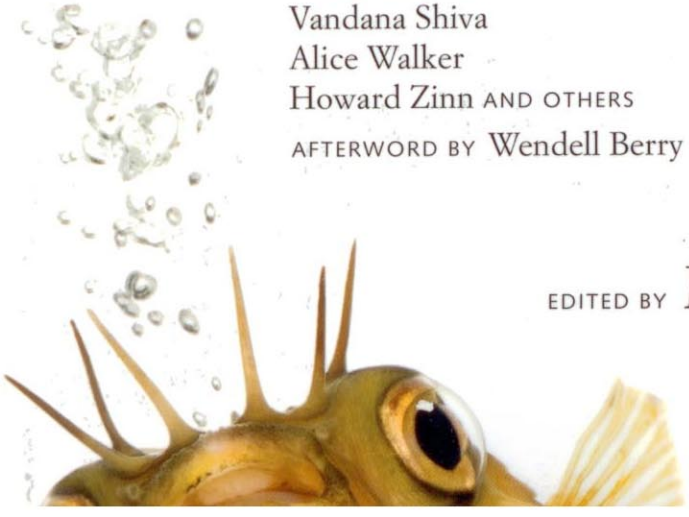
Hope Beneath Our Feet

Restoring Our Place in the Natural World

THE QUESTION: *In a time of environmental crisis, how can we live right now?*

THE RESPONSES: Diane Ackerman
Paul Hawken
Derrick Jensen
Barbara Kingsolver
Frances Moore Lappé
Barry Lopez
Bill McKibben
Michael Pollan
Vandana Shiva
Alice Walker
Howard Zinn AND OTHERS

AFTERWORD BY Wendell Berry



EDITED BY Martin Keogh

The Challenge of Building Sustainably

SCOTT RODWIN

Perhaps I am naïve, because I *love* a challenge. "The situation is dire and we don't know how to solve it! We're almost out of time. The fate of the whole world is at stake!" Perfect. That's what makes an exciting and heroic story—and a challenge worth devoting my life to.

As an architect I have spent most of my adult life learning how to creatively solve problems. Designing a physical environment that supports life instead of destroying it—what tougher and more important problem could I choose to tackle?

Noteworthy facts:

1. In the U.S., buildings consume roughly 65 percent of our electricity and 30 percent of our raw materials; and they generate 30 percent of our waste and greenhouse gases. They are the largest single-sector impact on our natural environment.
2. The average American spends roughly 90 percent of his or her time indoors. The buildings we create are among the largest environmental shapers of the human experience, greatly affecting both physical and psychological health.

In 1990, my fourth year of architecture school at Cornell, I became part of a remarkable group called EcoVillage of Ithaca (NY), a sprouting "intentional community" (a term for a type of residential development designed to promote interaction and cooperation among neighbors). Two amazing women founded the group, one more the visionary, one

more the pragmatic problem-solver. Together they created a dynamic and successful process that ultimately gave birth to a large and vibrant sustainable community. They showed me how both of those roles contribute to create a powerful new solution for housing ourselves.

After graduation, I moved to Colorado and lived at the Nyland Cohousing community in Lafayette for four years. Its forty-two townhomes are grouped on eight acres of the forty-two-acre rural development, with the rest of the land left undeveloped. The houses themselves are small and energy-efficient, passive-solar duplexes and triplexes, with traditional front porches that facilitate impromptu socializing. A large Common House (clubhouse) sits in the center, and community members have the option of eating home-cooked group meals there a few times a week. The central building also houses a library, fitness and rec area, guest rooms, teen and kids' play rooms, and a laundry area. Cars are kept to the perimeter of the property, and herds of kids safely run amok on the pedestrian pathways that tie the neighborhood together. There is a passive-solar greenhouse, a well-equipped workshop, organic gardens, play structures, and fields. It's colorful, rural, and a bit funky. The landscape is xeric (featuring drought-tolerant native plants for low water consumption) and employs permaculture techniques.

The community is self-managed and maintained by the residents, and all decisions are made by consensus. Despite the utopian-sounding program, the Nyland Cohousing project is organized on a conventional condominium/HOA (homeowner association) model and largely functions like an old-fashioned neighborhood. People have mortgages, regular families, and normal jobs. It was a great place to live.

At the same time, I was beginning my architectural career and in the process of co-founding another cohousing group, one that deliberately was located in town. Nomad Cohousing, where I have now lived for ten years, is a block away from a neighborhood market, cleaners, coffee shop, and bus stop. Our little eleven-unit town-home project was built as infill in an existing neighborhood. We are all clustered around a small courtyard and share our Common House with the live theater next door. In the morning, I walk out to the lush courtyard with my breakfast and sit

with my neighbors chatting about our lives and current events. I have a little private backyard, and my best friend lives thirty feet away. My total utility bill is about $50 a month, and our HOA fees are equally small because we maintain the facility ourselves. It works and I love it.

Now don't get me wrong. It took a lot of work to create this: hundreds of hours of organizational and design meetings; compromise, patience, perseverance, tolerance, surrender, humility, and compassion in learning how to be flexible and how to live with other people. Visioning a goal for how we would like to live. Being creative in solving hundreds of small questions like "Can we have only one lawn-mower for eleven households?"

If you want to take on the challenge, you're going to have to work for it. And as far as I'm concerned, that makes for a good life. If it were easy, I wouldn't be forced to grow. Yes, it is harder (up front). It does take more effort. You do have to be extra creative, committed, and intelligent about how you live your life. And I choose to do it.

My clients come to me specifically because my firm is known for green design. We will work on anything—houses, schools, churches, offices, restaurants. I don't believe there is a bad project. I would design a Walmart if they asked me. Why? Because I can make it as good as it can be. And the worse is it to begin with, the more opportunity there is to make it wonderful.

Ironically, Walmart, often cited as the epitome of environmentally evil business, is currently embarking on one of the largest and most complete green building ventures in the world. The only entity going bigger is China. The thing they have in common is their architect. No, not me. It's a staggeringly inspiring fellow named William McDonough (co-author of the revolutionary book on responsible consumerism called *Cradle to Cradle*). He is the former Dean of the Architecture School of the University of Virginia, and his work has inspired a lot of what I do. In 1993 McDonough gave a speech to the American Institute of Architects here in Colorado. It was the first time I had ever heard anyone speak publicly about the moral imperative of sustainable design. Like the other four hundred people in the audience, I leapt out of my chair (I think I actually

stood on it) and gave him a five-minute standing ovation at the conclusion. I got the gospel.

McDonough has few built projects to his name, and he is rarely the designer of the buildings he works on. He landed clients like Ford, Walmart, and China not because of a pretty portfolio, but because he was able to convince them that they could go green or they could go the way of the dinosaur. Did they change their ways out of the goodness of their hearts? Mmmmmm . . . who knows? But we can bet on the fact that survival is what inspired them to immediate action. What action? China hired McDonough to design a dozen completely sustainable, new prototype cities. Ford and Walmart are both undertaking worldwide green building initiatives of a colossal scale.

What did McDonough say that caused this quantum shift? Foremost, he showed the Chinese government and these transnational corporations that green is good for the long-term bottom line. For example, if you spend a bit more up front on an energy-efficient mechanical system, you will make that money back in energy savings each year. If you specify the "more expensive" non-toxic paints, natural ventilation, and good solar day-lighting in your office, you will have fewer sick days among employees, less staff turn-over, higher sales, and significantly better worker productivity (as governmental and private industry studies have demonstrated). And there are those indirect things that have a less obvious relationship: nuclear power seemed pretty cheap at first, but it doesn't look quite so clever from a business perspective now that we've had to spend hundreds of billions of taxpayer dollars for dubious cleanup and long-term containment sites. Even the utility companies now say that conservation is the most cost-efficient way to maximize available energy and reduce emissions. Whether we're looking at pollution, global warming, deforestation, water contamination, mining, and timber harvesting impacts, or general resource depletion, I see a growing consumer awareness that how we personally choose to live has a public and global impact. Both individuals and businesses are coming to understand that environmental sustainability is a good investment. This gives me hope.

What's the good of a fine house if you don't have a tolerable planet to put it on?

–Henry David Thoreau

Sometimes when I see people doing amazing things, I feel pretty darn small and my efforts look virtually insignificant. But then I remember the starfish story. You've probably heard it.

A man is walking along a beach after a big storm. There are tens of thousands of starfish washed up and dying. In the distance, a small boy is picking them up and throwing them one by one back into the ocean. The man walks up to him and says, "What are you doing?" "Saving them," replies the boy. "You're crazy. There are thousands and thousands of them. You can't possibly make a difference." The boy was quiet for a moment then looked down, picked one up, and threw it in. "Made a difference to that one," he said.

My clients are unusually well educated about the environment and do not yet represent the majority, but this segment of the population is growing as the building trend toward sustainable design expands. People want healthy, energy-efficient, durable, non-toxic buildings. They want to feel good about their choices.

One of my favorite quotes is from Winston Churchill: "You can always count on Americans to do the right thing . . . after they have tried everything else." This can be applied to our building pattern. I am a bit of an optimist. I believe that America, and the world, has the energy, ability, and creativity to get ourselves out of the mess we have created. When I figure out how to get solar panels into a school for the same price as a conventional boiler, I feel a sense of accomplishment. When I sell a client on bamboo flooring and strawbale walls, I know I have saved part of a forest that day. When I show a developer how to make money and conserve land at the same time with a community-fostering cohousing site plan, I have enrolled someone in a better possibility. This inspires me.

I believe we create a better future by learning from our past and bringing back those elements that worked well, but we must also invent new

ways of living to solve the problems that remain. McDonough's innovative two-track approach to this issue is illuminating. He separates the built world into two groups: biological nutrients (natural things) and technical nutrients (man-made things). He argues that it makes sense to keep these two categories separate. That means that biological products like wood and paper should be recycled into other products of that type (wood into other wood products, for example), while man-made things like steel, glass, concrete, and plastic should be recycled into more steel, glass, etc. In McDonough's definition, it is critical that recycling not mean "downgrading." If trees become toilet paper and that becomes mixed landfill, the resource has been downgraded to a waste product and its value is destroyed. It has to stay in the cycle and preferably at a similar level to the original product. This is how we begin to contain our waste stream and resource consumption.

Former President Bush invited McDonough to the White House to advise his administration. Why? Perhaps because McDonough advocates the eventual elimination of all environmental regulations—okay, that's a head-scratcher. His argument is that given a true free-market economy (one in which oil is not subsidized as it is now), the simple, green, nontoxic, and local will beat the pants off big-box imported junk. And that philosophy trickles down to every aspect of the physical environment. If unsubsidized gasoline is $7 a gallon, people will be more likely to design homes that are sized appropriately for their real needs. The homes will be passively heated and cooled and tuned to a specific climate and site. They will be built to last, be flexible, and be recyclable, located close to necessary services and community. They will be designed, built, and disposed of with care.

Each project I do deserves this attention and passion for the challenge. When I graduated from school I knew that I had a choice; the green architecture movement at that time represented only 1 percent of the profession. I could feel part of a self-righteous minority while rebelling against the profession from the outside, or I could become part of the professional organization American Institute of Architects (AIA) and help change it from within. I chose the latter and in doing so joined

a small wave of designers committed to rediscovering a balance and symbiotic relationship between the man-made and the natural environment. Our goal was not just to be less bad, it was to find a way to make buildings good, even regenerative. We are still a long way from that goal, but we are racing faster than anyone could have imagined in the right direction.

About a decade ago, the AIA changed its charter to include ecological sustainability as one of its principal tenets. There is not an AIA design award in the country that now fails to make it a priority. The AIA and virtually every other allied professional group (including builders, developers, planners, landscape architects, engineers, and interior designers) are waging an enormous education campaign to help research and promote sustainability. And it has had an effect. The U.S. Green Building Council has exploded onto the national scene with a green certification program called LEED (Leadership in Environment and Energy). It has proven wildly popular, with the number of projects using it increasing exponentially every year since the program's inception.

What is a green building? Does it really make a difference?

A typical American home creates about thirty thousand pounds of carbon dioxide per year, which directly contributes to global warming. Additionally, carbon dioxide emissions have a general correlation to a host of other environmental impacts including pollution, resource consumption, and environmental degradation. Consider a house or commercial building that is carbon-neutral, meaning one that is "net-zero" for energy use and carbon dioxide emissions, putting as much back into the system as it takes out. This would be one of the key elements of a truly sustainable world.

Is it possible?

We're doing it right now.

We recently completed a LEED Platinum, net-zero, carbon-neutral home. But would an average American really want that? Doesn't it mean that we would have to live in teepees or in desert caves made of recycled tires? Not anymore. This house is beautiful, modern, full-sized, and mainstream. It has geothermal heat and cooling, solar electric panels and solar

hot water, super-insulated windows, walls, and roof, grey water recycling, native landscaping, natural day-lighting, non-toxic finishes, sustainably harvested lumber, and a host of recycled components. Modern energy-efficient buildings can be indistinguishable from their conventional counterparts.

Banks like loaning on energy-efficient buildings. Realtors like selling sunny, thermally comfortable houses with small utility bills. Businesses like the higher retail sales and greater employee production that green buildings support, which lead to higher tax revenues, which can help fund things like healthy schools. Administrators like telling parents that their kid's schools have great indoor air quality and natural day-lighting (which both contribute to lower absenteeism and substantially higher test scores). And parents like telling their neighbors about how their bamboo flooring saved a grove of trees that their better-educated and healthier kids will now have the pleasure of playing in.

Sustainable design is spreading everywhere and picking up speed. For a long time, we were pushing a boulder up a hill, but now we have passed the tipping point . . . it is unstoppable.

This has been one hell of a challenge. And there's still so much more to do.

Scott Rodwin is the president of Rodwin Architecture and a green construction company, Skycastle Homes, in Boulder, Colorado. He was the American Institute of Architect's 2006 "Young Architect of the Year" for the Western Mountain Region and is the recipient of more than a dozen awards for excellence and leadership in sustainable design. He has helped design some of Colorado's greenest buildings, including homes, churches, restaurants, and schools. Scott is a frequent lecturer and teaches green building for the City and County of Boulder. His Web site is www.rodwinarch.com.