

Applied Hope

Commencement remarks to the Natural Science School University of California at Berkeley, 15 May 2011

The early bioneer Bill McLarney was stirring a vat of algae in his Costa Rica research center when a brassy North American lady strode in. What, she demanded, was he doing stirring a vat of green goo when what the world really needs is *love*? “There’s *theoretical* love,” Bill replied, “and then there’s *applied* love” — and kept on stirring.

Many of us here stir and strive in the spirit of applied *hope*. We work to make the world better, not from some airy theoretical hope, but in the pragmatic and grounded conviction that starting with hope and acting out of hope can cultivate a different kind of world worth being hopeful about, reinforcing itself in a virtuous spiral. Applied hope is not about some vague, far-off future but is expressed and created moment by moment through our choices.

Hope, said Frances Moore Lappé, “is a stance, not an assessment.” But applied hope is not mere glandular optimism. The optimist treats the future as fate, not choice, and thus fails to take responsibility for making the world we want. Applied hope is a deliberate choice of heart and head. The optimist, says David Orr, has his feet up on the desk and a satisfied smirk knowing the deck is stacked. The person living in hope has her sleeves rolled up and is fighting hard to change or beat the odds. Optimism can easily mask cowardice. Applied hope requires fearlessness.

Fear of specific and avoidable dangers has evolutionary value. Nobody has ancestors who weren’t mindful of saber-toothed tigers. But pervasive dread, lately promoted by some who want to keep us pickled in fear, is numbing and demotivating. When I give a talk, sometimes a questioner details the many bad things happening in the world, all the suffering in the universe, and asks how dare I propose solutions: isn’t resistance futile? The only response I’ve found is to ask, as gently as I can, “I can see why you feel that way. Does it make you more effective?”

In a recent college class, one young woman bemoaned so many global problems that she said she’d lost all hope and couldn’t imagine bringing a child into such a world. But discussion quickly revealed to us both that she hadn’t lost hope at all; she knew exactly where she’d left it.

The most solid foundation for feeling better about the future is to improve it—tangibly, durably, reproducibly, and scalably. So now is the time to be practitioners, not theorists; to be synthesists, not specialists; to do solutions, not problems; to do transformation, not incrementalism. Or as my mentor Edwin Land said, “Don’t undertake a project unless it is manifestly important and nearly impossible.” It’s time to shift our language and action, as my wife Judy says, from “Somebody should” to “I will,” to do real work on real projects, and to go to scale. As that early activist St. Francis of Assisi said, “Preach the Gospel at all times. If necessary, use words.”

In a world short of both hope and time, we need to practice Raymond Williams’s truth that “To be truly radical is to make hope possible, not despair convincing.” Hope becomes possible, practical—even profitable—when advanced resource efficiency turns scarcity into plenitude.

David Whyte's poem "Loaves and Fishes" captures that goal thus:

This is not the age of information.

*This is not
the age of information.*

*Forget the news,
and the radio,
and the blurred screen.*

*This is the time
of loaves
and fishes.*

*People are hungry,
and one good word is bread
for a thousand.*

So with the world so finely balanced between fear and hope, with the outcome in suspense and a whiff of imminent shift in the air, let us choose to add the small stubborn ounces of our weight on the side of applied hope. As Zen master Gôtô-roshi put it, "Infinite gratitude toward all things past; infinite service to all things present; infinite responsibility to all things future."

This mission is challenging. It requires you to combine sizzle in your brain, fire in your belly, perseverance rooted like a redwood, and soul as light as a butterfly. According to the Internet, one Michael C. Muhammad said: "Everything works out right in the end. If things are not working right, *it isn't the end yet*. Don't let it bother you—relax and keep on going."

So in this tranquil but unwavering spirit of applied hope, let me tell you a story.

In the early 1950s, the Dayak people in Borneo had malaria. The World Health Organization had a solution: spray DDT. They did; mosquitoes died; malaria declined; so far, so good. But there were side-effects. House roofs started falling down on people's heads, because the DDT also killed tiny parasitic wasps that had previously controlled thatch-eating caterpillars. The colonial government gave people sheet-metal roofs, but the noise of the tropical rain on the tin roofs kept people awake. Meanwhile, the DDT-poisoned bugs were eaten by geckoes, which were eaten by cats. The DDT built up in the food chain and killed the cats. Without the cats, the rats flourished and multiplied. Soon the World Health Organization was threatened with potential outbreaks of typhus and plague, which it would itself have created, and had to call in RAF Singapore to conduct Operation Cat Drop—parachuting a great many live cats into Borneo.

This story—our guiding parable at Rocky Mountain Institute—shows that if you don't understand how things are connected, often the cause of problems is solutions. Most of today's problems are like that. But we can harness hidden connections so the cause of solutions is solutions: we solve, or better still avoid, not just one problem but many, without making new ones, before someone has to go parachuting more cats. So join me in envisioning where these linked, multiplying solutions can lead if you apply and extend what you've learned and take

responsibility for creating the world you want. Details of this business-led future will be described this autumn in a book my team and I are now finishing, called *Reinventing Fire*.

Imagine a world, a few short generations hence, where spacious, peppy, ultrasafe, 125- to 260-mpg cars whisper through revitalized cities and towns, convivial suburbs, and fertile, prosperous countryside, burning no oil and emitting pure drinking water—or nothing; where sprawl is no longer mandated or subsidized, so stronger families eat better food on front porches and kids free of obesity, diabetes, and asthma play in thriving neighborhoods; where new buildings and plugged-in parked cars produce enough surplus energy to power the now-efficient old buildings; and where buildings make people healthier, happier, and more productive, creating delight when entered, serenity when occupied, and regret when departed.

Imagine a world where oil and coal and nuclear energy have all been phased out, all vanquished by the competitors whose lower costs and risks have already enabled them to capture most of the world's market for new electrical services—energy efficiency, distributed renewables, combined-heat-and-power—and optionally by small amounts of advanced biofuels that use no cropland and move carbon from air to tilth; where resilient, right-sized energy systems make major failures impossible, not inevitable; where the collapse of oil's demand and price has defunded enemies, undermined dictatorship and corruption, and doused the Mideast tinderbox; where our advanced economy is no longer fueled at all by the rotted remains of primeval swamp goo and dinosaur droppings; where energy policy is no longer a gloomy multiple-choice test—do you prefer to die from (a) climate change, (b) oil wars, or (c) nuclear holocaust? We choose (d) none of the above.

Imagine, therefore, a world where carbon emissions have long been steadily declining—at a handsome profit, because saving fuel costs less than buying fuel; where global climate has stabilized and repair has begun; and where this planetary near-death experience has finally made antisocial and unacceptable the arrogance that let cleverness imperil the whole human prospect by outrunning wisdom.

Imagine a world where the successful industries, rather than wasting 99.98% of their materials, follow Ray C. Anderson's lead: they take nothing, waste nothing, and do no harm; where the cost of waste is driving *unnatural* capitalism extinct; where service providers and their customers prosper by doing more and better with less for longer, so products become ever more efficient to make and to use; where integrative engineering and biomimicry create abundance by design; and where elegant frugality turns scarcities and conflicts about energy, water, land, and minerals into enough, for all, for ever.

Imagine a world where the war against the Earth is over; where we've stopped treating soil like dirt, forests are expanding, farms emulate natural ecosystems, rivers run clean, oceans are starting to recover, fish and wildlife are returning, and a stabilizing, radically resource-efficient human population needs ever less of the world's land and metabolism, leaving more for all the relatives who give us life.

Imagine a world where we don't just know more—we also know better; where overspecialization and reductionism have gone from thrillingly fashionable to unaffordably foolish; where Darwin finally beat Descartes; where vision across boundaries triumphs, simply because it works better and costs less.

Imagine a world secure, free from fear of privation or attack: where conflict prevention is as normal as fire prevention; where conflicts not avoided are peacefully resolved through strengthened international laws, norms, and institutions; where threatened aggression is reliably deterred or defeated by nonprovocative defense that makes others feel and be more secure, not less; where all people can be nourished, healthy, and educated; and where all know Dr. King's truth that "Peace is not the absence of war; it is the presence of justice."

Imagine a world where reason, diversity, tolerance, and democracy are once more ascendant; where economic and religious fundamentalism are obsolete; where tyranny is odious, rare, failing, and dwindling; and where global consciousness has transcended fear to live and strive in hope.

This is the astonishing world we are all gradually creating together. It's being built before our eyes by many of you and a myriad other world-weavers. Brains, as Gifford and Libba Pinchot note, are evenly distributed, one per person. Thus most of the world's brains are in the South, half are in the heads of women, and most are in the heads of poor people. As an emerging global nervous system and millions of new civil-society organizations start to knit together that collective intelligence—the most powerful thing we know in the Universe—innovation and collaboration are starting to overcome stagnation and squabbles. The search for intelligent life on Earth continues, but as we all strive to become much higher primates, some promising specimens are turning up just in time: each of you here today.

In their many ways, they're mobilizing society's most potent forces—businesses in mindful markets and citizens in vibrant civil society—to do what is necessary at this pivotal moment, the most important moment since we walked out of Africa: the moment when humanity has *exactly enough time, starting now*.

Each of you can choose to be one of those unusual people who—with humor and courage, *chutzpah* and humility, eager enthusiasm and relentless patience—are composing their lives and combining their efforts to make it so.

Here we are. And now imagine the power of *all of us together* to make it so.

—Amory B. Lovins
Cofounder, Chairman, and Chief Scientist
Rocky Mountain Institute
www.rmi.org, ablovins@rmi.org

Recovering physicist Amory Lovins, an innovator in energy and many related fields, has advised the energy and other industries for four decades and the U.S. Departments of Energy and Defense. His work in 50+ countries has been recognized by the "Alternative Nobel," Blue Planet, Volvo, Zayed, Onassis, Nissan, Shingo, and Mitchell Prizes, MacArthur and Ashoka Fellowships, the Benjamin Franklin and Hapgood Medals, 11 honorary doctorates, and the Heinz, Lindbergh, National Design, and World Technology Awards. An honorary architect and Swedish engineering academician, he's briefed 21 heads of state and written 31 books and over 450 papers. Cofounder of Rocky Mountain Institute, where he's Chairman and Chief Scientist, he's led the superefficient redesign of scores of buildings, several vehicles, and over \$30 billion worth of industrial facilities, and the creation of three of RMI's five for-profit spinoffs. He's taught—only subjects he's never formally studied—at nine universities, including Berkeley and Stanford. A former Oxford don educated at Harvard and Oxford, and a dropout from both, he explored mainly music, classics, math, linguistics, some law, a little medicine, a lot of mountain photography, and a parallel track in physical sciences, then started diversifying his learnings. In 2009, Time named him one of the world's 100 most influential people, and Foreign Policy, one of the 100 top global thinkers.