

Toss the Paddle!

Finding Our Way Out of Carbon Creek

Bill Vitek

Dedication

For Wes Jackson

Friend and mentor.
He tells it straight,
sees and thinks way outside the lines, and
gives philosophy a good name.

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Preface

The Book

One way or the other, a new world is coming. More than anything else, we need another mind. Which is to say: we need to change our minds.

Toss the Paddle! is a collection of philosophically-inclined essays focused on a near future with far less access to carbon-rich resources than has been available for the last one hundred and fifty years; with the catastrophic climatic consequences created by this run on the carbon bank; and with the inability of short-term, quick-fixes to do much about either.

There are some who want to stave off the change entirely; others who think they can provide alternatives that will not significantly alter our day-to-day lives; and those who imagine the change as one or another shade of catastrophe, with requisite and practical preparations suggested. But in nearly all of the current literature there is little that looks—at least in a penetrating way—at the ways this change will affect what can be known about the world, what we think is true about the world, how we will live well in the world without all the hydrocarbons, and what will happen to our current social systems, from governments and the economy, to concepts like justice, property, and liberty. Philosophy has technical terms for these questions, concepts and categories: epistemology, metaphysics, ethics, politics, and aesthetics. The essays in this collection will engage these philosophical regions, and cross freely between them. No prior training in philosophy is necessary, assumed, or particularly helpful.

Written with the long-haul in mind, *Toss the Paddle!* claims that the cultural and social changes necessary to live within the boundaries of contemporary sunlight and healthy ecosystems are significant; which is to say substantial, radical, disconcerting for those with the most to lose, and no doubt filled with discontinuities.

Simply put: we will need to toss the “no limits” perspective that got us into this predicament in the first place, and that continues to underlie our systems of science, technology, economics, politics, and ethics. Very nearly a fixture of our intellectual DNA, this perspective falsely presumes that the earth can neither be completely consumed nor destroyed; provides a moral green light for testing that hypothesis; and unleashes the intellectual tools to crack the carbon safe (soils, forests, coal, oil, and natural gas), releasing its flashy bounty and temporarily producing the marvels of the modern world. For reasons having to do with the many problems caused by the misapplication of human knowledge, and with the Earth’s incapacity to both indefinitely provide carbon-based fuels and to absorb their post-combustion wastes for 6.7 billion people, and counting, this way of thinking has shown itself to be bankrupt. Replacing it with a worldview that preserves human freedom without degrading the earth’s ecosystems is the central challenge of our time. It is a mind-changing and necessary revolution.

It is in such a time when philosophy can be most productive and useful. Its wide-angle perspective helps us understand what is going on in the transition from one worldview to another. Philosophy’s wide angle vision is good at capturing and interpreting a wide range of events taking place over a long period of time.

Philosophy also addresses fundamental questions facing human beings of every time and place: What is a good and just way to live? How will our most important beliefs and concepts fare in times of transition, and what will can be done to shore them up or replace them? What philosophical and social systems will have to be created to best deal with the changes ahead?

Finally, in its most practical forms philosophy can help us live our day-to-day lives with awareness, thoughtfulness, conviction and even downright rebellion from time to time. What is philosophy for if not to help us with constructing terms, concepts, and theories to describe what is going on around us, and to help us live well within the world in which we find ourselves?

The essays in *Toss the Paddle!* have been written over the last ten years for a variety of audiences. Only a few have been previously published. They range across a number of topics: from education, liberty, citizenship, community, ignorance, economics, entropy, and limits, to name a few. I have chosen to write in essay form—and to collect these essays into a book—because I believe that the format and tone will be accessible to a larger readership, and because I have become less confident that another long, densely argued book about a one theory or another is what the world needs right now. In this regard, my book is decidedly anti-academic-establishment.⁴

The essays are written in the tradition of David Hume, Bertrand Russell, and Voltaire, each of whom has shaped the author's thinking and style of writing. The essays are critical of contemporary culture—particularly higher education; skeptical, often acerbic,

⁴ The essays will least satisfy professional philosophers—and died-in-the-wool academics generally—in part because much of what is said in them is critical of the Western academy's pursuits in the Liberal Arts, and because the language is plain, the scope large, and the tone ironic and occasionally humorous.

and occasionally lighthearted. It is hoped that they are informative, persuasive, and motivational. But they are also to be enjoyed. Collectively, they are an example of what it means to exercise a philosophical mind and a compassionate heart, and they are written with the intention that readers will see the benefits of engaging their minds and hearts in similar ways. The hoped-for results are some inkling about a way out of the mess we are in, and a healthier relationship between the human mind and the living earth.

The Author

I am an American born in 1957—the year in which the percentage of Americans who said that they were happy with their lives peaked. I was raised in a middle-class family by a career-GE engineering father and a homemaker, community-volunteer mother. I have two older brothers. I received a good K-8 Catholic school education and had an early interest in a priestly vocation and a strong interest in philosophy, particularly in its ability to be put to work in the world. A good university education followed, with a PhD in philosophy—without the religious vocation—at the end of it, and an enjoyable and uninterrupted teaching career at one college. I have been married once, and am still going strong, with four healthy children who have many talents and a love of life. I am in reasonably good health and have supportive and loving parents and friends. I've suffered no particularly tragic events and have had a couple of near misses with death. I don't possess much career ambition as a professional philosopher or a member of the Academy. I love music (I play jazz piano professionally), family and friends, nature, and good food and wine created and consumed at, or close to, home. I have a strong wish to

create beauty, humor, and kindness in the world, and to leave some of it behind in archival form.

I consider myself an applied or practical philosopher. I have always wanted to put philosophy to work on the problems of the day. I was a Medical Ethics Fellow at Mount Sinai Hospital in New York City in the 1980's while a graduate student, where I saw first hand the day to day challenges of health care professionals for whom debating endlessly was not an option. My twenty year career at Clarkson University in upstate New York—a pre-professional school with a focus on engineering and science—further developed this commitment to philosophy's practical applications. I strive to speak directly and clearly to students without pretense or inaccessible language.

My publication record is another indication of my commitment to practice over theory. My book *Promising* argued for an account of promises that describes what people actually do when making and breaking promises, rather than the abstract analysis of so many philosophers. My articles and essays are written for diverse audiences—farmers, fellow philosophers, everyday citizens—and always with an eye for demonstrating how philosophy can and should do a better job of applying itself.

For the last twelve years I have had a close collaboration with Dr. Wes Jackson, President and Co-Founder of the Land Institute in Salina, Kansas. Together we have edited two books: *Rooted in the Land: Essays on Community and Place* (Yale University Press, 1996), and *The Virtues of Ignorance: Complexity, Sustainability and the Limits of Knowledge* (The University Press of Kentucky, forthcoming in 2008). We are currently co-authoring a book titled *Consulting the Genius of the Place*. This collaboration has shaped my thinking about the unacknowledged role of energy-rich carbon in the

development of complex civilizations, and the need to address the problems of agriculture, education, and politics, rather than simply problems *in* these and other fields. Jackson's insistence on featuring questions that go beyond our understanding, while simultaneously working on solutions that may take fifty or more years to come to fruition, have inspired and informed many of the essays in *Toss the Paddle!*

One would hope that such a stable and supportive life would inspire and promote in me a basic optimism about the world.⁵ It has, and this book of essays is a product of this optimism. But I know too that this optimism is constrained by many factors over which I have no control. Like the birds busy building nests in trees marked for cutting, I—and all the rest of us trying to fix what looks like major problems—may be working for something that has already been marked for failure. In the face of such dismal prospects—at least the birds are mostly unaware of it—it is a sign of optimism that the work continues.

To say that I am optimistic about the world does not imply that I am particularly hopeful about the future of modern civilizations or about *Homo sapiens* generally. The many orbits of hope that are now required reading in the final chapters of every book about this or that crisis—especially the environmental ones—are too narrowly drawn.

⁵ When asked by a reporter "What, in your opinion is the most important question facing humanity today?" Einstein thought for a bit then replied, "I think the most important question facing humanity is, 'Is the universe a friendly place?' This is the first and most basic question all people must answer for themselves. For if we decide that the universe is an unfriendly place, then we will use our technology, our scientific discoveries and our natural resources to achieve safety and power by creating bigger walls to keep out the unfriendliness and bigger weapons to destroy all that which is unfriendly? And I believe that we are getting to a place where technology is powerful enough that we may either completely isolate or destroy ourselves as well in this process. If we decide that the universe is neither friendly nor unfriendly and that God is essentially 'playing dice with the universe', then we are simply victims to the random toss of the dice and our lives have no real purpose or meaning. "But if we decide that the universe is a friendly place, then we will use our technology, our scientific discoveries and our natural resources to create tools and models for understanding that universe. Because power and safety will come through understanding its workings and its motives." (Source: http://www.ortholog.com/archive/compleat_scientist/a_friendly_universe.php)

The area of their sweep is too small in time and space, too quick, and too small-minded. Before we can understand and accept the full nature and depth of the problems we are up against, we are told not to despair, and here's what we can do, etc. The fact that the recommendations are completely within our grasp and comprehension should alone raise our suspicions. On the contrary, I believe that we need to feel and fret right down to the soles of our feet before we can start doing any hoping, and that our "solutions" must stretch beyond the usual hopeful hype about technology or the market or human ingenuity.

The essays in *Toss the Paddle!* will not offer much of this peppy talk. (There is even an essay titled "Against Hope.") The trends speak for themselves, and history tells us that too many disasters have been avoided by pure luck or the complete misunderstanding of the facts at hand (e.g., Cuban Missile Crisis, Three Mile Island). There is also a substantial list of complex societies that have collapsed after having exhausted their carbon banks.

I think the world is up a creek, the cause of which is a mindset of limitless expansion and consumption and that we are unwilling to discard. This mindset won't get us out either, and continues to make matters worse. Too often our efforts are exhausted trying to save the paddle. Meanwhile our boat—the living ark of earth—is in terrible shape. If we want to preserve the boat we'll need to toss the paddle we have in favor of one we have yet to produce. We need to protect the boat we are in, and we need some alternative paddles. We will need to change our minds and mindset.

Our chances for a successful reversal of such things as climate change, species extinction, and human population growth are quite dismal. But I do think that the living world is resilient and that it finds ways to survive, adapt, and thrive. To put it another way, I am optimistic about the creative capacities of a living universe and in its ability to thrive. I'd like to think that humans will continue to contribute to this creativity. But if we don't, life will go on without us, as it has for the millions of now extinct species. At the very least, this book is written with the sincere desire to promote the creative process in others.

I. Introductions

What, Exactly, Does ‘Post-Carbon’ Mean?
Or Why ‘The End of the World As We Know It’
Is Actually Pretty Good News.

This essay introduces the concept of “post-carbon,” and demonstrates—using statistics and arguments—why most of our social and environmental problems can be traced to our overuse—and now shortage—of carbon fuels; how similar energy crises have led to the collapse of other complex cultures; and why the only way out of the various messes we are in is to change our conceptions of ourselves and the world and, hence, why the most important and necessary revolution to come is a philosophical one. The “good news” comes from the capacity, however faint, for the human mind to evolve, adapt, and change.

For the one billion or so souls who live comfortably in modern, technological, energy-rich, complex societies, and the three billion souls who seem hell bent on their way to this kind of society, and even for the two billion souls who live in abject poverty and who will never benefit from the “modern” world, there are two forces that they can thank (or disparage) for the world in which they live, two features of the modern, global world that seem unassailably responsible for its existence. The first has to do with what is below and above the surface of the earth and largely responsible for all of those human souls in the first place, and for the energy that runs their societies. The second has to do with the operating systems of the modern mind that so expertly cracked this energy safe, releasing its flashy bounty and temporarily producing the marvels of the modern world.

Let’s start with the energy. Its source is the sun and the myriad interactions with elements, systems and processes that convert sunlight into life, and highly useful materials and energy for life. Over millions of years this activity not only maintained

life, but created stocks of natural capital. This capital is expressed in species diversity, ecosystem resilience, and the five carbon pools: soils, forests, coal, oil and natural gas, a bank account of sorts. It is this bank account that fueled the industrial revolution, and that today powers our cars, our food systems, and our relentless pursuit of material happiness. What the economists call production is really just consumption: consumption of contemporary sunlight, the natural capital reserves, and the ecosystems that produce the capital. Modern life depends most desperately on the reserves.

From 1750 to the present, and with continuous advances in science, technology, medicine and agriculture, the human population doubled three times, from 790 million to 6.6 billion, and counting. Our history books tell us about all of the personalities, discoveries and inventions that made possible this population growth and the advances of culture, but we probably know much less about the energy-rich carbon pools that fueled this population surge, and with it everything we associate with the modern world. Long before the modern world the soil of the Fertile Crescent was the first carbon pool to be tapped twelve thousand years ago, giving birth to agriculture and the first increases in human population. The second pool—forest carbon—furthered human dominance of the world and made the bronze and iron ages possible. The Roman Empire was an empire fueled by soils and forests. And wood served as the preeminent energy source in the United States during its first one hundred and fifty years.

The third carbon pool—coal—fired the industrial revolution and even today remains a critical source of energy. In 2004 the world used over 6 billion tons of coal. The United States used a billion of those tons in 2004 and is expected to need 1.5 billion tons in 2025, most of it going to the production of electricity. Oil and natural gas are the most

recent carbon pools, discovered first in large quantities in Pennsylvania in 1859 and later worldwide, and that together fuel the global economy today. Oil is currently consumed at the rate of 86 million barrels/day around the world, and the demand is expected to grow to 113 million barrels/day by 2020. The world used 100 trillion cubic feet of natural gas in 2004, and is expected to need 150 trillion cubic feet by 2020. And in what seems like an ironic twist of fate, the largest known quantities of oil and natural gas are underneath the now mostly exhausted soils and forests of the Middle East's Fertile Crescent.

Oil and natural gas are not just in our cars, planes and home furnaces. They are used to make insecticides, tires, trash bags, shampoo, cameras, food preservatives, anesthetics, upholstery, eyeglasses, credit cards, fertilizers, crayons, insect repellent, toilet seats, golf balls, antihistamines, guitar strings, toothpaste, tennis rackets, carpeting, artificial turf, heart valves, aspirin, and shaving cream. Our lives would be very difficult without oil and natural gas. Were we to also take away the coal, half of America's electricity would go with it.

High-energy carbon is what empires and every complex society eats for breakfast, lunch and dinner. It's what they go to war over and what they are willing to unleash the most destructive of weapons to preserve. It also fuels their militaries, transportation systems, communication systems, education systems, and nearly every complex system that requires carbon-based fuels. It's even in their concepts of freedom and happiness, from the free loaf of bread daily for every citizen of Rome to a gas station on nearly every corner in America. Unfortunately, the interruption or cessation of this flow of energy is a primary cause for the collapse of complex societies throughout history.⁶ Nor

⁶ There are a number of books devoted to this topic. See, for example, Walter Youngquist's *Geodesinies: The Inevitable Control of Earth Resources over Nations and Individual*, Joseph Tainter's *The Collapse of*

is there reason to think that 21st century complex societies are any less vulnerable to collapse. There are actually reasons to think they are more vulnerable. Weapons of mass destruction coupled with small militant groups who not hesitate to use them, coupled with economies that are linked to one another, with few places left on the planet to find an untapped “America.”

The second feature of the modern world is the Promethean successes of the human intellect at putting the world’s resources under its command. The intellectual DNA of the modern mind consists of a deep seated set of core beliefs that are assumed, rarely questioned, and built into the educational system from kindergarten to the Ph.D. These beliefs are at work in the labs and classrooms of every modern university in the world, but they are also with us when we are at the mall or in our car or on a jet ski. They shape our expectations that high salaries and big houses will bring us happiness, cause us excitement about every new technological gadget, and lead us believe that our good fortune, even at the cost of wholesale species extinctions and the misery of billions of people, is deserved and uncomplicated by questions of morality and justice.

Some of these beliefs have their earliest origins in ancient and well known stories about—of all things—theft: the theft of the knowledge of good and evil in the Garden of Eden by Eve and Adam, and the theft of fire by the Greek god Prometheus for the benefit of humankind. But it is a more recent historical period we call the Enlightenment that gave a modern voice to these beliefs.⁷ The Enlightenment claimed that human power and

Complex Societies, Robert Costanza, et. al. (editors), *Sustainability or Collapse?* and Thomas Homer-Dixon’s *The Upside of Down: Catastrophe, Creativity, and the Renewal of Civilization*.

⁷ I follow Jonathan Israel’s use of this term to include the 17th Century. See his *Radical Enlightenment: Philosophy and the Making of Modernity 1650-1750* (Oxford University Press, 2002).

knowledge were no longer crimes against the gods, but rather the right of every human being.

The names of these revolutionaries are well known: Galileo, Copernicus, Kepler, Descartes, John Locke, Thomas Hobbes, Francis Bacon, Voltaire, Isaac Newton, and Adam Smith. These and many other thinkers took great risks to produce concepts, theories, and systems that freed human beings to embark on pursuits that had been forbidden or considered impossible: the control of nature; the creation of economies and technologies that went far beyond subsistence; individual freedom from oppressive governments, religions and family traditions; and a belief in human progress separate from the rest of life and largely unencumbered by moral and spiritual beliefs. Their names may seem dusty and distant, but their assumptions about the power of the human intellect to control and transform the world, and the seemingly infinite capacities of the earth to supply the goods necessary for human happiness, are your assumptions too.

Their great fortune—and ours—was to find the five great carbon pools from which the modern mind could feed, grow and transform the small human settlements scattered about into a crowded global city. Oil, natural gas, and coal are the primary feedstocks of our modern civilization just as the ideas forged in the Enlightenment are the primary feedstocks of our modern mind. Each feeds the other. The modern mind awash in carbon fuels changed the world. And for those of us who have been alive these last fifty years in industrialized societies, particularly in America, it has been a wonderful ride, an amazing and blazing run on the carbon bank.

Paul MacCready, the visionary engineer and inventor of the first practical flying machine powered by a human being, has made a calculation that captures the enormity of

our success. He estimates that ten thousand years ago human beings, plus their domestic animals, accounted for less than a tenth of 1 percent by weight of all vertebrate life on earth and in the air. Today, that percentage, including livestock and pets, is in the neighborhood of 98% of the weight of all vertebrate life on earth.⁸

We should probably excuse the Enlightenment revolutionaries for mistaking nature as infinite and infinitely malleable when humans were a scarce, weak species pursuing their projects in the small clearings that culture made on our very sizable planet. But standing on their shoulders we find ourselves in a very different time and place. The Earth is not nearly as big and as impervious to harm as our predecessors thought, nor possessed of bottomless fuel tanks.

“Post-Carbon” and “Peak-Carbon” are terms that reflect a number of trends and discoveries that seem to indicate that this run may be at an end, and that the modern world will need to learn how to live without the vast pools of carbon energy on which it has come to rely, and for which no obvious alternative will be available in this century.

This inaccessibility has two sources: the first is the well of energy and materials, comprising an array of long-stored, fossilized deposits of fresh water, soils, forests, coal, oil and natural gas. The evidence here is pretty unambiguous: the well is finite, near or below half, and approaching empty at a rate measured in decades. Atom for atom these energy sources are some of the richest on the planet. They will be hard to replace while keeping the world humming at its current rate.

The second source of inaccessibility has to do with the “sinks” into which waste heat (much of it carbon) must be dumped in order for there to be working energy in the first

⁸ From Daniel C. Dennett, *Breaking the Spell*.

place.⁹ This dumping is a natural process and it—along with our atmosphere—is responsible for getting the planet’s terrestrial temperature in a range conducive to living organisms. But too much carbon (in the form of CO₂) can disrupt climate and global cycles necessary for many of those very same organisms to survive. Current estimates indicate the level of CO₂ at a 650,000 year high. Even if we had unlimited sources of carbon-based fuels, the constraints of the sinks would limit our use of them.

As the data continue to come in it appears that the processes driving our exponential growth may be at their peaks. And as with most exponential growth in biological systems—and it is a very large biological system—the Earth—that we are talking about here—what goes up exponentially usually comes down exponentially too. Those born after 1980 may be the first generation to be riding down the other side of the peak, the first to usher in what Wes Jackson calls “The Age of the Rapid Depletion.”

Here are some terrible and terrifying facts that give The Age of the Rapid Depletion its name:

- In January of 2007 The Bulletin of the Atomic Scientists moved its doomsday clock two minutes closer to midnight, “reflecting global failures to solve the problems posed by nuclear weapons and the climate crisis.”
- Eight nations possess nuclear weapons, and two more are known to be working to acquire them.
- Current data indicate atmospheric Carbon Dioxide, a greenhouse gas, is at a 650,000 year high.

⁹ The work, for example, that each gallon of gasoline provides via combustion in moving your automobile through space requires the exhaust of waste heat and about five pounds of carbon. Once that carbon unites with oxygen, the amount of CO₂ created is closer to nineteen pounds. See *Into the Cool: Energy Flow, Thermodynamics, and Life* by Eric D. Schneider and Dorion Sagan for a good primer on life, complexity, waste heat and energy flows.

- The 2007 report of the Intergovernmental Panel on Climate Change states that “there is a 90% chance humans are responsible for climate change,” mostly due to the burning of fossil fuels. And among scientists, 90% confidence is a near certainty.
- The world’s leading petroleum geologists estimate that in less than a century the modern world has burned its way through half of the global supply of oil, and that the other half may be gone in as few as thirty years. Fifty four percent of the oil already consumed—a half trillion barrels—was consumed in the last 22 years alone. The numbers and predictions for natural gas are similar.
- The current rate of species extinction is being compared to the five known mass extinction waves. This sixth wave is caused by humans, not asteroids, and according to the Millennium Ecosystem Assessment Report, agriculture is the largest threat to biodiversity.
- Speaking of agriculture, it’s not just for food anymore. Large numbers of Mexican farmers and workers recently protested the high cost of tortillas, a food staple, due to the increased exports of Mexican corn to America for the production of ethanol, an alternative to gasoline.
- Soil destruction now claims 24 million acres a year world-wide.
- One billion people lack access to fresh water.
- Two of the world’s most populous nations—China and India—are on the path to becoming two of the world’s largest economies. Their economic good fortune accelerates the rate of depletion worldwide.
- Human population growth continues to follow an exponential curve.

- It is estimated that there are currently 27 million slaves in the world, more than at any other time in human history. In 1850 a slave cost 40,000 of today's dollars. A slave can be purchased today for a mere \$30. (Bales, 1999).¹⁰

That's a lot of facts and figures to process, and I would apologize for overwhelming the reader were it not my **intention** to overwhelm the reader. We all need to feel the enormity of the challenges that we face and to see the connections between them. In a world overcrowded with desperate people, the slave market, tragically, grows. Fresh water is scarce because of the demands of industrial agriculture to supply food to a global population that grows by 85 million people a year. The high demand for ethanol as an alternative to fossil fuels reaches further into the well: it takes three gallons of water to produce one gallon of ethanol. And a world made less stable by the high demand for energy becomes even more dangerous with nuclear weaponry. Meanwhile, hurricanes increase in intensity, and summer temperatures soar around the world—it reached 113 degrees in Athens, Greece in the summer of 2007.

Enter now the modern mind which, like the ancient story of Oedipus's pride at solving the riddle of the sphinx, steps up to announce with similar pride that it can solve these problems with better and more technology, with progress and optimism; with more of the same.¹¹ I am not so sure. Increasingly the world's best and brightest engineers, scientists, and technologists are being called upon to understand, explain, and correct

¹⁰ <http://dawn-drupal.science.oregonstate.edu/facts>

¹¹ It was Oedipus' pride and cleverness that got him into trouble in the first place, causing him to believe that he could outsmart the oracle's prophecy by fleeing his (unbeknownst to him, his adopted) home, and thereby killing a man on his journey who turns out to be his father. The rest of the terrible prophecy is likewise fulfilled. It is a good example of sure knowledge that is a poor fit (too small) for the circumstances. It's an old story with contemporary meaning.

problems caused by other bright engineers, scientists, and technologists. Nobel and other top prizes are being awarded not for understanding how nature works, but for better understanding how and why it has ceased working. This is an odd sort of progress.

In addition, what we commonly call “progress” has produced some of the very problems we expect progress to eradicate. Advances in agriculture and medicine have led to the exponential growth of the human population, and that has put increased demands on topsoil and fresh water. Technology has made more of the world’s fossil fuels accessible, leading to increased consumption and an increase in atmospheric carbon. Bjorn Lomborg, one of the current cornucopian optimists, suggested in a September 2007 *New York Times* interview that the solution to mitigating the potentially disastrous effects of climate change was to make everyone in the world as rich as the well off of New York City.¹²

These technological fundamentalists talk about efficiency, but paradoxically efficiency leads to higher consumption. It’s called Jevons Paradox, named after the man who demonstrated that as 19th century Great Britain became more efficient in its use of coal, it actually consumed more of it. Even if every car in the world was a hybrid, and every light bulb a compact fluorescent, the continuing growth demands for cars and light bulbs worldwide would easily dwarf the savings. New technologies will help replace old technologies, but they will create unforeseen problems of their own. And they will take time to develop. The late Cornell physicist and Nobel Laureate Hans Bethe used to point out that no form of energy – from the draft horse to coal to petroleum to nuclear power –

¹² “But the best strategy, he says, is to make the rest of the world as rich as New York, so that people elsewhere can afford to do things like shore up their coastlines and buy air conditioners.” (*The New York Times*, September 11, 2007.)

ever became a fuel for commonplace technology in fewer than fifty years. There are no quick fixes on the energy front.

For reasons, paradoxically, having to do with the many problems caused by the successes brought on by the assumptions of the modern mind, coupled with the Earth's incapacity to both indefinitely provide carbon-based fuels and to absorb their post-combustion wastes for 6.7 billion people, and counting, this way of thinking has shown itself to be bankrupt. Having spent a couple of centuries changing the world to suit our needs, it's time now to change our minds. Not just a few beliefs or habits, but our mind set, our worldview, the big, deep categories. That is what "the end of the world as we know it" entails. The earth itself is not going to end, but how we conceive of the world will, can, and must end. Replacing it with a worldview that preserves human freedom without degrading the earth's ecosystems is the central challenge of our time, a mind-changing and necessary revolution.

I wish I could say that I this last sentence was exaggerated for effect or to motivate readers. When I was in the 10th grade my high school chemistry teacher, Mr. Rizzo, would frequently tell my classmates and me that we were the worst class he ever had. He finally admitted that he told every class, every year, that they were the worst class he ever had in order to motivate them; but that unlike those other classes, our class really was the worst.

Like Mr. Rizzo I honestly believe that we are facing a challenge that has few analogs in human history. Many will be unwilling to accept it; most are still unprepared to confront it. It will require sacrifice, some lucky discoveries, a radical redesign of the central categories of our thinking, and probably a fair amount of discontinuity and

discomfort. It will require curiosity, resourcefulness, and courage in the face of what looks a wild ride ahead.

The greatest challenge for this century of citizens is to learn to live in a world that is no longer well aligned with their beliefs about it. Or to put it another way, our central task is to dismantle some fundamental beliefs about ourselves and the world before these beliefs dismantle the world. We must, quite literally, begin to change your minds.

The good news is that this is not as impossible as it sounds. We change our minds every day about the little things in life: fashion, food preferences, ring tones, and your favorite musical performers. And then there's Santa Claus and the Tooth Fairy. With the accumulation of too many unanswered questions—"What does the fairy want with all those teeth anyway, and how do reindeer fly?"—we change our minds, although not necessarily our hearts. More seriously, some of us lose your religious faith or choose another one altogether, or change political parties. The human mind is not hard wired in every respect, and thankfully we live in a society where we are free to think for ourselves.

We will have to change your minds because nearly everything we believe about ourselves and the many talents that we possess are likely to further increase human population and consumption, to make life worse for millions—perhaps billions—of people worldwide, to increase species extinction, to extract from the earth more energy rich carbon than the earth can ever replace in a human timeframe, and to release more carbon into an atmosphere already too full of it. The Enlightenment mind and its technological fundamentalism have become dangerous disabilities in the 21st Century. We need to help usher in a new Enlightenment that values and protects human freedom

and dignity while rejecting the beliefs that we can master the earth and treat it merely as our personal supermarket, playground, laboratory and dumpster.

Simply put: we will need to toss the “no limits” perspective that got us into this predicament in the first place, and that continues to underlie our systems of science, technology, economics, politics, and ethics. These traditional energy sources are not simply in our cars and trucks. They are in our food, water, clothes, and medicines. They are even in our concepts of what it means to be happy and free. New social and political systems will soon be required to provide liberty, education, political stability, economic mechanisms, and a social net in a post-carbon world without cheap, plentiful oil, natural gas, and coal.

Hard truths, once confronted, can change our lives for the better, especially when ignorance is no longer capable of providing bliss. And overwhelming challenges, when faced with strength and creativity, can be overcome.

We can begin by re-engaging our curiosity. Sadly too much of your formal education has been devoted to tests and the uninspired routines of classroom learning. One of the saddest things I ever heard was my son Ian telling me he no longer liked school because all he ever did was take tests. And he was in the 4th grade. We must activate our intellectual curiosity, ask difficult questions, challenge our teachers, and demand an education that prepares us for the century we are in rather than the one we just left. Curiosity is a first step in changing one’s mind.

Education will be valuable in this mind-changing process, but we should but be wary of it too. It was historian Edith Hamilton who said that “there has never been a generation better educated than the one that ushered in the end of Athens.” Philosopher and

economist Adam Smith said that universities were often “sanctuaries in which exploded systems and obsolete prejudices find protection after they have been hunted out of every other corner of the world.” And between the *original* discovery that our earth moves around the sun, and not the other way around, by the Greek astronomer Aristarchus—and its *rediscovery* by Copernicus, there were 1700 years of active resistance to this truth by some of the world’s greatest minds of antiquity—Plato and Aristotle among them—and by the learned professors of medieval Europe’s most prestigious universities. I’d like to say that higher education has all the right answers. Sadly, it often has many of the wrong answers, and the power to resist the right ones.

But there are some good things happening in education and beyond. Which is to say that some of this mind-changing is already going on. We can see it—and can learn from—in emerging concepts like Ecological Footprints, Industrial Ecology, Embodied Energy, Biodiversity, the Precautionary Principle, Life Cycle Analysis, Jevons Paradox, Biomimicry, Carbon Neutrality, Micro Lending, The Genuine Progress Indicator, and Natural Systems Agriculture. These and other new terms and concepts are already making a difference, and they will help define what it means to be a 21st century revolutionary.

We’ll also need to master the fundamentals. Revolutionaries do not reject everything in their past. They more often take solid truths and give them new meaning in new times. Students and educators in the 21st century need to be especially attentive to statistical analysis, exponential growth, and the fundamental laws and principles of nature, particularly those found in the study of the earth and life sciences. The principles of

geology, biology, and ecology need to be part of every student's education in the 21st century, from kindergarten to the Ph.D.

With curiosity, mastery of the fundamentals, new concepts, and the belief that a change of mind is necessary in a post-carbon world, we can begin to pose the right kinds of questions and problem statements. Such questions may seem too large or hard to fathom (“impossible!”), but when the boundaries of our consideration (that is, what goes on in our minds) correctly overlapping the boundaries of causation (what goes on in the world), we'll see better what needs to be done. Some examples of the problems that a new worldview and mindset will have to solve include:

- Reducing human population by eighty percent from its current level without famine, war, viruses or the loss of human dignity;
- Eliminating the automobile as a form of personal transportation;
- Creating political and social systems that run on a solar economy;
- Revising the scientific method so that it more accurately balances the discovery of new knowledge with moral considerations and precaution;
- Devising viable models of happiness and success that do not require economic growth and increased consumption;
- Making the virtues of humility, cooperation, generosity, gratitude, kindness and thrift cool again, or hip, or bad, or the bomb, or whatever word or phrase you use to describe something really good and worth having.

When we change your mind powerful things begin to happen. The inconceivable becomes possible, and the possible becomes commonplace.

Wes Jackson changed his mind about how we grow food. For the last thirty years he and his colleagues at the Land Institute have been working to transform the major food crops from annual monocultures into perennial polycultures; in other words, to turn the average corn field into an abundant, complex and resilient prairie of food. Their efforts are featured in the August 2007 issue of *Scientific American* and are described in this way: “The challenge is monumental, but if these plant scientists succeed, their achievement would rival humanity’s original domestication of food crops over the past 10 millennia, and be just as revolutionary.”

Vandana Shiva changed her mind. Trained as a physicist, Shiva is described as “one of the world's most prominent radical scientists.” She is the founder of a movement for biodiversity conservation and farmers' rights in India, and her studies have validated the ecological value of traditional farming and have been instrumental in fighting destructive development projects in India.

David Orr changed his mind. Not content to simply teach environmental studies, Orr single handedly raised \$13 million dollars and brought together some of the world’s most creative architects. Together they built the Adam Joseph Lewis Center for Environmental Studies at Oberlin College, one of the most sustainable educational buildings in the world. On most days it generates as much or more energy that it consumes.

Engineer and businessman Ray Anderson changed his mind about how to make carpet. As founder and CEO of Interface Carpet, a billion dollar company, Anderson decided fifteen years ago to change radically how his company would do business and to

make it “the first company that, by its deeds, shows the entire industrial world what sustainability is in all its dimensions: people, process, product, place and profits.”¹³

There are countless more examples—thousands actually—of individuals and organizations that have decided to change their minds and directions. In every case we can see the right mix of curiosity, mastery of the fundamentals, wide boundaries of consideration, healthy contempt for the status quo, and a willingness to think differently.

This is the century where we get a couple of chances to move from the age of the rapid depletion to something less rapid and less depleting. What this “something else” is will depend on luck, human intelligence and curiosity, a better grasp of the limits of our human minds and the living earth to fuel and furnish our lifestyles, and recognition that humans share this planet with other life forms. Ready or not, we will be going through the greatest and most important transition in human history. I consider it an exciting time, filled with opportunities to think big thoughts and to imagine wonderful alternatives. . . It is a time to consider ourselves revolutionaries and to imagine our names in future history books. It is a time to imagine feeling at home on an earth that is very much alive, interconnected, filled with morally valuable species, and limited in terms of how much it can provide; where our own ignorance about it will always exceed our knowledge; and where our curiosity promotes understanding—not subjugation—of the earth’s complexity, beauty and resiliency.

It’s time to change our minds.

¹³ <http://www.interfaceinc.com/who/founder.html>

Draft
The Philosopher's Toolbox

“The need to readjust our concepts is the need that philosophy exists to satisfy.”

Mary Midgley

“Philosophy's Toolbox”

What is it: the toolbox

What it's good for

Why it's important: crease in the systems (a revolutionary period)

Examples of its previous influence

This essay is a short, accessible introduction to philosophy. It begins with the philosophical impulse. As children we are called to philosophy naturally, nearly as soon as language is formed. The philosophical perspective allows us to look broadly at ourselves and the world, and to feature questions that go beyond our understanding. But philosophy is not without tools. Here the reader will have described the various branches of philosophy, and the styles of critique and analyses available to ponder the big questions, and the types of alternatives that can be produced. And since the book is about a philosophical revolution, this essay will serve as a jumping off point for what is to follow.

**II. The Work of
Philosophy:
Agitate, Ruminare,
Promulgate**

Agitate

These Revolutionary Times

We live in revolutionary times made necessary by the sustained failures of current worldviews and global systems to provide the planet's everyday citizens with lives sufficient in health and freedom from want and fear, and with the prospects of similar lives for their children. These failures are the self-evident truths of our time: the degraded lives of billions of citizens whose lives were promised to be improved in the first place; mass extinctions of species; an out-of-control climate; and an unprecedented running-down of the ecosphere on which all life depends.

The worldviews and systems responsible for these failures go by many names: individualism, capitalism, scientism, materialism, corporatism, and globalism, to name a few. But they share in common two bedrock beliefs: that the natural world is without limit in terms of its sources of energy and materials, and its sinks for wastes and pollution; and that the human intellect is sufficient to understand, control and engage the earth as a luxury-machine for the exclusive material happiness of human beings without limit.

After a two and one half century reign it now becomes necessary to overturn these false and dangerous beliefs, to make powerless their many adherents, and to usher in a new way of thinking and living in the world.

In such times it becomes vital for reformers and revolutionaries to refuse all attempts by the current systems and their operators to make accommodations, reconciliations, excuses, and minor concessions. The current systems cannot be made compatible with the emerging ecospheric perspective any more than the British monarch could have been

made compatible with independence-minded colonial Americans, or Scholastic scriptural authority with 17th century scientific discoveries. Such accommodations are merely temporary bridges from worn-out, status-quo views to more powerful and accurate perspectives.

Revolutions require citizens and organizations willing and able to confront, reject, and replace current systems, and who/that are willing to:

- State without hesitation that these are revolutionary times;
- Deliver uncomfortable and terrifying truths to those least willing to hear them;
- Stand by beliefs as bedrock truths and not simply as theories or “points of view;”
- Confront authority at their sources;
- Speak clearly and confidently to those who are ready to join the cause;
- Mobilize at the street level;
- Create the intellectual and conceptual scaffolding necessary to build a new worldview;
- Take calculated risks;
- Stand ready with particular talents when seismic shifts occur;
- Utilize positions within the current systems to the disadvantage of those systems;
- Resist accommodation and solutions within the current systems.

There is, admittedly, a finality and single-minded direction to this way of speaking and thinking. Minor adjustments or the blind hope that things will work out are no longer enough or satisfactory. No longer a mere complaint or the mark of one’s education and political affiliation, or even a serious worry discussed over a late night dinner in an

urbane restaurant, the declaration “These are revolutionary times!” forces a change in the tone and content of the conversation. It is a conversation stopper, a call to attention, a statement of commitment and conviction. It is an admission that the world is about to change in ways we would not choose; that it must change even if it goes against what we could otherwise choose; and that we can no longer choose to resist it.

It is the difference between the American patriots who believed that a break with England was the only option left and those British Americans who hoped for some kind of accommodation that would preserve both colonial liberty and British rule. To finally come to the former decision must have elicited feelings of sadness, fear, nostalgia and uncertainty, as well as a new resolve and dedication for those who now saw the revolution as both necessary and good, despite its dangers.

It is an irrevocable choosing of sides that sunders families and friendships. It is a complete switch of thinking, and not unlike the visual brain-switch that occurs when observing the well-known gestalt images in which one can see one image or the other (the old woman or the beautiful lady), but not both. The difference here is that one can no longer switch back to the other image. One’s language changes and one sees clearly what must be done. Action becomes easier. And the many problems we are facing in this world come into focus for what they are: a collective, interconnected and colossal failure of the current systems and ways of thinking.

“These are revolutionary times!”

Say it.

Believe it.

Act on it.

Abandon Environmentalism for the Sake of the Revolution!

The reader is introduced to the notion of a conceptual revolution. The conceptual revolution being called for in *Toss the Paddle!* is tied to an earlier revolution in American history, with important differences noted. The central claim is that environmentalism—as a separate movement—will do little to advance this modern revolution and should be abandoned as such.

“We’ve been talking about the same things for 30 years!”

Wes Jackson

Let’s start with the good news. There is a bona fide revolution afoot. It is going on in small pockets and fissures all over the globe. Cracks in the dominant models of science, economics, and happiness; climatic reminders of non-transgressable limits; political and cultural signals of an impending shift; and a pervasive unease as we go about our daily lives.¹⁴ The good news in all of this is the creative response it is engendering across the intellectual and policy perspective. It’s a global energy surge to reject, rethink, and replace the dominant worldviews created by an earlier revolution called the Enlightenment, a revolution that historians conveniently tripartite into political, scientific, and economic. To those readers who have been working on this revolutionary paradigm replacement project for 30 years or more, don’t despair. Culture change is slow, non-linear, and unpredictable. We probably haven’t yet seen **our** revolutionaries yet: **our** John Locke, Alexander Hamilton, John Stuart Mill, Francis Bacon, Rene Descartes or Adam Smith. But they will emerge, and they will be inspired and motivated—just like the big guns of earlier revolutions—by the thinkers, activists, and inventors of their

¹⁴ This collective energy is nicely captured in Paul Hawken’s book *Blessed Unrest*.

generation and of previous generations. It is good and important work we are doing. If future citizens will not know some of our names, future historians studying the roots of the “(Insert name here) Revolution” will.

So what’s the bad news? It is this: that having done away with limits and the very notion of limits, the earlier revolution—and now dominant world view—has made it all but impossible to reintroduce even a discussion about limits, let alone policies, technologies, and whole new social systems based on limits. This earlier revolution, particularly the American version, was underway at a time when earthly sources and sinks were considered too plentiful to worry about, when human reason was championed as sufficient to rule the unruly world, and when human liberty and happiness were inextricably linked to a doomsday-like economic system that could only succeed by growing continuously and by requiring an indebted and tireless workforce. It was, and is, a system fueled by what can still feel like limitless wealth, energy, materials, knowledge, and personal freedom; and that is grounded in deep-seated philosophical axioms that state unequivocally that transgressing limits is possible and preferable.

In the relatively short time span of 300 years this revolution has produced marvels, and feels pretty darn good, fun, and secure for those who experience it. It will not be easily rejected or replaced. And this is because the genius of this earlier revolution resides in answering every challenge and hurdle with the call for more knowledge, more freedom, more energy and materials, and for fewer limits.¹⁵ It is a positive feedback loop

¹⁵ A definitive statement, if there ever was one, for this view is found in the writings of Alexander Hamilton:

“Great power, commerce and riches, or in other words great national prosperity, may in like manner be dominated evils; for they lead to insolence, and inordinate ambition, a vicious luxury, licentiousness of morals, and all those vices which corrupt government, enslave the people and precipitate the ruin of the nation. **But no wise statesman will reject the good for the apprehension of the ill**” (Papers, vol. 2, 617-18, boldface not in original). Like David Hume before him, Hamilton believed that “A stratified, but open

of biblical proportions. Positive feedback loops are very powerful, but they are also potentially dangerous and unstable. Negative feedback mechanisms (in this case taxes, social programs, anti-trust laws, environmental regulations, etc.) have been used reluctantly and judiciously whenever troubles seem to tarnish the image of progress, but these mechanisms are usually criticized for infecting a system that will work fine on its own if only given enough time, money, knowledge, etc.¹⁶

What will it take, then, to show the world that the American way of life—a way of life in which participants are intentionally made to become completely preoccupied with the personalized “goods life” and with the machinery that keeps those goods and that life coming—is not all that good? It is rather, increasingly a life with stress, ill health, loneliness and negative environmental impacts? Despite America’s leadership in consumption and the range of personal freedoms that accompany consumption, Americans are not necessarily better off if measured against the many indices that measure happiness: longevity, contentment, education, security, etc. Perhaps the American experiment of combining minimal democracy with maximal consumption and personal freedom has failed and should be called off. Why is it so difficult to demonstrate that people who live this lifestyle are increasingly disconnected from each other, and frequently disenchanting with each other as well? That despite using more energy per person than any nation on Earth, statistics show that American are not better educated, not living substantially longer, and not any happier?

society would be an incitement to vanity; vanity would be an incitement to debt; debt would be an incitement to industry; and industry would produce vast quantities of taxable wealth” (Kalinowski, Unpublished manuscript).

¹⁶ See Donella Meadows, 1997: http://www.sustainabilityinstitute.org/pubs/Leverage_Points.pdf

Collectively, the new conceptual revolution has to persuade a very happy and satisfied cat to **choose** to get back in the bag. Small cracks in the system are not likely to do it, especially because the dominant view states that such cracks can be repaired with more of what caused them in the first place. Prophetic calls signaling the end of our prosperity or to become virtuous are—like most prophetic calls—easily labeled as overreactions, and as overly moralistic.

This world-view revolution that is currently underway will need new foundational axioms that re-conceive and rehabilitate principles, metrics, and relationships that are already well known and established in the central cultural operating systems.¹⁷ But we also need replacement systems that somehow motivate a free people to choose them.¹⁸ These systems have to make sense—or at least be attractive—to folks who have heretofore known only what these new systems reject as dangerous and untenable; i.e., the old consumptive model. These replacement systems have to be easily started and be able to run on their own. And they have to fairly quickly create new goods and services that replace what came before, and with such an intensity and quality that the public demands the new goods and services, and then quickly (within a half century) forgets about the old goods and services. In short, we have to speak less about social, moral and

¹⁷ Michael Schudson says, in his book on American citizenship, “One of the most reliable lessons of political history is that new and explosive movements build on the framework of old institutions” (p. 46).

¹⁸ Here’s one place where the Enlightenment and its social/political revolution got it right: political/social control over people’s lives and choices interferes substantially with their ability to pursue the Good Life (the cat has to choose the bag); The Enlightenment got it wrong when it likewise thought that human cleverness could overthrow the control that nature asserts over its members, and put it to work to feed a goods life fueled by vanity and debt. A “Re-Enlightenment” would preserve personal freedom (choice), and accept nature’s limits.

environmental responsibilities and more about social, moral and environmental opportunities.¹⁹

These are tall orders. But it won't be a new revolution without these characteristics, and our work won't replace the dominant paradigm without making sense of both what the old paradigm explained, and what it failed to explain. If we turn to the American Founding for guidance we will see that James Madison's insight, and the Federalists generally, was to turn the vices of a traditional republic (size, factions, representative government, eventual vice and tyranny) into the virtues—or at least the “givens”—of the new republic, and thereby, maintaining some semblance of a traditional republic while shoring up its weakest points. Hamilton too rejected any hope of using republican government to make people virtuous and instead used vanity—coupled with debt—to create the hardest working citizens in the world, a nation teeming with industrial goods, and a tax base to fund the most powerful nation in the world.

One of the intended results of this revolutionary political system—what Madison called a “mere scheme of representation”—was to limit citizens to an occasional vote and to following the law in exchange for the freedom to work hard in pursuit of material happiness as defined by individual citizens. Freedom was less about being a citizen and more about being a consumer. This did not stop ordinary citizens in the early republic from participating in local politics, civic associations, and all manner of public life.

Alexis de Tocqueville concludes from his experience of early 19th Century American

¹⁹ Examples of ongoing paradigm change of the sort I am describing include the precautionary principle, the emerging fields of industrial ecology and ecological economics, and the various and numerous social experiments going on around the world in the areas of agriculture, community, and politics. (See, for example, Jeffery Kaplan's essay “The Consent of the Governed: The Reign of Corporations and the Fight for Democracy,” *Orion*, November/December 2003. <http://www.oriononline.org/pages/om/03-6om/Kaplan.html>.)

grassroots democratic activism that while democracy may not provide the most skillful government, it “spreads throughout the body social a restless activity, a superabundant force, and energy never found elsewhere, which, however little favored by circumstances, can do wonders.”²⁰ It took longer—150 years of more technology, more wealth (and debt), more freedoms (and vanity), and more knowledge to turn the occasional voter, but locally politically active American citizen of the early 19th Century, into an individual focused almost entirely on his or her interests, wealth, and personal satisfaction.²¹

This No-Limits American Revolution—still ongoing in my view and increasingly exported around the world—can be seen as a large substitution experiment: Can private ambition, limited government, economic growth, technological advancement, consumption, and the rule of law, substitute for community, social capital, public life, thrift, virtue, and a common good? The status-quo answer to this question has always been an enthusiastic “Yes!” The varied social “ism” movements in American history (Transcendentalism, Progressivism, Preservationism, Labor, Women’s Suffrage, Civil Rights, Environmentalism, and whatever the latest current social movements are eventually named) can be interpreted as enthusiastic, but relatively ineffective, “No’s!” They have been ineffective insofar as they have always been reactions against, rather than replacements of, the status quo, and because they have been viewed as negative rather than positive feedback loops.

This brings us to the problems of environmentalism, a quintessential “negative” social movement. American environmentalism began more than 150 years ago by writers, philosophers and nature lovers who collectively began to observe resource depletion,

²⁰ Tocqueville, 244

²¹ See Robert Putnam’s *Bowling Alone* for quantitative support for this erosion of American social capital.

urban pollution and degradation, the effects of “modern” life on the human psyche, and the loss of natural beauty. With names like Thoreau, Muir, Marsh, and Audubon, the early environmental movement sought to bring awareness of the effects of progress on the natural world and human happiness. Throughout its history the effects of environmentalism have been mixed. Optimists can point to legislative victories on national parks, wild lands, endangered species, and clean air and water. Pessimists can point to increased consumption and the globalization of environmental problems as processes and systems outlawed in the United States are moved to other parts of the world. At the very best one might call it a tie, a zero sum victory of things not getting worse.

But if we are serious about a new conceptual revolution, environmentalism is decidedly not up for the job and ought to be abandoned.

- Environmentalism does not go far or deep enough. The work of the revolution must go beyond protecting ecosystems or greening businesses and political systems. The required system overhaul is much bigger than what is typically covered by the term “environmentalism,” and much larger and deeper than what is classically considered classic “environmental” problems.
- Like so many other “isms,” many mainstream environmental organizations with multi-million dollar budgets spend as much time on maintaining and growing their own organizations—and often on the backs of competing organizations with similar missions and values—than they do with the issues themselves.
- For too long environmentalism has preached to the converted, attempted to scare the unconverted, and has been largely ineffective in creating lasting, deep,

fundamental change. To outsiders environmentalists come across as representing a special interest, as whiners, pessimists, party poopers and sourpusses. Like the parents of teen-age children, the more environmentalists talk and threaten the less effective they become.²² Their dire warnings don't come true, or don't come true fast enough, or are true but hard to measure or grasp, or are made to sound false by better financed special interests or the Julian Simons and Bjorn Lomborgs of the world who put the world's collective mind at ease. This is the problem of environmentalism: At the all-important intersection between two world views—one that is not working and one that is not yet formed—when calm truth and the optimism of marketing are required—environmentalism offers too much truth direly presented by finger-wagging, Sunday-school sermonizers, and little or no marketing.

- On the other hand, insiders who have been at this work for most of their adult lives get pretty cranky when they attend yet another conference, here the same talk, and witness the same results: usually inaction, ineffective action, or—at best—small victories.
- Not only are environmentalists largely ineffective when announcing doom, they no longer have to. We should let the mainstream press, \$83/barrel oil, the collapse of the middle class, and loss of pension plans and health care, violent weather do the talking about the arrival of peak carbon and the concomitant crumbling of democratic and civic infrastructures. Not to be too cynical or

²² I, too, am guilty of this behavior as my teenage son's rolling eyes, and his younger brother's fearful questions, remind me every time I bombard dinner guests with Hubbert Peak diagrams and begin each meal with the call to recognize that our bounty is courtesy of a one-time drawdown on the earth's natural capital stocks.

pessimistic, but peak-carbon has finally given environmentalists the brick wall they've been looking for, and it frees them to work on solutions rather than ever more ways to describe the reasons why such solutions are necessary.

- Environmentalism is too often about “don’ts” rather than “do’s.” Just because the current system settings and axioms are wrongheaded and dangerous does not mean they need to be replaced with pessimistic, limiting, you-can-pay-now or you-can-pay-later alternatives, even if these alternatives are inescapably accurate. The world needs to see a way out that’s not merely a way down.
- Is this propensity of environmentalists to paint grim pictures a function of collective-personal-anxiety-gone-global²³ or of not getting enough attention in the first place? In either case the following image may put environmentalism in its place: imagine a **cultural toolbox** made up of all the tools required to create, change, and improve the world in which we live. Some of the tools are essential and get used all the time: hammer, saw, level, screwdriver, knife, and tape measure (analogous, for example, to engineering, economics, science, and politics). Other tools get used less frequently, and only for special jobs: chisel, rasp, Allen wrench, and plane (arts, literature, philosophy, and spirituality). So where does environmentalism fit in? Unfortunately, I think it is best represented by the safety glasses in the cultural toolbox. Yes, safety glasses are important and should be worn lest bad things happen, but they're mostly optional, and workers can always rationalize them away "this one time." And who thinks about them very often in the first place? They don't do any useful work; they very often slow

²³ I have attended enough conferences and meetings to have observed how often environmentalists display deeply anxious and depressive behaviors, and how often these behaviors seem to block any productive and practical work from being accomplished..

down the work or make it more costly; and they frequently limit the worker's dexterity and vision, actually making the work more dangerous. Not surprisingly, when the safety glasses get together at conferences—as every specialty in the cultural toolbox does—they bemoan the fact that they are rarely worn or heeded and they worry about all of the bad things that can happen on the cultural job site. Like the prophets of every age they pronounce warnings that bad things will happen to those who fail to wear them. Such guilt trips and the lack of any perceived world building are not very exciting to the other members of the toolbox or to society at large.

The Enlightenment revolutionaries overthrew oppressive and limiting world views, but they did it with optimism, excitement, and daring. Environmentalism is short on all three. Let us not confuse our relentless and justified criticisms of the systems in need of overthrowing with the need for an alternative world view that can be embraced and pursued by the world's inhabitants. Earlier revolutionaries did not risk their own lives, or inspire others to charge the well-defended ramparts, simply to overthrow a dysfunctional system in favor of one that trumpets a new age of limits and pessimisms.

Simply put, the best chance at creating the effective, deep, and lasting changes necessary for environmental and community health will require environmentalism to lower its voice, lighten up, become quietly subversive, gain entrée into larger social systems, wait for opportunities to contribute, be ready with positive, forward looking alternatives, hope for favorable conditions for revolutionary change, and otherwise bide its time. It needs to disappear and become invisible in the larger social fabric and,

instead, surreptitiously hitch a ride on the larger movements, institutions, and concepts that do most of the heavy lifting in the world. I'm thinking here of science, economics, and politics.²⁴ It is these larger systems that will have to change if there is to be any lasting change at all. And even the best work of environmentalists is not going to single handedly overturn them. Instead, these larger systems will be transformed by a myriad of social forces and the preparatory work of “pre-revolutionary” thinkers and tinkerers, environmentally-minded thinkers among them. But revolutions occur when models emerge that incorporate and greatly improve upon what came before.²⁵ We call them revolutions because they affect nearly everything.

Environmentalists will certainly help prepare the ground for the revolution, but it won't be an environmental revolution. It will be a revolution—or revolutions—in one or more of the larger systems. And environmental work will play a supporting role. Its terms, theories, and perspectives will not dominate. That is to say, there are primary and secondary disciplines and systems, and the work of environmentalists is largely secondary in the business of revolutions. Not unimportant or unnecessary, just secondary. Environmentalism comes to a table already set by the dominant fields. It's an invited guest—if it's lucky—but it doesn't set the agenda and its participation will, at best, give shape to an agenda already set and moved by larger forces. Environmental jargon and first principles won't do much work in this context. The goal of the environmental voice in this larger revolutionary project is more akin to what the Liberal

²⁴ There may arguably be others, but these three hold most of the prestige, power, and influence in the world. When they undergo significant changes, the world necessarily changes too.

²⁵ Michael Schudson claims that “one of the most reliable lessons of political history is that new and explosive movements build on the framework of old institutions” (*The Good Citizen: A History of American Civic Life*. Boston, MA: Harvard University Press, 1999, p. 46).

Arts do best: to provide perspective and an awareness of boundaries. It is precisely this kind of big picture thinking that attracted so many to environmentalism in the first place.

Environmentalism's best work—and by “best” I mean effective and useful—can come when it works behind the scenes, when it learns and utilizes the tools and techniques of the dominant systems, fits its work into those systems, waits for an opening, slips quietly past the guards or waits to be invited in. And then waits again to speak or write without disciplinary affectation, but clearly and for the benefit of the audience and the larger problem being solved.

This advice may strike some as passive and too much like throwing in the towel. There are plenty of days when I bristle against this invisibility cloak, but I nevertheless accept the reality and force of the dominant world systems, and work to accept my role as an environmentally informed philosopher in this reality: a helper, an assistant, a wide angle lens, a boundary walker, a public practitioner, a civic philosopher. The contemporary thinkers and leaders of environmentalism—those who were attracted to this cause because of its frontal assault on the status quo—need to harness themselves to this larger revolution. A century and a half—beginning with Thoreau—of lectures, shrill warnings, and hand wringing have not brought us much by way of the big changes nearly all the well informed among us agree must occur, and soon. I just think it's time we try another tack.

It's Time to Put Away the Parlor Games

What's Wrong with the Academy

Using the annual pilgrimage to the academic professional conference as a backdrop, complete with its material and energy costs, this essay pokes serious fun at the narrowness of academic scholarship in light of the serious global issues we confront. More importantly, the essay addresses the myopic training of graduate students and the relentless quest of grants and publications by junior faculty driven by the tenure game and the increasing corporatization of higher education. The essay is inspired by Edith Hamilton's observation that "there has never been a generation better educated than the one that ushered in the end of Athens," and by Adam Smith's line that describes universities as "sanctuaries in which exploded systems and obsolete prejudices find protection after they had been hunted out of every corner of the world." Suggestions are provided for how the Academy and professional academic societies might more thoughtfully and practically pitch in to help rather than studying the nature of fire while the ecosphere burns.

On January 17, 2007 The Bulletin of the Atomic Scientists moved its doomsday clock two minutes closer to midnight, "reflecting global failures to solve the problems posed by nuclear weapons and the climate crisis." Within weeks of the clock adjustment the Intergovernmental Panel on Climate Change states that "there is a 90% chance humans are responsible for climate change," mostly due to the burning of fossil fuels. In the parlance of scientific language, ninety percent confidence is a near certainty. One would think, then, that it's akin to good news when the world's leading petroleum geologists believe that in less than a century the modern world has burned its way through half of the global supply of oil and natural gas, and that the other half may be gone in as few as thirty years. But it's not.

These are serious challenges, among many, each with its own spiraling effects across social, political and educational infrastructures that form the operating system we call the

modern world. The negative impacts are felt across the globe and in our local communities. They are in the food we eat, the cost of health care, our children's future, and in perpetual wars among nations and ideologies.

There has probably never been another time in human history more in need of the collective power of human intellectual capital to provide exit strategies, soft landings, alternatives, and solutions. And not just in the engineering, business and technology fields. The humanities and social sciences—collectively the Liberal Arts—will also need to supply their concepts, theories, and methods to the problems at hand. Considering the fix we're in, it's about as good as it gets to be a philosopher or sociologist.

I wish I could say with confidence that the academic disciplines known as the Liberal Arts are well prepared. They are not. Worse, judging by publications in academic journals the humanities and social sciences seem oblivious to the problems, uninterested in pitching in to help, or both. Further evidence of this disregard can be found at any one of the many annual conferences of the **American "Insert Discipline Here" Association**²⁶.

Evidence of America's still remaining, and immense, wealth—and the continued ability of its citizens to waste it—can be seen in any lobby of one of the large hotels and conference centers that host our gathering: hundreds milling about and discussing intellectual output that is largely irrelevant to the day-to-day workings of a world that, by nearly all objective indexes and measures, is falling rapidly and dangerously apart. Most flew to the conference, spending \$500-\$1,000 of their institution's money to discuss topics of interest to only a very small group of people, and all of them well-off enough to

²⁶ For the purposes of this essay I will be focusing on the disciplines of Anthropology, Modern Language, History, Philosophy, Political Science, Religion, and Sociology. The academic conference is only one aspect of an educational system gone bad.

make the trip, to eat luxuriously, and to spend hours of leisure time discussing esoteric topics. Participants look forward to getting together with like-minded colleagues, old classmates and teachers, and to feeling like the intellectuals that they imagined themselves to be when they started their academic careers. It is the sort of work that is not suppose to be particularly practical, and they're not suppose to be particularly anxious about using this work to fix any big social problems. The academy, after all, is a safe haven for staid traditions and steady truths. A quick glance at any academic conference program and its many paper titles is proof enough of what I am saying.

Let's start with the numbers. By an estimation that is admittedly rough, about 40,000 academics in the fields of anthropology, history, modern language, philosophy, political science, religion, and sociology travel to their annual conferences. If we assume that an average cost of \$800/person (travel, accommodations, food), that's \$32,000,000 annually, the majority of it coming from the colleges and universities where the conference attendants are employed (i.e., tuition dollars and public monies). It's also a lot of jet fuel, food calories, waste disposal, and additional atmospheric carbon. What do we get for this financial investment and one-time drawdown of the earth's capital stocks? Not much.²⁷

The annual academic conference is a monocultural hothouse of the over-educated, concentrated around a very narrow slice of knowledge called a discipline, usually divided further into sub disciplines, and finally into panels of "topics," usually including a

²⁷ Frivolous Disney cruise vacations are no longer harmless in terms of their impacts either, but neither do they parade as gatherings of the America's finest men and women of letters for the purpose of exercising and showing off their education.

moderator, two or three presenters who “give” what Gary Snyder describes as the “Byzantine artifact known as the professional paper”.²⁸ The papers are usually hastily read or summarized, and a commentator provides brief critical remarks. The session takes about 90 minutes and includes some audience participation. There are dozens of these sessions going on simultaneously morning, noon, and night, punctuated by meals and larger events that feature the better known academics of the given discipline whose works are featured in symposia, and finally, keynote speakers, who are the best known and are usually members of the official organizations within which academics identify themselves. The smaller sessions may have as few as 4-5 audience members and as many as two dozen, many of whom wander in and out. The Symposia have larger numbers (50-100), and the keynotes fill the largest hotel ballrooms, a sea of herring bone tweed. Topics and papers are centered on the narrowest slices of a concept or argument and written in technical language.

Among the academic participants there are book sellers, editors in search of authors, authors in search of publishers, job interviews for newly minted PhD’s in hotel suites with small committees of middle-aged, tenured professors. It is a harrowing culling process for the interviewees and a grinding drudgery for the professors.

Were we to catalog what is gained by these conferences it would include a campus interview for the job candidate, a book contract, a new contact that may further one’s career, a publication in a journal. The professional association also does its business of electing officers, revisiting by-laws, and occasionally giving prizes for the best paper. At the lower end of the spectrum there is another line on the curriculum vita, a sense of belonging to a community of like-minded who takes your work seriously enough to at

²⁸ “The Etiquette of Freedom,” In *The Practice of the Wild*, p. 17.

least invite you to share it, a chance to see old friends and teachers, and chance to get out of your one horse town or bask in the sun.

The academic conference is emblematic of an ancient tradition (the Greek “academy” and the Latin “scholaris”) wherein an individual considered worthy (usually after performing various tasks and tests that demonstrate intellect and the willingness to take orders) is admitted into a community of thinkers and becomes a disciple to a higher truth/school to which is dedicated one’s intellectual—not to mention one’s emotional and social—life.

The modern American (Western) educational system is particularly good at narrowing students’ intellectual interests until, if they can stay in the game long enough, end up pursuing a small slice of research known and shared by a similarly small cadre of scholars. Education for the Ph.D. student is a slow process of matching interests with aptitude in ever-smaller fields of scholarship. When the match is found there is great excitement in pursuing a scholarly interest, relevance be damned. The PhD has been narrowing minds for centuries. And it’s rare that student, mentor or academic discipline is called upon to justify the use of resources to pursue these interests.

Once you are a member of a discipline or academic tradition you have tacit permission to pursue any line of enquiry approved by the tradition in which one is working. No further justification is necessary. (As an example from my own career, I spent many years working on the question of what gives a promise its moral force. This included a careful reading of a ten page account of promising in 18th century Scottish philosopher David Hume’s book *The Treatise of Human Nature*. I published a short article on the matter. Years later the editor of a fairly prestigious philosophy journal asked me to

review a manuscript because someone had told him that I was “the best person working on David Hume’s account of promising.” There was a time earlier in my career when that sort of comment would have made me proud, but no longer. To be considered an expert on a ten-page account of promising by a long-dead Scottish philosopher is the sort of thing that rightfully gives philosophers—and academics generally—a bad name.)

I have attended my share of academic conferences, but I am increasingly reluctant to do so, and I’ve become outright hostile to their mission. Even without the doomsday clock and climate change data these gatherings make me uncomfortable because they encourage self-importance and an overly intellectualized, anti-social inwardness. They give voice and legitimation to our specialties and subspecialties, which in itself would not be so bad if we considered these narrow academic foci as interesting, but tangential or secondary to our real work in the classroom or our home places, or government (like hobbyists and crafts people who meet at conferences and fairs to share ideas and work, but who otherwise have real jobs). Unfortunately much of the job security in the academic line of work—not to mention the self-definitions as scholar-teachers (in that order)—requires professors to see their specialties as the main events. Deeper and deeper they go until their only audience consists of a few editors, referees, tenure committees (and only because they are required to read the work), and the folks on a panel or in the small audience at one these conferences, folks who are themselves conference participants.

Such inwardness might be acceptable if it seemed even remotely relevant to the outside world. Engineers, scientists, surgeons, and accountants, for example, all have their professional conferences, and it must get pretty technical and boringly dreary to the

outsider. But one can sense a larger interest in and purpose to this work. The results will potentially change how people work, live, and think. The press occasionally shows up. Not so at the conferences devoted to work in the Liberal Arts. It is creative, sincere, and occasionally useful, but largely marginal. Where are the reporters? Where are the audiences of people who are not making presentations themselves? Yes, these conferences are fun, and participants can learn some things and enjoy each other's company. But Liberal Arts academics should want something more: to be relevant, influential, and united in a common cultural goal.

In light of increasingly serious social and environmental challenges we face, I am embarrassed by the amount of intellectual capital that is squandered at professional conferences of academics—not to mention the squandering of our natural resources and the increasingly diminishing budgets of our colleges and universities. All of it might seem quaint or at least grudgingly tolerated as quirky in a world of relative peace, justice, plentiful resources, capacity for growth, and with most of the big systems working well. Needless to say, this is not our world. And it is especially troubling—and deserving of a much-deserved lashing—that our hyper-education and relative leisure can produce nothing more than yet another esoteric paper and another line on the curriculum vita. In the right circumstances, it would qualify as a textbook case of madness: Rome burns and we contemplate the nature of fire or discuss Heraclitus' views of fire in the cosmos in hopes of furthering our career. While it is certainly not anything equivalent to a crime against humanity, this sort of behavior does qualify as a willful neglect of humanity and the surrounding ecosystem, and it is certainly nothing about which we should display any pride or good feeling. Worse yet, as educators of the generation that will both confront

and potentially challenge the end of oil and its many economic, social, and ecological impacts, they continue to teach the same courses and read the same books. They prepare students for the same careers as their teachers did them, while requiring students to incur ever more financial debt while facing fewer employment prospects at ever-reduced wages and benefits. This is not only madness. It is ethically culpable.

Any one of current environmental and social trends by itself would be cause for concern and a motivation to recalibrate our intellectual machinery. Taken together, they should ring every school bell, sounding an alarm that demands our attention, not just as independent contractors, but as members of disciplines and institutions. We need what Paul Hawken describes as a “shared mental model,” a general agreement about what is challenging our thinking (the problem to be solved), and specific products and programs that are designed to solve the problem. This is not just a dismal warning, although it is a warning. But it is also a challenge for those of us in the academy who generally—as a rule—are not asked to solve real and immediate problems (unlike our engineering and business colleagues who work to solve real and immediate problems.) The good news for all of us here is that the United States is at a junction that will require our collective and best work as theorists and educators. This work, if it is done right, will help manage the transition to a society that must “fess up” to the thermodynamic limitations of liberty and the American dream without thereby trashing the world’s ecosystems in search of a few more barrels of oil or further eroding our democratic and social institutions. It is literally the remaking of the American—and increasingly the world’s—operating systems.

We have a ten to thirty year window to effect the changes necessary to address successfully the end of our carbon-fuel addiction. (And ten to thirty years is not much time to redirect any system's deep and underlying assumptions). Academics can, and should, argue about my specific recommendations.²⁹ What matters is not the specific shape of the problem statement or the programs developed to address the problem statement. What matters is that academics across the disciplines agree to focus on a few of these problem statements, and then to get to work on some solutions. Despite the description of academics as independent and hard to corral, I do not believe it is unreasonable to think that they might usefully organize around issues or projects. I'm thinking, for example, of the Physicians for Social Responsibility,³⁰ The Union of Concerned Scientists,³¹ or Engineers Without Borders.³²

As a first goal academic intellectuals should strive to become relevant. This is not to say that all of their academic work should be put to use in solving problems. But some of it should, and conferences seem an obvious place in which to do it. To this end I would urge academic associations and conference organizers to create "get real" sessions that identify themes and problems that challenge academics to bring their specialties to bear on actual problems in need of solving. Set quantitative standards and expectations, demand language that is accessible, and reward participants who take their specialties outside to work with others.

A second goal should be an expectation that academic intellectuals become public intellectuals as well. This is more difficult, to be sure, because it requires significant

²⁹ If you are a student, parent or taxpayer you participate by demanding a public accounting of the high costs of conference attendance and what these dollars are buying.

³⁰ <http://www.psr.org/home.cfm?id=about>

³¹ <http://www.ucsusa.org/ucs/about/index.cfm>

³² <http://www.ewb-usa.org/index.php>

changes in the academic reward structures. The tenured faculty, administrators, and members/leaders of professional organizations should work to seek broader definitions of “research,” “publication,” and “service” that extend beyond “specialty,” “peer review,” and “campus committees.” Every college, university, and academic professional organization should create and encourage an expectation of pro bono work among its members. Service teaching should become as much a standard on our campuses as service learning is becoming. With time and practice, even the most inward of academic disciplines and practitioners will be able to contribute to the social conversation about, and solutions to, the central challenges of the day. Professors in the Liberal Arts seem ideally suited for this public work.

I do not want to suggest that all academic scholarship be devoted to planning for a nation low on its primary feedstock. But some of it darn well better be. Tenure is still worth the effort of jumping through the necessary hoops (publishing as a means to an end, though not necessarily an end in itself). Nor is it necessarily wrong to devote some scholarly energy and excitement to narrow and esoteric interests, especially when one’s job security demands it. But post-tenure should be a time when scholars think of their academic pursuits more as hobbies: interesting to us and other like-minded hobbyists, but not particularly deserving of wider praise or an all-consuming effort.

If we academic professionals honestly think the world and its varied systems—especially those close to home—are crumbling, then we should do something about it. Using the engineering method of first carefully defining a problem and then specifying product requirements to solve that problem, Liberal Arts academics and their associations should set themselves the tasks of creating/designing programs, systems, projects, and

plans that anticipate and respond to the changes to come.³³ They might imagine a second constitutional convention or rewrite founding documents for a new world or try putting Jefferson's Ward Republics to practical use in their home regions. They could identify and create the social infrastructures that will be necessary to help transition to a post-carbon economy or generate alternative economic models that downshift our growth economy without busting the gearbox.³⁴ They could take their favorite intellectual icon/mentor and advance his/her work, rather than restating it or explaining or,³⁵ or reinterpret tried and true concepts for a new age.³⁶

There is important work to be done, both theoretical and practical, and it will require a focus and dedication to solving the problems we face, not the problems that simply interest us, or those that we developed while in graduate school, or that begin as papers written for a conference panel and may find publication in the journals that no one reads and that university libraries are increasingly uninterested in purchasing.

Academic professionals in the Liberal Arts need to see themselves as critically important for the work ahead; as civic engineers and entrepreneurs; as contributors to America's new civic, social and ecological infrastructures; and to see the next thirty years as one of most fruitful periods in American history for the sort of work they are called to

³³ In the business world this is called scenario planning. See <http://www.gbn.com/AboutScenariosDisplayServlet.srv> for an example.)

³⁴ Richard Heinberg's *Power-Down: Options and Actions for a Post-Carbon World*, chapter three, has a very good discussion of the sorts of changes necessary for a peaceful transition.

³⁵ To put it another way, we ought not to be digging around in the intellectual past for artifacts to shine and display in a museum. (No more books and articles on so-and-so's account of such-and-such.) Our work in the past should be seen as more akin to visiting a junk yard and rummaging around for valuable but overlooked parts that will help us to get out of a big ditch. Let's advance our favorite writer's work for *this time and place*, and put it good use for the problems we face here and now.

³⁶ Academics can also stay home or closer to home (or demand more "virtual" conference attendance), demand more from their professional associations in terms of public work, encourage public accountability of their use of private and public funds in pursuit of estoterica, and work, when possible, to retool education, especially at the graduate level, to better prepare the next generation of intellectuals to be more in tune with the world in which they live and work.

do. Fear and guilt are motivation enough for their efforts, but I hope, too, that they can find joy and meaning in actually pitching in. Think of it as an intellectual barn-raising: vitally important, many hands, many skill-sets, a good deal of cooperation, camaraderie and coordination, hard work and fun co-mingled, and a sense of satisfaction at its completion. It is not a call to stop what one is doing or what one loves to do best, or even to stop attending academic conferences, but rather to put one's training and passion to work on a project that is critically important. If we're successful and lucky, our efforts just may forestall a future grandchild—whether real or imagined—from asking us what exactly we were doing when the oil was running out and the temperature rising.

Draft Essay
**Descartes' Stove-Heated Room and
Other Examples of Delusional Thinking
Masking as Profound Insight**

The philosopher and mathematician Rene Descartes can be credited with laying the philosophical groundwork for the intellectual revolution we call the Enlightenment. His writings in *The Meditations* and *The Discourse on Method* gave voice and confidence to an age that “dared to know,” as Immanuel Kant described it. This essay looks at Descartes’ own description of the day and evening of November 10, 1619 that he credits with the first glimpses of his insights, and that led to the now famous line “I think, therefore I am.” My essay will draw attention to the folly of thinking one could, as Descartes describes it, radically doubt the physical world around him—particularly the heat from stove, and the wood from the German forest (i.e., the productivity/creativity of the ecosphere—that made his creative meditations possible in the first place. A more accurate insight would have been “I’m warm, therefore I think.” The larger point is that we too often cite our own cleverness without acknowledging our geological inheritance. Other examples will be provided that demonstrate the modern propensity to take credit for nature’s creativity. The reader will also be given background on the Enlightenment and its influence in creating the modern mind.

Alexander Hamilton’s love of vice

Bjorn Lomborg’s claim that the solution to our problems is to make everyone in the world as rich as the well-to-do folks living in New York City.

“The lesson from our expedition is not that global warming is a trivial problem. Although Dr. Lomborg believes its dangers have been hyped, he agrees that global warming is real and will do more harm than good. He advocates a carbon tax and a treaty forcing nations to budget hefty increases for research into low-carbon energy technologies.

But the best strategy, he says, is to make the rest of the world as rich as New York, so that people elsewhere can afford to do things like shore up their coastlines and buy air conditioners. He calls Kyoto-style treaties to cut greenhouse-gas emissions a mistake because they cost too much and do too little too late. Even if the United States were to join in the Kyoto treaty, he notes, the cuts in emissions would merely postpone the projected rise in sea level by four years: from 2100 to 2104. “

(By **JOHN TIERNEY**
Published: September 11, 2007)

Draft Essay
Recess is Over:
Civic Education and the Sovereignty of Ecosystems

Recess, as we all remember, was the best part of the school day because we got to run wild and to temporarily forget our studies. This essay asserts that much of what we call education today—and for the last five centuries in the western world—functions like recess because it has trained generations of students to work and live without constraints or moderation. I argue that education in any complex culture serves the central worldview/paradigm or “sovereign,” and I demonstrate this by comparing Scholasticism with Individualism, and by indicating how both promote specific ontological and epistemological claims unique to their respective systems. I call the ontological claims PMU’s or Primary Metaphysical Units and identify ‘God’ as the central PMU in Scholasticism and ‘Individual’ as the central PMU in Individualism. Both scholasticism and individualism teach the differences between truths and falsehoods, set research agenda consistent with the central paradigm, and train students to advance the paradigm, or at the very least to succeed within its parameters as a member of the educated class of the time. My thought experiment for this essay is to imagine what an educational model would look like that saw the ecosystem concept as the primary paradigm replacement for the current individualistic/atomistic worldview that runs through our systems of science, economics, politics, and ethics, and that has given us the illusion of free reign over the natural world. What if ecosystems are more than conceptual tools, but rather—like God and individuals in previous paradigms—are **real** entities? How would an educational system advance this truth and prepare a new educated class for whom ecosystems would be the primary metaphysical unit? How would the ecosystem concept inform science, religion, politics, economics, and ethics? The essay concludes with the outlines of what I call a “civic education.”

Our ecosystem book should aim to break the lens that has given the Western world its myopic sight, and its scientific and philosophical methodologies an honored place in the educational world. Let us acknowledge up front that members of the Western academy rest comfortably on top of a system that must come down. It is well and good that liberal critics (environmentalists, Marxists, agrarians) do not resist the fall like our conservative, war-mongering colleagues who feel that anything is preferable to a collapse of the

system. But we must do more than herald the fall with “I told you so’s.” We must hasten its demise and seek to undercut the very educational system that supports most of us in our financial and intellectual incomes (and outcomes). And to the meager extent that we might help those who come after us—those who herald a new system and who see with a new set of lenses—we might contribute some inkling of what is to come so as to give them a leg up. Our work here cannot be scholarship as usual. We are subversives and revolutionaries who must use our access to, and knowledge of, the system in order to hasten its demise and eventual reconstruction. I know that sounds all high and puffy, but it’s no worse than the puffery of the reigning intellectual elite. (American peace activists burned their draft cards; Vietnamese Buddhists burned themselves; feminists burned their bras. Maybe we should consider burning our diplomas.)

What will come next? Sustainability is an obvious alternative, and it has some radical dimensions despite its soft and non-intrusive sound. But it may not go far or deep enough in the space-time slab-frame. It may be nothing more than the 21st century version of the Conservation Movement with four times the world’s population and no oil waiting to be discovered. (Somebody ought to write the book about a world in which the 6-7 geological forces required to cook oil and natural never occurred.) Sustainability extends the current broken system. For those children being born today we should not discourage the work of sustainability for the creativity and hope that it will engender. And with our backs against the wall, it’s a natural response. But insofar as it sustains what we know to be unsustainable, it should not be something we actively support.

I do think we have a strong candidate for what comes next. It has been incubated by the environmental movement, and was given its first complete performance by Leopold (Marsh's *Man and Nature* work is a very early foreshadowing, as is Ouspensky's work, to which Leopold alludes.). Whether these count as the founding of a new operational concept on the level of Descartes' philosophical system is too soon to tell. But were I to predict this early in the transition, I would identify Leopold's conception of the Land (energy, delivery system/pyramid, ethic, educational model) as the first real statement of the new sovereign. And all of the work in environmental/ecological science, engineering, economics and philosophy is proof of the emerging power of the new sovereign. But much of this work ignores the full realization and impact of the emerging new paradigm. And here is where you get it right Wes, and why I think you are true heir of Leopold's work. Your thinking on ecosystems takes Leopold's Land concept the furthest and most productively forward.

Our work in the book will be to communicate this concept through the work of Natural System's Agriculture and to apply it as a central organizing analog for the other systems that ail us, particularly education. The term "civic education" will do as a place holder in the short term, but is inadequate as a full description. It is ignorance-based, severe in its study of limits and boundaries, and

Civic/Interdependent

Just as scholasticism tried to accommodate the onslaught of reason, Cartesian and Lockean Liberalism will try to accommodate ecosystems and environmental thinking. Accommodation almost always fails. The truth of ecosystems will limit us in some respects and free us in others.

Ecosystems/sphere

Ethossystems/sphere

“There has never been a generation better educated than the one that ushered in the end of Athens.” Edith Hamilton

Educational systems grease the prevailing paradigm. They serve to feed, defend, promulgate, and support the metaphysical status quo. An educated person of his time—and of his paradigm—can tell you quite literally what’s true and false, real and imagined, useful or wasteful, good and bad. At the highest level of an educated class are those whose job it is to further the paradigm (professors) and to prepare others (graduate students) for their own indoctrination. These educated men and women take their role seriously and defend against falsehoods, pretensions, and the weakening of standards. The educated class of the ruling paradigm take great delight in their knowledge, in the power of their educational models, of their rites and rituals (robes, hoods, the refereed journal, the distinguished chair), and the power they have to influence those who may join them, and those in political power who occasionally request their counsel.

Paradigms come to an end and new ones are born for reasons that are not fully understood. To be at the top of one paradigm as it topples is to be in no enviable position, even while you prattle and pontificate about this or that truth which, upon further consideration, no longer seems to be particularly true, but, rather, false, and potentially dangerous, and in any case no longer necessary, etc. The occasional renegade sees it all coming and actually predicts its trajectory. And some in the ruling paradigm manage to see their way out to something new altogether. But the change usually comes from those only half educated in the prevailing system or young and brash enough to shake free and think anew.³⁷ Revolutionaries are typically young in age and willing to take risks. They are the ones who feel they have nothing to lose.

I think it goes without saying that to have received a Masters or Ph.D. degree at an accredited American university within the last 75 years makes one a card-carrying member of the educational elite of the current paradigm. We know, further, that this paradigm is toppling all around us. Some of us have seen it coming for awhile, and a few will be rendered correct by future historians for having identified the causes of its failure. Fewer still have some inkling about what will replace the dominant paradigm. Harder than all the rest is the task of creating an alternative educational model in anticipation of a new paradigm.

³⁷ Beware the imposter: the older statesman, who having been honored by the current system (Nobel Prize and all), and at the end of his creative life, endorses educational alternatives quite unlike the path that brought his success. He may sincerely believe what he says, but he'll be no help in creating the new system.

Education Serves the Sovereign: Two Examples

A history of education this paper is decidedly not. But a cursory look at the last millennium suggests two insights: First, that education in its structure, content, purpose, and metaphysical and epistemological biases, served the sovereign paradigm of the age. And second, that as the paradigm changed so too did the educational system that served it. It may just be that we experience the need to change the paradigm cartridge every 400-500 years. The time has come again. This is another way of saying that civic education, or whatever we come to finally calling it, is not a solution to a problem **in** education, but rather to the problem **of** education; namely, that the current education/paradigm is teaching all the wrong lessons; engaged in the mostly the wrong kinds of research; preparing future leaders for the last century, not this one; and all the while attracting vast sums of wealth and power, even as the system it supports is collapsing.³⁸ Our work here is not repair work, but rather revolutionary in the sense that it must call the world's greatest educational institutions of the current paradigm deficient and delinquent at best, and criminal at their worst. And in the transition we must call for a great deal of unknowing, unlearning, and undoing. It's an odd position to take while most of us remain members of these institutions, and depend on the steady salaries, retirement accounts and health care benefits they provide. As one of the guilty ones I can say only that there will be many forms of paradox in the coming years of transition, uncertainly, and discontinuity. At least it's a paradox with promise and potential.

³⁸ In 2003 the endowments for the nation's top 19 educational institutions topped \$85 billion dollars. (http://www.academic.umn.edu/accountability/reports/rankings_eag.html)

When speaking of a “sovereign” I mean to suggest a supreme and independent power that governs/rules those around it. It could be a God, a king, or an idea. In this last respect I want to suggest that what we mean by the terms “worldview,” and “paradigm” is synonymous with the term “sovereign.” The dominant paradigm in any culture is the king of things. It’s around which all the other systems are created to serve. It is the final authority. The great works of the time serve to illuminate and honor the sovereign. Those closest to the king have the most power. Etc. I want to use this imagery to show how the last thousand years in the West (Europe/US) has seen two sovereigns and their educational systems come and largely go. The first king is the Christian God or Christianity in Western Europe, and the educational system supporting it was Scholasticism. The second sovereign is the Individual as created by the Enlightenment, and the education system supporting it is Scientism (or the series of knowledge-based disciplines of science/technology, economics, politics). One can still see and receive remnants of a scholastic education today, but it has largely ceased to be the mark of an educated—and therefore powerful—person. Scientism is alive and seemingly well to those are at its heights. But the cracks throughout the paradigm suggest its demise in this century, though its vestiges will continue for centuries. What will replace it—at least the name we give it—remains uncertain, but another sovereign will emerge. This is what is meant by a paradigm shift. But I will give it a name here: the ecosystem will emerge as the new sovereign, and with it a new education model will be created to extend its reach and power. There is still much to be learned about this new sovereign, but work in environmental and life sciences, evolutionary biology and physics in the last two centuries presage its arrival. Collectively around the world there is a movement—or

collection of movements—that signal the fact that the ecosystem is king. An educational system will emerge in time, and while the details are unknown, I will call it civic education for reasons that will become clear below.

Scholasticism serves God at Church College

There are many ways and historical periods with which to test the Education-Sovereign hypothesis, but the focus here will be on two examples that are both close to us in time, and relevant for our understanding of what will be required of the new paradigm revolutionaries who will both have to set the new worldview in motion and begin to prepare an educational model. This is another way of saying that while those of us who take frequent and hostile aim at the likes of Bacon, Descartes, Locke, Smith, and Hamilton—among many—we should also at least acknowledge their revolutionary spirit, even if we reject their paradigmatic principles. And that if we and other new pioneers succeed in shifting the way others come to see the world, the time will come four to five centuries hence when our principles are rejected. Extinction is the outcome of creative evolutionary processes for critter and thinker alike.

Reconciling reason with revelation.

The use of reason/dialectic to reveal God's truth: Dialectic methodology

Greek Philosophy was Logos, God's truth.

Authority of revelation was primary

Replacing Platonic Patricianism with Aristotelian Scholasticism

My own experiences: At CUA/Louvain

Language: Latin/Greek

Churches/Cathedrals as museums. Divinity Proofs as logic examples or

Angels on pins

“Apparently scholastics **did** argue whether Adam had a navel and whether angels defecate. My skeptical comments should not be taken as an apologetic for scholasticism, for its "scholars" were prone to concoct arguments which made them look very foolish.” <http://www.lhup.edu/~dsimanek/horse.htm>

Humans define relationships in terms of God

My own mother in 1963 needed church authority to receive medical care that would affect her reproductive capacity. She was initially denied, but finally found a priest willing to give her permission.

“The period extending from the beginning of Christian speculation to the time of St. Augustine, inclusive, is known as the Patristic era in philosophy and theology. In general, that era inclined to Platonism and underestimated the importance of Aristotle. The Fathers strove to construct on Platonic principles a system of Christian philosophy. They brought reason to the aid of Revelation. They leaned, however, towards the doctrine of the mystics, and, in ultimate resort, relied more on spiritual intuition than on dialectical proof for the establishment and explanation of the highest truths of philosophy. Between the end of the Patristic era in the fifth century and the beginning of the Scholastic era in the ninth there intervene a number of intercalary thinkers, as they may be called, like Claudianus Mamertus, Boethius, Cassiodorus, St. Isidore of Seville, Venerable Bede etc., who helped to hand down to the new generation the traditions of the Patristic age and to continue into the Scholastic era the current of Platonism. With the Carolingian revival of learning in the ninth century began a period of educational activity which resulted in a new phase of Christian thought known as Scholasticism. The first masters of the schools in the ninth century Alcuin, Rabanus, etc., were not indeed, more original than Boethius or Cassiodorus; the first original thinker in the Scholastic era was John the Scot. Nevertheless they inaugurated

the Scholastic movement because they endeavoured to bring the Patristic (principally the Augustinian) tradition into touch with the new life of European Christianity. They did not abandon Platonism. They knew little of Aristotle except as a logician. But by the emphasis they laid on dialectical reasoning, they gave a new direction to Christian tradition in philosophy. In the curriculum of the schools in which they taught, philosophy was represented by dialectic. On the textbooks of dialectic which they used they wrote commentaries and glosses, into which, little by little, they admitted problems of psychology, metaphysics, cosmology, and ethics. So that the Scholastic movement as a whole may be said to have sprung from the discussions of the dialecticians.”

“First, the use of reason in the discussion of spiritual truth and the application of dialectic to theology are accepted with out protest, so long as they are kept within the bounds of moderation. Second, there is a willingness on the part of the Schoolmen to go outside the lines of strict ecclesiastical tradition and learn, not only from Aristotle, who was now beginning to be known as a metaphysician and a psychologist, but also from the Arabians and the Jews, whose works had begun to penetrate in Latin translations into the schools of Christian Europe.”

<http://www.granta.demon.co.uk/arsm/jg/scholasticism.html>

November 10, 1619: Descartes' day and night of birthing a new philosophy in a “stove-heated” room. An official beginning to the end of “the miserable philosophy of Scholasticism.” (Voltaire, *Philosophical Letters*, New York: Bobbs-Merrill Press, 1961, 62). He was charged with atheism, and remained fearful his whole life of the power of Church to violently suppress dissent.

Voltaire: “Descartes gave sight to the blind.... The course he opened to us has *since become boundless*. (Emphasis mine; *Philosophical Letters*, 64-5)

Scientism serves the Individual at Enlightenment U

Language: mathematics

Individuals define relationships in terms of their own freedom and interests.

Will nuclear reactors and scientific labs similarly become museums? Places where we still feel awe, but where the work of science is no longer seriously done or important one way or the other.

Bacon: Knowledge is power

Knowledge as property, as freedom from.....

Liberty traction hypothesis.

The end of knowledge is not the end of the world, but merely the end of the world as we know it.

Individual-Enlightenment-Scientism

Civic Education (Civicism?) serves the Ecosystem -Ignorance-Civic Education: The End of the Age of Knowledge

Ecosystemic Sovereignty

Educating for: Citizenship

Humility

Precaution

Space-Time Slack

Sketchy history to show education serving sovereigns. Who's free, who isn't.

Strategy:

Subversive, Use tenure to undermine system; support alternative systems; get the kiddies to start rebelling; modern pamphleteering; drive limits into the curriculum; (New Orleans Paper); Solve problems; work collectively; scholarship as hobby; force graduate education out of its boundaries.

In a word, the Enlightenment worldview is all about the liberty of individuals. Like the atomistic science upon which this concept is borrowed, and individual is someone/thing that cannot be further divided. This makes each individual distinct and independent from others. Each individual is his or her own thing. Like the God-world it replaced, the notion of the individual is metaphysical bedrock. It is a basic substance/idea that governs both the world of atoms and the world of life (human individuality and even the organismal bias in the life sciences). Very quickly the world in its entirety³⁹ becomes a place that serves individuals (rather than God). And so too are social and political structures organized around the individual. Enlightenment education is a method of study focused on individuals (scientific method's focus on parts) as well as the training of individuals⁴⁰ in the individual pursuit of their own choosing. In the Age of the Individual innovation and radical new and different ideas (progress) are expected and rewarded, even if resisted at the local level. The individual is educated for independence and personal success however s/he defines it (and roughly within the broad parameters of truth, propriety, and the law.⁴¹

The prime source of Individual Sovereignty is, I believe, Rene Descartes' singular and most amazing feat of meditating, in six parts, on dreams, the world, God, and, most importantly, the ability of the individual human mind to first doubt and then reconstruct—on its own terms—every bit of it. Descartes' reward, and to date the

³⁹ This is what it means to be at metaphysical bedrock.

⁴⁰ Unlike the training of priests and scholastics, whose work was/is collectively similar in that it demonstrated God in the world and to the masses. Scholasticism was an intellectual boot camp designed to train God's soldiers and messengers of one truth: God's truth.

⁴¹ But notice here that the replacement of God truth with Individual truth comes an uncertainty of values, propriety, and even the law. Moral relativism is proof of the triumph of the individual over God, the replacement of one sovereign with another.

modern world's reward, is an epistemological bulwark centered on individualized human consciousness, and with it the ability to make and unmake the world without limits.

(Rejection of Scholasticism, especially the appeal to authority. Rejects pure atomism but ends up with something similar.)

This Cartesian moment makes possible the worldview we have come to know as the enlightenment, and as symbolized by three revolutions: scientific, political, and economic. Together these revolutions freed cultures to embark on pursuits that were heretofore forbidden or considered impossible: the control of nature; the creation of economies and technologies that went beyond subsistence; the freedom of individuals from governments, religious and family traditions, and the past; and a belief in human progress separate from evolution and unencumbered by moral and spiritual beliefs.

Descartes' *Meditations on First Philosophy* makes possible the belief that the world can be remade in humanity's interests.

The civic mind: the recognition that what Descartes and so many others saw as a solitary and competitive enterprise is rather a collective, communal, and often cooperative undertaking between minds.

A civic epistemology (See "Joyful Ignorance") is a way of knowing that requires a social network and setting. It requires others: as teachers in a tradition of learning; as fellow investigators within and across disciplinary boundaries; and as relational subjects of study. Like any social network, a civic epistemology is bounded by values and

constraints that are not derived from individual members, but rather from a shared understanding of the community. This communal aspect of a civic epistemology limits the misplaced self-confidence and competition of the individuated mind in solitary pursuit of knowledge, and strengthens the faith in common pursuits commonly undertaken and ethically applied.

3) **Get civics into the curriculum.** It wasn't until I was out of graduate school that I discovered that there was fully-formed, non-Marxist alternative to liberalism. Whether we call it communitarianism, civic humanism/republicanism, or the varieties of "civics" (agriculture, science, architecture, philosophy, among others), there is a substantial literature, both ancient and modern, that identifies human happiness and fulfillment with our inherently social nature. From Aristotle to Thomas Jefferson, to contemporary writers like Aldo Leopold, Wendell Berry, Robert Putnam, and Michael Sandel, the good life is measured by the extent, depth, and quality of our relationships with others: family, neighbors, community, government, and the natural world. Our engagement in these relationships is the practice of citizenship in the polis (or any civic infrastructure, from sidewalks and town meetings, to a well-endowed natural landscape, to collaborative, interdisciplinary projects).

It is time to get this material into the curriculum, whether in full-blown courses, or as books, and use it to cut against the well-entrenched canon that lies at the center of the enlightenment worldview: namely, that education frees the individual mind from limits and superstition, and equips it to remake the world to its personalized settings.⁴²

⁴² The source of this foundational perspective is, I believe, Rene Descartes' singular and most amazing feat of meditating, in six parts, on dreams, the world, God, and, most importantly, the ability of the individual

4) **Engage the Conversation** We can and must re-engage our students in talking about their lives in terms of success and happiness. In the classes that I teach at a predominantly science and engineering university, I regularly ask my students to inventory their lives both in terms of what they have and in terms of what is missing. I ask them to consider what their lives cost them in terms of stress and unhappiness, and what the systems that support this life leave out, and *who* they leave out. I encourage them to look behind and underneath these systems, to examine carefully the assumptions, and to imagine alternatives. We talk about and examine values. And it doesn't take long for us to start talking about possible alternatives to our current lifestyles and assumptions about success and happiness. They are eager to talk about these questions and issues, because, I think, there is a growing anxiety among young people that the world they have been promised isn't turning out to be the world that they are getting.

human mind to first doubt and then reconstruct on its own terms every bit of it. Descartes' reward, and to date the modern world's reward, is an epistemological bulwark centered on individualized human consciousness, and with it the ability to make and unmake the world without limits. This Cartesian moment makes possible the worldview we have come to know as the enlightenment, and as symbolized by three revolutions: scientific, political, and economic. Together these revolutions freed cultures to embark on pursuits that were heretofore forbidden or considered impossible: the control of nature; the creation of economies and technologies that went beyond subsistence; the freedom of individuals from governments, religious and family traditions, and the past; and a belief in human progress separate from evolution and unencumbered by moral and spiritual beliefs. Descartes' *Meditations on First Philosophy* makes possible the belief that the world can be remade in humanity's interests.

Ruminare

Draft

The Liberty-Traction Hypothesis Acknowledging Our Geological Inheritance

Beginning with a definition of liberty as “the freedom that results when *someone else* (slaves or cheap labor) or *something else* (energy/fuel) does the work that you are now free not to do,” this essay advances the hypothesis that liberty—whether political, personal or economic—is dependent on a culture’s ability to harness high density energy supplies. The traction supplied by this energy by-and-large determines the extent and capacity of the liberty. As this energy becomes scarce so does the traction, and liberty—as it were—slips. The essay looks at historical examples, but focuses on the Great American Liberty Experiment, expressed as maximal liberty—economic, political, and scientific/technological—for individuals, and theoretically exportable to all, and depending almost entirely on a rich natural resource base that is unparalleled, unacknowledged, and non-renewable. Particular emphasis will be given to the current assaults on liberty in the United States, and just as our energy slippage is becoming most apparent.

The Great American Experiment, expressed as maximal liberty—economic, political, and scientific/technological—for individuals, and theoretically exportable to all, depends almost entirely on a rich natural resource base that is unparalleled. James Madison was the only founder who saw this clearly. He predicted in 1829 that America would reach its resource limits in 1929, and that unless the laws and institutions of this country were adapted, the majority of citizens will lack “landed or other equivalent property, and be without the means or hope of acquiring it.”⁴³ One could argue that oil got us out of the depression, made us victorious in WWII, and left us in 1946 as the only industrialized economy in the world. Twice as much US oil (12 billion barrels) was discovered from 1930-1950 than in the remaining 80 years of the 20th century (Goodstein, *Out of Gas*, p. 27). We are not likely to be so lucky this time.

⁴³ I’d like to see somebody or some organization validate the liberty-natural capital traction hypothesis. A quantitative, quasi-mathematical representation of the claim: “Liberty is the product of someone else (slaves or cheap labor) or something else (energy/fuel) doing the work that you are now free not to do.” Or “Liberty = Egalitarian Values x Natural Capital.”

The American Liberty Project—still ongoing in my view—can be seen as a large substitution experiment: Can private ambition, limited government, economic growth, technological advancement, consumption, and the rule of law, substitute for community, social capital, public life, thrift, virtue, and the common good? The status-quo answer to this question has always been an enthusiastic “Yes!” and the results have been impressive: a large amount of personal liberty, an economic-technological engine that delivers the goods seemingly without limit, and a scientific method that knows almost no moral or social constraints. It is a linear and progressive notion of a liberty for which we credit the Founders, the American character (hard work, pragmatic, liberty-loving) and occasionally Divine Providence.

What is more often **not** acknowledged is that this project just so happened to take place in one of the world’s richest sources of energy and materials, from topsoil and water to ecosystems and energy.⁴⁴ Liberty’s success in America is very much dependent on excellent traction through nature’s bounty. In case you are not convinced, consider this thought experiment: Assume the American Experiment from 1776 to 1976 in: Sub-Saharan Africa, South America, India, or Australia, including population growth, current standard of living, ability to fight and win WWII, etc. How long would the experiment have lasted had Columbus actually “discovered” India? At its roots, America’s tree of liberty is nourished by natural capital, and by four bedrock assumptions:

⁴⁴ See Walter Youngquist’s *GeoDestinies: The Inevitable control of Earth resources over nations and individuals* (Portland, Oregon: National Book Company, 1997), particularly chapter 8. The US has or had high-grade oil deposits, copper, the raw materials for cement and steel, excellent geographic arrangement of minerals, and water transportation (Great Lakes, Mississippi).

- We won't run out of natural capital or exceed our sink⁴⁵ capacity
- Human and economic capital can substitute for natural capital (with the help of technological fixes)
- Social capital is optional
- The system will continue to increase the quality of individual liberty and total liberty for all so long as the primary capital stocks remain plentiful.

In a word, The American Liberty Project is place based, historically contingent, thermodynamically driven, overly optimistic, based on assumptions that have been proved false, and largely finished. It may have been conceived by some of the Founding Fathers as divinely inspired, but its success was primarily the result of being fueled by high-test.

Another way to present this idea is with an admittedly idiosyncratic list of key moments in America's civic history:

1776: Power to the People

1787-89: Not so Fast. Power to the Representatives

1789-1929: Power to the natural capital exploiters. Winners take all. Increasing individual responsibility. Industrial base achieved. Slow loss of social and natural capital and civic democracy except as momentary and largely ineffective revolutionary reactions against America's growing selfishness, individualism and inequality i.e., the various "movements" (progressive, union, women's, environmental, and now civic).

⁴⁵ "Sinks" are where we put our wastes (heat, materials, and other unusables). Sinks are not optional or easily diminished. They are the necessary byproducts of work and the energy that creates that work. An automobile engine, for example, will not work if it cannot get rid of the heat it creates while doing the work. See David Goodstein's *Out of Gas*, chapter four, for a lesson in heat engines.

1929: The year James Madison predicted the US system would collapse, unable to depend on its resource base to supply its increased population. It is also the beginning of the Great Depression, the transfer of power away from individuals and toward government programs/industrial corporations, the creation of government-sponsored security nets, and greater, forced redistribution of wealth.

1930's: The decade in which US oil discoveries peaked (US oil production peaked roughly forty years later).⁴⁶ The eight billion barrels of US oil discovered in the 1930s equals roughly the same amount of US oil discovered in the entire rest of the 20th century.⁴⁷

1941-45: WWII is won by a combination of tactical skill, heroism, sacrifice, and the US ability to create overwhelming war machinery fueled by an abundance of energy, specifically oil, and access to precious metals.⁴⁸ German and Japan ran out of a gas, literally. (It was the US blockade of Japan—and thereby cutting off its access to oil—that is at least partially responsible for the Japan's Pearl Harbor attack.)

1946-1970: Power to the only industrialized nation left standing, and with the world's largest oil supplies. The US exports economic aid and the liberty dream to nations around the world, and enjoys the fruits of a war economy transformed into a consumption

⁴⁶ Richard Heinberg's *Power-Down: Options and Actions for a Post-Carbon World*, p.18.

⁴⁷ Goodstein, p. 27.

⁴⁸ See Robert Heilbroner's *The Good Life and its Discontents*, 26.

economy, little or no international competition, continued energy superiority, and a sense that our “way of life” is responsible for our prosperity.

1970: US reaches its Hubbert Peak halfway Point for oil.⁴⁹

1970-2000: Increased US reliance on foreign energy supplies, decreasing US middle class, the growing sense domestically that the promise of American prosperity with a little luck and lots of hard work is a lie. The international exportation of the liberty dream is on hold or seen to be a lie by more and more “developing” nations. The emergence of two trends in response to the energy crunch: 1) the increased discussion, promotion, and promulgation of civic values and social capital, and 2) greater US willingness—starting with President Carter—to use military options to secure a steady oil supply.

2004-2030: Range of predictions for when the *world* will reach the Hubbert Peak halfway point for oil.⁵⁰

2005-200?: US recognizes and admits that its 300 year free energy ride is over and creates either a nation of empire focused on military might and the urgency to take whatever it needs to secure economic growth and prosperity OR a nation focused on

⁴⁹ There are numerous books on the Hubbert Peak, and Marion King Hubbert’s 1956 prediction that the US would reach the half-way point in its oil tank (the point at which half of all the known reserves have been pumped out, refined, and consumed) in 1970. At this point, increased demand would require non-US sources. He was dead on. There is still considerable debate about when the worldwide half way point will be reached, but predictions are increasingly restated earlier, not later, in this century,

⁵⁰ See <http://www.hubbertpeak.com/> for a general discussion of the various scenarios regarding the global midpoint.

greater democracy, civic participation, and economic equality. In this second option, social capital (of which civic environmentalism and civic democracy are a part) substitutes for natural capital.⁵¹

The Oil Endgame and the Remaking of America

A looming global energy shortfall. A deep-rooted and causal connection between energy and what we call the American Liberty Project. The current administration's worrisome willingness to curtail democracy at home while waging war wherever the oil seems most abundant. Any one of these trends by itself would be cause for concern and a motivation to recalibrate our intellectual machinery. Taken together, they should ring every school bell, sounding an alarm that demands our attention, not just as independent contractors, but as members of disciplines and institutions. We need what Paul Hawken describes as a "shared mental model," a general agreement about what is challenging our thinking (the problem to be solved), and specific products and programs that are designed to solve the problem. This is not just a dismal warning, although it is a warning. But it is also a challenge for those of us in the academy who generally—as a rule—are not asked to solve real and immediate problems (unlike our engineering and business colleagues who make real money doing consulting work that, indeed, solves real problems.) The good news for all of us here is that the United States is at a junction that will require our

⁵¹ It is my hypothesis that there is an inverse relationship between natural and social capital. As natural capital becomes more plentiful in a social system, social capital wanes, in part because there is less reliance on others, which leads individuals to think and act like independent sovereigns. The eventual control of the stocks and sources of natural capital likewise create wealth and power structures that tend to limit civic democracy. Inversely, as natural capital becomes scarce, social capital can—though not necessarily—create systems of mutual aid, enforce virtues of thrift, and generally encourage social and interdependent behavior.

collective and best work as theorists and educators. This work, if it is done right, will help manage the transition to a society that must “fess up” to the thermodynamic limitations of liberty and the American dream without thereby trashing the world’s ecosystems in search of a few more barrels of oil or further eroding our democratic and social institutions. It is literally the remaking of the American system.

Draft

Two Concepts of Liberty Redux

With acknowledgement of Isaiah Berlin⁵², one can think again of two concepts of liberty that have, over time, been co-mingled in our contemporary minds. We have come to imagine them as one in the same, and require from our politicians and social systems that they provide both, even while our political system was primarily created to provide one, not the other. The other concept of liberty has been assumed as steady, inexhaustible, and constant. It isn't, and there's the central challenge of this century. This essay defines the two concepts of liberty as "Off-My-Back (OMB) Liberty," and "Be-My-Back (BMB) Liberty." The first freedom, OMB Liberty—generally viewed as political or personal freedom from others—requires access to goods and services that one can call one's own; i.e., BMB liberty. That is, to be free from the power of the King requires that one have some freedom over the production and ownership of food, etc. Political freedom entails economic freedom. The elephant-in-the-room question that no one is willing to address honestly is: "To what extent does freedom from political and social oppressions depend upon the freedom to continually draw down our stocks of natural capital?" That is, how much does "off-my-back" freedom depend upon a limitless "be-my-back" freedom, and how is the former constrained by the latter when the drawdown of the natural capital stocks limits one's access to the consumption of material goods? The answer is: quite a bit. The unpleasant conclusion drawn in this essay is that decreases in natural capital stocks will erode BMB liberty and may also erode political or OMB liberty. One obvious example of this connection is the political access of the materially rich, and the eroding conditions of America's poorest citizens both in terms of economic and political freedoms (health care, legal services, and political access, for example, as functions of wealth and "purchasing power"). James Madison worried about this very problem in the 1820's, and he predicted the end of the American Republic in a century (1929 was the precise year he predicted). This essay expresses a similar worry.

Notes, 12/18/06

Two kinds of Liberty redux

With apologies to Isaiah Berlin, one can think again of two concepts of liberty that have, over time, been co-mingled in our contemporary minds. We have come to imagine them as one in the same, and require from our politicians and social systems that they provide both, even while our political system was primarily created to provide one, not the other.

⁵² Isaiah Berlin published his well-known essay, "Two Concepts of Liberty," in 1958, wherein he distinguished between negative and positive liberty. My essay does not use his definitions.

The other has been assumed as steady, inexhaustible, and constant. It isn't, and there's the central challenge of this century.

To simplify the terminology, let us call the first liberty "Off-My-Back (OMB) Liberty," and the second "Be-My-Back (BMB) Liberty."

I'd like to see somebody or some organization validate the liberty-natural capital traction hypothesis. A quantitative, quasi-mathematical representation of the claim: "Be-My-Back Liberty is the product of someone else (slaves or cheap labor) or something else (energy/fuel) doing the work that you are now free not to do." Or "Be-My-Back Liberty = Egalitarian Values x Natural Capital."

Liberty is both the freedom to **not** do what others tell us to do, and the freedom to do what we would like, whether a hike in the woods, or attending a NASCAR race, or stamp collecting. But this second freedom requires that something or someone else provides us with nutrition, heat, basic social services. In a moderately functioning democracy these services are provided by people who choose to work in the professions that deliver them. Of course plenty of folks prefer not picking up our trash, and we see workers in fledgling and non-existent democracies exploited every day to provide plentiful, low cost products that we are free to buy and they are not. At the very least this is morally problematic, and the socially conscious consumer tries to make a positive influence in this arena. The rest of us are either unaware or comfortable with the arrangement. Economists assuage our guilt by telling us it's a natural consequence of free markets and rational choice theory. And sadly, in a world of 6.6 billion people, BMB Liberty will have a surplus of people to make it possible.

But there is another source of BMB liberty, and there's likely to be a great deal less of it in the coming decades. I'm speaking of what is called Natural Capital, the stored material/energy in soils, vegetation, fossil fuels, fossil water, ecosystems, and the sun-powered photosynthetic processes that make them all possible. Energy slaves....

ENERGY SLAVE

Fuller used data gathered by the US, German and Swiss armies to arrive at an estimate for the average amount of (mechanical) work a person could do in a year. This is in addition to the energy spent in **metabolic** self-maintenance. The net work done constitutes a net "advantage" in dealing with the **environment**. A figure of 37.5 million foot-pounds was arrived at.

We can calculate the ratio of work done by a system to the **energy** intake, to obtain a measure of **efficiency**. Since most of our **machines** and appliances are very inefficient, Fuller posited a figure of 4% overall efficiency for total energy consumption.

He calculated **world** energy consumption for the year 1950 as being 80.17 quintillion foot-pounds (plus or minus 10%). Given only 4% efficiency the net work obtained equalled 3.2 quintillion ft-lbs. We divide this figure by the net annual energy output per man of 37.2 million ft-lbs. This gives a result of 85.5 billion man-year equivalents done by machines. These man-year equivalents are energy slaves.

If we divide the number of energy slaves by the world population total of 2.25 billion (for 1950) we get a figure of 38 energy slaves per person.

Boyden (p.196) reports that,

"In the USA, the daily use per capita of energy is around 1000 MJ; that is, each person has the equivalent of 100 energy slaves working 24 hours a day for him or for her.... In some developing countries, the rate of energy use is less than the equivalent of one energy slave per person."

Fuller plotted the geographical concentrations of energy slaves on his **World Energy Map**.

Ivan **Illich** (1974) argued that it would be unwise to believe that human well-being depends on the number of energy slaves at our disposal.

See also **Mechanical Advantage**.

<http://www.nous.org.uk/energy.slave.html>

The argument for why NPP can't provide BMB Liberty for the long term.

BMB liberty and the quest for efficiency allows any and all transgressions of limits.

The Founders, at least Jefferson, did rely on good soils for his OMB Yeoman farmers without acknowledging the lucky geological inheritance, and he was willing to forgo the technological advantages of a home-grown industrial culture. But he believed that the yeoman farmer would be both independent from the long arm of government, and relatively independent from others. (He, of course, depended on the slave economy for his lifestyle, but he didn't imagine such a shackled underclass for his version of the socio-political system....Or did he? ← This argument is problematic.

Community and Virtue of Necessity⁵³

“Community” has been a steady buzz word in the social, environmental and agrarian movements of the last two decades. Community supported agriculture, co-housing, and communitarianism, to name a few, call Americans away from their pursuits of self-interest in favor of common and public pursuits. This essay posits necessity as the glue that holds communities together, and demonstrates how earlier communities were held together by the necessities created by oppressive cultural customs and hierarchies, as well as the necessity caused by scarcity and need. Both of these necessities were overturned by the political, scientific, and economic revolutions we identify with the Enlightenment. Modern communities will require a quite different set of constraints. We must first reject our Enlightenment belief that we can control and dominate nature, and instead accept the necessities of our naturalness. Secondly, we must choose to stay in one place and one community long enough—and put up with its constraints and limitations—to discover the goods of a community and a home territory. The paradoxical conclusion of this essay is that community life will require members to *choose* to be constrained.

Reasonable beings are alone granted the power of a willing
conformity with circumstance; the bare conformity by itself
stern necessity exacts from every created thing.

—Marcus Aurelius, *Meditations*

It's midday in late August. Looking out my office window I sense the telltale signs of autumn: lighter shades of green, a sun that no longer crests the highest maple, an absence of haze, restless animals, empty nests. My body too anticipates the changes in ways I feel

⁵³ This essay was previously published in *Rooted in the Land: Essays on Community and Place* (Edited by Vitek and Jackson, Yale University Press, 1996).

but do not fully comprehend. But these observations take willful effort. My eyes are drawn back to the flashing computer cursor, impatient as a tapping foot. The computer's little fan hums, as do the fluorescent lights. A logging truck downshifts, cars maneuver for their lined spaces in the parking lot. The phone rings.

I stop what I am doing and feel my pulse. Its rhythm matches the sway of distant trees. My breathing slows. I hear briefly not the wind, but the sound of leaves touching in the wind. It's not unlike a sound I have heard before, in a doctor's office with a contraption pressed to my wife's stomach, amplifying the steady heart-beat of one of our children. The phone rings.

This daily struggle for my attention reflects an ongoing transformation toward an ecological ethos. It represents one of the most difficult challenges of the decade and the coming century because it requires from each of us a fundamental realignment of our views of happiness and success, of our relation to the natural world, and of our everyday perceptions, habits, customs, and practices. The process will be made more difficult in proportion to how deep in us go the roots of the current ethos, and I maintain that for most of us they go pretty deep.

While we might vigorously reject the scientific assumptions of Francis Bacon and René Descartes, our daily lives are filled with the products of modern science and technology: automobiles, computers, airplanes, smoke alarms, asthma medicine, the wind generator, energy-efficient lighting, even the flush toilet and the screened window. The tenets of John Locke's labor theory of property ignore the ethical and ecological values of the land, but most of us have ownership over some property and believe that our decisions concerning it are prudent ones. Although we may be critical of the philosophy

of individualism, with its emphasis on self-interest and rights, few of us would give up the freedoms that came with the Enlightenment: the freedom to reject traditional beliefs that oppress women and minorities, the freedom to choose our own way, to express our sexual preferences, and to say what we think. We still speak of the sun as rising and setting; rarely do we feel the earth's rotation, our own movement, into the morning light. Indeed, the roots of our present ethos are legitimately deep, well nourished, and healthy.

One aspect of the shift to an ecological ethos is the rediscovery of community. There is a growing literature that answers Aldo Leopold's call to become members—plain citizens—of a wider, more inclusive and placed community. If we are interested in reinhabiting communities and in discovering our communitarian selves, we must start by asking such basic questions as, What are communities? How do they cohere and undergo change? Why do they move in and out of existence?

At least part of what holds a community together is some notion of necessity. Something outside us—or perhaps our own natural limitations, or a decision to limit ourselves—constrains us to a place, to a community, to helping our neighbors, and in turn to being helped by them. This necessity often begins as some-thing that is against our will, but given the right circumstances necessity turns from a constraining condition to an enabling condition. When successful, necessity leads inevitably to virtue for the individual and well-being for the community. It is a transformation made possible by choice, diligence, and practice.

To speak of necessity as a virtue invites charges of fascism, intolerance, and oppression; and rightly so, when considering the checkered history of community life. As I shall describe below, the reinhabitation of community requires a new concept of

necessity, one that accepts and embraces the necessity of our naturalness and our natural limitations, and one that requires personal assent. Human communities will form in an ecological ethos only when their members submit to the external necessities of the natural world, to their natural existence, and to the internal constraints of their personal choices to be still, to stay put, to get on with the work of the local community, and to rejoice in its memories and traditions, and even in its pettiness and provincialisms. I confess that I am not optimistic. Very little in either our present ethos or our primitive past gives us much encouragement or advice on how to proceed.

The Scottish philosopher David Hume said it best: “In humans alone, this un-natural conjunction of infirmity, and of necessity may be observed in its greatest perfection” (Hume 1983, 485). It seems that human beings, because of our limitations and necessities, seek out one another and engage in cooperative behavior.

With time and the right conditions, practices and customs arise that celebrate this heretofore instrumental gathering. Stories are told, memories are formed and revered, a community is defined. Still, stories and memories alone will not do. What keeps a community together is the inability of its members to leave, either because of the dangers that lie outside the community—a forbidding desert or an enemy clan, for example—or the ties that lie within the community—traditions, laws, fear of being cast out, rejected, or destroyed. These laws and traditions, like songs and memories, function as constraints and arise out of the necessity of being together

The idea that necessity and constraint can form communities and enable virtue is not difficult to demonstrate. Our infirmity and necessity show themselves most visibly in our birth and infancy. Our creation is a social act, our suckling the first social experience

outside the womb, the family the first and most primal community. Nearly all traditional, labor-intensive activities occur in groups: the hunt, the harvest, the barn raising. And what traditional community is not held together by external necessities or the public and enforced commitments to a god, a leader, or an ideology?

We can find examples in contemporary society as well. Many of us had music lessons of one sort or another as children, and we remember them with varying degrees of pain and pleasure. Our competence rarely exceeded our expectations, so we had to submit to hours of tedious practice. When our interest waned, parents and teachers would supply external constraints, mixing reward with punishment, stories of success with ultimatums. If we stuck with it (and few of us did), there came a point when the diligence and practice paid off. We reached a high level of competence, perhaps even virtuosity. We became musical. Only then did we understand the necessity of hard work, thank and honor our taskmasters, and submit ourselves to the discipline of musicianship. Success was shared both by the individual musicians and by the community of people who helped develop their musical talents.

There is also the necessity of work that must be done. Not long ago my house needed painting, and I was not in a financial position to pay someone to do it. It was a job born of necessity, and there were plenty of days when I felt exceedingly constrained. I did not freely choose to paint my house, nor would I choose to do it again. But having submitted to the practice and discipline of painting a house, I was free to do a great deal of thinking, not only about ladders and paints, but about philosophical ideas as well. I also confronted my fears of home repair and learned a thing or two about carpenter ants, scaffolding, and the art of scraping. There was community building too. I freely borrowed neighbors'

tools and ladders, sought their advice, enjoyed their praise and encouragement. It would be an exaggeration to claim any virtuosity from this experience, but I did acquire a bit of knowledge and at least some wisdom about home ownership.

Similarly, the moral life provides us with enabling constraints and plenty of opportunity for virtue. Our daily lives, for example, are filled with promises, both mundane and sacred. Promising is an inherently social act born of a necessity that requires us to commit ourselves with mere words to a future only vaguely seen. The promises we make and remake in a lifetime of marriage constrain us in many ways, but likewise make possible strong family ties and the pleasures that come from them. One thinks of Odysseus and Penelope, an ancient couple who would not stay separated despite many hardships, temptations, and threats. Their restraint and diligence made possible a virtuous reunion.

Closer to home I am reminded of a farmer in my county—now deceased—who at age seventy-five was stricken with an illness that kept him from the evening milking for the first time in seventy years. He cried when he told me this. Whom had he let down? Few of us can appreciate the constraints placed on dairy farmers, but just think what seventy years of twice-daily milkings can do for your sense of place, your character, and your community.

David Kline, an Amish farmer living in Fredericksburg, Ohio, shared a similar story about his father. Although he lived to the age of eighty-seven, his father never saw the Redwoods, the Sierras, the Great Plains, or even the Mississippi River. “He was too busy,” David said, “helping his neighbors and enjoying the creation around him.” Another member of the Fredericksburg Amish community, when interviewed about the

car accident that had killed five of their children as they walked along a country road, said this: “We could take it a lot easier if he—the driver—would feel sorry. It’s a little harder to forgive since he doesn’t seem upset. But we have to forgive him. And we will.” The clarity of these words reflect the depth of this man’s discipleship and practice in the Amish community.

The connection between the rural life and religious discipline is likewise brought out by Kathleen Norris:

Gradually the novice discovers that a forced observation of little things can also lead to simple pleasures. A young monk once told me he’d been delighted to find that the worn black wool of the habit he’d been given was excellent for sliding down banisters. He demonstrated, and for a moment became an angel: without feet, all irrepressible joy.

It’s when the novices move toward survival, embracing the deprivations of monastic life as a personal, inner necessity, that they begin to feel truly free. They also begin to understand the depths of joy, and how little it has to do with what the world calls happiness. Like the farmer or rancher who willingly takes on economic hardship, remaining in Dakota out of love for the land, these monks can grow to a profound understanding of fast and feast. One makes sense only in terms of the other, and both may be seen in terms of play. Like country folk everywhere, monks develop an ability to party simply but well. “No one celebrates like we do,” says Benedictine Joan Chittister in a recent commentary on the *Rule* (Norris 1993, 214)

Daniel Kemmis recalls a memory in his book *Community and the Politics of Place* about living on the Montana Plains in the 1950s when a barn raising required neighbors, and neighbors meant the likes of Albert Volbrecht and his family, none of whom were particularly blessed with social graces, especially Albert. They were the sort of people from whom Kemmis' mother Lilly would have preferred to remain distant. Kemmis writes:

In another time and place, Albert and Lilly would have had nothing to do with each other. But on those Montana plains, life was still harsh enough that they had no choice. Avoiding people you did not like was not an option. Everyone was needed by everyone else in one capacity or another. If Albert and

Lilly could have snubbed each other, our barn might not have been built, and neither our calves nor Albert's branded. Lilly and Albert didn't like each other much better at the end of the barn raising than at the beginning. Yet that day, and many others like it, taught them something important. They learned a certain tolerance for another slant on the world, another way of going at things that needed doing. They found in themselves an unsuspected capacity to accept each other. This acceptance, I believe, broadened them beyond the boundaries of their own likes and dislikes and made these personal idiosyncrasies seem less important. In addition, they learned that they could count on each other. If Albert said he would be there with a "farm hand" attachment on his tractor to lift the roof into place, he would be there with the farm hand. If Lilly said she would fry the

chicken, she would do it whether she was in the mood that morning or not. And because Albert and Lilly and the rest of our neighbors were able to count on one another, they experienced the satisfaction of accomplishing a big, tough job by working together.

These examples are meant to demonstrate how necessity holds us together; how, through diligence, discipline, and practice, we are enabled to practice virtue and achieve well-being. They indicate clearly how the necessity of rootedness brings forth the fruit of community.

It is here that my liberal friends object to my “romanticized” view of the world. Where I see virtue, they see vice, corruption, oppression, inequalities, and hierarchies. Where I see diligence, they see drudgery. Where I see the commitment and fidelity of Penelope and Odysseus, they see the treachery and deceit of Clytemestra and Aegisthus. Both the Baconian-Cartesian scientific paradigm and Lockean individualism, they tell me, sought to free us from various sorts of necessity. Bacon and Descartes sought to control nature so as to make our lives better, longer, more productive, and happier. Locke and others wanted to overthrow the tyrannies of monarchies, religious oppression, and abusive traditions. These scholars shared a fundamental belief that humans can think for themselves and are free, within limits, to act on their own choices. The Enlightenment sought to free us from necessity of every kind, and it was not all bad.

There is a sense in which my friends are correct. Who among us would choose a life where half our offspring died before their first birthday, or where we were destined by caste or tradition to live a life we did not choose? The advances and victories of the

Enlightenment were hard won, and in both cases—scientific and political—are rightly described as revolutions. Surely we must go forward in the re-creation of communities and traditions, taking with us three centuries of social gains and scientific discoveries.

To my mind, the Enlightenment got it half right. We are better off without traditions and hierarchies that oppress our freedoms and choices, and that force us to act against our will. The half it did not get right has to do with our control of nature, and the sense that we are above nature. If my assessment is correct, our task of building communities becomes doubly hard; and here let me sketch an alter-native concept of necessity that is more appropriate to our present and future community building. It has two parts.

We must first accept and embrace the necessities of our naturalness. We are natural beings whose bodies must be worked, whose minds must be challenged, whose skin must be touched, whose hearts must be loved. Our voices must speak promises and sing lullabies, our feet must run marathons, follow the plow, and dance into the night. But we are mortal beings too, constrained and enabled by the advice Aldo Leopold observes in the natural endowment of all living things: “suck hard, live fast, and die often” (Leopold 1970, 114).

We are also beings in a place; on the earth, of course, but more importantly in the soils, climates, geographies, customs, and stories of the Pacific Northwest, the Rockies, the Kansas plains, the Maryland shore, the Mohawk Valley, the Great Salt Lake, the Adirondacks, and even the streets of Brooklyn, Baltimore, Kansas City, Miami, and Los Angeles. The necessities of our naturalness and our native ness must be embraced wholeheartedly if community life is to return.

Yet this is not enough: we can always say no to these necessities and deny them a little longer. We can run to the mall, watch TV, take a trip to Disneyland, move every three years, tighten the skin on our faces, enlarge or reduce our breasts, chins, buttocks, and bellies, replace defective body parts, or have ourselves frozen. Thankfully, we can no longer count on institutional hierarchies to keep us in line. We are, as Sartre says, “condemned to be free,” and so we must both accept our constraints and choose our necessities. We must embrace our mortality and submit ourselves to a place, to a community discipline. We must remain in a place long enough—and put up with its constraints and limitations, as well as the critical remarks of friends and colleagues—to discover the goods of a community of people and a home territory. Though we choose the necessity of staying in one place, in one community, we must imagine that this necessity comes from another source—from the landscape itself, from previous or future generations, from our neighbors—lest we too easily give up and move on.

Described in more philosophical terms, accepting our naturalness and our nativeness is an ontological or metaphysical necessity because it is an empirically testable state of the universe. Our hopes for a spiritual afterlife somewhere off the planet have not been shown to be an accurate predictor of reality. Our backyard compost heaps and garden soils are far more informative in these regards: black, cool, fertile, and yes—in their death and corruption—very much alive. Our human communities too offer us in memories, in testaments to our positive influences, and in our contributions to the gene pool, a longevity beyond our conscious earthly life. While the longevity found in the rebirth of the soil and in our community’s collective memory may not be what we have come to expect, if that is all there is, then it can be enough. Accepting our mortality frees

us to focus on the details and practices of this life, this landscape, this community of people. With acceptance comes diligence and attention to the repetitions and rhythms of daily life: from the dishes, the diapers, and food preparation; to births, marriages, and funerals; to the changes of season and the passing of another year. We see these moments and events as the living cycles they are, and celebrate our inclusion. We're at the dance; we know we're at the dance; and we're dancing.

Choosing to become a member of a placed community, on the other hand, is a moral necessity that we ought to choose but are free to reject. This moral necessity springs from the goods, and the good, that can be achieved for oneself as well as by practicing virtue in a community setting. Of course, this conception of the good represents only one choice among many rival philosophical and religious accounts of happiness, and there is no telling in advance how our individual lives will turn out because of our adherence to one system or another. Still, we can use past and present successes, stories, and role models to fire our own commitments and routines until they become learned, practiced, and virtuous. Moral necessity is a personal choice of, and adherence to, one form of life over another. Committing oneself to a community, to a place, and to a common good is that kind of choice.

Although they can be conceived of as separate, the moral and metaphysical notions of necessity are linked. The more fully we accept our metaphysical necessities, the easier it becomes to choose the constraints of community.

In his essay "An Amish Perspective," David Kline describes the discovery of an arrowhead in a field he was harrowing. David's family has been working this land since 1918, so his roots already go deep, but the arrowhead prompted him to consider his

Paleolithic relations. It forced his roots deeper into a landscape that now holds his father, his neighbor's children, and thousands of years of fertility, respect, toil, and disappointment. The arrowhead objectifies his metaphysical limitations and strengthens his commitment to the soil that holds it, to the family and friends who work that soil, and to the flora and fauna living there.

I retell Kline's story as a bridge to my own experience and struggles with necessity. My home territory is the Racquette River watershed in northern New York's St. Lawrence Valley. This river valley landscape is both wild and productive, and its people are hardworking, connected to the land, and filled with community spirit. I moved here in 1987 to my first teaching job—what I thought would be a temporary stop, the first on a professional climb to success. Since that time I have increasingly come to see this place as home, a place to work hard and well, to care for a piece of land, and to help and enjoy my neighbors.

I too have an arrowhead. It was given me by Jeremy Hibbert, one of my students, during a recent graduation ceremony at my university. Jeremy belongs to the local community and his family has roots in the land. Like Kline, he found it while plowing the soil, and for eight years he carried it in his wallet for good luck. Giving me this arrowhead—which I now carry in my wallet, and for similar reasons—was a noble gesture. It symbolized the gift exchange that connects teachers and students, newcomers and natives, the industrial age with our hunter-gatherer past.

I trembled a bit when I received this gift, because I realized that assenting to the necessity of community may require more than I am willing to give. My worldview and its discourse have been shaped by a Cartesian grammar and a Lockean vocabulary. I have

not yet fully let go of my centeredness in the universe or my feelings of control and superiority. I am likewise torn between the desire for a professional reputation and the desire to stay at home helping my neighbors, building fences instead of professional networks, gathering sap instead of lines on my curriculum vita. Terry Tempest Williams suggests that the most radical act we can commit is to stay at home, yet I often travel long distances at my university's expense (and in service to its reputation and mine) to share her message. I live this paradox still too fearful to choose, to commit to a side. I know the new words and can speak them clearly, and I wholeheartedly embrace the new concepts. But I am a novice and I bumble along.

I sat on the bank of the Racquette River as it raged with the spring thaw while my children, Elizabeth and Andrew, played along the stony shoreline. I asked myself what it would take to muster the courage to become native to this place. This newly found sense of rootage in the land is both a satisfying and a terrifying experience because it requires us to stand firm and to stay put, to be moved by rivers ever downward and not by job offers that tempt us upward on ladders of our own making, where all we can do is fall like the natural objects we are. Commitment to community requires us to feel the necessity of a place, and to care deeply about the land and its people. As yet few words, and even fewer role models, come to its defense. In the midst of novices I can at least be thankful that rivers are patient teachers.

There are obvious paradoxes in choosing necessity, in traveling thousands of miles to tell people to stay at home, in becoming native, and in being enabled by submitting to constraints. Farmers and ranchers are no strangers to similar paradoxes: the land is cared for and plowed, animals protected and slaughtered, children loved and worked. These

paradoxes sometimes stretch the limits of human comprehension, yet we should evaluate and judge them not in terms of the words or arguments that fail to spring to their defense, but rather in terms of the land's fertility and the strength of family ties. Measured in this way, the paradoxes nearly vanish. So too do the distinctions between humans and nature, soil and terrain, crops and flora, livestock and fauna, farmer and naturalist.

It is not enough for each of us to attend to our work. We must become attentive to our naturalness and our nativeness. It is not enough to improve our individual lives. Each of us must commit to improving our communities. Like the wandering Odysseus, we need roots to hold us down and make us well. On his ship Odysseus needed to be tied to the mast, but at home in Ithaca his center was firmly rooted in the living tree and generous soil that anchored his bed, and hence his marriage, his family, his community, and his island landscape. It was, after all, for the routines of family and place that Odysseus rejected the offer of immortality.

We too must begin the trip back home, giving up our own illusions of a world of infinite resources and a life ever after, and making peace with the land and its rhythms. We must open our senses to the direction of the wind, a change in temperature, shades of blue in the western sky, homeward geese, seasonal scents, and soil ready for seed. We must feel the motion of our moving planet and see the ground beneath our feet for what it is. Necessity, prosperity, and fertility are linked in communities, and are limited by the harsh and glorious cycles of the living, moving from leaf to flesh to stone. Virtuosity, and the well-being it engenders, are the social offspring of these natural cycles. They are there for the taking if we are willing to endure the labor.

Failure as a Community Value

Building on the previous essay's claim that the central paradox of the new community is the fact that what was a social or natural constraint—the glue—in traditional communities must now, in a post-Enlightenment world, be consciously chosen or accepted by individuals, this essay posits failure as one of those community values, and outlines a philosophy of failure. Failure is not a failing or a defeat, not the dreaded opposite of success, not something to be avoided, feared, despised. The act of failing opens us to a process of self-awareness that puts us in touch with others: with our families, our communities, our universe, and our God. Failure is a community value because it invites the sharing of responsibility, grief, labor, stories, rituals, skills, and humor.

I am a philosopher both by training and by inclination, and a few years ago it caused some tensions in my life. I enjoyed the work of testing foundations, theorizing conceptual alternatives, and building systems. I still do. But I was becoming more inclined to put philosophy to work at home on local projects requiring practical thinking, patience with democracy, and manual dexterity with power tools.

Besides the anticipated dangers of a theory-happy philosopher using a table saw, there were also moments of uncomfortable choice. I had volunteered my time and energy to help organize a farm and forestry tour for legislators in my rural home county that concluded with an evening harvest festival of local foods, drinks, and entertainment. The project was a year in the making with no end to the small details. About a month before the festival was scheduled to occur I was invited to attend a small conference in Matfield Green, Wes Jackson's center for the study of ecological accounting. The two events were to occur on the same weekend, and it was impossible to do both. I mulled it over a bit, but not for very long. The decision, I confess, was a rather easy one: I went west for the good company, the like minds, and a chance to try out some new ideas. And yes, I went

because I thought it would be good for my career. To use Wes Jackson's apt phrases, it was a clear case of upward mobility over homecoming, an admission that at least for some of us, when push comes to shove, thinking is preferable to doing, and personal advancement a higher choice than community building.

There are plenty of reminders where I live that civic energy needs neither the prompting nor directing of thinkers and talkers who attend conferences and carry on among themselves in a rarified atmosphere. In many of the small towns and villages in my region—including my own—there are playgrounds built with donated materials and labor. The fire departments and rescue squads are all-volunteer, and there are numerous local parades and festivals. My village's Chamber of Commerce raised forty thousand dollars, organized an all volunteer construction crew, and built a gazebo along the Racquette River that runs through our downtown. The gazebo is now a center for a summer music festival and other assorted gatherings.

The community urge is, and will always be, in our nature; but so too will other impulses, goals, and beliefs, some of which work against our social instincts. Theorizing about community, the common good, and citizenship is as old as Aristotle, and its importance seems to be growing in proportion to the diminishment of our social instincts. Writers from Tocqueville to Robert Bellah to Robert Putnam have chronicled the steady erosion of community and civic participation in America.

Much of the community infrastructure, for example, that we will need in any future community building: trust, communal labor, civic architecture and planning, neighborly relations, and all of the stories, festivals, parades, that help us to define who we are with others in place are either no longer available or severely weakened. Americans have

consumed community capital while doing little to strengthen or preserve it. Two centuries of taking these community structures for granted, with little attention to their maintenance, stability, or invigoration, have placed us in a difficult position. If you think rebuilding infrastructure of any kind is easy, ask New York City officials, who almost monthly are patching the city's underground system of water, gas, and electric lines, as they pull cars out of enormous sink holes and extinguish huge fire balls on Fifth Avenue. (Repairing this underground urban infrastructure was estimated in 1994 to cost 90 billion dollars.) There is good reason, then, for the talking and thinking going on in Matfield Green and other places before the leaking roof collapses altogether.

Theorizing about community and place is important for other reasons as well. To begin with, there is very little to draw on in either our own personal experiences of community (and it seems to be less so with each American generation) or in the Western, cultural canon. And what alternatives exist—hierarchical organizations of community, for example—we no longer accept as viable. Even the great voices of Civic Humanism—Aristotle, Machiavelli (in *The Discourses*) and Jefferson made use of assumptions and hierarchies that most of us would now reject, and they made little mention of what we would call relationship to land. Modern theorists like Michael Sandel, Robert Putnam and Amatai Etzioni defend community against liberal attacks and try to fit a new communitarianism into a current political system. Much of it is good work, and it should continue. But there is also room for a different approach to the problem, one that doesn't assume that the current social and political structures will always be in place or that continued access to high-energy carbon fuels is a given.

To put it another way, we are all children of the Enlightenment and we have come to expect the freedoms of movement, choice, and thought that traditional communities constrained, either by design or by necessity. Even contemporary communities like the Amish or the Benedictines (see Kathleen Norris' *A Cloister Walk*)—while they may be helpful as models of what's possible—have rules, hierarchies, restrictions, necessities, and a religious spirit that may not appeal to contemporary Americans who are called to community. Enlightenment thinking and the fossil fuel economy it feeds have likewise made choosing a life without modern medicines or conveniences difficult, foolish, and unethical. Frankly, many Enlightenment gains are either well worth keeping or damn hard to get rid of, or both. They will certainly inform the communities we are trying to build.

I don't think we fully appreciate just how radical and difficult this call to community is, assuming that we want to move beyond nostalgia of the past and to create substantial and enduring alternatives. The call is radical because it departs fundamentally from the American experience. While communitarians and agrarians like to quote from Jefferson's writings, it's the works of Madison and Hamilton that have shaped American politics and economics, and that have effectively closed off many of the paths that might lead us back to the ideals of Jefferson and others, financial debt—Hamilton's legacy—among them. There was a historical moment during the American founding when the ideal of community and citizenship first developed in fifth century Athens and that later flourished in fifteenth century Florence might have become a reality. But Thomas Jefferson's call for a traditional republic and a nation of yeoman farmers practicing participatory democracy in Ward Republics was rejected in favor of a republic that James

Madison defined as a mere “scheme of representation,” a limited, representational government committed—thanks to the efforts of Alexander Hamilton—to the expansion of commerce and manufacturing. Individuality, complete with well-protected rights and self-interested material desires became the American ideal to which its citizens adhere, and continue to do so today.

The call to community is radical too because, except for the hundreds of experiments in communal living, it has never been tried as something larger than a reaction to and rebellion against the status quo. That is, there has been no coalescing of these experiments in community living into something large enough to challenge the current world view with an equally plausible alternative.

The most difficult challenge in rethinking community and place is how to make sense of them in the American context of individual freedom and choice. Traditional communities formed and were maintained by numerous natural constraints (weather, food scarcity, remoteness) and social necessities (rules and practices concerning marriage, inheritance, care of the elderly and sick, etc.). Such constraints are not always harmful or evil; indeed, given the right circumstance and when borne well they help individuals and communities to flourish.

But because the Enlightenment has vigorously sought to free us from these limitations, communities must now depend for their formation upon people willing to accept constraints and to choose necessities, when all the while the dominant culture tells them otherwise. Social constraints are by and large prohibited by law, and natural constraints are increasingly mitigated by technology or economic want masked as necessity: the loss

of the Sabbath as a day of rest, for example, or getting away from telephones while on vacation.

If creating and living in a community implies some notion of limiting choice for the common good, or the good of particular others (family), or even our own good, and if we allow (as we probably should) that individuals should always be free to opt out of these choices—about whom to marry, for example, or what profession to pursue, or where to live—then we are left with communities that are held together by the same power that can break dissolve them: personal choice. Perhaps this is best we can do, and like modern American marriages, while there are more divorces the marriages that do hold together are often stronger precisely because they are chosen.

The central paradox of the new community is that what was once a social or natural constraint—the glue—in traditional communities, must now—in a post-Enlightenment world—be consciously chosen or accepted by individuals. The great challenge for contemporary theorists of community is to accept up front the American experience of choice, including the choice to opt out of community. We have to theorize anew about community, citizenship, and place because the community structures that have come before us may not be all that helpful for the community structures that lie ahead of us. We will have to re-work concepts and structures and invent new ones that will need to make sense and take root in the larger world of global competition and climate change, as well as in our own personal worlds of working parents, the internet, material desires and frequent relocation.

In my more pessimistic moments I would say that we haven't the foggiest idea of how to begin or proceed or entice. It too often feels like the vision-impaired leading the uninterested. "Vision-impaired" because even our best visionaries are profoundly shaped by the culture they are trying to change; and because where they, we, are headed is so different from where we've been. The "uninterested" is the general population influenced by a heavily advertised and subsidized version of the American Dream that, by and large, makes no mention of community and place except to sell products. We should at least not close off any possibilities or obvious paradoxes. Communitarian organizations depend on fossil fuels, fax machines, and corporate donations to do their work. I have renewed old friendships on the internet. Most of what we write gets printed on paper that comes either from old growth forests, tree farms, or the high-tech systems that turn old paper into new.

And there are other paradoxes as well. Here's one: Successful communities embrace failure as a bedrock value. Failure is a community value, a glue that holds and supports, a teacher of skills and limits, and not easily disposed of by technological gizmos.

Failure is a keystone of traditional communities, built into the fabric of everyday life, and it will likely be a component of the new community too. A philosophy of failure recognizes, expects, accepts, and finds ways to make use of human limits, ignorance, and fallibility. It assumes that we know little about the creator, the world, or even ourselves. Failure, as I will describe it, is not a failing or a defeat, not the dreaded opposite of success, not something to be avoided, feared, despised. And it's a good thing too, because failure is an everyday experience. In the act of failing is an opening to a process of self-awareness that puts us in touch with others: with our families, our communities,

our universe, our God. A spirituality of failure is the manifestation of these relationships with others. A psychology of failure takes failure as a given and learns to live with it, and even to prosper with it. Failure is seen as something valuable, as a virtue, as something that we can come to do well, with grace, and with joy.

Failure is a community value because it invites the sharing of responsibility, grief, labor, stories, rituals, skills, and humor. Failing well or gracefully keeps communities together and prospering in even the darkest of times. Amidst failure we are encouraged to think of others as well as ourselves. Members of traditional communities are generally conservative and traditional in their outlook, and skeptical of innovations both because they expect them to fail, and because they see themselves as better off with expected and integrated failures (when the barn burns, it is rebuilt by the community), than with unexpected and un-integrated failures (fire insurance will not cover this particular fire because the last payment was late). Most importantly, failure is best learned in a family and a community setting where it can be experienced incrementally and with the necessary support, and where community members can learn to laugh not at others, but at themselves.

If this praise of failure sounds odd and downright unpatriotic, it is, perhaps, because we live in a culture premised on success, not failure; where the standard curricula in the home, sanctuary, classroom, and workplace teaches us that we are limited not by our nature or our inherent ignorance, but by our imaginations. From our youngest days we are taught to believe that nature can be controlled, that choices can be foolproof if they are made carefully enough, that our lives are ours to steer in any direction that we choose.

The lesson continues: we know what we are doing. We can fix our mistakes. Failures of nature can be defeated with technology, money, power, and violence. Human failures, on the other hand, are caused by weakness or laziness. All of this should sound familiar.

The language of our success culture includes phrases like "self-made," "having it all," "a win-win situation," "quality time," "playing God," and "death with dignity."

Our obsession with sports and with winning also reflects a culture of success. I have heard of Olympians who carelessly toss their silver and bronze medals into drawers while their gold medals are prominently displayed. Second place might as well be last place.

In a success culture like ours failure is a vice. Parents, coaches, teachers, guidance councilors, television actors, sports figures, and rock stars teach our children how to succeed, but not how to fail. A success culture takes itself very seriously; failure is anything but a laughing matter. A stiff upper lip steels us against catastrophe. Instead, when failure does inevitably come, it is greeted with a lonely despair, anger, and resentment. Witness the high suicide rate among teenagers, the high divorce rate, and the ever-present stress that workers feel because their jobs allow little room for failure.

The quest for success becomes ultimately the pursuit of self-importance in a disconnected world. Success pits me against the odds, against you, against nature, death, God, the universe, against failure.

Success erodes communities because it highlights our individuality and turns us outward toward those conferring the honors and away from our ordinary neighbors. We are also less inclined to share success with others. Like private property success is ours in a way that shuts out other people. The technological tools of success likewise inhibit our connections with others. We simply don't need each other when our failures are insured

or designed out of the system with the newest gadgets. Everything from air conditioning to television, computers, and tinted car windows drives us inside, apart, away.

There are ancient stories that speak to our predicament, though not sympathetically. In the *Odyssey*, for example, the one-eyed giant Cyclopes live solitary lives in dark caves, and they are described by Homer as self-sufficient and as not “caring a jot for their neighbors.” One of them fails to show Odysseus and his men proper hospitality, and instead kills them for his dinner. When the crafty Odysseus blinds him and he runs from his cave screaming for help, his fellow Cyclopes hear, but ignore his cries for help. They, apparently, don’t care a jot for him either. Success defined as self-sufficiency erodes community.

The story of the biblical Job is compelling for a different reason. Job is the modern symbol of success. He's made it! He has a good marriage, grown and prosperous children, material wealth, and status in the community. And he's careful about protecting it; indeed, he's extremely worried that he might lose everything. He worships God and follows all of the rules. He even purifies his children every year whether they need it or not.

Were he alive today Job would worship God no doubt, but he would also have investments, bank accounts, long-term health care insurance, and life insurance. He would jog, eat healthy foods, take vitamins, have his cholesterol checked, and have smoke and carbon monoxide alarms. He would also give his children the best of everything: the best schools and neighborhoods, music and dance lessons, t-ball, little league, soccer, gymnastics—you can make your own additions to this list—trips to

Disney, and endless holiday gifts. He would probably also be taking anti-anxiety/anti-depression medication.⁵⁴

Job would, in short, protect himself against every possible calamity, and plan for the future, leaving nothing to chance. And well he should. But he, and we, ought not to be surprised when these protections and plans fail. Failure is commonplace, success rare.

Job's fall is precipitous. He loses his children, his health, his wealth, and his place in the community. And he's angry about it. But when the God in the voice from the whirlwind speaks, the message is clear. The universe is wonderful and complete, filled with predators and prey, life and death. Job should take comfort that he is dust, and that he participates with the rest of creation in the dance of life and death. Success, as defined by anxious control freaks, is not a good bet. Accepting the ups and downs of a vigorous universe—and the successes and failures it brings—is a far better course.

This pro-failure message appears in many forms. Adam and Eve are evicted for failure to comply; Odysseus takes nineteen years to get home, and then only for the weekend. The Greek tragedies explore the ignorance of human flaws and the heroic, though pitiful, acceptance of their consequences. The Wisdom Literature of the Bible (Ecclesiastes, Proverbs, and Job) states boldly that humans are limited in what they can know, control, or judge. God's ways are inscrutable; there is a time for all things, including our deaths; take comfort in knowing that you are dust.

The central messages of the gospels are love and forgiveness. Jesus spends his time with society's losers; the forgiveness of sins is the forgiveness of human failings.

⁵⁴ Annually, over \$800 million dollars are spent on "anti-anxiety pills". The U.S. accounts for 5% of the world's population and consumes 33% of the pills.-Neurogen (<http://www.stressless.com/stressinfo.cfm?CFID=835&CFTOKEN=70302035>)

At the end of *Black Elk Speaks*, the Lakota medicine man Black Elk tells the Great Spirit that he has failed: "A mighty vision given to a man too weak to use it...The People's dream died in the bloody snow." Though he weeps, Black Elk does not despair. He says "I have failed, but may you make my people live." Such a comment could be spoken only from a man raised in a culture that experienced, taught, accepted, and even celebrated failure (I am thinking here of the Lakota Heyoka Ceremony where everything is backwards, and where the laughing face of truth replaces the weeping face.)

In Buddhism the First Noble Truth is the existence of suffering. Reincarnation assumes failure over many lifetimes. And how is it that the spiritual leader of the Tibetan people, the Dalai Lama, despite his living in exile, and the ongoing destruction of his homeland, has one of the best laughs going? I'll come back to laughter.

The philosopher Aristotle outlines an ethical system that accepts human limitations and temptations. He tells us that it is far easier to miss the moral target than to hit it.

The Stoic philosophers, particularly Epictetus, tell us that happiness comes when we control what we can (the list is very short) and when we accept the rest. Epictetus advises us to experience daily death and decay so that when it occurs to us or to someone we love, we will not be shocked. This advice is not as morose as it sounds: fresh flowers, candles at dinner, or a backyard compost heap will teach these lessons nicely.

The poet Gary Snyder says "that to acknowledge that each of us at the table will eventually be part of the meal is to allow the sacred to enter and to accept the sacramental aspect of our shaky temporal personal being."⁵⁵

If "death is the mother of beauty," as Wallace Stevens observes, then failure is the operating system of the universe.

⁵⁵ *Practice of the Wild*, p.

The Second Law of Thermodynamics states that all systems tend toward disorder: a clean house will not stay that way for long. Nor will our ordered lives remain ordered. No clock or date book or set of routines will make it thus.

It is only one of the nine planets that is possessed of life, a little island of temporary order.

The fossil record is ninety-nine percent failure, life forms coming and going with remorseless regularity.

And isn't failure the better teacher, lifelong lessons that are stronger than memory.

Hunter/gatherer societies experience a high rate of failure, one-in-ten at their best. (Imagine being successful at the supermarket only ten percent of the time.) It is not surprising, then, that these societies invest their landscapes with spirits, and begin their hunts with prayers and offerings. And with so much potential failure, time is best perceived in these societies as a cycle rather than a line: always another chance, another hunt, another spring.

Craft cultures acquire and teach their skills slowly over time; the apprentice system assumes failure, and even the master remembers his own master's superior skills. (I do not think I am alone when I admit to feeling grossly inferior to my most influential teachers).

Agricultural communities know a good deal about failure. I spent some time working on a dairy farm in the early 1990's with my good friend Clark Decker, a fifth generation dairy farmer. It was my first real experience of farm life, and I was surprised first by the number of things that went wrong on any given day: from weather, to animals, to machinery, to employees, to bill collectors; and second, by how calm, even lighthearted,

Clark was about it all. When I would ask how things were going, he would say with a chuckle "I'm gaining." He knew, of course, that he isn't catching up and that he never will catch up. There is always something else going on, something else to go wrong.

But mixed in with his eighteen hour, seven day weeks are plenty of conversation, family time, and good humor (Clark has a great laugh). With all the potential for failure on a farm it is ironic, but perfectly explainable, that farmers are usually willing to stop what they are doing to help a stranger. I have had more than one Amishman tell me that he had all day when I have apologized for taking up his time.

I have always known that farming required a large number of skills, but I now think that one of the most important skills is knowing how to fail. (John Berger's *Pig Earth* is an insightful and compassionate look at the ways in which failure is integrated into peasant culture.)⁵⁶

Family life too is about the slow process of living together, raising children, and running a household. In the hundred daily tasks and interactions there is much room for failure, and how often it is that we do fail; sometimes the house is such a disaster that all we can do is laugh. It's what we do with these failures and how well we integrate them into our larger lives that matter.

The corollary to Wes Jackson's wonderful phrase about humans being a billion times more ignorant than we are knowledgeable is that we are likely to fail about a billion times

⁵⁶ In terms of decreasing the chances of failure, agricultural domestication was an improvement over hunting and gathering. There was/is still plenty of failure, but also a bit more control and, hence, the feeling of success. But the success of domestication is nothing compared to the control and success brought by the industrial age, and now the information age. Enlightenment science and the technologies and industries it produces try to do away with uncertainty, starvation, sickness, desires, death, and even God; in short, all the usual failures a community comes to expect.

more often than we are to succeed. I have been keeping an informal count in my life that supports these numbers.

If success is a pursuit, failure is a process, not of self-importance, but of self-awareness that opens outward to the whole world, and to everyone and everything in it. Failure is a community value. It invites the sharing of responsibility, grief, labor, stories, rituals, skills, and humor.

Humor and laughter keep appearing in my examples of failure, though they are strangely absent in our success culture except when aimed at someone else. Laughter is failure's song: light, ironic, accepting, halfway to enlightenment.

I have a friend, Sean Ward, who has coined the phrase "Enlighten Up!" His sense of humor has served him well in his personal struggles: his brother's schizophrenia, the abandonment of his nephew by relatives, and the death to cancer of his sister, mother, and father. (At one point, his mother and sister lay dying in their respective bedrooms.) And Sean can say to himself and to others "Enlighten Up!"

When we allow failure back into our lives there can be less stress and fewer surprises. How can we be surprised by failure when we are expecting it? We can slow down, knowing that we cannot get it all done, whatever "it" is.

Now comes the hard part. If success is one of those ghosts that have eroded community life and that threaten the formation of new communities, how might we choose or commit ourselves to a philosophy of failure rather than to a philosophy of success? If failure is an important part of community, and if the dominant culture—the one we've all been raised in—is hell-bent on failure's extinction, how might we create new communities? It sounds exceedingly odd to say that we will have to choose failure.

Although traditional communities accept failure, they do not willingly choose it. Even the Amish use technology to mitigate against failures, and every farmer I know works hard to prevent the failures he's come to expect. They are simply better prepared than the rest of us to accept failure when it does come.

Nor can we depend on failure-as-a-given to generate new communities.

There are simply too many success stories and examples to block the view and shorten the attention span of the folks who will inhabit these communities. Efforts to shock the success culture and to weaken its confidence with talk about crisis, doomsday, and the catastrophic failures of the modern world are often blunted by hyperbole, false predictions, and by the fact that much of the modern world appears to be chugging along nicely. For every failure I cite, my engineering friends cite a success.

If failure is a community value we will have to find ways to choose practices situations, experiences, and disciplines whereby we confront the world and ourselves in their most basic forms: natural settings, working with our hands, long-term commitments, direct interaction with others, life and death. I first started to think about failure as a father of four children, each different, one of whom has autism and all of them wanting the love and attention they deserve. I see failure as a college professor as well: teaching moments lost to my own inattention, students missed in a sea of faces.

Meditations of failure come too on my daily walks around Potsdam. This natural and social community of life I observe and in which I participate offers as many lessons of failure as I can absorb.

It is within such practices, and with others, that failure becomes at first bearable, then accepted, and finally enlightening. And if Sean, Clark, and the Dalai Lama are any

indication, laughter of the right sort certainly doesn't hurt one's chances of making sense and good use of failure. At the very least, laughter lightens the load.

As teachers and students we will need to reread and reinterpret the Western canon with an eye toward stories of failure, and to discover and integrate the stories of failure-based cultures into our lessons. We will need to teach ourselves and our children how to fail well, how to turn failure into character, and how to turn groups of self-sufficient individuals into communities. We will also need to reinterpret failure not as tragic but as comic, and here I use Joseph Meeker's definition of comic as "an image of human adaptation to the world and acceptance of its given conditions without escape, rebellion, or egoistic insistence upon human centrality."⁵⁷

It is through the opening of failure that the divine can enter as well. The Benedictine monk, Thomas Merton, used to tell his students to be anything they wanted—drunks, bastards—to engage in foolishness of all sorts, but at all costs to avoid one thing: success. Kathleen Norris, in her book *The Cloister Walk*, says that it is "through our failings and weaknesses, our ways of imperfection that we find God and God finds us, the God who can turn any mess we have made to the good."

Too much focus on success destroys community, but what amount and type of failure, if any, will be needed for our new communities to prosper? And how will we sell it, teach it, and embrace it ourselves? As I look at the half-filled, one-eyed computer screen in front of me, all the talking and theorizing ahead of me, and at all of the disinterest in, and active hostility toward, community around me, I am quite certain that we'll fail in our

⁵⁷ *The Comedy of Survival: In Search of an Environmental Ethics*, Los Angeles: Guild of Tutors Press, 1980, p. 149

efforts at community building. But this feeling of certainty strikes me as okay and just a little bit funny. Failure invites community. Maybe there's hope after all.

In the end success and failure are human constructs. Beyond words and images is a world without categories, a world larger than us and one that we share with others. It is the world that Job “sees” and finally understands: the world as it is. It is the world of Lao Tzu's Tao, the Great Mother, "empty yet inexhaustible," giving birth to infinite worlds.

Unlike Job, we are each of us probably a long way off from taking comfort that we are dust. But a soft and knowing smile the next time we fail—probably within the next hour or two—will signal our willingness to consider the possibility of such a comfort.

“Enlighten Up!”

Joyful Ignorance and the Civic Mind⁵⁸

This essay begins with a linguistic analysis of “knowledge” and “ignorance,” and settles on the phrase “joyful ignorance” to describe the state or activity of choosing to ignore the obvious; i.e., ignoring what can easily or myopically be known. Joyful ignorance is a willful, defiant, rebellious act in the face of the obvious, of certainty, of security and control, and of domination. I use the work of Aldo Leopold to describe what I call a more civic way of knowing, or the “civic mind,” and end with some suggestions for educators and policy makers interested in promoting it.

The Gist

Advocating the virtues of ignorance is hard work. On the face of it the proposition is preposterous to nearly everyone who hears it for the first time. Their response is that the claim must be a joke. It is not. Or that it’s a spoof on the current political scene in the nation’s capital, particularly in the White House. It is not that either. In the end most folks become angry and say that there is already too much ignorance in the world and that it’s making a mess of things. True enough.

What, then, is being praised, and how is it different than the ignorance with which we are most familiar, and try earnestly to avoid? And how could ignorance possibly be a good trait, let alone joyful? The short answer to this last question is that it depends what ignorance is being called upon to replace, and why.

What is being replaced are a set of attitudes and beliefs—a worldview—about what can be known about the world; the methods by which this knowledge is acquired; of what this knowledge consists; who can possess this knowledge; and the moral boundaries governing the exercise of its use. Collectively these attitudes and beliefs can be called a

⁵⁸ This essay is forthcoming in *The Virtues of Ignorance: Complexity, Sustainability, and the Limits of Knowledge* (Edited by Bill Vitek and Wes Jackson, University Press of Kentucky).

Knowledge-Based Worldview (KBW), and can be seen operating most powerfully in the halls of science and engineering, and with applications in agriculture, commerce, medicine, and even politics from time to time.

The reasons for urging such a replacement is that these attitudes and beliefs about knowledge are increasingly shown to be inadequate and dangerous. Praising ignorance, then, begins with a deep dissatisfaction with this knowledge-based worldview, and moves slowly toward an understanding of what might productively and ethically replace it.

Proponents of this sort of ignorance—an Ignorance-Based Worldview (IBW)—have rightly placed the bulk of the credit (and blame) for our knowledge-based worldview on the revolutionary and visionary work of two 17th Century thinkers: Frances Bacon and Rene Descartes. Between these two giants of pre-Enlightenment thought, I believe that it is Descartes' work with which there is most to be reckoned. It is not just his claim that human knowledge of the world is possible, or his method of miniaturizing the world into discrete parts. Most importantly, and dangerously—and perhaps unintentionally—Descartes likewise divides the community of knowers into ever smaller groups. For him the pursuit of knowledge is first and foremost a mostly solitary pursuit of a singular mind, and for which great power and good can come when it is correctly employed.

The influence of Descartes' work on the rise of scientific knowledge and its power and influence over other forms of interacting with the world are unquestionable. The Cartesian Revolution marks the beginning of the individual as sovereign—first in science, then in economics and politics. Much good has come from this tripartite revolution of ideas, and we would be remiss to recommend a wholesale rejection. But so too has much trouble come, particularly in the misunderstanding of complex, living

ecosystems, in the dangerous misapplication of partial knowledge in ways that are difficult to rescind or recall, and in the harmful effects of believing that the world is a laboratory or experimental playground.

My purpose here is to liberate the concept of ignorance in order to bring some sense to the idea that the solitary Cartesian mind is insufficient for the work ahead, not to mention a lonely place in which to linger. What replaces it is a civic mind focused on the pursuit of understanding, with others, in a living world.

I'll start with some word work.

What Words Mean and How We Mean Them

“If science cannot lead us to wisdom as well as power, it is surely no science at all.” Aldo Leopold, (*The Essential Aldo Leopold*, p. 275)

Science: knowledge, to know, to discern.¹

Know: to be assured of, recognize

Knowledge: assured belief, information, skill

Recognize: to know again

Assurance: to make sure, to secure

Secure: free from care, anxiety, safe, sure.

Ignore: not to know, to disregard

Ignoramus: formerly a law term. “Ignoramus (i.e. we are ignorant) is properly written on the bill of indictments by the grand enquest, empanelled on the inquisition of causes

criminal and publick, when they dislike the evidence, as defective or too weak to make the presentment” (Blount’s Law Dictionary, 1691).

Own: to possess

The words and definitions above tell a partial but interesting story. While we cannot blame Descartes for the meaning of the words that we use in the knowledge enterprise, what he was both after and hoping to avoid are nicely revealed in the words’ etymological markers. “Science,” be it natural, social, or political, is very much about knowledge, and knowledge turns out to be about: 1) re-cognition—a clear hat-tipping to Descartes’ unquestioned assumption that the world and the human mind are uniquely isomorphic; 2) assurance, and hence an act of securing (a form of control that strongly suggests a sense of ownership and property); and 3) freedom from care and anxiety.

There seems likewise to be an obvious connection between “known” and “owned.” Knowledge is something the owner has possession of, sometimes exclusively as in a discovery or patent, sometimes in common with others. But the process of initial ownership, at least since Descartes’ time, has been solitary. The thinking mind isolates a natural object or force, drives it into its smallest category or form, carefully circumscribes boundaries around it, and sets to work to unlock its secrets. The mind concentrates its forces, the object gives up its secrets, and the knower becomes the owner of the secret.

The knower is an Al Haig—“I’m in charge here”—perceiver². And knowledge has a one-directional, observer-object, perceiver-perceived quality. It’s competitive too. The first one there is the proprietary owner of the new found knowledge, and receives the notice, the prize, the patent, or the distinguished professorship. The process is extractive

as well. We see this most painfully even today in animal experiments. Not all that long ago vivisection was a common investigative and teaching tool, and “naturalists” identified, counted, and extracted information about various species by killing and collecting individual members.³

Were we to search for an analogy, the pursuit of knowledge would seem very much like hunting. The best hunters study and stick to a small range, they stalk, they trick and deceive, they outwit their prey, the prey resists; the hunter, when successful, “takes” the prey in an act that can be pretty violent. When successful, the hunter feels victorious. The prey has given up its life/secrets that are now possessed by the hunter/investigator. What are Nobel Prizes but the ultimate Lion’s head mounted over the fireplace in the library⁴?

Like hunting, the Cartesian method of acquiring knowledge may also be biologically predisposed in our historically/ecologically contingent, bi-cameral brains. Male brains may be especially inclined to a certain type of linear, boundaried, focused thinking that sees knowledge acquisition as a search for prey to be bagged.⁵

The Knowledge-Based Worldview has obvious power. The discoveries, cures, and inventions it has inspired have given its users some semblance of control, and occasionally dominance, over the powers and vicissitudes of natural forces. It has made possible a level of cultural capital (the arts, travel, and leisure) that when not squandered on the mind-numbing leisure of television and video games seems a positive benefit. That this worldview is also a benefit for a few, and temporary, and partial, and potentially more dangerous than the dangers it overcame, are all truths rarely mentioned. We should probably not vote to toss it out completely, but rather to employ it as one tool among

many, and not always the best tool for the job, and absolutely forbidden for some jobs, but certainly always and everywhere **only** a tool, and not a bulwark for liberty or a free pass around limits.

We come now to the word “ignorance.” Our task here is trickier since we want to shake loose the common usage and apply the term in a new way. The word “ignorance” gives us at least two lines of interpretation. First, as our definitions above state, ignorance is an absence of knowledge. But it’s not just an absence. There’s a moral tinge to ignorance, and it cuts a couple of ways. In the colloquial use of the term an ignorant person is someone who doesn’t know something, but who could/should possess that knowledge had he applied himself. Ignorance, in this usage of the term, is an easily correctible state for which the ignorant person is at least somewhat personally/morally responsible.⁶ In the case of “ignoramus” above, a second moral sense of ignorance exists. The Grand Enquest could refuse to present a case to the Inquisition due to weak or defective evidence. We have here an early and non-scientific application of the Precautionary Principle: when in doubt, do not proceed. Grand Juries are impaneled everyday in America for the same purpose. They consider evidence, vote on the strength of that evidence and decide whether to halt proceedings or to return an indictment. Here the quest for knowledge is not unlimited. If the evidence does not support the claims they do not keep looking indefinitely, but err on the side of freeing the potentially guilty rather than punishing the potentially innocent. We can see, albeit faintly, the important role of ethical restraint and personal character in a worldview where ignorance is a default position.

There is another way to go here as well, and it gets us closer, I think, to the ignorance we are looking for. The second meaning of “ignorance” is “to disregard.” Here the willful state of ignorance is more rebellious. It refuses to look at the obvious. It “ignores” what is right in front of it. And it’s glad to be doing so.

This conception is very nearly what we’re after. Joyful ignorance is the state or activity of choosing to ignore the obvious, of ignoring what can easily or myopically be known. It begins as a willful, defiant, rebellious ignorance in the face of the obvious, of certainty, of security and control, of domination. “Can’t you see it right in front of you?” asks the advocate of a knowledge-based worldview?” Replies the advocate of an ignorance-based worldview: “I’m not looking right in front of me.” Joyful ignorance is a first step toward a methodology for ignoring that obvious, loudest and smallest piece of the universe that resembles the overachieving student whose hand always shoots up while yelling “Ster, Ster!”⁷ Like that noisy, smart-in-a-certain-kind-of-way, but certainly overbearing student, certain parts of the world are often right in our face or too loud, flashy or sexy to ignore easily.

An Ignorance-Based Worldview is the claim that such willful ignorance may actually produce better skills, relationships, decisions, theories, policies, and long-term results than a worldview based on knowledge. How does it do this?

By refusing to focus on the smallest unit, and instead striving to keep the perspective wide, practitioners of ignorance admit that they cannot know nor have it all.⁸ Ignorance therefore invites, indeed requires, a civic mind, a community of learners and a timeframe that stretches across, and connects, generations. The sole investigator has no place here. Ignorance requires us to work together, to communicate frequently, to share observations,

and to fail often. Communities, social skills and social capital are in strong demand here. More importantly, joyful ignorance elevates the status of the heretofore “object” of knowledge—that Cartesian chip of nature—to a fuller, more whole, contextualized, in many cases living, and in some cases conscious, “other.” The language is tricky here since we may not want to call everything a subject or to put moral constraints on our work with minerals or water. Perhaps “relationship” is what we’re after. The civic minded practitioner of ignorance sees the world relationally, regardless of the matter studied. The IBW geologist, for example, sees her work with soils and rocks as a relationship not only with them, but also with the wider realm in which soils and rocks exist and interact.

Sooner or later the geologist will bump up against the kinds of rules and virtues that govern relationships: questions of right and wrong, propriety, balance, foresight, faith, trust, and humility, to name a few. This is not to say that knowledge-based practitioners (scientists and engineers, for example) are not governed by codes of ethics. They are. But the ethical codes loiter in the hallway waiting for a chance to speak up over the din of data points and findings. And because the pursuits of science and technology are often so pin-pointedly focused, it is understandably difficult for the researcher who studies the migration of oil globules through soil, for example, to see how ethics impacts her work, other than the prohibition against plagiarism or “shoddy” science. In a worldview where knowledge is sufficient, ethical considerations are almost never directly on the playing field, rarely on the sidelines, and most frequently in the stands. The ethicists just slow down the game. And IBW, on the other hand, invites the other virtues into the game as equal partners. Slowing down the game is part of the game.

Finally, ownership (the “my” of “my patent” or “my property”) is replaced by fellowship (the “my” of “my family” or “my community”⁹).

If knowledge is a tool, ignorance is a perspective. The knowledge tool is used too often, too confidently, too absent-mindedly, and sometimes quite destructively.¹⁰ The ignorance perspective is too often sorely absent. It could provide us with plenty of information, understanding, wisdom, and happiness; in short, many of the qualities promised by the tool, but undelivered in the main, or damaged along the way.

I compared knowledge to hunting and stalking above. An Ignorance-Based Worldview, I think, is more like gathering. Gathering is a collective enterprise with larger ranges and boundaries. The “catch” is typically the fruits or eggs, not the plants or animals themselves, and therefore less violent. It is a multi-tasking activity whereas hunting is usually about one prey on one day or season. Gathering is not particularly competitive nor does it fuel collecting for its own sake or the trophy mentality so identified with hunting. Gathering/Ignorance is less flashy, but no less—and arguably more—productive in the long term. And gathering requires a deep understanding of terrain, seasons, safe and dangerous foods, and an awareness of the sort required by hunters. While I can’t prove it, the gatherer, like the “ignorant,” has a better sense of the larger terrain’s influence on what is gathered. Fruits are grown from soil, rain and sunlight; they grow well or poorly among other plants; they should not be picked too often or during certain times (restraint). Fruits are a product of an entire system’s fertility, stability, and diversity. So, too, is the antelope. But the act of hunting, I think, is less able to state this lesson clearly.

Finally, if men are primarily hunters (and the creators of atomic weaponry, napalm, long-range rockets, etc.), then women tend to garden, gather, nurture, multitask, and more readily accept uncertainty and ambiguity. As science practitioners women have done a much better job at seeing interconnections in nature, at letting nature “express” itself (e.g., Barbara McClintock’s work¹¹), and with the precautionary aspects of an Ignorance-Based Worldview.¹²

The above paragraphs represent a first pass. We’ll need to do a lot more in terms of naming and describing an Ignorance-Based Worldview. We’ll also need to put it to use, to promote it, and teach it.¹³ I don’t imagine that it will do anything magical for us, and I do imagine that it will encounter problems of its own. We should see it not as a direct competitor with, or an alternative to knowledge, and not as a tool to get actual work done, but rather as a perspective—at least at first—that we bring to our work. An Ignorance-Based Worldview functions much like the perspective that my friend, Clark Decker, an Ivy-league educated, ex-bank executive, 5th generation dairy farmer, brings to his daily life. Clark somehow manages to laugh, maintain soil fertility, milk production, and good relations with his neighbors, to love and honor his family, and to keep multi-tasking away in the midst of record low milk prices, record high energy prices, and a recent microburst thunderstorm that took out a third of his sugar maples. That is, by balancing his substantial knowledge and experience with the similarly substantial vagaries of weather, prices, and soil conditions he keeps paramount the broader concerns of family, husbandry, and neighborliness while the world of bankers, economists, and surly weather patterns tempt him away from his core values. Such a perspective exists in many of us, and still remains a possible alternative for that cultural artifact called the Western mind.

Fortunately we have in Aldo Leopold's life and work an exemplar of an ignorance perspective guiding the search for knowledge, understanding, and wisdom in the twin pursuits Leopold set for himself: "the relation of people to each other, and the relation of people to land" (Meine, 51).

Aldo Leopold's Civic Mind

"There is the ornithologist who hunts by ear....There is the botanist who hunts by eye....There is the forester who sees only trees....And finally there is the sportsman who sees only game....The biological jack-of-all-trades called ecologist tries to be and do all of these things. Needless to say, he does not succeed." (Aldo Leopold, "The Deer Swath," SCA, 225)

Civic: belonging or pertaining to the citizen.

Mind: the understanding, intellect, memory.

We have a pretty good sense of what a civic center is, or a civic initiative, but probably less clear about civic education or agriculture, or a civic economics or a civic mind. I'm not sure myself about what these traditional terms would look like in their civic frameworks, but we can begin to imagine them. One way to get started is to simply ask: "What would a theory/policy/institution/practice look like, or how would it be

described or implemented, if it was considered either necessary for citizens or as belonging to them and their shared pursuits?”

A civic way of knowing requires a social network and setting. It requires others: as teachers in a tradition of learning; as fellow investigators within and across disciplinary boundaries; and as relational subjects of study. Like any social network, a civic mind is bounded by values and constraints that are not derived from individual members, but rather from a shared understanding of the community. This communal aspect of a civic way of knowing limits the misplaced self-confidence and competition of the individuated mind in solitary pursuit of knowledge, and strengthens the faith in common pursuits commonly undertaken and ethically applied.

The values and constraints are firm but generally not immovable or absolute. They, like the subjects under investigation, and the stories and theories we construct about them, are likely to change as more information is gathered, more observations processed, and more layers of complexity and interdependence introduced. Aldo Leopold’s ethical move from “predator as varmint” to “predator as interdependent and morally considered community member” is an example of movable and expansive value-shifting.¹⁴

The civic mind pursues methods and skills for understanding and wisdom that can be made available across the community and not solely or exclusively for only certain members of the community. A civic mind ties together the sense that citizens are students of knowledge, including its limits, and that students of knowledge are citizens (members of interdependent, cross cultural/species communities). Finally, because the civic-minded person is herself a citizen of the community that she likewise studies, she keeps the investigatory lens wide, the disciplinary boundaries fluid, the exit lights well

marked, the larger implications well in mind, and the collaborator welcome-mat in plain view.

It is Aldo Leopold's work and manner of thinking that supplies most of the horsepower for this perspective. I can recommend no better example of a thinker whose understanding of the interactions of humans and nature was fueled by a joyful ignorance and wide-angle boundaries. Many readers are already familiar with Leopold's work. Those who are not will find in Leopold an exemplar of the ignorance-based perspective being recommended here. Some examples below will have to suffice:

- Leopold had a voracious intellectual appetite, and he read widely across disciplines. He brought philosophy, literature, history, and biblical scripture to his scientific endeavors.
- He did more, I believe, than any other 20th century thinker in reviving “citizen” and “citizenship” as terms that cut across species, that brought the misadventures of humans in the natural world into sharper focus, and that called for educational, ethical, and political systems focused on humans as social, not solitary, beings.
- He resisted “either-or’s.” He encouraged the farmer and the hunter to work together; he spoke to diverse groups—farmers, civic groups, engineers, and college students—about what they could do in the name of environmental conservation; and he sought to reconcile conflicting environmental policies (e.g., the conflicts between what he called “wild lifers” and game farmers).
- He was willing to revise, reject, and reconsider his earlier conclusions. His views on predators and the role of fire in forest ecosystems are two obvious examples.

- Leopold saw the need to radically revise science education with two central goals in mind: to better educate citizens about the world they live in, and to broadly educate scientists beyond their disciplinary tea cups.
- He loved the natural world he studied, and wasn't afraid to say so: "I love all trees, but am in love with the pine;" "Our geese are home again;" "We mourned the loss of the tree;" and "Now I am free to grieve with and for the lone honkers."
- He seemed to delight in his ignorance about the natural world, and wished not to know it all. Knowledge, ignorance, faith, love, and understanding play equal roles in his work. "If I could understand the thunderous debates that precede and follow these daily excursions to corn, I might soon learn the reason for the prairie-bias. But I cannot, and I am well content that it should remain a mystery. What a dull world if we knew all about geese" (Leopold 1966, 22).
- His ethical, ecological and aesthetic boundaries were intentionally wide, and they discouraged the strong temptations of small discoveries made possible by the purely scientific mind. Yes, Leopold was after mechanisms, but they were land mechanisms, and ethical mechanisms. The big ones. "Only those who know most about the complexity of the land organism can appreciate how little is known about it" (Leopold 1966, 190).
- Though rarely dire or shrill, Leopold urged caution on almost every page. Most famously: "To keep every cog and wheel is first precaution of intelligent tinkering" (Leopold 1966, 190).
- He credited his non-human teachers often, whether they were his dogs, a tall grass prairie, a buck he misses, or the small fish he caught. "We are not scientists. We

disqualify ourselves at the outset by professing loyalty to and affection for a thing: wildlife. A scientist in the old sense may have no loyalties except to abstractions, no affections except for his own kind” (“State of the Profession,” in Meine and Knight, 274).

- Leopold hunted and fished, but he loved and respected his prey, practiced strong ethical constraints even when the law required none, and saw his work as benefiting not just humans, but the land as a whole. “My dog was good at treeing partridge, and to forego a sure shot in the tree in favor of a hopeless one at the fleeing bird was my first exercise in ethical codes. Compared with a treed partridge, the devil and his seven kingdoms was a mild temptation” (Leopold 1966, 129).

This summary should block any claim that the civic mind is powerless or that “If ignorance is our strong suit, then what?” The civic mind is certainly not powerless. Leopold’s scientific and amateur observations contributed to the ecological encyclopedia. He can be credited with creating a new field of study (wildlife management); with advancing the field of ecology; and with suggesting new directions in ethics, economics, and education. Most importantly, Leopold never forgot for long about the wider, infinite world in which he was living and working. He delighted in directing the reader’s attention to the Pleiades or the Pleistocene, distant places and times to which each of us is still and essentially connected. “Dust to dust, stone age to stone age,” he says in his essay “Song of the Gavilin.” He continues: “It was appropriate that I missed (the buck), for when a great oak grows in what is now my garden, I hope there will be bucks to bed in its fallen leaves, and hunters to stalk, and miss, and wonder who built the garden wall”

(Leopold 1966, 160). Leopold's long view is slow, wide-angled, precautionary, communal, ethical, reverent, and joyful; full of partially understood details, and absent of irrefutable answers. His work as a philosopher is as good as it gets in the 20th century, or any century, if we dare to step outside of the usual confines of the philosophical canon. His work is close at hand, accessible and respectable. We don't have to start from scratch. As an example of what I think we're looking for, Aldo Leopold's work turns out to be an exemplar, a model that can be usefully studied and replicated.

A Civic Education “To Do” List

“The objective is to teach the student to see the land, to understand what he sees, and enjoy what he understands....Once you learn to read the land, I have no fear of what you will do to it, or with it. And I know many pleasant things it will do to you.” (Aldo Leopold, in Flader and Callicott, 301, 337)

Civic minds do not spring forth fully formed, nor do they get much developmental help in our current educational system. The work required to move an ignorance-based worldview view into the classroom, and to begin training a new generation of civic minds, requires large shifts and tremors in what we now consider a good education.

Fortunately there is some good news here. Educational models already exist that introduce students to big, chunky questions that lack simple, well-defined answers. One of the best is PBL (Problem Based Learning).¹⁵ Citizen Science, first encouraged and promoted by Leopold, is also sufficiently well established.¹⁶ New inter-disciplines with sufficiently broad and ignorance-inviting perspectives are being developed—complete with journals, professional societies, and curricula. They include ecological economics and industrial ecology.¹⁷ And university faculty members are increasingly encouraged to

leave their silos to work with community members on projects that require real communication across disciplines and a big picture perspective.¹⁸

But there's much more to be done. Here's a short list.

- We need more exemplars, both historical and contemporary, of civic knowledge and an IBW in order to demonstrate their viability and reasonableness.
- Keep philosophers of the right sort around, and invite them in.¹⁹ Philosophy is ideally the best discipline for big picture thinking, for the practice of healthy skepticism, and the best tonic for academic smugness. I've heard Wes Jackson say that philosophy will be the most important subject in the coming decades. I'll risk the charge of self-server and say I think he's right.
- Keep and expand liberal arts education. This is treasonous language in the money-strapped academy and anxiety-ridden suburbs these days, but without the arts, history, literature, and philosophy (Leopold was well-schooled in all of them), we have no hope of getting this new generation ready for the IBW switch to come.
- Science and engineering students need more courses in their respective histories, including failures, mistakes, ruses, false paths, ridiculous conjectures, and unseemly partnerships; in short, a full and thoughtful dose of the limits and ample ignorance in their chosen fields.
- Retool graduate education. This is the weakest link in the transition. Young people can go from kindergarten through college with all manner of projects, teamwork, and interdisciplinary messages only to find themselves in a graduate program devoted to the single pursuit of the smallest unknown unit, and who

receive disappointed looks when requesting courses outside the department.

There are a few exceptions out there, but they're not tide-turning.²⁰ We should require that every Ph.D. student know the history of her field, appreciate the larger impacts of her research, and be able to deliver a lecture to an educated, non-academic, public audience.

- We need also to break down the disciplinary and professional barriers in our college and universities, and in our professional societies. More faculty lounges and cafeterias, more general lectures instead of departmental seminars, more “get real” problem-solving sessions at our annual conferences, more cross-conference fertilization.
- Those of us in the academy with the ability to do so (i.e., tenured professors and fearless administrators) need to work to change the reward structures and to seek broader definitions of “research,” “publication,” and “service” that extend beyond “specialty,” “peer review,” and “campus committees.”
- It wouldn't hurt to find a bit more joy in our work as well. Environmentalists generally are considered a pretty “down-in-the-mouth” group, and they seem to like to bring others down with us, hoping to finally get them to take the issues seriously. But this brings the rest of us down too. And the success rate of this approach is hardly impressive. Aldo Leopold was clearly concerned about the plight of Western civilization, and his writings made this clear. But he likewise found and described the joy he felt in nature. Let's promote the excitement and enthusiasm we feel about the paradigm-switching work ahead. Let's excite and challenge a new generation of thinkers to dive right in.

- Over time we will need to develop the standards of evidence and argument necessary for the new worldview. Quantitative and qualitative measures for ignorance and the civic mind will help advance our work. We cannot be just about undoing a Knowledge Based World View. Our movement toward an Ignorance-Based World View requires standards, metrics, terms, concepts, definitions, and a methodology. There's plenty of work to keep a generation or two of graduate students busy.
- Like any paradigm alternative, ours will have to work reasonably well at replacing what came before it, and to both explain what a KBW explains, and to additionally explain what it fails to explain (and to avoid the problems caused by an KBW). It will need to do more, not less, and to do it better. That's how a new paradigm replaces an old paradigm.
- It would be prudent to begin finding some historical case studies that demonstrate how a civic-minded IBW would have solved a problem differently, or avoided an error (e.g., pesticides, nuclear power, plastics, leaded gasoline). These cases should likewise include current debates regarding genetics, global warming, nuclear waste disposal alternatives, male infertility, etc.
- I think we should also hold the line on systems thinking, and resist seeing it as anything more than a KBW on a larger, computer-modeled scale.²¹ There are noble intentions behind the assumptions of systems thinking, but too often it replaces linear thinking about parts with computer-modeled holistic thinking about more parts. The abstractions added by the models tend to leach out and render suspect whatever holistic conclusions are reached.

- We'll need to find the proper role for a knowledge-based view. Certainly not a **world**view, but a role appropriate to its power (P), divided by its limitations (L).

Something like:

$K=P/L$, and we don't proceed, or we proceed slowly, when $K<1$.

And while we're at it, we should start celebrating the new ignorance based worldview by giving out substantial prizes to its most influential proponents. There's nothing like a fancy prize, some cash and prestige, some press, and some envy to goose the new paradigm. People will want to know what all the fuss is about.

Coda

We are creatures of evolution, and the civic mind is a work in progress. It is shaped by physical and cultural forces that exceed our individual attempts to control or comprehend them. And yet human consciousness can glimpse these forces at work in the world, and occasionally glean patterns, make predictions, and improve local conditions. Up against our small insights and successes is a vast and vigorous unknowing, constantly on the move in patterns and cycles that take us out beyond galaxies and our very conceptions of galaxies. In such places and against such forces there is little to be done well to change things, let alone to improve them substantially. Joyful ignorance is a wide angled and light-hearted recognition that against such odds the best strategy is to join with others in the slow and always incomplete pursuit of understanding, and to enjoy the ride. Our collective work can do little to make big changes, but over the long haul, and working and living with others, it can contribute to building "receptivity into the still unlovely human mind."²² That's plenty good enough.

Vitek Notes

¹All definitions in this essay are from Walter Skeat's *An Etymological Dictionary of the English Language*. Oxford: Clarendon Press, (1879-92), 1974.

²Moments after the assassination attempt on President Ronald Regan, Al Haig, then Secretary of State, wrongly concluded, and then announced "I'm in charge here."

³There's the story—perhaps apocryphal—about the graduate student who killed one of the world's oldest trees by trying to measure its age.

⁴Here's another interesting parallel between hunting and knowing, and anecdotal to be sure. Many young boys begin their hunting careers blasting away at nearly anything that moves. Over time some of these boys turn into men with a deep respect for, and an ethical relationship with, the prey they hunt, and will forgo a shot for reasons that have nothing to do with range or gender, etc. They give up the hunt per se for something nobler. Similarly, the Nobel Prize winners in Chemistry who visit our campus annually as part of a distinguished speaker series give public lectures extolling the virtues of, and necessity for, a broader, interdisciplinary approach to science. Having won the most prestigious prize for successful Cartesian thinking, they now see the need for another, broader, approach. I am not so certain that the scientists in the audience who have not won such a prize agree.

⁵See, for example, Simon Baron-Cohen's *The Essential Difference: The Truth about the Male and Female Brain*. Perseus Publishing, 2003.

⁶We would not call someone with a learning disability ignorant.

⁷“Ster” is short for “Sister,” and was used by many of my classmates in the Catholic School I attended. I’m sure the word is well known among Catholic School alumni across the nation, especially those of us who were not so fast with the answers.

⁸This wide perspective and admission of ignorance sets our ignoramus apart from those who willfully refuse to look at the bigger picture or refuse to consider new and/or contrary evidence precisely because they think they know it all already. “Good” ignorance willfully ignores the obvious in favor of something larger and broader. “Bad” ignorance willfully refuses the larger and broader in favor of a more narrow perspective.

⁹It is fellowship, not ownership, behind Leopold’s exclamation in his “March” essay: “Our geese are home again!” (Leopold 1966, 21). Or when he says in “July:” “Books or no books, it is a fact, patent both to my dog, and myself, that at daybreak I am the sole owner of all the acres I can walk over” (Leopold 1966, 44).

¹⁰This does not imply that a knowledge-based methodology has no place in the cultural toolbox. I think it does. What it can’t do is serve as a worldview, or usefully (or safely)

advance all manner of pursuits. We'll recognize its downgrading from a worldview to a methodological tool when we see fewer natural scientists, economists and social scientists hogging the news hour with their findings.

¹¹“I know [my corn plants] intimately, and I find it a great pleasure to know them.” Or “It might seem unfair to reward a person for having so much pleasure over the years, asking the maize plant to solve specific problems and then watching its responses.”

(http://www.brainyquote.com/quotes/authors/b/barbara_mcclintock.html)

¹² Rachel Carson, Sandra Steingraber, and Devra Davis are obvious examples.

¹³The knowledge-based worldview is a bigger berg than even we ignorance proponents think, and our academic hot air, by itself, won't reduce it by much.

¹⁴It's dicey to talk about shifting values, but here's a rule of thumb: we should be more inclined to accept values that change as a result of increasingly inclusive processes and methodologies; less inclined to accept values that change as a result of increasingly exclusive processes and methodologies. Gay marriage versus the Patriot Act, for example.

¹⁵See http://www.ntlf.com/html/pi/9812/pbl_1.htm for an example.

¹⁶ <http://www.coastal.crc.org.au/citizen%5Fscience/>

¹⁷ See <http://www.umich.edu/~nppcpub/resources/compendia/ind.ecol.html> and <http://www.ecologicaleconomics.org/about/intro.htm> for examples.

¹⁸ See http://calinthecommunity.berkeley.edu/programs/CIC_2002_04_29_1.htm for an example.

¹⁹The “right” philosophers are those without too much academic, professional, or thematic baggage. Those best suited for the job may have had little or no formal academic training in philosophy.

²⁰ Dr. Tom Theis, the most visionary engineer I know, (and I know many engineers) was required to take philosophy seminars in both his undergraduate and graduate engineering programs at Notre Dame. He created a new Environmental Manufacturing Management Ph.D. Program at Clarkson University that requires courses across the disciplines, and a multiple mentoring committee instead of the traditional faculty advisor. He now directs the Institute for Environmental Science and Policy at the University of Illinois, Chicago. (<http://www.uic.edu/depts/ovcr/iesp/index.htm>). I’m sure there are other examples out there, but we need more of them.

²¹ http://www.thinking.net/Systems_Thinking/Intro_to_ST/intro_to_st.html

²²Aldo Leopold’s words.

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Draft

The Metaphysics of Garbage

This essay is a meditation on entropy, the second law of thermodynamics, ethics and a concept/category that is essential to modern human life. I begin with a short discussion of entropy and what I call the “Organization—Disorganization—Re-Organization (ODR) Cycle.” Without a constant and heavy supply of highly ordered energy from outside of any closed system (in our case, the sun), that system will become less dynamic, more disorganized, and will eventually cease to look like or work like a system. Unlike living systems with little or no waste, human systems—especially those in complex societies—have large conceptual categories and actual places to put their waste or garbage. As defined in this essay, objects we identify as garbage are in a state of energy (organization/entropy) below which we cannot make use of them without a perceived or real expenditure of energy/organization. ‘Garbage’ is the concept where all the disorganization/high entropy goes. Garbage cans and landfills are where the actual stuff of disorganization/high entropy goes. ‘Garbage,’ in other words, is an organization of our disorganization. I likewise hypothesize that complex cultures are filled with products designed for very narrow tasks, and that these products typically have both higher levels of organization and higher energy inputs, and therefore are both more difficult to reuse or to breakdown into potentially usable materials. Plastic wrap and six-pack rings, for example, are difficult to re-use while the shoe box, with its low-level organization, is still a popular way to keep order in our homes. Witness, too, the ever-larger garages and attics where we store what we no longer want, but cannot bring ourselves to dispose of. Computers are also difficult and dangerous to dismantle and reuse. My conclusion is that garbage is a natural category (we can't get rid of it, especially in tightly ordered complex societies), but that it is also a moral category: we can create less of it through work (recycling and reuse of material), and by demanding products that have lower levels of organization, and therefore lower energy inputs, more potential uses, and better reuse options.

THE METAPHYSICS OF GARBAGE

DEFINITION: Objects we identify as garbage are in a state of energy (organization) below which we cannot make use of without a perceived (greater)expenditure of energy on our part.

The higher their initial state of organization, the more energy they lose when they are used, and the more difficult it is to re-organize them (make use of them) without an expenditure (and sometimes a high one) of our own energy.

(The more narrow the task, the higher organization, the more quickly the organization is dissipated once the task is finished, and the more energy it requires to return its original organization in order to make us of it again. e.g. Plastic wrap, six-pack rings.

Shoe box, on the other hand, has a low organization, and is therefore easier to use again.

Kitchen food scraps require from us a perceived high-energy expenditure on our part in order to use again.

With all this talk about garbage and where to put it, it would nice to know just what we are talking about.

Are there limitations to our efforts to reduce garbage?

We need a metaphysics of garbage--get to the essence/substance of garbage.

Metaphor: the earth (systems) does not have the energy to keep it all together, or at least tidy.

We are slobs too because of the law of entropy. The world is naturally becoming messier.

`Garbage' is the concept where all the disorganization goes. Garbage cans and landfills are where the actual stuff of disorganization goes.

`Garbage' is an organization of our disorganization.

What is garbage?

1. What I don't like
2. What I don't want.
3. What's left over after I have a good time
4. The waste of living
5. What I can't use

6. What's left over after no one (or anything) can use it.
7. Entropy in action: there must be some garbage

Nature is too tired or weak (or uninterested?) or not designed to hold it all together.

But ours is an open system: can organisms make use of what we don't want or cannot use, or is there always something left over?

GARBAGE AS A NORMATIVE TERM: we ought not to proliferate garbage (we ought to spend some of our own energy in reorganization).

Organization--Disorganization--Re-organization (ODR) Cycle: Entropy tends to make an organized system disorganized. It takes energy to re-organize the system.

Labor-saving devices (products) draw their energy from sources other than human beings (except for the laborers who make the products). The energy of reorganization comes at the expense of the disorganization of the labor-saving product. This organization becomes garbage.

MORAL IMPLICATIONS: though we are naturally lazy, and in a continuing state of disorganization, we can motivate ourselves to work.

Morality is, in part, an attempt to overcome our metaphysical state: it is a motivator to work.

1. work. use fewer labor saving devices.
2. Use industrial processes that design simple, low-organization products.
3. Have a less-centralized (high organization) food (industry) chains. They create large amounts of garbage.
4. Use less material that cannot be used in an open system

GARBAGE AS A METAPHYSICAL TERM: But there will always be some garbage in a world governed by the second law of thermo, even in an open, biological system. (Is that right?) So long as there is the sun, and biological life, there may in fact be no garbage, but simply a cycle.

OR

There will always be garbage in an open system populated by humans because of the choice we have not to act. (moral choice)

The choice not to act leads us to create labor-saving devices, and to throw things away that might otherwise be used were we to invest some energy. We can choose to say no to work.

In a natural state, humans too will not produce garbage, but in a cultural (social) state humans separate themselves from nature. They begin to create material that cannot be used efficiently in natural systems.

Social state is the moral state. Choosing (having the freedom) not to act.

The trick is to know the difference between metaphysical and normative, between what we can do to

We can get much of our organic disorganized garbage to other organisms in the system who can use it. In biological terms this is nothing more than re-organization: soil-grain-cow-person-waste (disorganization)-soil...

We can also use some of our own energy in reorganization. Decreasing our consumption of pre-packaged goods, etc.

CONCLUSION: garbage is a natural category (we can't get rid of it) but it is also a moral category: we can create less of it through work (personal reorganization), effort and moral fortitude.

Convenience of consumption: The entropy created in making dinner (the mess we make, the energy in preparing and cooking, the clean up) is thought to be somehow reduced by purchasing pre-prepared food. But the entropy is the same since the garbage we create is more than it would have been otherwise.

Because we are so removed from our garbage, we think we are beating nature, somehow escaping the energy expenditure required to live in a world that is slowly and inevitably becoming more disorganized (coming apart at the seams). But we are not, and cannot. There will always be some garbage, and reorganization always requires more work than disorganization (preparing a

meal/cleaning up after a meal), but we can reduce the garbage we create by investing the time and energy in reorganization (recycling, etc.). We can likewise take responsibility for our disorganization. Once we know that the entropy levels are the same (and that landfills are closing, incinerators being built) we might be more inclined to make dinner the old-fashioned way.

We don't like leftovers because of the entropy factor. What is new is more organized (lower entropy, le) than what is old (less organized, higher entropy, he).

ODR Cycle

Take a tissue and clean your glasses: trace the entropy line. Tissue is well organized (le) and your glasses are dirty (he). You disorganize the tissue as a way of organizing your glasses. but now you have a disorganized tissue (he). What do you do with it? What *can* you do with it? It has little or no organization or energy left. perhaps it can be used for energy, insulation of some such thing, but now the question arises: how much energy is required to recover whatever energy is left in the tissue?

Run the analysis on a handkerchief.

cloth diapers versus plastic

We can do this analysis to everything in our trash cans if we are so inclined.

Garbage may be an energy and cost/efficient accounting of the natural world.

substance/attribute distinction

Garbage is a kind of container for the second law of thermodynamics: we gather up all of the untidiness of a world becoming less and less organized. Our trash cans and dumpsters are full of our untidiness.

The 2nd law is helped along by our own propensity for disorganization (perhaps we are governed by this law too)

It's easier to take apart than to put together

Easier to open a can of soup, cook it, and eat it, and discard the remains, than to keep the leftovers and clean up afterwards.

But it's impossible to clean up first and then eat (another natural law of some kind). Time's Arrow?

What's An Economy For?

This essay was delivered at the 4th Annual North Country Symposium in Canton, New York. Endowed by a local family concerned about the economic future of this largely rural area of upstate New York, the annual symposium brings together experts to discuss what citizens and institutions can do to insure a prosperous regional economy. My remarks focus on the larger philosophical question: what do we want this prosperity to do for us and what must it include?

Globalism means many things, but economically it entails the movement of financial capital and goods across the globe in search of the best price and market. The downside of this success is the loss of local and regional economies unable to compete on price and supply. The results are seen in the closing of family owned factories and businesses, the running down of entire downtowns, and the loss of good pay and health care packages for millions of Americans who nevertheless complain about high taxes and who welcome Wal-Mart without noticing the boarding up of stores within walking distance.

Across the country communities are starting to fight back with ordinances that attempt to control big-box retail stores, with regional development based on quality of life and local products, and even, in some places like Ithaca, New York and the Berkshire region of western Massachusetts, with the creation of local currencies. There is a hopeful and energized optimism among those most involved in these myriad projects. There is much to celebrate, much to look forward to, and it gives voice to a future increasingly of a region's own design and making, and less dependent on what breezes or gales the global trade winds blow one's way.

It would be bad manners, therefore, to speak too bluntly about the moral and environmental challenges ahead, or to speak as an old-style preacher might to those of his

flock who are too much enamored of their own good fortune or too forgetful of their neighbors of lesser means.

But—there’s always a “but”—the job of the philosopher is to pose large questions, and to place our good economic work within the broader concerns of community, environment, and social justice. As we rev up regional economic engines, we must pause briefly to consider just what an economy is for. We must aim high in our collective effort to make whatever region that we call home a best place to live and work. Our goal should not be mere economic growth, or profit, or even wealth. Our goal should be *prosperity*, a term that includes in its deepest meaning a long term vision of success, well being, good fortune, and a foursquare hopefulness for our collective future, both human and natural.

What are the requirements for this prosperity, and how many of these requirements are in our control? The correct answers to these two questions are, unfortunately, and in order, “many,” and “few.” But that is the challenge before us. How can we create the conditions for prosperity in our more rural regions, and keep our young people here, protect and enhance our natural beauty, and attract new neighbors?

The central problem to be solved is how to provide the goods and services that have come to be associated with the American middle class. I will state here, and without much argument, that the American middle class was the greatest social invention of the 20th century; that it is currently under assault; and that preserving it will increasingly become the responsibility of states, regions, and local communities. If we lose the middle class in our experiments in building healthy regional economies, ours will be a miserly success and not worth cheering about.

The conditions for the American middle class of the 20th century were forged in two World Wars, and a Great Depression. The energy source that powered this middle class revolution was largely America's own—we were our own Middle East from 1930 until 1970—and our oil wealth fueled an American post-war economy that had no serious rivals for more than two decades. To say that the middle class was an invention is to give credit to the social and economic policies, laws and social movements that created social security, the minimum wage, moderate wages for skilled workers, and high tax rates for the wealthy (as high as 87% in 1954); government medical coverage, pensions and health care, affordable education, and the many rights and protections given to women, minorities, and the disabled. Many of us have parents and grandparents who received their college education through the GI Bill, or who worked a union job that gave them and their families a good home in the suburbs, a car or two, money for their children's education, and a modicum of wealth and security for which we do not have to stretch the term "prosperous" to describe.

The slow but steady erosion of America's middle class has many causes as well. The world economy has caught up, providing prosperity and opportunities outside of America. Tax laws increasingly favor America's wealthiest citizens, and labor unions are losing battle after battle. The minimum wage changes little, while the costs of energy, health care and education rise dramatically. And if the American economy is to fuel a comeback, that fuel—at least in its fossilized form—will necessarily come from places in the world we do not count as friends, and we will have to compete for this energy with nations who are just beginning to create their own middle-classes: India and China. I'll let you do the math.

Here's the upshot. There is no real prosperity if the majority of our citizens cannot enjoy it. The middle class is, by definition, a majority of citizens who enjoy a moderate and good life. The conditions of America's middle class, unfortunately, are fraying and the national government is increasingly unable, unwilling, or both, to repair the damage. That leaves the states (Massachusetts and health care), counties (two Pennsylvania counties that prevented corporations from owning farms or farmland in the late 1990's); cities (Santa Fe's new living wage of \$9.50/hour); and regions (maybe our own) with the challenges of creating a true prosperity for their citizens. Yes, there's a cost to insisting on this kind of prosperity, but there are benefits too. It will increase the chances that our children will remain here. It will attract the right kinds of businesses and newcomers. And it will put us on the map as a region that knows what's important, and how to get it.

Here, then, are the ethical conditions—in rough form—for a rural, regional prosperity.

We must insist on a living wage for the majority of our hard working citizens. We can, and will, argue about the exact amount of this wage or how we might provide it across the region. But without it we will follow the current American trend: a shrinking middle, a bulging bottom, and concentrated wealth at the very, very top. As a nation we should be ashamed of ourselves. As a region we must do everything possible to create a living wage haven.

We must begin as well to solve for ourselves the looming health care crisis for an increasing number of residents and institutions. Creative solutions are required that link our health care institutions with our industries, businesses and educational institutions. There can be no prosperity for those who become ill or who live in fear of illness because they cannot afford the care.

Affordable and appropriate higher education is a requirement for the prosperity of our citizens, especially those who are pinched by the new economy, and who must find other skills. Our regional colleges and universities are some of the best around, and we all benefit from their commitments to the region. But we must insist that they provide an education for the century we are in, not the one we just left, and to provide this education to those in this region who need it most, and who may be least able to afford it. And at night and on weekends, when adult learners have time to take the classes they need to remain competitive in the workplace. Higher Education: it isn't just for kids anymore.

Our half-rural half wild landscape remains one of our greatest assets, and we should continue to promote it to the world: for recreation and employment; for a great place to live and raise a family; and for a healthy lifestyle. To this end we must be careful to protect the rivers, forests, and open space, and insist on good stewardship for all those who use it, and public access to those who can ill afford to purchase a piece of it.

Finally, our prosperity must depend less on energy from afar and more on home-grown sources. No, we're not likely to discover in our county, but we do have the technological expertise, the landscape, and favorable conditions to put a solar powered economy to work. Energy derived from the sun, water, wind, the earth below and the crops above will all be required to fuel our economic systems. And we must use less of this energy—and less of the remaining fossil fuel—in our food production, transportation, and home heating. There are many hopeful signs on the energy and food fronts in our region. Full speed ahead with these endeavors, with one eye on potential negative environmental impacts, and the other on providing availability and access to those who can least afford high energy costs.

These are serious challenges. They will require us to work together; to take chances; to stand up for ourselves; to go our own way; to rebel a little bit (and maybe even quite a bit); to say no to some kinds of economic development; to embrace change even when it does not directly benefit us personally; to take the long view and the high road; and to not take “no” for an answer. Like those who first settled this and other rural regions around America, it will require some serious pioneering.

From the war on terror, to climate change, and a rapid-fire global economy, ours is a world of discontinuities. Yes, the sun will appear tomorrow from beneath the eastern horizon, and we'll watch spring unfold in roughly the same days and weeks in which it has unfolded for countless millennia (though our region's maple syrup producers have a decidedly different view about this unfolding these last few years). But we rightly worry about the rising costs of nearly everything, about job security, national security, the costs of education and health care, our retirements, and the myriad of problems that face every generation surely, but that dramatically challenge only a few generations every few centuries when these changes are most radical. I believe that nearly all of the current signs point to just one of these moments right now. The good news is that as a nation we've been here before (in 1776, 1789, 1863, and 1929 and 1941, for example). The less cheerful news is that we will have to increasingly rely on each other. Imagine the 1998 ice storm⁵⁹ recovery without the National Guard or FEMA or the thousands of volunteers who came to our aid from across the country.

But—and here the ice storm is instructive again—we have each other, plenty of resources across the board, a focused determination, and a doggedly hopeful character

⁵⁹ An early January ice storm that stretched from northern New York to Quebec, Canada crippled the region. Faced with January temperatures and no electricity and heat for up to three weeks, the region depended on outside help and the generosity of neighbors.

that comes from long winters and the expectation that we must and can take care of ourselves. Sometimes disasters bring out our social skills and remind us that living with neighbors, and not just among, them is a valuable commodity.

It is this hope and care that are at the center of any prosperity deserving of the name. We have, then, what's most important for our work in building a regional economy. Let it motivate us to create a regional prosperity for which our grandchildren and their neighbors will enjoy and thank us.

Obsolete “Nation:”

Rethinking Political and Global Categories for the 21st Century

This essay had its start as a talk given to the local high school’s Model UN Conference.⁶⁰ While the remarks praise the work that the students are doing, and the success of the United Nations, the talk challenges students to imagine a world—their world—without nations.

I’d like to offer some brief remarks about the nature of your enterprise today, the challenges of the 21st Century, and the opportunities to rethink the categories by which we organize our world and our lives.

Simply put: the Nation-State has seen better days, and is being slowly replaced by other institutions and movements. Such change is inevitable, but not always predictable or pleasant. I want to encourage all of you to think seriously and deeply about the changes ahead, and to see yourselves as 21st Century revolutionaries: as the Founding Mothers and Fathers of a new century, a new economy, a new world.

The good news is that change is possible. Far fewer Americans smoke today than even ten years ago, and the cancer rate is down for the first time since the 1930’s. But perhaps the best way to demonstrate the possibility of change is with the very activity

⁶⁰ “Model United Nations is a simulation of the UN General Assembly and other multilateral bodies. In Model UN, students step into the shoes of ambassadors from UN member states to debate current issues on the organization’s agenda. While playing their roles as ambassadors, student “delegates” make speeches, prepare draft resolutions, negotiate with allies and adversaries, resolve conflicts, and navigate the Model UN conference rules of procedure - all in the interest of mobilizing “international cooperation” to resolve problems that affect countries all over the world.”
(http://www.unausa.org/site/pp.asp?c=fvKRI8MPJpF&b=474521#Q__What_is_Model_UN_)

that brought you here today: A model re-enactment of sovereign nations working together for common goals in the midst of divergent interests.

The United Nations was a change of the status quo; some would say a revolutionary change. The United Nations, like the League of Nations before it, was born out of necessity. In the span of only 30 years, two world wars killed 75 million people across the globe, devastated a continent, and very nearly the world.

Was it possible to rethink the categories of national sovereignty and competitive global politics, and to unite nations in pursuit, not of territory and dominance, and, in the words of the UN Charter, to:

- Avoid the scourge of war
- Affirm fundamental human rights
- Establish worldwide the conditions of justice for all; and
- To Promote Social Progress and Freedom.

The world answered “yes” to this challenge and got to work on these noble aims. The United Nations can boast substantial progress in advancing these goals in a world still hell-bent on war, torture, slavery, and environmental destruction. For example:

- No nuclear weapons have been used since 1945
- The world’s worst famines are met with compassion and aid
- The world population rate is decreasing
- Women around the world are making progress in their demand for equal citizenship; and

- Global environmental treaties are making a difference

Even the Nation-State—what most of us think of as an absolute, almost natural, category—is itself a relatively new way of ordering the political world. It, too, was a change to the status quo, a demonstration of the possibility of progress, and an answer to a war that had gone on too long.

The origin of the Nation-State is traced to the 1648 Treaty of Westphalia that ended the 80 years war between Spain and the Dutch. It replaced the central authority of the Holy Roman Empire with the sovereignty of 300 princes spread around Europe. Two hundred years later in 1850, the Nation-State was well established as the only legitimate political organization of large units of land unified by homogenous populations, language and culture, and circumscribed by strong, permanent borders.

The nations to which you have been assigned today—and the Nation-State generally—have held up pretty well for the last two centuries. But there have been stresses and strains as well, and it may be time to rethink our central categories yet again. Here are just a few examples that suggest the growing irrelevance and powerlessness of Nation-States

- The Cold War created blocs of nations that were held together by ideology and commitments to fight for one another;
- Cartels of oil-producing nations set output goals that drive prices well outside of the free market, and dependent nations have little to do but pay the price;

- National boundaries are permeable after all. Illegal immigration and the movement of labor, capital, pollution and plants and animals belie the belief that boundaries or, even language and culture, define a nation. Who has the right to Salmon that spawn in US rivers in the Pacific Northwest, but which feed for three years in Canadian waterways? Who is responsible for air pollution created in one country, but deposited in another? Do illegal immigrants from Mexico hired by US companies to pick fruit and vegetables have the right to send their children to American schools? These questions are not easily answered in within the Nation-State paradigm.
- High speed global communication systems have connected and united its worldwide users irrespective of nation or language or race. It is a transnational phenomenon relatively free from state or national controls, China excepted.
- Religious and political affiliations are today defining people more strongly than national heritage. Even in America there are Red and Blue states, and the Liberal Coasts and conservative South and Midwest. And worldwide a rise of religious fervor and enthusiasm has fueled transnational movements. The most notable today is the transnational Jihad movement.
- The War on Terror has led the United States for the first time in its history to invade preemptively a sovereign nation, and to hold and torture prisoners who are

not clearly defined as combatants of one nation or another. The war itself is a war not declared on a nation or government, but on...on what? It's even difficult to know what to call it. Or to know how the war will end when there is no head of state to surrender. It is a war outside the boundaries and treaties of Nation-States.

- Global Corporations are now transnational and larger than some nations. In 2000 it was reported that of the world's largest 100 economies, 51 were corporations. Starting with the 23rd spot on the list come GM, Wal-Mart, Exxon, Ford, Daimler Chrysler, and GE to name a few. These companies may have started in one nation or another, but they are now multi-nationals. And they have huge impacts on the world economy. Someone said recently that when Wal-Mart, now the world's most profitable corporation, sneezes, the world economy catches a cold. The four remaining children of Sam Walton are worth a collective \$105 billion, making them the world's wealthiest family. What can any one nation do to control corporations that can move to another country or influence its leaders with power and money?
- And then there is the European Union. First proposed by Winston Churchill in 1947 as "The United States of Europe," and officially formed in 1993, the EU now has 27 independent states as members, a population of 500 million, its own currency, laws, regulations, and power in the world arena comparable to the US and China. It has shifted the balance of power in the world, but it has done so without using the Nation-State as its organizational unit.

These are just a few examples of the diminishing influence and effectiveness of the Nation-State on the world stage. And in a world that is drastically different than the world of 1648 or even 1850, perhaps the Nation-State has lost its relevance too. In the same way that all of us easily and naturally reject the sovereignty of kings, the subjugation of minorities and women, and the extinction of whole species, it may be time to reject the Nation-State as central category of our times.

But what shall replace it? And who shall replace it? To answer the second question first, your generation will be the primary architects, engineers and builders of the new categories. Think of yourselves as founders and inventors in an exciting time of transition.

As for the “What,” there are already some working models in action across categories:

- Cars that get 100 mpg and may only need to filled with gas twice a year⁶¹
- Buildings that produce more energy than they consume⁶²
- Local currencies not tied to federal banks⁶³
- Collectives and cooperatives instead of corporations⁶⁴
- Production agriculture that doesn't require annual planting and plowing⁶⁵
- Chemical-free, recyclable carpets⁶⁶
- Ovens that bake food with power directly from the sun⁶⁷

⁶¹ <http://www.rmi.org/>

⁶² <http://www.oberlin.edu/ajlc/ajlcHome.html>

⁶³ http://www.schumachersociety.org/local_currencies.html

⁶⁴ http://party.coop/co_operative.php?article_id=29

⁶⁵ <http://www.landinstitute.org>

⁶⁶ <http://www.interfaceinc.com/>

⁶⁷ <http://www.solarovens.org/>

- New educational models and disciplines in Industrial Ecology, Post-Carbon studies, and ecological economics⁶⁸
- The European Union, perhaps the most exciting political and social revolution since the creation of the American Republic⁶⁹
- And thousands of organizations and movements around the world that are connected to no state or nation, and that are working for a more just, freer, and safer world for all.⁷⁰

Each of these examples reflects revolutionary shifts in our thinking about nature, technology, the economy, and government.

And so as you do the work of nations today, please keep in mind that you will be asked as leaders of your generation to think beyond nations and states, and capitalism and socialism, and nearly all of the categories with which we so comfortably order and give meaning to our lives, and to create, instead, categories better suited to our time and challenges.

As an educator and the parent of a model UN participant, I am confident in your chances of success. We are all depending on you. But don't panic or feel pressured. Instead, accept the challenge as a creative and positive way to live and interact with others, to protect those who will come after you, and to honor those who will not be with you on the journey.

⁶⁸ <http://www.newenvironmentalism.org/ecology.cfm>

⁶⁹ http://europa.eu.int/index_en.htm

⁷⁰ <http://www.blessedunrest.com/>

Draft
Ethics and NET⁷¹ Entropy

Physicists and engineers bristle at the liberties non-physicists and non-engineers take with the term “entropy,” and in this essay I plead guilty. I draw comparisons between a living organism’s ability to maintain its internal order/low entropy state⁷² and the “work” provided by ethical and social systems for the purpose of decreasing social entropy/disorder. In the same way that living organisms and systems are entropy reducing, so too are the human social systems that make use of the “work” of cooperation and the evolution of social structures. Ethical/Social systems reduce social entropy by creating prohibitions and exhortations that preserve life and the social order. And these systems require the work (exergy) of individuals, families, and social institutions in terms of training new generations, the creation of laws, rules, procedures, and the consistency of their application. I also posit that 1) ethical and social “work” can substitute for the lack of free energy in nature (the development of the virtues of thrift, hard work, and heroism in times of scarcity, for example); and 2) that an abundance of free energy often substitutes, or makes irrelevant, the need for social-ethical work. We can see the latter in the profligate waste and consumption—not to mention the breaking of other ethical rules—among societies with large amounts of natural capital at their disposal (the Roman Empire at its zenith, French royalty just before the revolution, and the United States today). As we increasingly come face to face with the limits of our natural capital stocks, we will once again require the “work” of social and political systems to maintain order, and to encourage the virtues of community, civility, thrift, hard work, and humility.

⁷¹ Nonequilibrium thermodynamics.

⁷² It does so by taking free energy in the form of nutrients and sunlight and returning to its surrounding an equal amount of energy in the form of heat and entropy (http://en.wikipedia.org/wiki/Entropy_and_life).

Promulgate

Brother (And Sister) Can You Paradigm?

Taking a page from an engineering colleague's introduction to engineering design class, this essay calls for a practical approach to solving the problems we face. But because these problems occur at the deepest levels of what we call paradigms or worldviews, it is here where the changes must occur. This essay offers a standard step-by-step design process used by engineers in the design of new products, and applies it to paradigm change. Readers are encouraged to think practically about paradigm change, and to get right to work with effecting this change.

**They used to tell me I was building a dream
And so I followed the mob.
When there was earth to plow or guns to bear,
I was always there, right on the job.
They used to tell me I was building a dream
With peace and glory ahead --
Why should I be standing in line, just waiting for bread?**

**Once I built a railroad, I made it run,
Made it race against time.
Once I built a railroad, now it's done --
Brother, can you spare a dime?**

**Once I built a tower, up to the sun,
brick and rivet and lime.
Once I built a tower, now it's done --
Brother, can you spare a dime?⁷³**

Calling for paradigm change is one thing. Actually changing a world-sized view is quite another thing entirely. We often think of paradigms and worldviews as these monstrous projects that are typically ignited by a stroke of genius (Newton) or the work of many geniuses working together (the American Founding). Except for a rare few of us

⁷³ Excerpts from "Brother Can You Spare a Dime?" (E. Y. HARBURG/JAY GORNEY) (1932)

it seems both presumptuous and preposterous to think that the average well educated citizen would have much to offer here. Historians have long pondered what makes one age or region of the world riper than others for revolutionary paradigm change. It's still not completely understood. But that doesn't mean we should sit on our hands and wait for others to step up.

Paradigming is a central task of every revolution. And in times when it is most necessary it is open to anyone willing to apply creativity and insight and entirely new ways of thinking, to solving the “problems **of** agriculture, science, economics, ethics, politics, for example—and hence to re-conceptualize them altogether—rather than “problems **in**” these and other fields. In other words, we live in a time where everyone potentially has a chance to become a revolutionary.

If there is hesitation its source is likely our unwillingness or lack of preparedness to even consider the extent of our challenges in terms of changing the larger operating systems at work in our culture. We're good at addressing problems from our own narrow point of view or within particular system. And quite a bit of sweat equity is invested in showing how the status quo—or at least our piece of it—can handle the problems.

Paradigm change comes when the old models are finally shown to be inadequate **and** when a brilliant alternative presents itself or when an alternative is demanded in an emergency, whether real or perceived. In the first instance Newtonian mechanics was a breathtaking breakthrough in understanding the behavior of medium sized chunks of the universe. In the second instance winning World War II required an enormous outpouring of intellectual efforts at design and manufacturing while under the gun. Perhaps not a

full-fledged paradigm shift, WWII created conditions that propelled the modern world into a new economy, at the very least.

We know that young people are most eager to take on the big problems, but their elders too often smile at their naiveté and redirect them to smaller, more manageable problems. We call it a modern education. It is very effective, particularly at the “higher” levels, at narrowing our intellectual interests until, if we stay in the game long enough, we are pursuing a small slice of research known and shared by a similarly small cadre of scholars. The far end of this education funnel—the training that leads to a Ph.D.—has been responsible for training small minds for centuries. It is the process of matching interests with aptitude in ever-smaller fields of scholarship.⁷⁴ We academics have all felt the excitement of pursuing a scholarly interest, relevance be damned. And it’s rare that we are called on to justify our use of resources to pursue these interests.

As I have argued in other essays in this book, we are in the midst of what appears to be a major threat to our political and social stability. It is time to address problems that need fixing, and not just the ones that excite us. We need to focus both our individual and our collective efforts on solving problems at the level of paradigms and worldviews. To paraphrase Wes Jackson, what we’re dealing with are not problems **in** paradigms and worldviews, but the problems **of** paradigms and worldviews.

It is not that universities full of small minds are necessarily a bad thing during times of cultural and social stability. But when the “you-know-what” hits the fan—as it is doing now around the globe—narrow perspectives and the carefully protected boundaries we

⁷⁴ A journal editor once asked me to review a manuscript because someone had told him that I was “the best person working on David Hume’s account of promising.” There was a time earlier in my career when that sort of comment would have made me proud, but no longer. To be considered an expert on a ten-page account of promising by a long-dead Scottish philosopher is the sort of thing that rightfully gives philosophers a bad name.

call disciplines become worse than unhelpful; they become dangerous. In times of change we need all of the help we can get in thinking big.⁷⁵

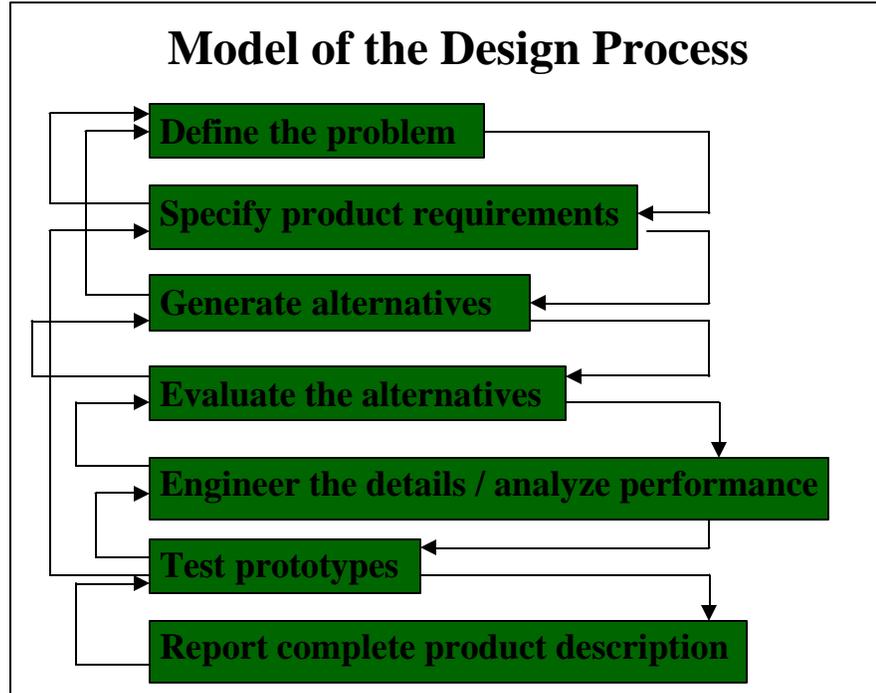
In the hopes of trying to spark some big picture thinking among professionals and amateurs alike, what would happen if we took a page out of the engineer's design book and applied it to paradigm change? Can we use the method for solving small, focused problems to also solve the big ones too? Can we build a better post-carbon mouse trap? This essay offers at least the steps. The reader will hopefully supply the creative voltage.

To this end I will borrow an approach used by my engineering colleagues who teach the introductory design course for engineering students. Engineers are expected to be practical, and to solve problems, but they first have to define them. This requires putting boundaries around the problem. These boundaries are not defined by their interests in the way that academic scholarship is, but are instead practical responses to the actual issue or problem to be solved, and the various constraints that limit what we can do (time, budgets, safety, environmental concerns, ethical concerns). Boundaries create a reasonable and practical problem statement, and represent a first step in creating a shared mental model.⁷⁶ What's important at the level of paradigms is to be sure that the boundaries of consideration—our mental and practical models—overlap the boundaries of causation—what's actually going on in the outside world. That is, the paradigm design process has to begin with the right set of boundaries.

Here's the model:

⁷⁵ And it's not always big. Paradigm change, at least the sort that I am advocating, can take place at institutional and local/regional scales, and even in small groups, anywhere really where it can be said that a group of people are operating within a shared mental model of their world.

⁷⁶ A problem statement not only focuses our individual work, but it can also focus a team of problem solvers, even academics! Indeed, it is what folks do in the industrial/corporate world every day. The planes that most of us fly were designed by hundreds of engineers, and dozens of design teams working on their own pieces of the project, but collectively on a complex and quite amazing machine. This is what Paul Hawken means when he talks about working from a shared mental model.



The diagram above was created by Professor Steven Yurgartis, a mechanical engineering professor at Clarkson. He uses it to teach sophomore engineering students how to think about design. It may look simplistic, but when it comes to paradigm change even the best of us are sophomores, at best. I'll focus on the first three steps.

Defining the Problem

This is the most important and most difficult step. We have to be especially careful about not jumping to conclusions too quickly lest we try to solve the wrong problem altogether.⁷⁷ But if we believe, as I do, that the constraints that carbon will put on energy

⁷⁷ Steve tells his students a story about a company with one elevator and employees who complained about waiting too long for the elevator to come. So what's the problem? Is it too many people and only one elevator or bored employees with nothing to do while waiting? If it's the first question, you will build—at considerable expense—a second elevator. If it's the second question, you might give employees something

consumptive cultures is terribly significant, the kinds of problems that will need solving will look significantly more complex than building a better mouse trap. Here are a few possible problem statements that begin to capture the kind of work we have ahead of us.

- Reduce human population by eighty percent from its current level without famine, war, viruses or the loss of human dignity;
- Eliminate the automobile as a form of personal transportation;
- Create political and social systems that run on a solar economy;
- Revise the scientific method so that it more accurately balances the discovery of new knowledge with moral considerations and precaution;
- Devise viable models of happiness and success that do not require economic growth and increased consumption; and
- Make the virtues of humility, cooperation, generosity, gratitude, kindness and thrift cool again, or hip, or bad, or the bomb, or whatever word or phrase you use to describe something really good and worth having.
- Expand civic democracy in the peak-carbon transition.

For an engineer—or for any specialist for that matter—these problem statements are so gargantuan as to appear ridiculous.⁷⁸ But in terms of the actual challenges ahead, the matching of consideration boundaries with causation boundaries, and the ability of these problem statements to provoke solutions at the level of paradigms and worldviews, their

to do while waiting. The answer? The company installed mirrors on either side of the elevator doors on each floor. Complaints decreased. The problem was solved at very little cost.

⁷⁸ The problems statements were not too unwieldy for about 20 incoming freshman from the Clarkson University Class of 2011 who spent a good hour discussing their proposed solutions to these problems. Thankfully, young people feel challenged by these kinds of problems.

scope is about right. (And I will say more below about the ability to provide the proper scale to paradigm solutions.) For the remainder of this essay I will focus on the last of the problem statements, and the first three steps of the design process.

Problem Statement: Expand American civic democracy⁷⁹ in the peak-carbon transition

There's no doubt that the carbon constraints of sources and sinks will put extreme stress on our ecological and cultural systems. They already have. As I have argued in "The Liberty-Traction Hypothesis" (this volume), since 1970—America's peak oil moment—US democratic indicators—the middle class, voter turnout, social capital—have shown a steady decline. So too has civic participation in the political, social and civic associations that have been part of the American fabric since its inception.⁸⁰ The Great American Liberty Experiment depends almost entirely on a rich natural resource base that is unparalleled anywhere else in the world. This energy abundance had, I believe, a significant influence on the erosion of civic democracy in America (See "Ethics and Entropy" in this volume).⁸¹ James Madison was the only founder who saw clearly the impacts of eventual resource depletion. He predicted in 1829 that America would reach its resource limits in 1929, and that unless the laws and institutions of this country were adapted, the majority of citizens will lack "landed or other equivalent

⁷⁹ This is not to say that civic democracy is an important problem wherever it can be found. I would rather avoid any criticism that I am trying to export democracy to parts of the world that may not seek it out.

⁸⁰ See Robert Putnam's work for a discussion of the erosion of American social capital, and Michael Schudson's *The Good Citizen: A History of American Civic Life* for an account of civic life in America.

⁸¹ See Walter Youngquist's *GeoDestinies*, particularly chapters 7-8.

property, and be without the means or hope of acquiring it.”⁸² Absent this access, citizens would find it increasingly difficult to exercise their democratic freedoms. The use of coal, oil and natural gas caused Madison’s resource calculation to be off, but add another century to it and he sounds prescient, and not just in America. Madison likewise failed to understand how these abundant resources would atrophy the American skill in social and active participation in civic associations that were so vibrant in the early Republic.

The stark reality is that with the loss of soil, oil and other natural capital, the political liberty of individual citizens may shrink as a result of the steady consolidation of power in the monied class, and the poorly developed social and civic skills that were long ago discarded in favor of the economic liberty provided by America’s deep carbon pools. We are facing clear signs that the liberty guaranteed by the practice of civic democracy will decrease steadily in the post-carbon transition.⁸³ We’ll need to rethink American democracy from this new carbon-challenged perspective. The first steps will be to block the already increasing leakage of democratic freedoms and liberties, and to prevent a hysterical run on the ecosystem bank as the only solution to preserving “freedom.” If democracy is to remain a vital force in this new peak-carbon world, I believe that it will need to be more civic and local, and less individuated and consumptive.

“Expanding American civic democracy in the peak-carbon transition” is a problem statement focused on American culture, is directly tied to a future that has already arrived and that is stressing both social and eco systems, that seeks a particular kind of

⁸² Madison source

⁸³ See the “The Liberty Traction Hypothesis” and “Two Concepts of Liberty Redux” essays in this volume.

democracy, namely a civic democracy⁸⁴ (i.e., participatory/regional) and that is ecosystem preserving/enhancing. It is also a quantitative statement, since we can measure our current levels of civic democracy and compare this baseline to our efforts to expand it. The statement is broad enough to include all of the traditional academic disciplines. Most importantly—and what’s so sorely needed in our intellectual meanderings—this problem statement has the potential to guide and center the work of many minds and hands, and to hold us to account. It makes our work count for more than academic tenure or promotion (not that these are unimportant for our personal lives) or for our own small egos. It makes not doing what we said we were going to do a matter of public record and accountability. And it makes our intellectual work count for something. The last thing I want anyone to say to or about me—and my professional colleagues, for that matter—is that I/we saw this peak-carbon transition coming and did nothing useful to forestall or prepare for it. Or worse, that we kept up our academic pursuits as usual: one more article for the pile, one more arcane conference attended, the same course taught in the same way yet again. Such behavior well deserves a lashing. Let’s avoid it.

Step Two: Specify Product Requirements

The second step of the design process requires us to list the product requirements. Even engineers admit that the world is anything but perfect, and the sooner we know—and with as much specificity as possible—the boundary conditions we’re working with, the better are design will be. Below are examples of performance and safety

⁸⁴ As opposed to Madison’s expression of a republic in Federalist 10 as one in which a “scheme of representation takes place.”

requirements that an engineer might consider when designing a better mousetrap.⁸⁵

Notice how detailed and quantitative they are.

Performance

1. Successful triggering in 90% of mouse contacts.
2. Escape of mortally wounded mouse occurs at less than 85% of trigger events.
3. Attraction rate of 20% of individuals/day at a density of 5 mice/100 m² at standard RT temp/humidity.
4. Settable by an inexperienced adult user in less than 30 seconds with no force to exceed 10 N.

Safety

- 1) Not lethal to animals larger than 3 grams and/or a volume of 300 cm³ in 99.8% of contacts.
- 2) Not capable of laceration of adult human finger.
- 3) Not hazardous to children age 6 mo.-8 yrs (choking, poisoning, pinching, drowning, electrocution) in 99.9% of contacts.
- 4) Not hazardous to cats, dogs, guinea pigs or rabbits in 95% of contacts.

To the untrained eye these requirements seem remarkably specific (and they don't even include material, pricing, timeline requirements). But this sort of thinking represents the everyday world of the working engineer, and it explains why planes rarely fall out of the sky, and why refrigerators seem to last forever. It also explains just how challenging it is to make products that are effective, safe, and reasonably priced, not to mention aesthetically pleasing.

⁸⁵ Information provided by Prof. Steven Yurgartis.

Imagine now that those of us willing to take on the task of creating new models and systems in the post-carbon world are **civic** engineers, and we have been given the task of expanding American civic democracy in the global peak-carbon transition. We now have to specify some product requirements. By “product” I mean the social-political systems, policies, programs, and curricula, for example, that we would create to “solve” the problem. What characteristics would we want our products to have?⁸⁶

Here is a short list of what we might provide by way of product requirements:

- **Optimistic and motivating.** Like Old Testament prophets, academics and environmentalists have for too long been depressing, nay-sayers. The products we create need to look forward with optimism, and be capable of motivating people to change.⁸⁷
- **Self-Maintaining.** We need products that don’t require too much oversight or outside control. We want them to run on their own energy, or make the energy they need to keep going. I’m not suggesting perpetual motion machines, but rather, in this case, civic systems that promote democracy spontaneously, as the creation of a public square and scheduled monthly debates and ice cream might accomplish in a small town or village.
- **Simple and Elegant.** Not too complex or complicated. Keep in mind the potential power of our social instincts when they are given a chance to become activated. Elegant? Design it with the next one hundred years in mind.
- **Based on current “truths” about the world.** To put it another way, all of our products should seek to incorporate—or at least not ignore—some basic 19th

⁸⁶ We are not specifying the actual products, but rather the characteristics of the products.

⁸⁷ See the link for a talk by Paul Hawken that nicely demonstrates this product requirement. (<http://www.northcountrypublicradio.org/news/hawken.html>)

Century discoveries and their implications. I am speaking specifically of three: 1) Evolutionary Biology, 2) The Second Law of Thermodynamics, and 3) Ecosystem Complexity. Evolutionary biology would remind us all that as smart as we are, we are still apes in lab coats, and as such, our scientific/technological systems should be ignorance-based, precautionary, and fail-safe.⁸⁸ The implications of the 2nd Law require that we run our civilization on as much contemporary sunlight as possible. And ecosystem complexity teaches us that we are not alone, that we are dependent on this complexity, and that we should probably limit our population so that this complexity can prosper.

- **Optimal Resource Consumption (Efficiency).** This sounds like an obvious one, but it often fails to make the final cut because of costs and the inability to correctly calculate long term value and savings. But even if it does get incorporated, we must be careful with this one because efficiency has not yet proven a reliable method for reducing our reliance on carbon fuels. In fact, efficiency as expressed in the last two centuries in modern, complex cultures has had the opposite effect. It is called Jevons Paradox, named after the man who wrote a book describing how efficiencies in the use of coal in Great Britain had the effect of increasing the consumption of coal in Great Britain. More recently, the production of compact fluorescent light bulbs and hybrid cars—absent a reduction of light bulb and car use around the world—may have the opposite effect of increasing our consumption of these products and negating their efficiencies.

⁸⁸ See *The Virtues of Ignorance: Complexity, Sustainability, and the Limits of Knowledge*, edited by Bill Vitek and Wes Jackson.

- **Use more of what we have more of (people), and less of what we have less of (carbon fuels).** Students of traditional neo-classical economic theory learn that the most expensive cost to production is labor. Whenever possible utilize machines and other efficiencies to reduce labor costs and laborers. It is not as well known that the roots of this way of thinking emerged at a time when production took the work of many laborers, who were often in short supply or otherwise difficult to train. The emergence of technology as a replacement for human labor was motivated by the need to limit these shortages and inconsistencies, not to mention the needs and demands of workers for higher wages, shorter hours, and safer working conditions. This technology was, and is, dependent on energy sources that we now know are in short supply. What we now have, then, is the reverse of the conditions out of which modern economic theory emerged. We have a world with an abundance of people who want and need to work, and a shortage of energy and an abundance of CO₂ to run technology-based economies. What's needed, therefore, are systems that utilize human labor and that diminish the use of high-energy, high-polluting technologies. We must do so in ways that are dignified and that provide living wages to workers. Once we have the tools in place to measure and value the cost of unemployment and pollution, we will begin to create economic models that put people to work. This "people-powered" economy can and should be part of any new system.
- **Democracy enhancing.** This is an obvious one here, but we should have quantitative definitions so that we can measure our progress. Increasing the

number of young people voting by twenty percent or increasing attendance at public meetings by 10 percent per year are examples.

- **Social Capital enhancing.** Civic democracy, not the representational democracy the Founders created, requires social skills, and these skills, while natural to mammals like ourselves do need proper attention. More importantly, they need practice. If we are going to be serious about enhancing civic democracy we will have to pay attention to social capital. We'll need to measure it and increase it.
- **Ecosystem enhancing.** This requirement may seem an odd one, but the reality is that ecosystems (the ecosphere) will need to be addressed in nearly all of the alternative paradigms that get created in this century. It has been ignored for too long, and its recovery and enhancement will need constant attention across the systems board. We need to link the goods and requirements of civic democracy to nature. There exist today many ways to do this badly, rights and moral extensionism among the bad ways, the endangered species act among the less bad ways. (I don't think there is yet a good way currently available to do it.) We now understand that humans need healthy ecosystems to survive and thrive, but this is not an argument for civic democracy. I have tried my hand at the civic-democracy argument in my essay "Citizenship for a New Century" (this volume) by linking our aesthetic experiences—many of which take place in natural ecosystems—with the success or failure of developing ethical and political awareness. This seems an odd kind of linkage, but it is not unlike the work of epidemiologists who demonstrate heretofore unknown and often unbelievable

linkages between exposures and disease.⁸⁹ We need to discover and demonstrate how a rich natural environment leads to a strong moral and political development, which together, will lead to greater awareness of and commitment to, the very natural world that was responsible for the development.

- **Paradox welcoming:** James Madison’s insight, and the Federalists generally, was to turn the vices of a traditional republic (size, factions, representative government, eventual vice and tyranny) into the virtues—or at least the “givens”—of the new republic, and thereby, arguably, maintaining some semblance of a traditional republic while shoring up its weakest points. Hamilton, too, rejected any hope of using republican government to make people virtuous, and instead used vanity—coupled with debt—to create the hardest working citizens in the world, a nation teeming with industrial goods, and a tax base to fund the most powerful nation in the world.⁹⁰ We should be willing to turn some common and well-accepted truths on their heads to get similar results in service to enhanced civic democracy. This certainly sounds deceptive, and I’m inclined to say that a bit of deception for the right reasons is acceptable in times of necessary paradigm change. But there is more to it than that. Hamilton, in his focus on building a strong financial, industrial and military base for the new nation created a system of banking and debt to do so. He also made clear his views about human nature, and the need to use the less virtuous aspects of this nature for advancing

⁸⁹ See Devra Davis’ book *When Smoke Ran Like Water*

⁹⁰ “Great power, commerce and riches, or in other words great national prosperity, may in like manner be dominated evils; for they lead to insolence, and inordinate ambition, a vicious luxury, licentiousness of morals, and all those vices which corrupt government, enslave the people and precipitate the ruin of the nation. **But no wise statesman will reject the good for the apprehension of the ill**” (Alexander Hamilton, Papers, vol. 2, 617-18, boldface not in original).

his goals. I don't accept Hamilton's view of human nature or his use of debt and natural resource extraction to reach his goals, but I do admire his willingness to take what seemed like paradoxical ideas (and vices) at the time, and turn them to amazingly productive use (at least in terms of his goals). I am suggesting that we at least consider similar paradoxes as we seek to advance civic democracy.

The above is a rather long list, and it is detailed in places and open-ended in others. Civic engineering will take time to generate its own specificity and quantitative measures. But this list is intended as a demonstration and to spur others to think along similar lines. One could generate similar "product specifications" for other paradigm-size problem statements. The goal here is simply motivational. Once the product specifications are listed one can return to the problem statement—as the diagram suggests—and see if requires adjustment. From there it is on to the next step.

Generate Alternatives

The design work can now begin. My engineering colleague Steve insists on "the rule of three." He encourages students to generate three designs that satisfy the product requirements and that solve the problem. Too often young designers come up with a solution and, having invested time and energy in it, and finding it satisfactory and even spectacular, become too fixated on it and close off other possibilities. The rule of three demands more out of the designer, but the results are potentially richer in content and the student now can compare his designs against his product specifications list.⁹¹ This is done with a "weighted objectives table." Each product requirement on the list is given a

⁹¹ This is technically step four of the design process, which this essay will not cover.

weight based on its perceived importance as defined by the designer and/or the end user of the product. The total of the weights must equal 100. The designer then justifies and assigns weights to each of the design components and compares each design in terms of its total score. Although the assigning of these weights is somewhat subjective, the weighted table gives the designer some semblance of objectivity. The winning score is also the “correct” design.

Generating alternatives can be done individually and in groups, and one can imagine organizations gathering together creative people for a “paradigming charrette.”⁹² A charrette would generate plenty of ideas at the beginning stages from all interested parties, and would then subject the design ideas to a measurement against the product requirements and weighted objectives. Below are just a few examples of some alternatives that would “expand civic democracy in the peak-carbon transition.”

- **Local Currencies.** This is not a new idea. Local currencies were used in the 1930’s in the United States during the Great Depression, and they have made a comeback.⁹³ These currencies are produced and used locally and regionally for the purpose of using economic relationships to build strong links between communities and citizens. Both merchant and consumer are committed to their localities and seek to build strong partnerships. Local currencies currently exist in about 15 locations in the United States, Mexico and Canada.
- **Ward Republics.** Thomas Jefferson coined this term to describe the smallest unit in his design for a new political structure in the United States. Jefferson was

⁹² A charrette is a process used in art and architectural design. It brings together stakeholders and designers for an open and integrative design process. See <http://www.charretteinstitute.org/charrette.html> for more information.

⁹³ http://www.localcurrency.org/local_currencies/currency_groups.html#local

known for his creative designs that stretched across architecture, technology, education, and politics. In addition to his work on the original Virginia Constitution, Jefferson penned additional hypothetical constitutions and was unique among the Founding Fathers in his support of the institutionalization of “general education, participatory democracy, and permanent revolution through the establishment of ward republics.”⁹⁴ At the base of a political structure that moves from nation to state to county, Jefferson posited a final organizational entity he called a ward republic. It would serve a fourfold function: “1) to check petty tyrants at home; 2) to maintain the revolutionary spirit of 1776; 3) to provide a base for general education; and 4) to ensure a space in which the citizens can become proficient in the art of politics.”⁹⁵ This last criterion satisfies exactly the expansion of civic democracy.

- **A 21st Century Homestead Act.** The Homestead Act of 1862 is well known to anyone who has had high school history. It was the free distribution of 160 acres of public land to individuals who were required within five years to build a house on it, dig a well, plow 10 acres, fence a specified amount, and actually live there. The results were mixed. A new homestead act could be used by federal, state, and regional governments to attract young people eager to build their homes and their lives. The new Homestead Act could include requirements about energy efficiency, education levels, willingness to participate in local government, etc. A new Homestead Act (S. 602) was actually introduced in the United States Senate

⁹⁴ *The Radical Politics of Thomas Jefferson: A Revisionist View*. Richard K. Matthews, University Press of Kansas, 1984, p. 81.

⁹⁵ Matthews, 83.

in 2003.⁹⁶ More locally, Karen St. Hilare, the County Administrator of New York State's St. Lawrence County has recently suggested that the county explore a homesteading project to attract new talent to the county. And in the summer of 2005, in a one week program at Clarkson University for high school students,⁹⁷ my colleague Steve and I created a challenge based on the idea of a new homestead act:

The Challenge: The 21st Century Homestead Challenge (**a fictional organization**) is offering a \$1 million dollar prize for the best design of a small-scale modern farm. Like the US Homestead Act of 1862, contestants will have 160 acres of land with which to work. Unlike the earlier Homestead Act, the winner of the 21st Century Homestead Challenge will have to produce food without harming the natural environment, and with minimal and recyclable use of energy and materials. Ideally, the new homestead will 1) create more energy than it consumes, 2) produce healthy and delicious food at an affordable price, 3) provide a living wage for three families, 4) be a good neighbor in its community, and 5) offer an agricultural model that is applicable in other parts of the world, particularly developing nations.

The above ideas are not new, and some are already being tried in various forms. Ward republics are the exception, but there is no reason why a county could not experiment with them. What is still missing from these and other ideas are a list of goals or “product

⁹⁶ http://www.cfra.org/resources/summary_newhomesteadact.htm

⁹⁷ <http://www.clarkson.edu/youngscholars/>

requirements” against which these experiments can be measured. It is not enough to simply generate ideas and then try to put them into practice. If we are serious about creating new paradigms, we have to set quantitative and qualitative standards, and measure outcomes. We need, also, to be willing to say that a particular idea doesn’t work, or work well enough. On the flip side, we can devote more time and financial resources to the projects and products that can be shown demonstrably to work well.

From here the final four steps (evaluate the alternatives, engineer details and analyze performance, test prototypes, and report complete product design) would be applied, remembering that the process is iterative, not linear. Surely many projects and products would be rejected, but others would emerge as viable. Some might work across scales, others at only one scale. We could participate in their creation, see them implemented, participate in their “beta testing,” investigate their failures or enjoy their successes. Imagine, for example, if one or another Association of Towns and Villages—or an Association of Associations—agreed on something like our steps 1-3 above; or an academic Society of Political Science, Association of Colleges and Universities, or state and federal funding agencies. And the call went out to its members with the following charge:

Here’s a problem we hope to solve, including a list of product requirements. We’ll analyze and assess various alternatives once we have some. Get to work!

This sort of collective focus on a shared problem will generate the kinds of results we are looking for at the level of paradigm change. The academics among us can continue to

squabble about the details or refuse to leave the safety of their sub-discipline, but then the work will simply have to go on without them.

The goal of paradigmging is to pool our collective efforts to provision the future with honest but hopeful lessons about limits, evolutionary biology, ecosystem limits, and a host of “on the shelf” social, ecological, and civic models that run on contemporary sunlight and social capital, that deliver plentiful goods and services efficiently and safely, and that promote democratic principles and ecosystem diversity. If we are serious about the current cultural transition underway, and want to be taken seriously when we claim that we want to help, then we have to focus our intellectual efforts on *practical solutions* in the fields in which we are considered experts. It’s the job of getting some products/plans on the shelf, and selling them. Not as life jackets in a storm, but as better alternatives to anything else we might choose or wish for. Our social, eco-system, political, and ethical provisions are just as important as the work of engineers, architects and crop scientists, for example, in securing a bountiful future.

“Provisioning the future” is a phrase that conjures up images of getting the wood pile stacked for next winter, or summer canning of the vegetable garden. Provisions are artifacts. They’re tangible and real. They do work for us. And so must the provisions we produce. Cultural and social transitions—paradigm shifts—require answers to these questions: What just happened? What’s going to happen now? How do we get out of this mess? Where do we go from here? Can you help us? The answers require perspiration, preparation, and foresight. Examples can be found in what Aldo Leopold did with his families at the Shack on weekends, what Wes Jackson and his staff of

scientists is doing at the Land Institute, what Amory Lovins and his staff is doing at the Rocky Mountain Institute, and even what the Founders did in creating a government.⁹⁸

To put it another way, it's a great time to be a philosopher/social scientist/systems thinker/civic engineer. Enjoy the creative and communal process it creates and imagine that what you create will actually be utilized.

Worldviews go deep, die hard, and are difficult to change. The sun does not rise or set, but we can't stop saying that it does, and, more deeply, that's actually what we see and feel beneath our feet. It is a deeply embedded falsehood against which the truth seems a weak foe. "Once I built a tower, now it's done," the line from the song at the beginning of this essay, sums up my belief that we are collectively at the end of the line of a way of thinking. Paradigming anew is the next logical step, and it's one that can't wait entirely upon the solitary genius and radical breakthroughs. If and when we set the boundaries of our consideration to the proper circumference, and invite the like-minded to participate in collective and creative thinking, we can increase the chances of making the peak-post carbon transition with fewer dead ends and cul-de-sacs. We might even succeed in helping democratic, modern, complex societies find their way to the other side of the transition.

⁹⁸ See Paul Hawken's book *Blessed Unrest* for a sense of the bountiful extent of the provisioning now going on around the globe.

The Limits Manifesto

No Harm, No Hubris, No Hurry

We live in an increasingly interconnected global system the merits of which are touted with the intensity of American TV ads for beer and pick-up trucks. The costs are rarely mentioned and just as loudly discounted. And while it may go against the grain to say so, what we commonly call “progress” has produced some of the very problems we expect progress to eradicate. Advances in agriculture and medicine have led to the exponential growth of the human population, and that has put increased demands on top soil and fresh water. Technology has made more and more of the world’s fossil fuels accessible, leading to increased consumption and an increase in atmospheric carbon, leading to increased global temperatures. Worse, many of the solutions to these monumental challenges depend upon the logic of plenty: finding more oil, increasing soil and seed productivity, promoting economic growth and material consumption, utilizing more land for human food production, and even increasing human population. Each calls forth a faith in the unbounded human spirit to rise to any occasion, to conquer any foe. The recipe for success is simple: unleash human ingenuity; utilize it to harness and commodify nature’s immense and complex forces; enjoy the new and improved world that results; repeat.

Considering how many of the problems that threaten to overwhelm us are the direct consequences of this Herculean worldview, it is not unreasonable to offer an alternative approach. It begins with a statement of limits expressed as propositions. The propositions are well-established and form a foundation for thinking differently about

ourselves and the world. They may sound shrill to those raised on the sign-song optimism of human “know how.” But were they to be collectively applied to our daily lives, and incorporated into the leading social and cultural “operating systems” of the modern world, it is more than reasonable to imagine a future in which the second hand of the doomsday clock moves slowly in reverse.

I. Propositions

- **No Harm:** Except for planet Earth, life seems pretty rare in the universe. Thoughtlessly and willingly destroying it or limiting the diversity and co-evolution of life, especially at the level of species, is a moral wrong among self-conscious creatures who surely know better by now.
- **No Hubris:** Human beings are not created uniquely by God. We are the unintended offspring of evolutionary biology, and as such we lack any special or pre-ordained tools for divining the world’s inner workings. Closer to our cousin apes than gods in all things—and genetically 99.5 percent Neanderthal—we should refuse to think otherwise, and instead behave as if our ignorance will always exceed our knowledge. It will.
- **No Hurry:** All life depends on sunlight and the complex and integrated chemical and thermodynamic processes it powers. Life needs optimal temperature, water, soils, and photosynthesis. Net Primary Production (NPP) is the technical term that describes the energetic and organic material production of these ecosystem processes—the calories and biomass that life produces. NPP is constrained by many factors and cannot be substantially improved, increased or sped up over

time without the addition of inputs from outside the system. For centuries we've been supersizing NPP by adding highly energy-dense materials (i.e., fossil fuels—the past solar income of the planet) to earth processes. Doing so, we draw down stored capital stocks created over long stretches of time by the very same ecosystemic production we seek to augment. Think of the “high density” taste of maple syrup, a gallon of which begins as roughly 40 gallons of maple sap, boiled over a very hot fire to evaporate 39 gallons. Nature provides the sap and the fire, the pans for boiling, the tools for tapping the trees, the wheat and soil fertility for the pancake flour. Not unlike the Little Red Hen in the children's folktale, it is nature that performs all of the work, and that should get all of the credit. Our high life of consumption is brought to us both by contemporary NPP and the rapid drawdown—in mere centuries—of an eon or more worth of accumulated fresh water and highly energy-dense materials. Across the board this drawdown is increasingly noticeable. We are reaching the limits of exploitation of soils, aquifers, fisheries, oil and natural gas. In the grand sweep of human history and culture, these are one-time draw downs. In the industrial era, our species has been like the college undergraduate cramming for exams who uses caffeine and amphetamines to artificially augment his stamina. Like that undergraduate, we will learn that when it comes to sustainable activity we can't do better than nature. If we can't speed up natural processes, then our only option is to slow ourselves down.

II. The Creed

These propositions imply a creed, one worthy of repetition privately, publicly, aloud, silently:

“I accept The Limits Manifesto Propositions regarding moral behavior, the pursuit of knowledge, and the use of the earth’s material and energy productivity, and I hereby pledge no harm, no hubris, and no hurry in my daily thoughts and actions.”

III. Action Items

How then should we live our lives? The Creed implies some general heuristics. The list below is wide-ranging and inclusive, and you are invited to make additions and to adapt them to your context, interests, and projects.

- Don’t always think you know better.
- Become an Ambassador of Limits.
- Block unbounded faith—your own and others’—in the “No-Limits” dogma peddled by technological optimists, economic theorists, and those who believe that “future” and “greater economic activity” are synonymous.
- Offer no hope about the immense problems we face before the full scope of the limits challenge is clear and understood.
- Insist on some sign or evidence from others that they understand the full scope of the limits challenge.
- Don’t be nasty or condescending about any of it.

- Clarify assumptions that violate one or more of The Limits Manifesto Propositions.
- Count the number of times in a given day your motivations, choices, and actions make use of the most primitive parts of your primate brain. Multiply by 6.6 billion.
- Show no enthusiasm for attempts to improve on nature's efficiencies. Such schemes always cheat by drawing down natural capital stocks somewhere else in the system.
- Acknowledge the Net Primary Production of sun-powered ecosystems as the only long-term energy-material feedstock for sustaining life on Earth.
- Slow down. And when going fast (car, plane), admit your role in the global run on the natural capital bank.
- Welcome limits as one of the initial and permanent operating conditions for any solar system—especially one with life in it.
- Resist solutions to current environmental problems that ignore the size of the human population as a central factor limiting the ability of the rest of the planet's life-community to thrive.
- Resist solutions that create harm or extinction to fellow creatures.
- Count calories. Not just the ones consumed, but those embodied in our everyday products as well.
- Understand and appreciate the role that the so-called inanimate world of soils, minerals, and elements—particularly nitrogen, phosphorus, potassium, calcium, sulfur, and magnesium—play in your life.

- Demand a public and accurate accounting of our Net Primary Production feed stocks and capital stocks.
- Demand that losses of natural capital be accounted for in any calculation of costs and benefits.
- Don't rush natural processes, or to judgments about those processes.
- Discount efficiency when it is offered as nothing more than a clever way to increase consumption (Jevons Paradox).
- Accept blame yourself.
- Don't let good friends off the hook about limits.
- Honor your debt to the universe by drinking a toast to its—and your—continued existence. You can do this every day.

IV. Motivation

The Limits Manifesto unites individuals and institutions around a few central beliefs that, if not truths, at least provide a foundation for a new and improved way of looking at the world. It relies on a base of knowledge that describes the state of the world as we best understand it now, and suggests a range of choices and actions consistent with this understanding. It contributes to the process—and by necessity a greatly speeded up process—of curtailing the many ailments of our global home and its myriad inhabitants. The factors mitigating these ailments will be many and varied, but they will be more robust and durable if they conform to a few basic principles with which large numbers of individuals and organizations can agree, and around which corrections and adjustments

can coalesce. It is difficult to think of any great social revolution that lacked a basic and common core of beliefs shared by its members. And it is a great social revolution that we are talking about here, as important as any other in human history.

Those who accept The Limits Manifesto will agree to sequester their squabbles over the details and fine print, and suspend their well ingrained urges to find yet more evidence for its veracity. Nor should they argue for pride of place in marshalling change. Let us agree that it is enough to say that our first proposition, the physician's byword, is a moral truth as old as the world's oldest philosophies and religions. The second, more than a century old, is derived from a clear, rational, scientific understanding of our origin as a species. The third proposition is a less well known, but an equally established understanding about the origin, nature, and supply of the energy that fuels life. "All flesh is grass," Isaiah said, capturing the thermodynamics of ecosystems in a four-word assertion.

There's nothing wrong with marshalling more evidence for these propositions. The purpose of the Manifesto is not to marshal that evidence but to state those propositions as truths that are now and must more generally be seen to be self evident. For those who need a more formal terminology, the three propositions can be labeled ethical, epistemic, and ecosystemic.

To say that The Limits Manifesto is self-evident does not make its conclusions easy to accept, especially for those of us who have spent our entire lives within a cultural worldview that has lured, seduced, and commanded us to deny and transgress limits. People with college degrees call this worldview the Enlightenment; everyday folks call it Freedom. It is a worldview born roughly four hundred years ago in Europe, and it

introduced an across-the-board “No Limits” perspective for the first time in human history. This perspective is mirrored and articulated in the work of many progenitors, who, if we are feeling generous, may be excused for mistaking nature as infinite and infinitely malleable when humans were a scarce, weak species pursuing their projects in the small clearings that culture made on our very sizable planet. From their vantage, Johannes Kepler, Nicolaus Copernicus, Galileo Galilei, John Locke, Thomas Hobbes, Francis Bacon, Baruch Spinoza, Isaac Newton, Voltaire, Pierre Bayle, Charles de Montesquieu, and others could scarcely anticipate the problems of scale that would arise when their ideas and programs were amplified into a human culture weighing in at 7 billion souls. Many of them did their work in England, Scotland, the Netherlands and France, all of which provided conditions in which thinkers could more easily begin to break free from the grips of Scholasticism, Aristotelianism (particularly in science), and the powers of Church and Crown. Each of these thinkers provided central pieces of the Enlightenment project and laid the groundwork for the revolutions to come.

One of the earliest and primary sources of the Enlightenment perspective is the work of French philosopher and mathematician Rene Descartes. He challenged himself to nothing less than putting the human capacity to know the world on an entirely new and—he hoped—foolproof philosophical footing. His work is emblematic of Immanuel Kant’s claim that the motto of the Enlightenment should be “Dare to Know.” Descartes describes his discoveries after a day-long meditation in a stove-heated room. The date was November 10, 1619. The subject matter was dreams, the world, God, and, most importantly, the ability of the individual human mind to first doubt all of it, and then to reconstruct—on its own terms—every bit of it in way that would guarantee truth.

Descartes' reward, and to date the modern world's reward, is a knowledge-based system centered on individualized human consciousness which has brought with it remarkable success in making and unmaking the world, seemingly without limits, for the exclusive benefit of humankind.

This Cartesian moment helped make possible the three revolutions that have been identified with the Enlightenment: scientific, political, and economic. Together they freed cultures to embark on pursuits that were heretofore forbidden or considered impossible: the control of nature; the creation of economies and technologies that went far beyond subsistence; the freedom of individuals from governments, religious and family traditions, and the past; and a belief in human progress that is separate from evolution and largely unencumbered by moral and spiritual beliefs.

It is not surprising that such a perspective is popular around the world. Fueled by ever-increasing amounts of monetary wealth, energy, materials, knowledge, and personal freedom—and grounded in deep-seated philosophical beliefs that transgress limits—it has produced marvels. The genius of the Enlightenment project consists of answering every challenge and hurdle with the call for more knowledge, more freedom, more energy and materials—a more vigorous assault on any experience of limit. It is a positive feedback loop of biblical proportions. Positive feedback loops are very powerful, but they are also potentially dangerous and unstable, and this one has created global challenges that are becoming impossible to deny: climate change, species loss, loss of essential ecosystem services (such as nutrient recycling, water purification, and climate moderation) from loss of natural capital among them.

The astonishing and flashy feats of the Enlightenment worldview make revision or outright abandonment of it seems a quixotic task. But whatever its age or name, the world is being shaped by a failed perspective the dangers of which now greatly outweigh the benefits.

To maintain the Enlightenment project of freedom from compulsion—to maintain a level of human civilization beyond the most grindingly oppressive subsistence—we’ll have to put *some* of the limits back.

Which is to say: the Enlightenment got it half right about freedom from limits. We are better off without traditions and social hierarchies that oppress our freedoms and choices in our personal and political lives, and that force us to act against our will. The half that the Enlightenment did not get right has to do with our attempts to escape the constraints and confinements imposed upon us by our place within a larger system, “Nature.” It is this latter half that *The Limits Manifesto* addresses. The elephant-in-the-room question, however, that no one is willing to address honestly is: “To what extent does freedom from political and social oppressions depend upon the freedom to continually draw down our stocks of natural capital?” That is, how much does “freedom from” depend upon “freedom to,” and how is “freedom to” constrained by *The Limits Manifesto*?

We can, of course, continue to both deny and transgress *The Limits Manifesto*. We can deny it until kingdom come. But it can be transgressed only a little while longer. The definitive character of an unsustainable system is that it will, it must, change.

Any species in nature reproduces to the limits of its food supply—and we have not exempted ourselves from that truth even as we learned how to commandeer the niches of

other species, even as we learned how to turn the planet's vast stores of past solar income (oil) into grass and (human) flesh. If any other species or human culture were given the same access to resources and energy, a moral green light for their use, and effective techniques for blocking natural negative feedback loops, we would see roughly the same outcomes. Given continual replenishments of food, bacteria in a Petri dish will multiply until they die *en masse* on their accumulated wastes. We are as bacteria, with two exceptions: our flashy brains and the absence of similarly-brained competitors have made us capable of extending our reach—and consequently widening the range of our negative effects. In both we harm and destroy other life.

The Genesis creation story says as much. Adam and Eve (with or without the foreknowledge of their creator) ate from the Tree of Knowledge and in that moment fell from animal innocence into conscious human life. The Lord, for his part, then cast them from their garden idyll, and, interestingly, “to the east of the garden of Eden he stationed the cherubim and a sword whirling and flashing to guard the way to the Tree of Life” (Genesis, 3:24). The author of those words had some inkling of the need to protect the panoply of life from the destructive potential that a willful species with a well-developed frontal cortex could unleash on the rest of the world. Those who still want to hold on to the idea that there is something unique about human beings may yet be comforted if and when we learn to limit ourselves, using our stolen property (knowledge) to consciously protect the Tree of Life. If we do so, it will be an act as unprecedented as our control of fire.

Finally, it is hoped that a full-bodied acceptance of The Limits Manifesto will, on average, bring more lightness to its adherents than fear and loathing. Even a brief

meditation on limits demonstrates their power and creativity. The universe itself operates, surely, due to the limits we call the laws of nature. Alphabets, musical notations, rules of grammar and harmony, and even the rules of chess and other games, all create limits on what we can say, think, and do; and all of which provide enormous opportunities for creativity and freedom. The best accounts of justice put limits on some so that all can thrive. It's time to shed our despairing attitudes about the constraints expressed in The Limits Manifesto, and instead find in them the powers of restoration, insight, and joy.

V. The Gist

Properly understood The Limits Manifesto is invigorating rather than paralyzing. It encourages creativity, and it invites one to challenge institutions, friends, and family; and to imagine alternatives. Use it in your everyday life; in discussions about the news or politics; to organize clubs; to generate goals; to help resolve questions and dilemmas; to feel more at home in the world.

No Harm. No Hubris. No Hurry.

Spread the Pledge.

3-D Civics: Citizenship for a New Century

Citizenship, an ancient ideal but largely forgotten in contemporary America, is revised and promoted in this essay. But it's not just the political dimension of citizenship. I argue that long before becoming political citizens, humans must first develop aesthetic and ethical habits that are civic in nature, and that both of these civic dimensions require healthy interactions with the natural world and a social upbringing. The bulk of the essay makes the case for this claim. The resulting three-dimensional citizenship offers an engaged and fulsome alternative to our lives as isolated consumers.

A discussion of citizenship would be considered revolutionary only in places and times when such talk is either prohibited or absolutely necessary. It is the latter case, thankfully, that we find ourselves in today. Citizenship, as I will talk about it in this essay, has always been optional in America. The Founders made a collective but not unanimous decision to create a government that would neither require an active role for citizens nor the responsibility of the government to create these citizens. Virtue, it was determined, was too difficult to instill and too precarious a foundation on which to found a modern Republic. Better to give citizens a small, representational role in their government, to stay out of their personal lives, and to create a safe and materially prosperous nation in which individuals could seek their own private interests.

Early 19th Century Americans nevertheless were quite active in their local political and community lives. Alexis De Tocqueville well describes the social humming of the places he visited, and described it as a "superabundant force that could do wonders." But such a force, as civic philosophers have told us through the ages, needs constant attention and practice. We shouldn't be surprised, then, that a couple of centuries of limited participation in government and the continuous allure of a life devoted to one's own sense of what is good would diminish a nation's civic capacities. It is hard to motivate

American citizens to take seriously their obligations as public citizens: to pay their school taxes (or any taxes, for that matter); to give charitably, or to make sacrifices for the greater public good. Instead, Americans seem to have painted themselves into a corner where freedom is defined as freedom from others, where we must increasingly depend on ourselves and on all of our gadgets to get through the world. At times this corner feels safe and secure (although the end result is always more distrust and fear), and we might even begin to believe that each of us is independent from the world, an undivided individual free from outside pressures and interference. Free from our dysfunctional families and our annoying neighbors, and the opinions of others. Two hundred channels of TV freedom, the Internet, cyber shopping, cell phones, beepers, palm pilots; our very own house, car, boat, camp, bank account, and retirement fund. We've created our very own personalized universes.⁹⁹

Calling for a return to a robust notion of citizenship will sound radical to those who most identify with the above paragraph. And a private-universe life might be possible, and even preferable, in a world with infinite capacities to resource the necessary goods and to sink the similarly necessary trash. But this is increasingly not the world we find ourselves in. One way out is a renewed and robust account of civic life. It's not a new car, but it is a way of life that brings with it a fair number of goods.

In the classes I teach at a predominantly science and engineering university, I regularly ask my students to inventory their lives both in terms of what they have and

⁹⁹ Perhaps a character from literature may help. Americans are beginning to resemble the Cyclopes in Homer's *Odyssey*, the one-eyed giants who were entirely self-sufficient, and did not care a jot for their neighbors or for social conventions. According to Homer, the Cyclopes were strong and independent, but also mean-spirited and one-dimensional. Their one eye gave them sight but not vision, and certainly not a depth of perception that included others.

what's missing. I ask them to consider what their lives cost them in terms of stress and unhappiness, and what the systems that support this life leave out, and *who* they leave out. I encourage them to look behind and underneath these systems, to carefully examine the assumptions, and to imagine alternatives. It doesn't take long for us to start talking about possible alternatives to our current lifestyles and assumptions about success and happiness.

One alternative is the ancient ideal that identifies human happiness and fulfillment with our inherently social nature. From the Greek philosopher Aristotle and American Founder Thomas Jefferson, to contemporary writers like Aldo Leopold and Wendell Berry, the Good life is measured by the extent, depth, and quality of our relationships with others: family, neighbors, community, government, and the natural world. Our engagement in these relationships is the practice of a three dimensional citizenship.

“3-D Civics” is a visual metaphor suggesting the need to fill up, re-inflate, and reinvigorate citizenship beyond the option to vote and to follow the law. It is not a denial of, or a replacement for, our individual pursuit of the private and personal. Citizenship does not demand that all of our time be spent with and for others. It is simply the recognition of our inherently and hard-wired social nature, habits, dispositions, and needs. At least part of what it means for social beings to pursue and live good lives is to pursue and live their lives with others. Citizenship—as I am conceiving it—is simply the name of the necessary, varied social roles we play. That humans need to be citizens in order to be happy necessarily follows from the natural fact and hard wiring of our social instincts.¹⁰⁰

¹⁰⁰ We may substitute these social instincts in a pinch, but over time—the argument goes—too much substitution erodes the opportunities to be social, and thereby contracts and numbs our social instincts.

Aristotle said it best: we are social¹⁰¹ animals. From our mode of reproduction, to our long dependence as children, to our bodily architecture and language, we are born to be with others, to seek out others, to depend on others. For those who resist this social definition of self, a simple experiment suffices. If they insist on considering themselves fundamentally separate from others and the world, they can cover up their nose and mouth and see how long it takes to give in and gasp.

This gasp is the most basic and profound counter-argument to the view that human beings are individuated and independent from the world. This desperate in-breath is the symbol of our connection with—and dependence on—a world that is greater and larger than us: a world outside, a world of outsiders who are just like us. This in-breath is the gift of life, a taking. Our out breath is the return, a completion of the gift exchange, a symbol and circle of giving.

The give and take of breath is, of course, at the core of our life. It is the first cycle outside of the womb, but many others follow it: the cycles of food, family, play, learning, and loving; giving and taking, relationships, awareness of others, ethical responsibilities, groups-within-groups, participation, health, and wholeness. To put it another way, human beings cannot be happy (exclusively) without others; they cannot raise themselves; they cannot learn language, behaviors, or standards of practice and excellence by themselves.

Citizenship is the sum total of these relationships and interconnections with others. 3-
D Civics is a call to rethink and reinvigorate these relationships. It calls us on us to consider our public lives to be as important as our private lives; to recognize that health is

This numbness or an-aesthesia might feel “normal,” but the Good life argument/discussion is required precisely to demonstrate that this social anesthesia is not good for us.

¹⁰¹ Aristotle actually said that we are “political animals,” but nearly all of his work in ethics and politics is premised on the social nature of human beings. And as I argue below, the political life is possible only among well developed social beings.

a matter of balance and interplay between beings, processes and cycles; that our neighbors are not just the human ones; and that politics is figuring out how to live with others in a world of limited goods and good will.

This social life is complex and multi-faceted, but it is natural, almost automatic. And social instincts will create, by necessity and sometimes spontaneously, practices and frameworks in which to further engage, develop, and evolve these instincts.¹⁰² Citizens and their surroundings create each other.

The quality of these practices and frameworks are not everywhere equal, and they are prone to abuse.¹⁰³ But it is hard to imagine how much of our daily activities, sense of self, habits, social and moral views, and standards of excellence could arise without social interactions, practices, and infrastructures. Given our social instincts and the places and institutions in which to engage them, citizens are made. Cities (or any well-planned and apportioned civic infrastructures) are best suited to grow citizens, and the civic-citizen loop is synergistic, self-maintaining, and a powerful engine of creativity, happiness, and the good life.¹⁰⁴ But the infrastructures don't easily create themselves,

¹⁰² See F.A. Hayek's work for a discussion of spontaneous order. Philosophers of the Scottish Enlightenment are also credited with developing theories of spontaneous order. See <http://www.econlib.org/library/Essays/LtrLbrty/bryTSO.html>

¹⁰³ Hence the Enlightenment's rejection of tradition and the social/institutional creation of values. Enlightenment philosophy's "reason-as-king" approach did away with the need for a social narrative to explain how we learn to become moral. With the exception of Rousseau, there's not much discussion in the works of Kant, Locke, and Hobbes, for example, of children, parents, or society's role in moralizing children. For Enlightenment thinkers, moral truth springs forth from the rational, individuated and adult mind, or through social contracts. Considering the powerful and oppressive institutions that these thinkers were trying to overturn, the radical and—practically speaking—far-fetched notion that reason is sufficient, resides in individuals, and requires no training, is understandable. Perhaps we can also blame their conclusions on the fact that many an Enlightenment thinker never married or raised children. It wouldn't be the first time that philosophers were accused of being naïve and utterly disconnected from the "real" world.

¹⁰⁴ Pericles' "Funeral Oration" is one of the clearest expressions of how a city and its citizens support each other, and how individuals have both private and public lives. He says, "Make up your mind that happiness depends on being free, and that freedom depends on being courageous." Athenians are free to enjoy their city and their freedom because they are willing to defend them with their lives. He says further: "We do

and they are not maintained without resources and social capital. Cities, like gardens, can depend on the “natural” instincts of their members, but both also require vision, planning, oversight, management, resources, labor, and constant attention for a successful outcome.

What follows are a few definitions, a brief spelling out of the three-dimensional civic self and its infrastructural requirements, and a call to create a Civic Infrastructure Index that identifies and measures civic infrastructure quality. The goal is to grow engaged, responsible citizens as well as the places in which to grow them. This will require a modern list of requirements, a metric to quantify these requirements, and a persuasive model within and from which to remake and renew the case for the good life as a life that includes a strong civic dimension.

It’s best to start with a few definitions.

- **Citizen:** A single term describing our collective roles as social beings. “Citizen” is who/what we are in our capacities as social creatures. Just as “individual” means “separate, pertaining to one only, not divisible,” “citizen” means “inhabitant of a city” and by inference, a member, not separate or pertaining to only one, **able** to be further divided (unlike an “individual,” the meaning of which is to be incapable of being divided further).
- **Citizenship:** Active belonging to/membership in the groups and institutions that turn on, activate, our social dimensions. “Citizen” is the role; “citizenship” is the practiced engagement of the role with others.

not say that a man who takes no interest in politics is a man who minds his own business; we say that he has no business here at all.” The civic life is a participatory life that requires on occasion great sacrifice. But it also provides great freedom and the cultural and social conditions that allow us to flourish as socially inclined human beings.

- **Civic:** “belonging or pertaining to the citizen,” as in “civic center” or “civic initiative.” In a society that takes citizenship seriously one should also find civic forms of metaphysics, epistemology, ethics, politics, and aesthetics, as well as models of civic education, agriculture, or economics. A “civic x,” whatever “x” is, is considered necessary for the well being of citizens or as belonging to them and their shared pursuits.
- **City:** A place with natural, physical, and cultural infrastructures that provide context, training, practices, opportunities to grow citizens, to become citizens, and to practice citizenship. We might add further that cities are where **all** the elements/dimensions of citizenship exist (we might not want, for example, to refer to families and households as cities). But the point here is to resist the impulse to refer to cities as only urban, largely populated, and centralized. We need to include towns, villages, communities, college campuses, and all those places where people engage their social instincts.

Three Dimensional Citizenship: Aesthetic, Ethical, and Political

The citizen-self, I shall argue, has three dimensions. This is another way of saying that the social nature of humans can be seen or defined as taking place in three types of ways, and practiced in three different but overlapping arenas.¹⁰⁵ These dimensions are interdependent and integrated. But by separating them out we can see how cities and their civic infrastructures both depend upon and can accommodate them.

¹⁰⁵ We should always remember Aristotle’s advice that what is separate in theory is rarely separate in practice.

The Aesthetic Dimension: Sensory Awareness of Self and Others

The term “citizen” normally conveys an image of a political or social relationship between an individual and a government or some other well-defined place. In addition, the practice of political citizenship, as Aristotle and others have noted, requires maturity and reason, what we might call “higher” functions. It might seem odd then to begin a discussion of citizenship with something as basic as the good working order and integration of our five senses—touch, smell, taste, hearing, vision—and the availability and abundance of sensory input. Aristotle, remember, rejected “mere life” or a life of sense perception, as the human function, opting instead for “the soul’s activity and actions that express reason.”¹⁰⁶ But it would be hard to imagine engaging in rational action without our sensory system in good working order. To put it another way, our sense of self, our awareness of the world of others, and the boundaries and relationships between self and others all require sensory awareness.

Our “sense full” bodies are constantly monitoring, signaling, motioning, receiving, and rejecting the world around us, the others around us. From the womb our senses help create a sense of who we are, where we are, and how we are. We know from sensory deprivation experiments that the human body and brain cease to function normally after only a few hours without input¹⁰⁷. Infants who are not held and touched often suffer various maladies in adulthood¹⁰⁸ (cite). And conversely, experiences with our own sense of sight (sunsets and other aesthetically pleasing sights), touch, sound, and smells (holiday dinners) remind us of the delight the senses provide in connecting us with

¹⁰⁶ *Nicomachean Ethics*, 1098a10-15.

¹⁰⁷ See http://www.bio.brandeis.edu/~sekuler/senpro/topic_1_stuff/sensory_deprivation.html, and http://www.findarticles.com/cf_dls/g2699/0003/2699000310/p1/article.jhtml

¹⁰⁸ See <http://www.blackwell-synergy.com/doi/pdf/10.1046/j.1365-2648.2001.01721.x>, and <http://www.informaworld.com/smpp/content~content=a723657614~db=all>.

others. Without this sensory package, there would be no self, no others, no capacity for communication or relationships. With this sensory package we have a body, a self, and a world of others. The act of perception—the ability to perceive—*is a relationship*. The act of perception is the first connection to the world of others, the first experience with our social selves. It is the first relationship, and it comes before language, morality and politics. I perceive you and you perceive me. My delight in having this perception for the first time as an infant (and perhaps even in the womb) signals a universal response of smiling. Adults looking for this recognition of perception, this recognition of being perceived, make utter fools of themselves trying to elicit those first smiles.

And I would submit that the quality of our “higher” social skills (i.e., the practice of ethics and politics) depends in large part on the quality of the perceptive tools themselves; 2) the quality and quantity of the external perceptive field (the world, others, art, culture); and 3) the quality of ones’ mentors.¹⁰⁹

We can begin to make the case for this claim by identifying connections between negative sensory experiences and the negative impacts they gave on our ethical and political sensibilities and on the good life generally. As mentioned above, we have some data on the need for infants to be held, spoken to, touched (in a phrase, loved sensorially). We have data demonstrating the link between violent, abusive adults and their own violent, abusive childhoods.¹¹⁰ Both are examples of healthy or normal sensory packages not properly initiated or badly abused. We also have some data on the relationship between a sensory system that is not working normally and its influence on the social

¹⁰⁹ Demonstrating this connection would be a valuable project.

¹¹⁰ We properly identify crimes of child abuse as moral crimes, but they are also aesthetic crimes because they abuse and violate the relationship between social/aesthetic mentors (adults) and their young students, and often destroy or damage the aesthetic dimension of the social self. Aristotle says in a number of places that a good upbringing is critical to our capacity to be happy (*Nicomachean Ethics*, 1099b5.).

nature of those who possess such systems. I am speaking here of autism. While autism is wide spectrum disability, those who have it generally manifest the following qualities or behaviors:

- Limited eye contact and social interaction
- Moral indifference and the lack of empathy toward others
- Sensory integration difficulties resulting in over- or under-stimulation
- Preference for living in their own constructed world

Researchers are still a long way from knowing exactly what’s going on with autism, but my own reading and personal experience with one of my children suggests a strong link and interdependence between our sensory systems and our ethical abilities. For whatever reason, people with autism have a broken and/or misfiring sensory system. This broken system makes it hard for them to interact with the world around them. And this inability to interact with the world makes forming sensory relationships—and the moral and political relationships that would normally follow from these sensory relationships—very difficult or impossible.¹¹¹ In addition, avoiding the sensory world of others makes it difficult for people with autism to interact with others during the critical stage of language learning and development (people with autism, according to Temple Grandin, prefer to think in pictures rather than language, and many use language for reasons other than communication (more as repetitive stimulation, or “stimming”).¹¹²

¹¹¹ See Temple Grandin’s discussion of her difficulties with social/emotional settings in Sacks. See also Baron-Cohen’s *Mindblindness: An Essay on Autism and Theory of Mind* for a discussion of the link between sensory/brain inputs and the ability to “read minds.”

¹¹² My own anecdotal experience is that my child does want to interact socially with others, but finds it enormously confusing and difficult. Perhaps the sensory mis-firings (sometimes too much, sometimes too little) make interaction painful and something to be avoided at every opportunity. See Grandin’s *Thinking in Pictures*.

Whatever the causes and underlying mechanisms, autism represents a case study linking the aesthetic and ethical dimensions of the social-self citizen-role.

Much more work needs to be done in this area, but we might nevertheless urge awareness of the importance of our sensory tools (the “what”), sensory fields (the “where”), and mentors (those who help us to turn on our sensory tools, and with whom we first come in contact relationally as social, sensory beings) in creating ethical and political citizens. And we might carefully and metaphorically (at least for the time being) observe what Thomas Berry first described as “cultural autism.”¹¹³ It is one thing to have an internal disability that limits or distorts sensory awareness and inhibits social interactions, and another to live in a world/culture where that awareness is blocked or distorted. Surely there must be an impact on our sensory-social capacities when we are cut off from the natural world.¹¹⁴ Social critics worry about the violence-producing effects of television and video games, but what do countless hours in front of these two-dimensional screens do to our sensory-social capacities. I don’t think it is a stretch to use the autism criteria above—limited eye contact and social interaction, moral indifference and the lack of empathy toward others, sensory hypersensitivity, and a preference for

¹¹³ “My own description of what has happened is that my generation has been autistic. My generation has been so locked into itself that it was totally without any capacity for rapport with the natural world. My generation could not get outside itself and the outer world could not get in. There was a total barrier between the human and the non-human. This is what needs to be explained. This autism did not begin with the modern centuries. The support for what has happened existed within that part of our tradition that did not emerge from Rene Descartes or from Francis Bacon or from Isaac Newton.” (Berry, “Ethics and Ecology”)

¹¹⁴ Aldo Leopold saw this most clearly (John Muir also comes to mind). The Phi Beta Kappa woman whom Leopold describes as never once hearing the seasonal honks of geese has lost not only her sense of geese, but also her capacity to care for them morally or to fight for them politically (Leopold, 20). A thoroughly modern world cuts off our senses and our relationships with the natural world. And if we don’t know or care that it is there, we’re not likely to be able to engage in the political discourse necessary to protect it. It is no accident that the first section of *A Sand County Almanac* is given to inviting readers to rediscover the joy of being outdoors. Only after the awareness is recovered can Leopold begin to discuss ethics, education, and the need to protect wilderness. See also Robert Sack’s *Homo Geographicus*.

living in a personally-constructed world—to describe many everyday, average Americans:

- The love of the bold, loud, big, and caloric (“America the Supersize”);
- The dependence on a constant temperature range between 65-75 degrees Fahrenheit, the dislike of rain and other weather, and the closing off of many aspects of the natural world;
- The too many hours spent “screening;”
- The too few hours spent in civic activities;
- The ease by which two people can pass one another in a public space with nary a glance or recognition of the other,¹¹⁵ let alone the recognition that the space they are in is a shared, public space;
- The willingness to blame others or to react with violence rather than compassion.

I don’t want to push the metaphor too far or to equate cultural autism with autism, but I do want to claim that there is a connection between our sensory awareness of others and our ability to relate to others as moral, social, and political beings. The aesthetic dimension of citizenship is necessary—we can’t be social without it; relational—both in terms of needing others to help us turn it on and to develop it well, and in terms of first

¹¹⁵ There is an American college campus where folks are expected (and reminded often by the President) to greet one another in passing. And to imagine that it is come to this: social skills having to be relearned. More and more our social instincts and behaviors have to be taught rather than just activated. My university, for example, once offered classes on how to eat a formal dinner. In the age of fast food, endless activities to ferry our children to (often around the dinner hour), and fewer grandparents—and formal Sunday dinners—down the street, young people are simply unaware and unpracticed in the art of eating in a public, formal setting. And what many of us middle-agers consider intentionally bad behavior on the part of the younger generation is probably more a matter of never having been “socialized.” They’re not anti-social so much as simply a-social. See David Ehrenfeld’s “Pseudocommunities” for an anecdote (In *Rooted in the Land: Essays on Community and Place*, Vitek and Jackson (eds.), Yale University Press, 1994).

connecting us to others; and contextual—it happens in a place. The aesthetic dimension is a necessary ingredient to the good life, and it serves as a first step in the further development of the ethical and political dimensions of citizenship. The quality of our lives depends in large part on the quality of this aesthetic dimension.

The Ethical Dimension: Interactive Relationships with Others in a World of

Personal Choices

Citizenship's social-ethical dimension is created when socially aware and dependent beings become—to use Aristotle's description—active, rational choice makers. Social beings move around, decide to one thing or another, and regularly interact with others who are engaged in similar behavior. The ethical dimension of citizenship describes our one-on-one relationships with others in a world of personal choices. It connects us one-on-one with others. It is the dimension where what we decide or do affects others well or badly. It may also affect the agent well or badly. Having become sensorily aware of the world around her, the young child soon learns that pulling the dog's tail or whacking her brother with a board has consequences. The dog or brother returns the harm, or a parent scolds the child and teaches her that it is “wrong” to make such choices. The wrongness or rightness of the actions will often have the criterion of harm associated with it, and will also reflect the person family, community and/or culture's values. These values reflect the customs, laws, rules, conventions, and practices of the social spheres that shape, teach and govern the child's actions and interactions.¹¹⁶ The ethical dimension of

¹¹⁶ We might define “actions” as individual activities that do not affect other agents; whereas “interactions” are activities that potentially affect other agents. Punching a pillow, for example, might be considered an action (assuming it is your pillow, doesn't offend anyone, etc.) Punching a person for no reason is an interaction. Some actions done in private are deemed acceptable, but the same action done in public

citizenship begins to occur when we are not just aware of others, but interact with them in ways that make our behavior “responsible.” Moral codes, from the Hebraic Ten Commandments and Buddhist Eightfold Path to the simple rules of etiquette, delineate acceptable from unacceptable personal behavior in a world of others. I do not wish to demean the great moral codes by lumping them in with rules of etiquette. My intention is merely to demonstrate that what we mean by “moral” or “ethical” is a function of our awareness of others, our necessary interactions with others, and the capacity for these interactions to harm or help others, where “harm” is generally defined as “antisocial” and “help” as pro-social.¹¹⁷ Etiquette belongs to the ethics category because it defines behavior that offends in a social setting.

Like our sensory awareness, I believe that our ethical awareness is both hardwired and in need of proper activation.¹¹⁸ Where we best learn to be ethical will be discussed below, but it is important to note here that how we learn moral and social rules has everything to do with others. We do not and cannot learn them on our own or use reason to figure them out for ourselves. One only has to observe the very young or newcomers to a culture to understand how diligently social creatures work at observing,

(interaction) is considered rude. Staring at a person (or any other socially aware being) is rude. Staring at a painting is not. In the “Etiquette of Freedom” Gary Snyder tells the story of an indigenous culture where children are taught not to stare at natural objects, even mountains, because it is rude. Interactions, therefore, can range widely across human and non-human beings.

¹¹⁷All the big, bad, moral infractions (murder, rape, torture, deception, theft) are interactions that harm others directly or that take advantage of, pervert or prevent our social instincts. Honesty, integrity, fidelity, compassion, and forgiveness, on the other hand, are moral virtues precisely because they preserve or enhance social interactions. Aldo Leopold provided one of the best definitions in his “A Land Ethic:” “An ethic, ecologically, is a limitation on freedom of action in the struggle for existence. An ethic, philosophically, is a differentiation of social from anti-social conduct. These are two definitions of one thing. The thing has its origin in the tendency of interdependent individuals or groups to evolve modes of co-operation” (Leopold, 238)

¹¹⁸ See David Hume, Adam Smith, and Francis Hutcheson for discussions of the theory of moral sentiments. Aristotle, too, makes it clear that the virtues must first begin as habits, and that these habits must receive the proper encouragement in order to become full-fledged virtuous dispositions.

experimenting with, and learning about ethically and socially accepted behavior.

Reading or viscerally understanding the rules is the least of it. Mastering the ethical dimension requires practice, constant iteration, interpretation, discernment, error/failure, and practical judgment.

Mastering the ethical dimension requires teachers as well. These teachers do not just state the rules. Whether well or badly they live them, enforce them, and provide counsel on tough cases. Teachers, like students, are themselves practitioners in the ethical dimension. Collectively these relationships are in constant motion. Interactions, choices, responses, lesson learned, a thousand times a day and among dozens of relationships: family, friends, teachers, neighbors, strangers, pets, plants, and wild animals. Somehow we manage to learn the rules and their many exceptions, and in time we may become an expert in the ethical dimension.¹¹⁹ By “expert” I mean only that we know the rules, can apply them consistently across choices and contexts, and can describe them to others. An expert will also know when a specific rule does not apply. The expert is to be contrasted with the person who does not know the rules, or who finds it difficult to learn them,¹²⁰ or who refuses to follow the rules. Only in the last instance do we call people immoral or unethical. But, to repeat, what I think we mean by this is that unethical people are so described because they are either abusing social instincts/behavior or refusing to acknowledge that their behavior is a relational interaction with another social being, and that his behavior is harmful precisely because it is anti-social.

¹¹⁹ I offer an account of this process in my book *Promising* (Temple University Press), chapter five.

¹²⁰ Temple Grandin describes in Sacks (269) her difficulty understanding human social cues, rules, and conduct.

Unfortunately cultural autism applies in the ethical dimension as well, but here it is well defended by a liberal, individualistic, relativistic ethos that states with confidence that:

- Ethical standards can be learned on one's own, using reason;
- Ethical values are relative to culture, and even hopelessly gray within homogeneous cultures;
- Actions not expressly prohibited by law are optional on the ethics playing field; and that
- In a culture of relative values there is little or no room for the varied roles of teachers, mentors, and practice fields (except perhaps in one's home, but here too fractured families and multi-family households often make quick work of any claim that there are common or shared standards to be learned and mastered).

Even the symptomatic behaviors of autism get played out in the ethical dimension. Since there are no common values identifying such interactions as useful and good, limited social contact and interaction become matters of personal choice. Modern Americans, having become anaesthetized to the natural world and even to the social world around them, are increasingly becoming morally indifferent to this world of others. It's either become "none of our business" or "not our fault" or "a matter of winners and losers." A mix of cynicism, righteous indignation, and various assaults on the "American way of life" has turned everyday Americans into cranky, angry, withdrawn, and morally indifferent world citizens. Like the aesthetic dimension, the ethical dimension is increasingly collapsing inward. The social and cultural outcomes may be hard to predict

with precision, but the personal outcomes are, I think, easier to see. Americans are increasingly fearful, dissatisfied, and lonely. They have more and more choices, but less confidence and certainty about any of them. And they are less optimistic about their individual futures, as well as the future of America.¹²¹ As we shall see below, as political decisions and policies become more and more important in a culture where ethical standards and customs have less and less impact and influence, our capacity to participate as political citizens is, unfortunately, negatively influenced by our contracted ethical and aesthetic sensibilities. When we need to practice politics most, we are least able.

To review, socially dependent creatures operate in three social or civic dimensions. The aesthetic dimension literally puts social creatures in touch with the world around them. Aesthetically, the good life is defined in terms of the quality of our sensory tools, contexts, and mentors. The ethical dimension defines the relationships and interactions social creatures have with one another as individual members of a family, culture, society, or city. This dimension is dependent on the aesthetic dimension, and operates with rules and customs to prevent anti-social/unethical interactions and to promote social/ethical interactions. Like the aesthetic dimension, the ethical dimension requires a moral sense in good working order (and no doubt causally connected to the aesthetic sense), ethical fields (interactions with others; the “practice” field) and mentors. The Good life ethically is the good working order, and the products thereof, of our relationships with others.

¹²¹ See Robert J. Samuelson’s *The Good Life and its Discontents: The American Dream in the Age of Entitlement*.

The Political Dimension: Public Relationships with Others in a World of

Limits

The third and final dimension¹²² is what we most associate with citizenship, the political dimension. If my dimensional account is accurate, it should be clear by now that ethical citizenship is difficult to practice without the good working order of our aesthetic selves. So too, political citizenship needs both the ethical and aesthetic dimensions of citizenship in order to function properly. The practice of politics is the most difficult of the three because it requires collective action, as opposed to “simple” awareness or one-on-one relationships.

Social beings, as Aristotle noted, are necessarily political beings. Motivated by both necessity and interest, humans form into groups, and these groups must act collectively to divvy up the goods, goods that are always limited by one thing or another. The political dimension, therefore, can’t help but be about division, distribution, dissent, consent, power, winners and losers.

Engaging in this process with and against others is the practice of political citizenship. It is difficult and messy, and it takes up a lot of time. But choosing not to participate, or being prevented from participation by a particular form of government inhibits our capacity to pursue the good life; in short, to be fulfilled as social, human beings. At the very least failure or inability to participate in political citizenship can leave you without your fair share, or any share, of the goods one needs to live well. But even fat and happy non-participants are failing to exercise the very political freedoms that must be practiced

¹²² My physics colleagues tell me that the universe we live in is actually ten dimensional, and they are always eager to “show” me these dimensions mathematically. I have so far declined the offer, but I am open to the possibility that citizenship too may have more than three dimensions. This account is a work in progress.

and exercised (like our muscles) in order to stay in good working order. The practice of politics fills out our social agenda. Not only is it good for us because it prevents tyranny, loss of political rights and freedom, and by providing a fair share of the pie, it likewise rounds out our development as social creatures. It represents a fully-fledged social creature in a well functioning civic infrastructure. As in aesthetics and ethics, so too in politics: citizens and cities creature each other.¹²³

The political dimension of citizenship, despite our usual identification of “citizenship” as a political term, is probably least felt or practiced among every day Americans. Representative government has made participation in the political process optional, and there seem to be fewer and fewer opportunities to participate, and, fewer still, interested participants.¹²⁴ But it is not just that we’re too busy, too consumed with our personal lives or too tired at the end of the day. We’re all that, but more important, we’re generally not very good at politics. We’re out of practice, short-tempered, uninformed, lacking the necessary social skills, and morally and sensorily contracted.¹²⁵ Without our aesthetic and ethical dimensions in good working order the practice of politics for everyday citizens is very nearly inconceivable, and both clumsy and ineffective when attempted.¹²⁶ When awareness is impaired and numbed and when people choose to limit

¹²³ One can find this claim in many places. Here’s J.G.A. Pocock: “Civic Humanism denotes a style of thought...in which it is contended that the development of the individual towards self-fulfillment is possible only when the individual acts as a citizen, that is, as a conscious and autonomous participant in an autonomous decision-taking political community, the polis or republic” (85). See also Adrian Olden’s *Citizenship and Community: Civic Republicanism & the Modern World*.

¹²⁴ Robert Putnam’s *Bowling Alone* is the source for much of the data supporting these claims. We vote less, sign fewer petitions, join fewer boycotts, have less political knowledge and trust, and are less likely to engage in grassroots activism. See <http://www.bowlingalone.com/data.htm> for many of Putnam’s data sets.

¹²⁵ See Dan Kemmis’ *Community and the Politics of Place*, particularly chapter five.

¹²⁶ This was probably a **foreseen and intended** consequence—at least for Madison—of a representative form of government.

their interactions with others, it is hard to know what would get them to the political table or how they would manage to participate effectively if we did manage to get there.¹²⁷

The good life argument is clear however: we need this political engagement to be happy, and this political engagement needs us. Similar to the other two dimensions, mastering the political dimension requires our political sense in good working order, political fields where the political self is activated, and mentors. While most Americans have been shut out of running for federal or state political office, there remain opportunities to practice politics at the local and regional levels. Whether it is the school, church or museum board, or one of the innumerable standing and ad hoc committees of various political and civic associations, there are ample opportunities to engage in the political dimension of citizenship.¹²⁸ These various political and civic associations are the practice grounds. It is also here that we find mentors and learn the art of politics.¹²⁹ There are rules, strategies, and etiquette to learn. It can get rough, we can lose, and it takes up a lot of our evenings. But it is unavoidable, necessary (both practically and socially), and an integral part of civic health.

¹²⁷ Try to imagine, for example, an autistic politics. With neither the well honed ability nor interest—or at the very least an impaired version of them—it is difficult to imagine a group of people with autism engaging in a political process/conversation.

¹²⁸ Thomas Jefferson created a four level pyramid government structure: Federal, State, County, and Ward Republic. The Ward Republic's function was 1) "to check petty tyrants at home; 2) to maintain the revolutionary spirit of 1776; 3) to provide a base for general education; and 4) to ensure a space in which the citizens can become proficient in the art of politics" (Matthews, 83). It does us good to imagine the nation and our capacities to be engaged citizens were there an entire level of government tasked with the purpose of practicing politics.

¹²⁹ Mentoring can come much earlier and in the home. A socially and politically active home is good preparation for the practice of politics. Although the home where I grew up was not particularly politically active, I do remember one time attending a city council meeting where my father argued against a zoning variance request that would potentially "harm" our neighborhood. He won, but my memory was of the process itself: there was something a citizen could do if she/he disagreed with a political decision; there was a process to be followed; it required knowledge of "how" to do it (an etiquette of politics); and there were occasions when the average citizen could make a difference.

Contexts and Infrastructures: Place, Community, and Polis

Here's what we know so far:

- The “citizen” is the sum of our roles as social, public human beings.
- The social self has an aesthetic-sensory dimension, an ethical, personal-choices-in relationships dimension, and a political, group-choices-about-limited-goods dimension.
- These roles are natural (“prima natura”), but need cues, contexts, teachers, and practice to become “secunda natura.” (Citizens and cities create each other.)
- There are better and worse ways to “turn on” these instincts. Mentors, contexts, experience matter.
- Much of the American Experience has worn away and substituted for our social-civic instincts in a grand substitution experiment that should probably be called off.
- Growing citizens is now a doubly difficult burden: We need to re-engage the blunted, anaesthetized social skills that have been lost in America’s substitution experiment, while simultaneously growing/creating citizens in the traditional ways.¹³⁰
- Signals abound that Americans are not particularly happy, healthy, educated, engaged, aware, empathetic, at least in relationship to their standard of living and freedoms, and as compared with other nations.

¹³⁰ An article in the *New York Times* described the August 2003 Northeast blackout as caused in part by the shortage of “reactive power,” a necessary power used by power plants and power lines to maintain magnetic fields, but a power that otherwise does no real work (it is not measured in watts and can’t run your dishwasher). **Reactive power** may be a useful metaphor to describe the necessary background conditions for social capital to do its work.

- The good life—as conceived as a mix of public and private—eludes most Americans.
- The good life is still available to us, but it must be chosen, and it must emerge in cities, places, and communities that consciously choose it, plan for it, and create structures to encourage it. The public side of the good life doesn't happen without a lot of infrastructural support. And it probably won't be chosen if it is presented exclusively in terms of duty and responsibility.
- What we're talking about here is a *reverse substitution experiment*: the replacement of our consuming life and its run down on the carbon bank and its inability to make us happy with a civic life that is less consumptive and more socially engaged.

The three dimensional account of citizenship has, not surprisingly, three contexts or infrastructures where each of the dimensions is best expressed and developed. They are Place, Community and Polis. What's important to remember here—and what place, community and polis have in common in this discussion—is that middle-sized creatures like ourselves, with middle-sized sensory apparatus—we don't/can't sense the too big or the too small very well—and an evolutionary history in and with similarly middle-sized communities, locales, families, and political structures, have a predisposition to function well in middle-sized contexts. For this reason the civic self operates best in the middle range of place (local and regional), communities (families, neighborhoods, churches, colleges and universities, sports teams, civic associations), and politics (Jefferson's Ward Republics or Aristotle's ideal population that can be “taken in at a single view”).

Place

The aesthetic self needs sensory input to turn on the sensory machinery. Parents fill the nursery with colors, textures, and sounds. Young children are introduced to the outdoors or taken to concerts, museums, the beach, festivals and sporting events. The young person's memories of first experiences are sensory memories: smells, sounds, sunsets, lights. Music, art, and sports are an integral part of the K-12 education, and even the hardcore subjects are best learned and remembered when connected to activities whereby students sensorially experience the lesson. And although we occasionally seek out the really big, loud and colorful experiences, our day-to-day life is spent mostly in the company of small and medium sized sensory experiences, parsed out in human time, with patterns and rhythms that mirror our own physical patterns and rhythms of heartbeat, eating, sleeping, walking, running, voice tempo and modulation.

Our evolutionary history has occurred mostly in and around the natural world, and so natural places have an obvious connection to and impact on our sensory system. But humans have also lived in groups for most of their history, and cultural and artifactual inputs—art, music, and culture generally—have also played an important developmental role.¹³¹

Place is the context where we become aware of ourselves and of others. The greater the quality and quantity of our sensory interactions, the greater, deeper, and wider is our self-awareness, and our awareness of others.¹³² We can't turn this sensory apparatus on

¹³¹ I have now lived about one third of my life in a rural region. I grew up in a medium city, and lived for five years in New York City. I see now the value of all of these places in developing my aesthetic/sensory capacities, and wish I could find a way to combine the best of all three for my children. Our great cities, with their culture, parks, lakes and rivers, may provide the ideal places for the development of the aesthetic citizen.

¹³² Aldo Leopold's upbringing was filled with both natural and cultural stimulus (See Curt Meine's biography of Leopold). At the age of seventeen Leopold could, astonishingly, identify 261 bird species.

by ourselves, and so the quality and quantity of our mentors and experiences matter.¹³³

Place is the collective locations and objects of sensory input and experiences whereby citizens activate their aesthetic awareness.

Community

Community is the context wherein we activate, learn, and practice the moral dimension of our social selves. So much of what we learn about how to behave, how to choose, and what to think of others is a product of our lives in communities: families, schools, neighborhoods, churches, sports teams, institutions generally, clubs, friendships, festivals, etc. In each of these contexts standards develop, are promulgated to members, learned and mastered by members¹³⁴ (or rejected). This social norming process is continuous and powerful, and while we are free to accept or reject certain aspects of our ethical and etiquette training, it would be hard to conceive of someone who could reject all of it and still be considered a social being.

Community takes many forms and shapes and it is important to recognize that they contain many and varied sub-communities, from neighborhoods and festivals, to sports teams and organizations that focus on membership defined by gender, sexual orientation, ethnicity, or social and political views. *Community* is defined as the collective of contexts whereby human beings become socialized ethically, where they learn and practice the rules, norms, and the expectations of a given culture and/or its subcultures.

Polis

His deep and acute awareness of the natural world—and his cultural and literary depth—were key influences, I believe, in the development of his land ethic, and his capacity to work with citizens and farmers to develop land management practices.

¹³³ How do hours in front of television and computer screens impact children? What does a life devoid of interactions with nature do to our capacities as moral and political members of our communities and societies? We need measurement tools, terms and units to start gathering these data.

¹³⁴ These standards are likewise rejected, but rejection is part of the process of cultural value formation and transformation.

The *polis* is simply the place where we practice politics; where we come together to make collective decisions about limited resources. Active, political citizenship is tough going because the individual voice is now one among many, and the process is full ambiguity, distrust, power plays, and shifting allegiances. It is time consuming too. The *polis* is the locus political activity of any group—governmental, institutional, clubs, and associations. It is the school, library, ward, town, city board, neighborhood association, student/faculty senate, and any club or organization to which we belong. The greater are number of diverse communities in a city, the greater are the opportunities to participate in the political process. But political citizenship likewise needs a strong participatory incentive structure in the halls and structures of government.¹³⁵ Citizens must have the opportunity to participate in their city’s political processes, even if it is only a public hearing.

Civic Infrastructures and Book VII of Aristotle’s *Politics*

What all three civic dimensions have in common is the need for particular places and contexts to become well working and fully actualized. Our social instincts are hard wired, but they depend on good quality social-public experiences and contexts to turn them on and to develop them. If left to chance some of these necessary structures will likely arise on their own, but it has been the contention of civic philosophers throughout the ages that a good civic life requires civic infrastructures, and that these infrastructures require planning, design, and implementation. Book Seven of Aristotle’s *Politics* is a good example of this work. Aristotle is very specific about what is needed in the city,

¹³⁵ Thomas Jefferson referred to the New England Townships, and their town meetings, as “the wisest invention ever devised by the wit of man” (In Matthews, 83).

right down to water supply, common meals, and the arrangement of houses and streets. More modern examples include a number of American cities that have begun their renewal by opening up their waterfront, building walkways, greenways, gazebos, and band shells, closing off streets to motorized traffic, or creating festivals and framers' markets.¹³⁶ They are all examples of middle-sized civic structures for middle-sized civic creatures that require a strong commitment from all levels of government—but particularly local and regional governments—as well as corporations, schools and universities, and churches to take a central role in promoting citizenship and the infrastructures and contexts necessary to practice citizenship.¹³⁷

These infrastructures are critical, cannot be left to chance, and cannot be neglected for too long lest they require a complete re-creation.¹³⁸ What's needed are quantitative metrics for observing civic infrastructures, assessing their "structural" integrity, identifying what types are most urgently needed, and calculating their economic costs versus their social benefits.¹³⁹

Active and engaged citizenship in democratic societies has never been optional. Nor can it be avoided by individuals who want a full and good life. The United States has been able to make citizenship optional by offering instead a life of personal choice that is

¹³⁶ See, for example, *The New Civic Art: Elements of Town Planning* by Adres Duany, et. al. (forthcoming), and *Place Making: Developing Town Centers, Main Streets, and Urban Villages* by Charles C. Bohl and Gary Cusumano, Urban Land Institute, 2002.)

¹³⁷ See Luther and Wall's *Clues to Rural Community Survival* for an example.

¹³⁸ An example of what happens when infrastructure is ignored appears in a recent report by the American Society of Civil Engineers, that estimates the cost of rebuilding America's roads, bridges and buildings at estimated \$1.6 trillion. (<http://www.asce.org/reportcard/>). It would be an interesting assignment to calculate the economic costs of rebuilding America's civic infrastructures or the social costs of letting it crumble. We need an American Society of **Civic Engineers**.

¹³⁹ Some of this work is already being done. See http://www.ncl.org/publications/descriptions/civic_index_measuring.html for the National Civic League's Civic Index for an example. But imagine a new discipline—Civic Life—an interdisciplinary mix of philosophy, ecology, psychology, politics, and economics (I'm probably missing a few disciplines) that could keep a cadre of graduate students busy for quite awhile. Or imagine offices of Civic Life in state and county governments.

largely material and consumptive and by assuming that such a life would provide a good substitute for a life divided between private and public self. This experiment has failed both in terms of making people happy, and because the geological inheritance on which it is premised has been exhausted. 3-D civics is a renewed call to consider again the value that civic life can bring to individuals. It would also offer a non-materialistic and non-consumptive option for human happiness, thereby potentially decreasing America's ecological footprint.

We can wait for conditions that are likely to re-activate our civic, social instincts (and hope that these conditions don't instead activate are more aggressive instincts), or we can start the process of provisioning civic infrastructures now for a post-carbon world and thereby be better able to offer powerful and positive alternatives to the consumptive, stressful, indebted and tired lives we have been living.

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Campus City: A Boot Camp for the Civically-Challenged

The mission of higher education can and should include a prominent civic (and civilizing) component. In this regard, college campuses—where currently 13.1 million young Americans spend approximately 20% of their lives up to that point—are ideal places to develop the sensibilities and attachments necessary for an ethically and politically engaged citizenry.

There is a classroom, an ugly, badly shaped, windowless room in a modern university building designed with students not in mind. In this room is a small class, my class. We have rearranged tables and chairs in a semicircle around my place to defy the terrible ambience, and to allow all twenty-five students to see and hear one another and me. I am talking. Two students sitting together in the front row...are speaking to each other and laughing quietly; they see that I am looking at them and they continue to laugh, not furtively or offensively but openly and engagingly, as if I weren't there. I don't know what they are laughing about. Both students will eventually receive an A in the course for exceptionally fine work...When my students were laughing, they had no idea that I would be bothered. At that moment they were treating me as if I were a face on television.

David Eherenfeld, "Pseudocommunities"¹⁴⁰,

The typical American college freshman enters higher education with little training in values except for what is picked up at home, church or among peer groups. One of my students told me recently that the Professional Ethics course he was taking in his final year of college was the very first—and apparently last—course in values he had been

¹⁴⁰ In Vitek and Jackson, p. 20.

exposed to in seventeen years of formal education. Considering the all too many divorced and harried parents, combined with a jam packed life outside of the home for parents and children alike, the soft attendance at church among the majority of Americans, and the number of peer group activities requiring alcohol, drugs and sex, we shouldn't expect too much from our young people on the values front. And if statistics are any indication, they are not disappointing us. Alcohol and drug use is high. Plagiarism is reported to be at epidemic proportions in secondary and higher education. And when it comes to discussing and resolving moral quandaries, young people do not so much debate moral issues as to simply accept what others do with a shrug and with the expectation that they will be allowed similar latitude. Or they mouth the family line on values and imitate talk radio personalities who prefer to belittle and bludgeon the opposition rather than to debate them.

Training in political participation among America's youth is in even worse shape. The average American teenager reads neither a national nor local newspaper, is tuned out of political participation at all levels, doesn't vote, and would feel awkward in a public forum, assuming he could be enticed to attend one. She knows more about the goings-on of TV characters and their lives and hometowns, and with Hollywood types and their well-publicized out-of-control lives than the local-regional-national-international world around her. My high school daughter, a senior at a decent school, told me that some of her college-bound classmates claimed that Albany, New York was the US capital, and had now idea what the United Nations does.

And, finally, America's youth is a pretty inward, aesthetically challenged bunch, with ear pods seemingly permanently in place, and up to 40,000 text messages a year sent to

friends about not much. Their food is fast and their leisure time mostly involves a screen. They run from school—which is mostly about testing--to sports activities, and to the mall. They travel by air a good deal more than any other generation in history, but it's usually for the rowdy leisure of spring break or other forms of entertainment.¹⁴¹

Students come to higher education with diminished social skills and increased symptoms of cultural anesthesia. Calling this youthful generation to citizenship, therefore, is a hardy task. Educational institutions—when they are not endlessly testing students or consumed with assessment and fund raising—are trying to bring back a mild form of civics. There are now public service requirements for graduation at both college and high school levels. Speech and debate clubs and Model UN give students debating skills and a global context. And environmental concerns are bringing students together for acts of protest and advocacy. My current campus is no exception. There are sports teams, social and professional societies, clubs, and the usual array of campus life activities. Students also have opportunities to participate both in student and university governance. And increasingly my campus is encouraging—and in some departments requiring—service learning and volunteering.

So the news is not all bad. But if we are going seriously to promote citizenship among our youth as an alternative in the post-carbon era, we will need a multi-front approach. And as I have argued in the previous essay, political and ethical citizenship require a well developed aesthetic engagement with the world. In this essay I make the case for utilizing the first four years of higher education as a re-training ground for citizenship. The post-carbon good life requires a publicly engaged, civic self, and it must be nurtured.

¹⁴¹ Yes, I have two teen-age children, and I've been teaching teen-agers for 25 years.

College campuses are good places to engage in this process and they should see themselves as having a responsibility to develop student citizens.

The typical college freshman enters a campus culture at the age of 17 or 18, and spends four to five years there.¹⁴² When these 17-18 year olds graduate in 4-5 years, they will have spent almost twenty percent of their life to date in a college community. This is not a trivial amount of time, nor is the time spent on campus devoid of social and cultural training that either well or ill prepares students to participate in their professional and public lives. My focus is on the aesthetic dimension of campus life rather than the ethical or political dimensions. I believe that all of us who work on college campuses need to pay attention to them as civic training grounds, and to their civic functions in forming citizen students. This attention begins at the aesthetic level, both cultural and natural. David Orr has made important inroads here with his claim that campus architecture is pedagogy.¹⁴³ Campus buildings certainly do say plenty about what is important in the world, and about what students should focus on and what they should ignore. But nurturing the aesthetic dimension requires additionally a focus on master plans, landscaping, the arts, food and foodservice, student workload, a campus mission over and above professional training, and meaningful and frequent celebrations/festivals/holidays that celebrate the campus “city.”¹⁴⁴

I have lived, studied, and worked at many college and university campuses, urban and rural, large and small. At their best I was drawn in to my studies (thanks to well-stocked

¹⁴² An increasing numbers of students are also spending summers on their home campus or other college campuses where they are taking courses, engaging in research, or working at summer camps.

¹⁴³ “Architecture as Pedagogy.” *Journal of the Mississippi Academy of Sciences*; 10/1/2000. See also Orr’s *Earth in Mind*.

¹⁴⁴ City: A place with natural, physical, and cultural infrastructures that provide context, training, practices, opportunities to grow citizens, to become citizens, and to practice citizenship. (See previous essay.)

and architecturally beautiful libraries), excited about learning, and connected to the campus life (cafes, forums, lectures). At their worst I have felt like a customer at a fast food restaurant or a discount warehouse. Unfortunately, I have spent the last sixteen years on a campus that can generously be described as aesthetically challenged. It is a university with an engineering focus, and this may perhaps explain and justify the emphasis on function rather than form. But here are some examples. It is hoped that they will promote a similar kind of inventory on one's own campus:

- Until recently there was no master plan. Buildings arose haphazardly and with little or no attention to issues of aesthetics or student learning within classrooms. Some of the buildings are ugly, and the classrooms where freshman spend most of their time are cinder blocked, devoid of color, art or even clocks, and downright bleak.
- Landscaping is designed to optimize grass cutting and minimize lawsuits caused by falling trees.
- Parking lots and roads crisscross campus, and sidewalks resemble mini-roads. It is nearly impossible to travel between any two points on campus without having to cross a road or parking lot. The car is king here.
- The campus has riverfront property and nearly 250 acres of forest and wetlands, which until recently, were not recognized as vital or unique to the campus. Neither area has any sort of formal protection from future development, nor has much been done to connect these areas to the campus proper.

- There is no campus “green” or center for students to congregate. The one area designated as such in the Master Plan remains a parking lot in the very center of campus that administrators are reluctant to remove.
- By almost all accounts, the food service is dismal, limited in choices, and disconnected from local/regional suppliers.
- The university has little by way of campus celebrations or festivals that celebrate its heritage or its accomplishments.¹⁴⁵
- The workload is heavy and technical, with little room for or emphasis on the liberal arts. Liberal arts requirements meet the New York State minimum.
- The fine arts are underrepresented. The campus lacks an art gallery or an adequate performance space.
- The library contains few books, is non-descript, and doubles as a coffee snack bar.¹⁴⁶
- High speed and wireless internet access is available most anywhere on campus.
- There are no gathering places for faculty or students.
- There is little or no “slack” time in the semester or the campus culture for informal socializing.

This list is not unique to my campus. But the results are predictable. Students return to their rooms or off-campus apartments immediately following class. Faculty members spend most of their time in their offices or labs (including lunch). What walking that

¹⁴⁵ By contrast, and more to simply point out their importance, the city of Venice in the 16th century had “eighty-six days of the year (that) were consumed in holidays which in some way celebrated the policy and the socioreligious system which made it work” (Riesenberg, 122).

¹⁴⁶ I believe that campus libraries should symbolize and celebrate the mission of higher education. To be fair, my campus library was designed by futurists in the late 1960’s who believed that books were on their way out. They were partially right, but their understandable error remains a campus eyesore. There are plans in the works for a new library.

does occur on campus is dreary. Blacktop sidewalks resemble mini-roads. Students walk with heads down checking cell phones or i-pods or simply avoiding eye contact. It is nearly impossible to walk more than 100 yards without crossing a road or parking lot, and when classes are changing these parking lots become dangerous as harried drivers look for parking spaces. It is a campus high levels of poor eye contact, permanent headset appendages, and full-time satellite contact with every/any one not actually in one's sensory field. Students complain that there is nothing to do (we are located in a rural area of northern New York), and they often exhibit poor social skills and etiquette.¹⁴⁷ In terms of an intellectual life outside of the classroom, we are decidedly on life support. Talks are sparsely attended and students bolt for the doors as soon as the Q/A starts. Large freshman and sophomore lecture classes schedule evening exams during the week with little time left for lectures, poetry readings or coffee house music. The university has a canoe/kayak house along the river, but it has been locked up for years for fear of injury or drowning.

And it's not just me who notices. I regularly invite students in my classes to experiment with greeting everyone they see on campus. The results are always the same: the students have very little success, are often sneered at, and are themselves surprised at the reception they receive. A recent student wrote about his experiences at other campus being quite different in terms of social interactions. What was most interesting about his observations is that he believes he is becoming increasingly socially and culturally anaesthetized while on this campus. The campus and its members reinforce socially closed behaviors and the individualized pursuit of personal interests. In this respect it is

¹⁴⁷ The social etiquette issue was briefly addressed a few years back when a colleague who is no longer at the University held etiquette dinners for graduating seniors. These dinners were very popular and always oversubscribed.

no different than any of the other institutions in our lives. But colleges and universities are still some of the best places around in which to encourage civic behavior. Our workplaces, homes, gyms, golf courses, shopping malls, televisions, computers, airports and highways—the places, in other words where we spend much of our time—are not going to do it. And our churches are too busy trying to create communities of their own.

Of course it would be necessary to actually measure and document these claims empirically, and to then demonstrate the causal connection I am claiming between the aesthetic dimension of citizenship and the ethical and political dimensions. And this is exactly what I am proposing we should do.

Civic life requires civic infrastructures, and these infrastructures require planning, design, and implementation. In the same ways that cities and villages across America are revitalizing their public spaces and civic spirit, so too should we encourage a similar recognition of our college and university campuses as civic centers—some better, some worse—that provide a critical social function, and that require attention, planning, and resources to create and maintain civic infrastructures. It would be useful to begin the process of promoting the need of campus civic infrastructures, identifying the types of infrastructures needed, and calculating the economic costs versus the social/civic benefits. This is hard-nosed, quantitative, empirical, and politically charged work. But the results can take us a long way along the path of environmental and civic awareness.

To this end, a Campus Civic-Infrastructure Index (C^2I^2) should be developed.¹⁴⁸ It would provide quantitative metrics for identifying, measuring and assessing civic infrastructures on college campuses. These quantitative data are necessary in or to make

¹⁴⁸ See http://www.ncl.org/publications/descriptions/civic_index_measuring.html for the National Civic League's Civic Index.

the more qualitative claims about the importance of civic life and the necessity of infrastructure to this life. The call for democratic, ecological citizenship will require more than moral and philosophical claims about its importance. We'll need quantifiable data to demonstrate to skeptical and civically anesthetized administrators, university trustees, and potential donors:

- Why civic infrastructures are important
- Where it is already working well—**the exemplars**—and the good and goods derived from this well working
- Where it is working badly—**the slippery-slopers**—and the negative results, and
- Where it is poised to make a difference—**the up-and-comers**.¹⁴⁹

It is the sort of empirical work that generations of Aristotle's students would have perfected had his brand of ethical/political theory-practice continued. It is work that needs to be done as part of the ongoing civic renewal ongoing around America, and it clearly can be made to fit with the mission/value statements of most of America's colleges and universities.

Without something like the C²I², and the quantitative data and benchmarks it would produce, we are reduced to impressions and experiences of the campuses on which we have lived and worked. It doesn't take much observation to conclude that campuses differ greatly in terms of their aesthetic qualities, both cultural and natural, as well as the campus cultures (both ethical and political) that develop within these campuses. But

¹⁴⁹ Such work would keep a cadre of faculty, graduate and undergraduate students, and community consultants busy in a **Department of Civic Life**, an interdisciplinary mix of philosophy, engineering, architecture, history, art, ecology, sociology, psychology, politics, and economics (I'm probably missing a few disciplines). In such a department the environmentalist-humanist "safety glasses" would finally get to work with the "real" tools in the cultural toolbox!

noting these differences is rarely enough to encourage university boards of trustees to spend real money on real projects to enhance the civic infrastructure necessary for the building of civic capacity within our students.

The C²I² would be used to measure and assess the level of civic participation on our college campuses, to demonstrate the connectivity between the various dimensions, and to both predict and assess the long-term effects (in terms of happiness, civic participation, etc.) on students who are so “civilized.” The index would include aesthetic, ethical, and political indicators, and the aesthetic indicators would include measures of cultural spaces and activities, natural spaces and activities, student interactivity, and the overall aesthetic-civic capacity of the campus. We might look as well at what campuses are doing to “require” civility, whether in honor codes, service-learning requirements, or simple etiquette.¹⁵⁰

As mentioned above, the C²I² could be used to identify exemplars, up-and-comers, and slippery-slopers. A campus version of the Civic League’s Civic Index could be developed that helps college campuses identify their civic strengths and weaknesses, and to work toward improving the civic dimensions of their missions.¹⁵¹ Awards could likewise be developed to promote and reward campuses and campus citizens for their efforts. College and university mission statements could become more upfront about their civic responsibilities and the role the campus plays in developing and promoting citizenship. Perhaps these mission statements could include statements that describe the

¹⁵⁰ This is dangerous territory, but before I’m accused of being a values cop, let me say that such rules and regulations about illegal/immoral activity abound in campus regulatory material. And it’s time to admit that lessons are taught both when we regulate behavior and when we fail to regulate behavior. Or to put the matter into context here, bad aesthetics caused by lack of design or absence of foresight “regulates” and creates behavior just as much as does good aesthetics by design and the presence of foresight.

¹⁵¹ The civic mission is obviously only a part of the large mission of higher education. But I think it’s time to state outright that it has a civic mission as well.

campus as a place of value, beauty, and cultural significance, similar to the preamble of the Missouri State Constitution.¹⁵²

The results over time would help create more aesthetically connected students, staff, and faculty, and would—if my theory holds—create more engagement at the ethical/community and political/polis levels of citizenship. Such work would dovetail nicely with efforts to “environmentalize” our college campuses,¹⁵³ and to engage our students more actively in service and public life.¹⁵⁴ Collectively these efforts and organizations share many of the same goals and can work together to advance environmental, social, and political agenda. What they most share in common, I believe, is a fundamental and bedrock assumption that human beings are social creatures living in a social, interconnected, living, and limited world wherein social skills are both necessary and enabling. We can’t live—or live well—without well-equipped and well working social systems (both internal and external); but such systems enable us to achieve all manner of well-being, wholeness, and fulfillment. These social systems are hard-wired, but not automatic. They are also synergistic: internal and external social systems are co-created, co-maintained, and co-evolving. These systems can get pretty fancy and complex, but they begin down low, at the sensory level, with those first contacts of flesh and cells.

When colleges and universities begin to see themselves as cities and civic centers complete with energy and material inputs and outputs, with all of the infrastructures of

¹⁵² “We the people of Montana grateful to God for the quiet beauty of our state, the grandeur of our mountains, the vastness of our rolling plains, and desiring to improve the quality of life, equality of opportunity and to secure the blessings of liberty for this and future generations do ordain and establish this constitution.” See Kemmis, chapter one, for a discussion.

¹⁵³ See <http://www.nwf.org/campusecology/> and <http://www.ulsf.org/> for well known organizations devoted to campus sustainability.

¹⁵⁴ See <http://www.compact.org> for an example.

security, transportation, living accommodations, ethics and politics, and multi-generations, and with obligations not just to provide a product to consumers, but to participate in the civic education of its citizens, then we will start to see a more engaged and connected generation of young people.

How might colleges and universities begin to re-engage student and faculty-staff connectedness and civility? The first step is to conceive the campus as a city. What do cities do to promote civic pride and connections? For starters, they celebrate and consume food. Ethnic food festivals, neighborhoods, and outdoor food venues are excellent places to connect people to one another and to their source of nutrition. College campus food can become a source of similar connections and pride. A campus can grow its own food or find local markets. Campus cooking classes, food festivals, and outdoor “markets” will bring people together. Encourage the local farmers’ market to come on campus in the fall. Encourage the ethnic groups on campus to celebrate their heritage with campus festivals.

Generate yearly festivals holidays that are unique to your campus. If your college has an official convocation to mark the beginning of the year, make it an event for the whole campus rather than just the freshman. Make it a day-long event with music and food. Add a founder’s day or spring fever day or other campus holidays and celebration that link campus citizens to their “city” in ways other than classes, the registrar, the bursar, and the sports arena.

Kill the car, or at least greatly limit its use on campus. Prohibit them in the central area of campus. Provide buses or other forms of transportation for students and faculty living off campus. Design walkways that are pleasant to walk on and with frequent gathering

spots and the temptation to stop. Too often we design transportation corridors for the most efficient trip between two points or to facilitate the grounds crew rather than pedestrians. Civic walkways would resemble meandering rivers instead of drag racing strips, and would have frequent gathering spots.

A campus is not just any kind of city. It's a city with an intellectual economy. One way to foster it is to have an annual book selection. Get the whole campus to read the book over the summer, and spend the next school year talking about it. Invite outside speakers, sponsor debates, and get every department and campus club involved.

Like any good city a college campus should celebrate its unity, but it must also recognize its diversity and provide opportunities for groups to gather and discuss issues important to them. I am not talking here about ethnic or gender groups, but rather the three categories normally used to describe a campus: faculty, staff, and students. Each should have its own "commons," a gathering place just for them, with a rich display of issues important to them. Some enticements should be provided as well, whether food, coffee, or appropriate programming. Draw folks into these commons with free flu shots or blood pressure checks, or a debate on the war, or a film. Give these commons a warm and safe feel.

Establish child and elder care facilities and staff them with students, faculty and staff as volunteers. Welcome back and utilize retired faculty and staff as tutors and in other volunteer activities.

It is not uncommon to find service requirements for graduation at US colleges and universities. This is good and should be encouraged. But it is rarer to require all students

to work on campus. Indeed, there is only one American college that requires it.¹⁵⁵ Such a requirement would be difficult to implement on many campuses and might be better offered as a way to reduce tuition costs, but a work requirement has many social and civic benefits.

We should not forget the curriculum. It is popular these days to put things like writing and ethics “across the curriculum,” or to require courses in them for graduation. Courses in civics per se should not be the only contact students have with citizenship, but in a well-designed campus city, courses can enhance the civic experiences gained outside of the classroom.

Another way to attract attention is to create a Provost’s or Dean’s seminar on Citizenship. Such seminars need not be onerous to the administrators, but rather can be used to attract a campus’ best students to a superior educational experience focused on citizenship. If the Dean or Provost is taking time out of her busy schedule to teach a class, the topic must be important.

There is finally the matter of public spaces. As Aristotle and Jefferson, among many thinkers, have said, the public self needs public spaces in which to develop. Walkways and commons provide these spaces. But so do athletic fields and nature trails, and classrooms with windows, and accessible and friendly offices. Public forums that discuss global, national, local and campus issues are also essential to the development of university citizens. Too often these forums are sparsely attended by staff, faculty and administrators. To increase attendance, schedule monthly or weekly debates in public spaces where folks can drop in and out. Schedule the events when commuter students

¹⁵⁵ <http://www.warren-wilson.edu/work/>

and employees are most like to be on campus. Make it interesting and controversial. Have fun.

Rich natural settings also provide the public with space to walk and relax. Shade in the summer and wind breaks in the winter, safe and beautiful trails and walkways, and outdoor meeting places all provide the college campus with rich aesthetic experiences and opportunities to both commune with others and with nature.

Some of these suggestions will cost money. They all require a high level of planning and accountability for organizing and implementing. And with colleges and universities already burdened by bulging budgets and crowded curricula, it is easy to ignore the civic dimension altogether. But then we shouldn't be surprised when our young people don't vote or seem to even acknowledge that they may have some public duties in a democracy or that their lives depended on a rich social fabric of engaged and enthusiastic volunteers and civically-minded neighbors. More importantly, and well described by Kofi Annan: "No one is born a good citizen; no nation is born a democracy. Rather, both are processes that continue to evolve over a lifetime. Young people must be included from birth. A society that cuts off from its youth severs its lifeline." Or more bluntly described by Mark Twain: "Citizenship is what makes a republic; monarchies can get along without it."¹⁵⁶

America is still a Republic and education is central to its citizenry. We must focus our civic efforts on college and university campuses, where in 2000, approximately 13.1 million students were enrolled (7.9 million were full time students).¹⁵⁷ Collectively these students and their teachers, and all of the materials and energy they consume in pursuit of

¹⁵⁶ <http://thinkexist.com/quotations/citizenship/>

¹⁵⁷ <http://nces.ed.gov/programs/digest/d02/tables/dt187.asp>

an education, represent an “education nation” linked by common curricula, missions, and challenges. Shifting this nation just a little bit toward energy and material conservation, interdisciplinary education, and civic involvement will potentially have profound effects on those directly affected, as well as the larger world.

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Prospects

(Still to be written)

Against Hope

Reacting to the too frequent ease with which too many books warn of the direst of circumstances and then in turn offer quick, book-ending chapters filled with hope, optimism, and paltry lists of suggestions, this essay makes the case for getting the problem right, complete with the proper scope of concern, before offering the hope balm. Indeed, in moving too quickly to solutions and optimism we are easily let off the hook and allowed to return to our regular lives. This essay confronts status quo hope with a blunt assessment of its poor track record in the last thirty years, and challenges readers to fully grasp the extent of the problem before turning to solutions.

(Still to be written)
Imaging Alternatives

When students hear my lecture attacking what I call “the hope of small minds” (previous essay), they challenge me to articulate what would count as problems that would need to be solved before one could express hope. I tell them the following: reduce human population eighty percent from its current level without famine, war, virus or the loss of human dignity; eliminate the automobile as a form of transportation; create political and social systems that can run on a solar economy; create a scientific method that is subject to moral considerations; and create viable models of happiness and success that do not require economic growth and increased consumption. This essay demonstrates by example the range and type of solutions that would be large enough to count as real and significant change. It is an invitation for readers to think along similar lines.

(Still to be written)
Tick Tock, Tick Tock
Goes the Big Clock, Big Clock

Nowadays one can glimpse any number of internet counters that keep track of population, national debt, and species extinction. And the Bulletin of Atomic Scientists have their doomsday clock, which was recently moved two minutes closer to doomsday because of the combined threats of atomic weapons and climate change. This essay will contain a final accounting of where we stand, and it will articulate why we need the kind of deep internal change for which the book has been arguing. The philosopher Alfred North Whitehead said that tragedy “resides in the solemnity of the remorseless working of things,” and it is in this sense that I will describe our current situation as tragic. We are creatures of evolution, and the mind is a work in progress. It is shaped by physical and cultural forces that exceed our individual attempts to control or comprehend them. And yet human consciousness can glimpse these forces at work in the world, and occasionally glean patterns, make predictions, and improve local conditions. Up against our small insights and successes is a vast and vigorous unknowing, constantly on the move in patterns and cycles that take us out beyond galaxies and our very conceptions of galaxies. In such places and against such forces there is little to be done well to change things, let alone to improve them substantially. The book will end with the wide angled and light-hearted recognition that against such odds the best strategy is to join with others in the slow and always incomplete pursuit of understanding, and to enjoy the ride. Our collective work can do little to make big changes, but over the long haul, and working and living with others, it can contribute to building “receptivity into the still unlovely human mind.”¹⁵⁸

¹⁵⁸ Aldo Leopold’s words.

Let's hope the cartoon below is not the way things turn out.



I SAVED THE PADDLE,
BUT I LOST THE BOAT!

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