



Air Tractor. Blair E. Kooistra photo.



These Revolutionary Times

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The language of revolution should be used as a last resort and against odds that can be beaten only with radical thought and action. It requires justification or, at the very least, explanation.

The reader should understand that I am not prone to tirades or behaviors that could be described as radical. I have never participated in a public protest, and refuse to sign most petitions. In the classroom I offer both sides of a position and try to avoid showing my hand. I avoid confrontations and by disposition am a peacemaker—or, depending on one's perspective, a wimp. I have a stable job, a long-term relationship and four children. I hope to someday spend the money collecting in my retirement account. In British America in 1775 I most certainly would have been a loyalist. More likely I would have never left England in the first place.

But something happened this year. Imagine one of those ambiguous figures

—the vase or the two faces, the young or the old woman, the duck or the rabbit—and our ability to switch images with little or no difficulty, one or the other, back and forth, back and forth. Now imagine suddenly being able to see only one image.



Perhaps it was triggered by feelings of ineffectiveness and frustration. As an applied or practical philosopher—I know that sounds like an oxymoron—I avoid the dusty attic of our civilization's past and prefer instead to spend time down in the basement where, like the basements of our own homes, all of the social, political and technological systems and foundations are located, and operate—or fail to operate—without our notice until it's rather late. I've been down there now for two decades, and it seems to me that things are only getting worse, and ever more quickly.

I am also writing a book about the daunting social and cultural challenges we face in a world with too little carbon below the ground—in the form of oil and natural gas—and

too much in the atmosphere—in the form of greenhouse gases, including carbon dioxide and methane. “Post-carbon” and “peak-carbon” are terms reflecting trends and discoveries that indicate the modern world will need to learn how to live without the vast pools of carbon energy that built and run it, and for which there is no equal. I live day-to-day with the exponential data of our times, and they have made me a student of the boundaries and limits of both living Earth and our human form.

And I just turned 50.

The birthday, the book and the frustration seem to have triggered a midlife crisis of the metaphysical sort that is probably not uncommon for philosophers. I have come to a perspective reluctantly, but of which I am now convinced and to which I am fully committed.

We are living in revolutionary times!

I wish I could tell you that I was just exaggerating to focus your attention. My high school chemistry teacher, Mr. Rizzo, would frequently tell us that we were the worst class he ever had. He finally admitted that to motivate students he told every class, every year, that they were the worst he ever had. But, he added, our class really was the worst.

Like Mr. Rizzo, I believe that we really do face a challenge that will be transformative. Most of us are familiar with the phrase “up a creek without a paddle.” (The phrase is actually a bit more colorful than that.) I think the world and its inhabitants are up a creek—a post-carbon creek—*with* a paddle, the one that put us there in the first place. The paddle is the mindset of limitless expansion and consumption. This mindset won’t get us out of our predicament, and it actually makes matters worse. Meanwhile our boat—the living ark of Earth—is listing terribly.

What we must do instead is toss the paddle and begin to change our minds, our worldview and our everyday lives. We must learn how to function not just as individuals, but as whole civilizations, on the only Earth we will ever know, a living, complex and interconnected sun-powered ecosphere, complete with all of its, and our, limitations. This change of mind is not just a conceptual revolution: We would be naive to think it will happen without a good deal of active resistance and protest. It also likely will require change to a way of life as inconceivable to us as the invention of the modern factory or a heart transplant would have seemed to a peasant or professor in medieval Europe. The good news, if I can describe it that way, is that only by accepting this challenge in radical and revolutionary terms will our odds of success change from “fuggedaboutit!” to “long shot.”

Soon after that radical declaration in July of 1776, Richard Price, a British Unitarian minister, called the American Revolution the most important event in the history of the world since the birth of Christ. I believe that the revolution of our time is the most important event since the invention of agriculture nearly 12,000 years ago. Those

first farmers in the Middle East’s Fertile Crescent began a mining operation that continues to this day: the mining of high-energy carbon. In breaking the sod those early farmers were breaking from nature, living by their own wits, and appearing—at least temporarily—to exceed the boundaries and limitations that govern all life, and Earth itself.

This story of the human break from nature is very familiar to us. In Genesis, Eve and Adam are tempted by a “tree” that, some scholars say, was not a tree at all, but rather a grass: wheat, one of the first wild grasses to be cultivated. Scholars also point out that the first farmers used snakes to guard granaries against rodents. The temptation that the serpent and wheat grass first presented to Eve, a name that means life, was for a more secure and plentiful life outside of nature’s boundaries. And why wouldn’t the first woman, and soon-to-be first mother, want agriculture’s promise of plentiful food and security for her offspring, even if it meant, as the story tells us, more work for her husband and increased pain during childbirth for her and all women, no doubt a consequence of more and healthier, larger, babies?

We are told that the human couple was expelled from nature’s garden, but it seems more likely that they left on their own accord—the original sin of willfulness—once they recognized their own powers to cultivate a grass that even today is the world’s second largest cereal crop. More important, I think, is the warning they ignored about the danger of succumbing to this temptation to live outside of nature’s boundaries—namely, that they “would surely die.”

Despite that ominous warning, Adam and Eve and their offspring never looked back. The soil of the Fertile Crescent was the first carbon pool to be tapped, and, as William Ruddiman writes in *Plows, Plagues and Petroleum: How Humans Took Control of the Climate*, it brought with it the first increases in human population and greenhouse gases—carbon dioxide and methane—released by the clearing of forests, biomass burning and irrigation, all common practices as early as 7,000 years ago.

The second high-energy pool, the stored carbon of Earth’s forests, furthered human dominance of the world and made the bronze and iron ages possible. Wood was the primary fuel for the first 150 years of European settlement in North America.

The third carbon pool—coal—fired the industrial revolution and exponential growth of the human population. It remains a critical source of energy. In 2004 the world used over 6 billion tons, and by 2030 the demand is projected to be almost 11 billion tons.

Oil and natural gas are our most recently tapped carbon pools, and together they fuel the global economy. The world consumes 85 million barrels a day, and demand is expected to grow to 113 million barrels 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.

Soils, forests, coal, oil and natural gas: These are the primary feedstocks of our modern civilization. And for those of us who have been alive these past 50 years in industrialized societies, particularly in America, it has been a wonderful ride, an amazing and blazing run on the carbon bank.

But as the data continue to come in, it appears that the processes driving our exponential growth may be at their peaks. Our parents' generation rode this exponential wave to the top, and it looks like ours is the first generation to live with the effects of what Wes Jackson calls "The Age of Rapid Depletion." Our carbon pools are drying up. Our carbon sinks are clogged. And we are told to expect at least 3 billion more human inhabitants in the next 40 years. Indeed, the warning in Genesis to avoid the temptation of a boundless self-sufficiency lest we surely die remains relevant today.

"Yes, but isn't revolution too much?" you say. "Why a change so radical? Who wants to take that risk?" Thomas Paine, in his pamphlet *Common Sense*, recognized this reluctance when he said that "until independence is declared, the continent will feel itself like a man who continues putting off some unpleasant business from day to day, yet knows it must be done, hates to set about it, wishes it over, and is continually haunted with the thoughts of its necessity." In our own time it is fair to ask why a revolution is necessary when we have progress, increased technological efficiency and the organic, environmental and sustainability movements to help with the change ahead.

Here's why.

What we commonly call progress has produced some of the very problems we expect progress to solve. Advances in agriculture and medicine have led to the exponential population growth, further stressing soil and water. Technological optimists promise solutions from greater efficiency, but efficiency has led to higher consumption and depletion of fossil fuels, and more atmospheric carbon. This is Jevons' Paradox, named after the man who showed that as 19th century Great Britain became more efficient with coal, it consumed more of it. Even if every car in the world was a hybrid, and every light bulb a compact fluorescent or LED, growing demand for cars and light bulbs would dwarf savings. And new forms of energy will take time to develop. The late Cornell physicist and Nobel laureate Hans Bethe noted that no form of energy, from the draft horse to coal to petroleum to atomic power, ever became a fuel for commonplace technology in less than 50 years.

Sustainability, now practically a household term, is starting to set things right with a path toward living well in a limited world. But in current form this movement doesn't require enough from us. It is too laden with a near fundamentalist belief in technological fixes, and stuck in old "the-Earth-is-a-machine" thinking. The problems it solves are inside the invisible cultural and social systems—the "isms"—that shape how we see the world

and think about it, and that are rarely challenged except in times of social upheaval. These larger systems are off the sustainability table. Corporate giants Toyota, General Electric and Wal-Mart, for example, are touted for their eco-efficiency initiatives, but their profit motives and their use of advertising to increase consumption of their products are rarely questioned. Al Gore's Nashville home is carbon neutral, but it's also 10,000 square feet, sending the mixed message that extravagance can be sustainable. Without addressing deep structural changes in the larger systems, sustainability is like making one's first-class cabin on the Titanic watertight while the hallway begins to flood. It might seem prudent at the time, but if the tear in the ship's fabric is big enough and if the rivets are substandard—as historians now confirm—you will still end up at the bottom of the North Atlantic.

Sustainability itself is a tad presumptuous. The wise ones—*Homo sapiens*—have for 12,000 years whittled away at Earth's vital and sustainable forces, mistaking human cleverness for nature's creativity, and now insist that what the ecosphere has been providing all along is actually their job, that the great consumers of Earth can now become its benefactors without sacrifice of their high living standard. If Earth had eyes they would be rolling.

Central to the problems we face is our reluctance to see them as anything more than temporary downturns in the usual up and down cycles of economics and climate. They are not. World production of oil in the past three years has remained steady—85 million barrels per day—while the price has more than doubled in that time, and in early July had reached as high as \$145 per barrel. A human slave, on the other hand—of which there are now approximately 27 million in the world, more than at any other time in history—can be purchased for a mere \$40. Add another 3 billion people to the planet in 40 years while simultaneously trying to cut carbon dioxide emissions by 80 percent. Find livelihoods, food, fresh water and shelter, as well as education, health care and stable governments for these numbers without causing species extinction, soil degradation, civil wars, nuclear wars and mass migrations. Try running any of the world's major cities—their subways, waste water plants, transportation, lighting and heating—for even a few days on low density solar and wind power.

These facts and challenges blocked the switching mechanism that I discussed earlier in the essay, the one that allowed me to see both the radical and the status quo paths before us—the old woman and her young counterpart—with equal ease. I can no longer see the slower, tinkering-inside-the-paradigm option as anything more than a creative and attractive but delusional refusal to admit the enormity of the challenges before us.

It is time to be more truthful with our language.

We live in revolutionary times brought by substantial and sustained failures of current worldviews and global systems to provide everyday people with lives of health and

freedom from want and fear, and with prospect of similar lives for their children. These failures are the self-evident truths of our time: that billions were promised improved lives only to see them degraded; mass extinctions of species; overheated climate; and 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. What they are called is not important. Important is that they share two bedrock beliefs that have become the intellectual DNA of our modern minds: first, that the natural world is without limit in energy and materials, and its sinks for wastes and pollution; and second, that the human intellect is sufficient to understand, control and operate Earth as a luxury-machine for the exclusive material happiness of human beings, again, without limit.

It is now necessary to overturn these false and dangerous beliefs, to limit the power of their many adherents, and to usher in a new way of thinking and living in the world. This is our revolutionary moment.

In such times we must refuse and reject attempts by the current systems and their defenders to make accommodations, reconciliations, excuses and minor concessions. The current systems can neither fix the problems they have created nor 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 medieval scriptural authority with 17th century scientific discoveries.

In such times we must recognize the signs of seismic social and cultural shifts that are under way, and engage fully our talents to bring forth an alternative worldview, a new Enlightenment that values the ecosphere, protects human freedom and dignity, and rejects the belief that we can master Earth and treat it as our supermarket, playground, laboratory and dumpster.

We must live every day with, and deliver to others, the uncomfortable and terrifying facts about the failure of the current worldview to solve its own problems, and we must close off the usual psychological escape routes that keep too many of us in complacency.

In these revolutionary times we must organize and mobilize the likeminded at the “street” level—that is, at the level of action and application appropriate to one’s station in life. Such actions would include teach-ins, protests, boycotts, street corner pamphleteering and blogging, bringing the revolutionary message to every family reunion we attend and every board and committee on which we sit, and insisting that our elected officials, corporate executives and educational administrators confront the real problems of our time.

Active engagement and resistance does not have to be violent, but it must be as single-minded and insistent as someone yelling, “Fire!” in a crowded theater when

there is, in fact, a fire. That’s not radical, that’s prudent *and* morally required. As Frederick Douglas said, “Power concedes nothing without a demand. It never did and it never will. If there is no struggle, there is no progress. Those who profess to favor freedom, and deprecate agitation, are men who want crops without plowing up the ground, and rain without thunder and lightning. They want the ocean without the awful roar of its many waters.”

We can make demands and resist without being rude or loud or violent; we can choose the path and tools that are most effective given our talents and dispositions. For example, I don’t stand up at public meetings and talk about revolution. But when I have been invited to speak to an audience this past year, I’ve made it clear that I’m only giving one talk these days: the one that you are reading now. I’ve been able to bring the revolutionary message to college students, church congregations, local government officials and even the New York Society of Professional Engineers’ annual convention. And while I praise the good intentions of individual and institutional efforts to become more sustainable, I end my praise with, “But it’s not enough.” I try to inject humor and levity when it can defuse tension without belittling the seriousness of the problems we face. And I’m putting the tools of philosophy to work on reconstructing our cultural and social systems to operate in an ecosphere.

To state unequivocally, “These are revolutionary times!” is recognition that the world is changing in ways that we would not necessarily choose; that it must change even if it goes against what we would otherwise choose; and that we can no longer choose to resist it.

It is so much easier to hope for a miracle. But our best and most realistic hope lies in embracing the revolution before us. With vigor and creativity we must help create the conceptual scaffolding necessary to build a new worldview—in the words of the American founder John Adams, “to start some new thinking that will surprise the world.” Every category of human thought needs reorientation to recognize the boundaries of our sun-powered ecosphere. We need ecospheric science, spirituality and economics, ecospheric politics, education and technology, ecospheric justice, history and architecture, ecospheric engineering, agriculture and philosophy, and ecospheric conceptions of rights, property and happiness. Here’s a rough draft of our ecospheric “to-do” list.

- Reduce the industrialized world’s carbon footprint 80 percent by 2050.
- Reduce human population 80 percent from its current level without famine, war, viruses or the loss of human dignity by 2110.
- 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 goal of discovery with moral considerations and precaution.

- Devise viable models of happiness and success that do not require economic growth and increased consumption.

- 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.

This is the century where we get a couple of chances to move from the age of rapid depletion to something less rapid and less depleting. Ready or not, we will be carried as in a river overflowing with spring thaw. We will steer our lives and cultures at first with more hope than effectiveness, and with much fret and worry. We should consider it an exciting time, filled with opportunities to think big thoughts and to imagine wonderful alternatives; to help create a worldview where humans can feel at home on a planet

that is very much alive, interconnected, filled with morally valuable species and with precious limit to how much it can provide; where human ignorance—Stan Rowe’s *Homo ignoramus*—about our living Earth will always exceed our knowledge; and where our curiosity promotes understanding—not subjugation—of Earth’s complexity, beauty and resilience.

It’s time to accept the creative limits and boundaries that gave us the universe and the sun-powered Earth in the first place. As T. S. Eliot said in *Little Gidding*, “The fire and the rose are one.”

It’s time to change our minds and our lives.

The revolution is here.

It’s time.

If you’d like Vitek’s reading list, write to Joan Olsen at 2440 E. Water Well Road, Salina, KS 67401, or olsen@landinstitute.org.



Midsummer Vermont, by Asa Cheffetz, 1936. Wood engraving, 6¼ by 4¾ inches. From the Birger Sandzen Memorial Gallery, Bethany College, Lindsborg, Kansas.