

home:
subscribe
today's page 1
contact us
search

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analysis
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readers respond
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The Next West

Getting from here to there

Collaborative efforts to restore watershed health can provide a template of how Americans can survive in a contracted society

By Courtney White
for Headwaters News
Nov. 20, 2006

"Polyface Farm is a postindustrial enterprise You'll see."

— farmer Joel Salatin,
quoted in Michael Pollan's *The Omnivore's Dilemma*

I want to say this right up front: I believe our nation is headed for what the Chinese euphemistically call "interesting times." In fact, I believe they've already begun.

I'm not talking about global warming. I'm talking about a gathering oil crisis.

Oil is a finite resource and as such is a one-time gift of incalculable wealth to the human race. Our response, apparently, has been to spend this unique inheritance as quickly as possible. When world oil production passes its "peak" and begins to decline, which is about happen according to the experts, the destabilizing effects of the crisis will accelerate. That's because, as one oil expert has put it, there is no Plan B.

Technology will not save us. That's because fundamental issues of entropy, physical limits and human nature are at work. The laws of physics don't bend.

Hybrid cars, more efficient home appliances, nanotechnology, even the Internet cannot beget more oil. At best technology and alternate fuels can help ease the pain of what is being called the "powerdown" of society. But they are inadequate replacements for the bounty we call "black gold."

Also, every course of action, whether it is the expansion of an alternate energy source (wind, solar, hydrogen, nuclear) or the implementation of a change in policy (conservation, a carbon tax, increased automotive fuel efficiency) carries an economic, environmental, or political cost that makes it unpalatable to many Americans and nearly every national leader.

Complicating physics is human nature. We've become so addicted to the easy life brought to us by cheap oil that we'll resist mightily any disruption to our comfort. And not just comfort – our co-dependence on cars and trucks for work requires cheap fuel. For both reasons, resistance will saturate nearly everything we do in the upcoming decades. As the vice president of the United States put it recently "The American way of life is non-negotiable." According to the experts, this is why a global struggle among nations over access to oil has already begun and is likely to



Courtney White

Courtney White presents his view of "The Next West."

White is executive director of the Quivira Coalition, a Santa Fe-based group devoted to collaboration as the approach to an ecologically healthy region.

The Next West will take a more national look at issues as fossil fuels become more scarce, and will examine not only collaborative efforts that have succeeded in solving problems, but will also look at challenges facing the nation and what it may take to confront and overcome those challenges.

[comment on this column](#)

Response to readers:

No downside to preparing for Postindustrial Age

By Courtney White
Nov. 27, 2006

I can see no downside to the idea of Postindustrialism.

To me, planning for the

escalate.

The Industrial Age is synonymous with oil. Nearly all of the miracles of modern life, including the food we eat, the medicines we take, the vehicles we drive, the skyscrapers we work in, the suburbs we go home to, the movies we watch, the clothes we wear, even the water we drink, have their origin in cheap fossil fuel.

For all its miracles, however, industrialism produced plenty of sin too. Take the human carnage of World War I, for instance. It was the first industrial war in history – a tragic confluence of 19th century military strategy and 20th century industrial technology, featuring tanks, airplanes, massive guns, and chemical poisons. The result was the efficient slaughter of more than 35 million people.

It is not a coincidence that nearly every alarm bell we hear today is tolling for some aspect of industrialism, whether it is obesity, globalization, endangered species, toxic dumps, or another modern predicament. If cheap oil gave us penicillin and the family vacation, it also is responsible for DDT and melting glaciers.

My point is this: the end of cheap oil means the end of Industrialism – the good along with the bad – and we will enter a new era.

This should not be news. As any student of history or archaeology can tell you, all societies, whether they ultimately endure or collapse, move through definable periods, eras, and Ages – each with a discernable beginning and end. Populations rise and fall along with empires and democracies. Cycles of stagnation, decline, renaissance, and progress create tangible boundaries to the histories of every society.

What will the Postindustrial period be like? No one knows – that's because nobody can accurately presage what's coming next. Possible scenarios range from the inconvenient to the apocalyptic – from nothing more than rising energy prices forcing unhappy changes in our lifestyles, to whole societies breaking down. Either way, it is clear life as we know it will be different in the Post-industrial era.

Just how different it will be depends on what we do today. That's why I've begun to call the current era "Pre-Postindustrial" – in other words, we live in the "run-up" to what's coming next. The main premise of Pre-Postindustrialism is not how to avoid the upcoming contraction of society – because its arrival looks to be inevitable – but how to prepare for it properly.

As futurist Lester Brown wrote recently, "We are entering a new world. Of that there can be little doubt...The real question, for anyone truly concerned about our future, is not whether change is going to come, but whether the shift will be peaceful and orderly or chaotic and violent because we waited too long to begin planning for it."

Going Local

A place to start is with conventional ideas of sustainability. To prepare properly we need to ask ourselves: what are we actually trying to 'sustain'? If it's a standard of living built on a foundation of cheap oil, then we're in for a rude awakening. I suspect that significant portions of modern life are not sustainable – at least not at the levels to which we are comfortably accustomed.

I worry
that the
public has
conflated

future means creating local food systems, exploring local sources of energy, energizing watershed groups, restoring damaged land (as a means of rural economic development), and reconnecting people to nature, especially members of the Next Generation, through activities as diverse as horticulture, reclamation, public education, and agro-environmental projects.

It also means setting aside our value-laden differences over land use so we can better understand the scientific underpinnings of land health and sustainability.

If the experts are wrong, and a Postindustrial future never actually comes to pass, then all of these activities are still good things.

No matter what happens, we still need healthy, local food for instance, and the healthy local economies that can provide it.

If the experts are right, however, and a societal contraction looms in our collective future, then these things become vitally important.

I think it's better to put the Precautionary Principle to work, and soon. Let's hope for the best, and plan for the worst. As I said, there's no downside to trying.

The devil is in the details, of course. How will New York City feed itself if a full-fledged food crisis develops? I haven't a clue.

But maybe New York City officials should start thinking about the possibility.

Are watershed groups

"sustainability"

with the desire to stretch out the Industrial Age as far as possible.

Buying a biodiesel vehicle, eating organic lamb flown in from New Zealand, or even

installing solar panels on your roof are not acts of sustainability if they don't help us get from "here to there" – with "there" being what's coming next. If we do these things to merely "sustain" an entropic status quo, then I think we're not preparing ourselves for the turmoil ahead.

As an engineering friend of mine likes to note, in the physical sciences sustainability is a principle, not a value. "Either way," he told me, "practices that are unsustainable will stop regardless of how we feel about them."

What is truly sustainable then?

For clues – and inspiration – we can look to those individuals and enterprises choosing to "opt out" of Industrialism, to borrow a phrase from farmer Joel Salatin (some, such as the Amish, never "opted in" of course). Why they chose to "opt out" is not as important as how they did it, and what lessons they can teach the rest of us.

Take Polyface Farm, for instance. Together with his father, Joel Salatin took 550 acres of industrially-degraded land in the western hills of Virginia's Shenandoah Valley and revitalized it with an innovative mix of cows, pigs, chickens, turkeys, rabbits and humans all working in concert and in harmony within nature's model.

According to Michael Pollan, on one 100 acres of grassland and 450 acres of woods, Salatin and his family now produce:

- 30,000 dozen eggs
- 10,000 broilers
- 800 stewing hens
- 50 beeves (25,000 pounds of beef)
- 250 hogs
- 1,000 turkeys
- 500 rabbits

And they do so without the use of ANY chemical fertilizer, pesticide, or other industrial product, other than a little diesel. Salatin calls himself a "grass farmer" – through the miracle of photosynthesis he helps nature transform "free" solar energy into high-value food energy. And he sells this energy locally in the form of good food.

As an economic, social, and moral enterprise, Polyface Farm is the mirror opposite of Industrialism.

"Grass farming done well," writes Pollan, "depends almost entirely on a



The Next West will foster local production of foods and services.

Photo courtesy of Courtney White.

sometimes imperfect models of collaboration? Yes. From an ecological perspective they may be the worst form of conservation, except for all the others, to paraphrase a political pundit (I forget who).

Will the oil run out? Not likely – but a lot of very smart people think that it will become a very precious resource very soon, as well as a source of increasing competition and conflict among nations, becoming a very expensive resource as a result. Sure, there'll be lots of oil in the ground still, but that may be small consolation to the minimum-wage worker, the 3-hour commuter, or a ranch manager when the price jumps to \$6 a gallon.

According to the experts, social unrest at lower economic brackets caused by rising energy costs, in fact, may be the first dilemma we face in a Postindustrial Age. That sounds like another good reason to begin planning now.

To me, the main question is this: will what worked well in the 20th century be adequate for the 21st? My answer is "no."

I believe there are changes in store, possibly big changes. What will they be exactly? No one knows. But we know a lot about how to live sustainably at the local level – with lots to learn still. There's nothing wrong with getting started.

Just in case.

Readers respond:

'Going back to nature' is a very dangerous myth

wealth of nuanced local knowledge at a time when most of the rest of agriculture has come to rely on precisely the opposite: the off-farm brain, and the one-size-fits-all universal intelligence represented by agrochemicals and machines.”

To demonstrate this contrast, Pollan compares Polyface Farm to a Corn-belt farm in Iowa that he visited:

| Iowa Farm | Polyface Farm |
|--------------------|----------------------|
| Industrial | Pastoral |
| Annual Species | Perennial Species |
| Monoculture | Polyculture |
| Global Market | Local Market |
| Fossil Fuel | Solar Energy |
| Specialized | Diversified |
| Mechanical | Biological |
| Imported Fertility | Local Fertility |
| Myriad Inputs | Chicken Feed |

The key is to go local, which, Pollan writes, “by definition is a hard thing to sell in a global marketplace. Local food, as opposed to organic, implies a new economy as well as a new agriculture – new social and economic relationships as well as new ecological ones.”

Creating healthy, local food isn't the only way to “opt out” of the Industrial Age. In my work with The Quivira Coalition over the past nine years, I've seen many other inspiring examples of genuine sustainability, both social and ecological, including the progressive ranching practices of many landowners, the rise of democratically-enthused collaborative groups, creative ideas for the production of local energy, new water harvesting techniques, and the innovative restoration methodologies of a new generation of scientists, consultants and entrepreneurs.

Much of this “opting out” began in the mid-1990s, and although it happened for a variety of reasons, many shared Salatin's core rejection of the Industrial status quo.

The rise of watershed groups around the region is particularly illustrative. Not only is this collaborative movement embracing many of the nonindustrial models listed above, but if an energy crisis does result in a societal contraction at some scale, then watershed groups will be on the front lines of the hard, but necessary, task of ‘relocalizing’ our food, fuel, and economic needs.

That's why I take heart in the work of groups such as the Rio Puerco Management Committee (RMPC), a multi-party collaborative effort focused on the 4.5- million-acre Rio Puerco watershed, located northwest of Albuquerque.

Once called the “breadbasket” of New Mexico, the Rio Puerco watershed degraded so alarmingly over the decades, due to the industrial effects of highway construction, overgrazing, and other forms of overuse, that Congress officially authorized its restoration in 1996. Since then, the RPMC has employed a variety of innovative “Best Management Practices” to revive the land and the people who depend on it.

As part of their effort to realize their goals, the RPMC recently completed a vision for the watershed for the next 50 years – a declaration that could easily be the mission statement for Pre-Postindustrialism. It reads in part:

“It is 2006, and we are a group of people learning how to live on the land.

I appreciate your efforts at building an ecologically sustainable future.

However, your chosen approach (i.e., small is beautiful) leads us down a dangerous path.

The destination will be neither socially or environmentally desirable. Here's why.

You write “...planning for the future means creating local food systems, exploring local sources of energy...” Self-sustainability is the road to poverty. Just ask the North Koreans. And poverty, of course, is the worst polluter.

The Green Revolution of the 1960s (i.e., the use of selectively bred crops, and wide application of inorganic fertilizers and synthetic pesticides) saved perhaps a billion people from starving. By dramatically increasing crop yields, it also saved millions of acres of wildlands from being cleared.

Here's a point to consider: If wheat farmers in India allowed yields to fall back to their level in 1960, to sustain the present harvest they would need to clear an additional area larger than the size of Iowa, Illinois, Indiana, and Ohio combined.

Advances in agriculture increase land productivity. Modern farmers are now so productive that land needed for agriculture is shrinking, even as the population grows and people eat more and better. For example: In 1960, U.S. production of major agricultural crops was 252 million tons; by 1999 it had increased to 700 million on 10 million fewer acres of land.

As residents in the watershed, we are working together to restore the land, to complete a transition from a wornout watershed to a healthy stream system, and to maintain a healthy way of life in harmony with the Earth...We want to build understanding of what a watershed is, how it works, and how it nourishes the community. The result will be native grasses and springs in abundance, to protect the land, and to provide for its use by all living beings."

This column is an excerpt of Courtney White's "The Break of Day: PrePostindustrialism - or Getting from Here to There," that appears in its entirety in The Quivira Coalition's October 2006 Journal, available as a .pdf online [here](#).

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[back to top](#) | [to page 1](#)
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at the University of Montana.

The notion that the environment would somehow benefit from six billion people "going back to nature" is a dangerous myth. Economic growth and ecological progress are not contradictory; the former is prerequisite for the latter.

The facts are indisputable: Low yields squander land, high yields spare it.

Re: higher gas prices. Higher prices force us to shift our consumption to satisfy more valued activities. Higher prices ration out lower valued uses.

At some point (\$4, \$6, \$8 a gallon?) we decide (perhaps) fueling our SUV is too costly. Hence, we'll select cars that get greater (likely not maximum) gas mileage, drive less, carpool more, and fish instead of water-ski.

Failure to understand that people are sensitive and respond to prices is to fundamentally misunderstand human behavior. Arguing for public policy based on this misunderstanding is dangerous and irresponsible.

Pete Geddes
Foundation for Research
on Economics and the
Environment (FREE)
Bozeman, Mont.

The world is not going to run out of oil

Oil is a non-renewable finite resource, yet we'll never run out. How is this possible?

The answers are not obvious and some folks are unduly concerned. Let's explore the logic of oil exploration, production, and consumption.

First, there is a critical difference between resources and reserves. Resources are the total physical stock of a natural commodity (e.g., oil, coal, or gold).

Reserves are the portion that can be economically developed with current technology. Technological advances allow us to constantly move commodities from the resource category into the reserve pool.

New exploration and drilling and recovery technologies dropped the worldwide finding and development cost per barrel of oil dramatically: from \$21 in 1979-81 to \$6 in 1997-99.

This helps explain how oil reserves can expand even as consumption increases. For example, California's Kern River field was discovered in 1899. By 1942, its reserves were estimated at 54 million barrels. But over the next 44 years it produced 736 million barrels. In 1986, another estimated 970 million barrels remained. And the field is still producing.

In 1979, the CIA concluded that global oil "output must fall within a decade" and that the world "does not have years in which to make a smooth transition to alternative energy sources."

A generation later, oil output is more than 10 percent higher than it was in 1979. Over the past thirty-five years, the world consumed 800 billion barrels of oil while global reserves grew by 1,500 billion barrels.

"Resources are, reserves

become." When institutions foster innovation scarcity never wins against creativity. The historical evidence supporting this is so clear and compelling I wonder why anyone believes otherwise.

Pete Geddes
Foundation for Research
on Economics and the
Environment (FREE)
Bozeman, Mont.

Peak oil will reduce the bottom line for us all

Good essay on the next west.

This peak oil thing is sneaking up on us pretty fast. I can see how we might make pretty quick adjustments on powering our homes, buildings, and electricity with solar and wind but travel and machine based agriculture are going to take a hit.

Bottom line, if we burn fuel to grow it or ship it to our customer, our profit margin will narrow.

Tony Malmberg,
Lander, Wyo.

Watershed groups need some oversight

Courtney, I appreciate your emphasis on local approaches such as watershed groups as a means to "get there."

However, we also need to be careful regarding the politics of local control. In recent years, I have grown increasingly concerned about the anti-democratic potential of watershed groups.

For example, the Big Hole Watershed Committee (a group I once strongly supported) has excluded any voices (such as the Montana Wildlife Federation) that might be

critical of its actions. At the same time – thanks to Senator Conrad Burns – the Big Hole Watershed Committee has been funded with millions of dollars in earmark federal appropriations. Bottom line: we are federally funding watershed groups and empowering them politically, but they do not have to meet any criteria for stakeholder representation.

There is a growing literature on this problem. One of the best articles is Peter M. Lavigne, *"The Movement for American Ecosystem Restoration and Interactive Environmental Decisionmaking: Quagmire, Diversion, or Our Last, Best Hope?"* [Tulane Environmental Law Journal 17](#) (Winter 2003): 1 – 61.

Also, for information specific to the Big Hole Watershed Committee, please see entries on my [blog](#)'
Thank you.

Prof. Pat Munday, PhD
Technical Comm. Dept.
Montana Tech
Butte, Mont.

Producing foods locally not an option everywhere

There's a major flaw in White's discussion here.

Anyone looking at New York or other urban agglomerations know those are a crummy place to grow cows and chickens.

Unless you fully discuss the implications of how these cities are to be fed or heated or lit "sustainably" then you are just whistling past the tiger.

Dave Skinner
The Hydra Project
Whitefish, Mont.

White provides important insight into current trends

Courtney White's excerpt was very clear, consistent with current reality and trends and very important.

I look forward to reading more of his insight and views. Most important article I've read in a very long time.

Thank you.

**John D. Smith,
White Salmon, Wash.**

Column gives readers an important perspective

This column is a really pertinent article in this escalated day of industrial revolution, particularly seen in the Southwest where Phelps Dodge mining has upscaled dramatically in last year.

Thanks for sharing Courtney's perspective.

**Frank Hayes,
Clifton, Ariz.**