Environmentalism Gone Wild

The Great Green Mobilization and Beyond

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I was driving my fourteen-year-old and her friend to a party when I mentioned the latest discoveries of possibly Earth-like planets orbiting other stars. Great, they answered – more planets for us to screw up.

They left their cynicism in the car when they got to the party, but it stayed with me. There is truth to it, for sure. I have no wish to deny that we are threatening nature and even our own survival on a planetary scale. I recognize too that cynicism can be a form of self-protection: to hope for anything else may be not just too audacious but too vulnerable. And yet might even a committed environmentalist beg to differ? From even a slightly broader historical perspective, we are talking about one culture here, not somehow the human soul as such. We are looking at just one moment in that culture's history, too, not all of the past or future; and it is arguably too backward-looking a picture even of this very moment, when things are already shifting, already diversifying, as we work out multiple new paths in the face of the emergency. Emergencies are also times of emer*gence*, after all. In the face of the great global crisis, something dramatically new and equally sweeping may only now be taking shape. So could we not advance environmentalism in a celebratory, visionary, transformative key? What are we waiting for?

Environmentalism evolves

The first Earth Day was only in 1970, and it took twenty years more before serious environmental awareness became mainstream. Specific and dramatic threats prompted it: killer smog; massive oil spills; pesticides like DDT that threatened all manner of animals including American icons like bald eagles and pelicans; burning rivers, like Ohio's Cuyahoga River, which actually caught fire one day in 1969 from being so full of pollutants. An enduring memory from my youth is seeing the Cleveland Fire Department hosing down the river on TV.

Those threats were not small – by no means – but they proved to be manageable with political will and economic pressure. The Environmental Protection Agency was a bipartisan creature of an overwhelmingly Democratic Congress and Republican President Nixon. Pollution controls followed, along with the Clean Air and Clean Water Acts, the Endangered Species Act, fuel economy standards for motor vehicles, and a host of other measures. Two years after the Cuyahoga burned, we had a Clean Water Act with teeth. DDT was quickly banned, though it is still widely used in the less advantaged world, and other toxins fell under a permanent cloud. And now, forty or so years later, we inherit a world in which recycling bins are omnipresent, eco-tourism, renewable energy, and hybrid cars are all the rage, and everything seems to be going green.

Yet all of this was still really only a beginning. The current areas of concern now are much deeper, more systemic, harder-to-visualize challenges: greenhouse-gas-induced climate change, ozone depletion, species loss and habitat destruction, fisheries collapses, looming fall-offs in the availability not just of oil but also of water, soil, and key minerals, all framed by worldwide hyper-consumption patterns that are deeply entrenched and expanding. Most of these issues are global in their interconnections. All of the clean-air gains made in the US and Europe may soon be eclipsed by the vast surge in emissions coming from China as it massively expands coal-fired electrical plants and automobile use. Spiralling oil prices affect food costs around the world (oil is used to make fertilizer and process and ship and store food), land use (the biofuels boom is accelerating the destruction of tropical rainforests to grow soybeans, corn, palm oil), and international politics and war. Most of the old problems haven't gone away either, really: they've just morphed. The flammable rivers are just in less visible parts of the world now, while the toxins in our own water have subtler, longer-term, or just plain unknown effects.

And it's getting worse. Global warming in particular prompts nightmares: massive disruption of agriculture and water supplies worldwide, loss of the glaciers, monster storms, surging species loss, tropical disease vectoring into temperate areas and waters rising over the fields and into the homes of half a billion people. Already it is coming to pass. Today more than ever, environmentalism speaks the language of catastrophe.[1]

The Mobilization

Urgency is upon us once again. After a decade in which oil, coal, timber, and cattle interests rewrote the nation's environmental laws, and despite millions of dollars invested by the petrochemical industry to stir up climate-change "scepticism", the global scientific consensus is finally winning out.[2] Vehicle fuel economy standards that had not improved for an astonishing thirty years were finally raised in 2007. Even "moderate" Republicans are signing onto massive climate-change legislation. And from the environmental camp a new and radical environmental program is taking shape: nothing less than a rapid and full-scale mobilization to fend off environmental collapse. Leading environmentalists – most famously Al Gore, in his book and film *An Inconvenient Truth*, and Lester Brown of the Earth Policy Institute – are laying out

emergency action programs: "A Global Marshall Plan for the Environment" (Gore) and *Plan B 3.0* (Brown's latest book title; Plan A is "business as usual"). Brown's book is subtitled nothing less than *Mobilizing to Save Civilization*.[3] Adapting his terms, I will call the emerging program simply *The Mobilization*.

The Mobilization will demand huge changes across the board. We must dramatically reduce our use of energy and to convert to clean and renewable energy sources like wind, solar, and geothermal power. Transportation must be weaned from dependence on oil, and far more efficient mass transit systems like buses and trains must be vastly expanded. Super-insulated buildings both new and "retrofitted" can scale back heating and cooling demands not just a few percentage points but by half or 90% or even 99%, slashing pollution and resource loads as well as the bills. Water must be used far more efficiently: we need exact metering everywhere (so we actually know how much we are using and for what – how many of us have a clue right now?), low-flush or waterless toilets, in-ground irrigation, drought-tolerant crops. We must save our soils by doubling or quadrupling land productivity; save endangered species by re-establishing large and connected enough protected habitat; scale our meat consumption way back to use water and primary crops more efficiently; lower our birth rate enough to stabilize and then begin to ease back human populations to more sustainable levels; and on and on.

Some of these goals call for direct legal mandate: straight-out bans, for example, on extremely wasteful practices like above-ground crop watering, and dramatically raised efficiency requirements across the board (cars, appliances, manufacturing…). Others call for price incentives and true-cost pricing. Right now we now pay only a tiny fraction of the true costs of water, for example, and the vastly higher gas taxes already in place in Europe likewise reflect at least more (still not all) of the actual costs of road-building, environmental and health damage due to driving, etc.. "Cap-and-trade" systems, already in use in the European Union for greenhouse gases and in the US for pollutants that contribute to acid rain, may go global for carbon emissions, and have been proposed all the way down to the individual level. Each polluter gets a certain set and progressively more limited allowances for emissions – that's the "cap"; more emissions then require buying extra allowances (the "trade") – thus creating major profit incentives for new technologies that significantly reduce pollution.[4]

You see already that the Mobilization will be massive. Yet in a way its very massiveness is also an attraction. One could argue that it is precisely what "gloom and doom" environmentalism needed all along: not half-hearted half-solutions, but big and serious change, a kind of "can-do" optimism instead. By way of analogy, Gore invokes the Marshall Plan. Others recall the Apollo project that put us on the Moon and the Manhattan Project that built the atomic bomb. Brown proposes another analogy, recently picked up by *Time* magazine: "the overnight conversion of the World War II-era industrial sector into a vast machine capable of churning out 60,000 tanks and 300,000 planes, an effort that not only didn't bankrupt the nation but made it rich and powerful beyond its imagining and – oh yes – won the war in the process."[5] An immense challenge, yes, but not just a forced, painful, profitless redirection: we can rise to it also expecting that it will be an immense step forward.

Debating the Mobilization

Naturally the Mobilization has its critics. *Time* is responding to those who fear that going green on such a scale will put the economy into a tailspin. In fact, arguably the economy is far more supple – huge adaptations and changes go on all the time, though of course there are also costs – and on the whole going green should actually be cost-effective and probably *more* profitable. Dupont, for example, one of the world's biggest chemical manufacturers has reduced its carbon emissions a massive 65% from 1990 levels and *saved* $1.5 billion as a result.[6]

Critics doubt that we really can mobilize so massively in time. Environmentalists respond that we already are. Most European countries are already working to slash carbon emissions by half or better in an astonishing twenty years, and many intend to be "carbon neutral" (that is, to reduce *net* carbon emissions to *zero*) in forty. Australia is leading a number of countries quickly phasing out incandescent light bulbs in favor of the far more efficient fluorescents. Nearly all of the United States' trading partners have embraced the Kyoto Protocols for greenhouse gas limits, which means that American products marketed in signatory countries must meet international standards, despite the Bush Administration's refusal to join Kyoto – which is why Ford and GM are scrambling to offer hybrid vehicles worldwide. (Globalization has some points after all...) With gas prices skyrocketing, Ford now is desperate to phase out truck and SUV production lines and, ironically, bring their fuel-efficient European models back to the US. Even lowering our birth rate may be more realistic than we may think. Thirty-six countries, including the most developed and heaviest resource-users, already have stable or declining populations, due mostly to economic growth and security and the education of women. No government, not even the most fanatical (think Iran), still promotes large families.[7]

Critics worry that the threats are not definitively established. Climate science, like weather reports, is anything but exact. Suppose the Mobilization turns out to be unnecessary? Shouldn't we wait until the science is clearer? Environmentalists respond, again, that there are huge benefits as well as costs, even if the threats unaccountably turn out to be less dire. Pollution is, among other things, a waste – think of it as not-yet-well-used by-products – and thus a potential resource. Moreover, it is precisely when we don't know exactly what is happening that we must be especially *careful*. Rather than requiring proof that our current track will end in disaster before we agree to get off it, we ought to insist on proof that it will *not* end in disaster before we get (or rather, stay) on it. This is the so-called "precautionary principle". With our one precious and irreplaceable Earth at stake, the only responsible path is to give ourselves the largest possible margin of safety.

Quite different critics of the Mobilization argue that it does not go far enough. Some climate-change models suggest that it is already too late to prevent catastrophic climate change and extreme population loss and dislocation. Change in complex systems is not necessarily gradual or "linear". A system may maintain itself at a constant level under increasing stresses for

a long time – nothing seems to be happening, there seems to be no cause for alarm – but then it may quickly collapse, or flip to some very different and much less desirable or liveable state. James Lovelock, the British geoscientist who originated the "Gaia Hypothesis", argues in his 2007 book *The Revenge of Gaia* that current projections hugely underestimate the global warming to come because they don't take into account global self-balancing processes that currently help to keep temperatures steady but will have the opposite effect as their limits are exceeded.[8] The oceans can absorb huge amounts of carbon dioxide, for instance, but once they're full, the extra carbon dioxide keeps circulating in the atmosphere, accelerating warming and prompting the release of still more carbon dioxide stashed in the waters.

If civilization is to have any chance to survive at all, Lovelock argues, we need vastly more higher-tech and politically drastic measures, such as orbiting sunshades, to reduce the sunlight that arrives on Earth, and total conversion to nuclear power, to eliminate carbon dioxide and particulate emissions from fossil fuels. Forget organic farming and lower-impact agriculture, too: we need *no*-impact food growing, such as lab-grown animal flesh and other synthetic foods, taking the pressure off the land entirely. Even with these, Lovelock is not hopeful for anything more than a pitiful and warlord-wracked remnant of humanity eking out a bare existence in a tropical Antarctica.

Traces of a sort of grim satisfaction appear in this sort of apocalypticism: in the title of Lovelock's book for example (the *Revenge* of Gaia: that is, we have it coming). It would not be the first time that fantasies of destruction play out an underlying and unexpressed sense of guilt. And we can certainly hope the predictions are wrong. That's the current consensus of scientists – but then again, the science is far from exact, much remains unknown, and the accelerating tempo of recent ecological deterioration, especially warming trends and glacial melting, has shocked even the experts. We can only note that the immediate practical implications do not differ so greatly from the Mobilizers' in the end. All we can do in any case is move ahead as fast as possible. Gore is now seriously proposing to phase out fossil fuels entirely in a mere ten years. Lovelock and others want to move still faster and farther. We may not have a chance anyway, but we certainly won't have a chance if we don't try. And as Churchill said in England's darkest hour, we might as well be optimists – there is not much use being anything else.

What would Thoreau do?

Yet despite the scale and urgency of the Mobilization, there is a way in which it does not represent the emergence of a new environmental vision at all. For the aim of the Mobilization, to put it baldly, is to maintain our current way of life as far as possible, while substituting greener energy sources and productive processes for currently dirtier and more wasteful ones. We picture ourselves driving hyper-efficient hybrids or hydrogen cars, for example – but still, obviously, driving. We picture ourselves getting our electricity from renewable and clean sources – but still flipping the same electrical switches to turn on the same stuff. We expect food grown and delivered without such spectacular waste of water and fuel – but still expect to eat the same

things in the same way. “Eco-tourism” may replace regular tourism, but we still want a lot of it, especially in exotic, far-away places. We expect to continue to live as we do now in coastal cities and in challenging climates, just more efficiently and better fortified.

Once I test-drove a Prius. As we hummed along the salesman held forth on the cleverness of the design. It’s a radically different engine, he said, but “really it doesn’t change anything” except your gas bill. I guess he meant that the driving experience is no different than a regular car: from a design point of view the only real change is under the hood. What he brought to my mind instead was Henry David Thoreau’s biting complaint in *Walden* about how we preoccupy ourselves with “improved means to unimproved ends”.[9] A more efficient car will not give us back the time or the lives that we lose to it or restore the lands or the public treasuries drained by roads or slow us down or make us wiser or even happier. “Really it doesn’t change anything”? – but change, in fact radical change, is what we *need*.

Of course to some extent we need to continue to drive and to use electricity too, and eat industrial food, live in nuclear-family, stand-alone houses, and all the rest. Then, for sure, the greener the better. Still, for almost all of human history, people managed to live without any of these things – or rather, more precisely, they lived with something *different*. Most of the human race still does. Isn’t it just possible that we too might actually be better off without, say, fast food or fast travel or even tourism or, God forbid, television? If so, then simply “greening” these things is no answer. We could green anything, in principle – even a concentration camp or a chemical-weapons plant. Green alone is not enough.

Thoreau would not let us get by with mere “sustainability” either. Certainly we should try to live in such a way that others who come after us can do the same. Sustainability so defined may already make more radical demands than we may think: one plausible implication would be that we should only use finite resources at the same rate that nature replenishes them, which would mean using the tiniest fraction of the oil and coal that we presently use, just for one notable example. Still, however much it is a simple demand of justice and act of care for the generations to come, sustainability (also) seems like a forced self-limitation under external duress. Thoreau’s challenge goes deeper. We cannot think sensibly about “sustainability” without asking *what* it is that we are seeking to sustain. We want a life that is not merely sustainable but, as the philosopher Aidan Davison puts it, sustain*ing*: good for the soul, good for the world.[10] And the truth is that right now we have barely a clue about how such a world would look. We live in the most spectacularly wealthy and commodious society in human history – a stunning accomplishment that all too often we taken for granted – but most of us are nonetheless overwhelmed with busy-ness, noise, worry, and stress, and are significantly more unhappy, by most measures, than people whose economic poverty we are taught to pity. This is stunning too, actually. Again, though, it has an unsettling implication. Merely greening a dysfunctional society is no way to usher in a new millennium. We are still in need of a genuinely new environmental vision.

Trapped in a system

The Prius story has another unsettling implication as well. Even the Mobilization's *means* may be, in Thoreau's terms, "unimproved". Once again to put it baldly, the Mobilization invites us to respond to the crisis of the industrial system with, essentially, more of the same. What is mobilized is more industry, more technological ingenuity, more complicated systems with farther-flung vulnerabilities. Hybrid cars, for instance, essentially have two motors rather than one, with a computer layered on top to coordinate things. Complexity more than doubles. Not to mention the toxic lithium or nickel in the batteries (much less toxic than the lead in the usual car battery, but still…) which, like the much more mercury in fluorescent bulbs, is so far an unaddressed problem, or the dependence of hybrid component manufacture on certain rare earths that come only from China and are about to run out.[11] If this kind of story sounds familiar, that's just the point – it is. We're still trapped in the system.

Hydrogen is supposed to be the fuel of the future. Certainly it burns cleanly – the only by-product is water. Hydrogen itself, however, doesn't occur naturally in ways we can simply harvest, like oil. It needs to be produced. It takes electricity, for example, to electrolyze water. But then of course the electricity needs to be produced in some (other) way. There are certain advantages in this: hydrogen production might be in a few specific locations, say power plants whose pollution could be much more rigorously and efficiently controlled than the emissions of ten or a hundred thousand individual cars. Wind or solar power might help in a few places. But for the most part we'd still need oil or coal burning plants – or nuclear power. Hydrogen can also be extracted directly from – you guessed it – oil. Actually, then, hydrogen fits perfectly with a high-fossil-fuel, high-nuclear energy mindset. But arguably, for just that reason, it's no solution. It only passes the problem around to another sector of the economy, another technology, another fuel.[12]

New Orleans is becoming a metaphor for another late-industrial dead-end. Cities profoundly vulnerable to hurricanes and flooding call for higher dikes, stronger flood-gates, bigger pumps, better weather forecasts. These are the answers that seemed to work in the past. But in the end they don't. The fates of more and more people and even of the city and region's economy and culture are made to depend on more and more complex technological systems, inevitably prone to breakdowns and unforeseen failures. More and higher dikes extend farther and farther out and therefore multiply vulnerabilities. Failure at any point means ever-greater catastrophe. Dikes also exacerbate the original problem, cutting the land off from the flow of water and sediments that regenerated the land level itself. It's not just that the seas are rising – New Orleans is also sinking. Keeping it dry at ever more spectacular costs will also cause it to sink faster.[13]

Technological overconfidence on the one hand, ecological heedlessness on the other: the same lethal combination appears in still starker form when we consider some of the extreme measures to combat global warming proposed by Lovelock and others, such as orbiting

sunshades or pouring trillions of Styrofoam balls into the oceans to stop them absorbing so much heat.[14] What larger effects such moves will have, elsewhere in the system; how to be at all confident that we even know whether the intended effects will really occur; how to modulate or reverse or get rid of them (*trillions of Styrofoam balls?!*) if and when we need to: these are huge and barely asked questions.

In short, the Mobilization imagines much cleverer and more strategic use of resources – but it's still use of resources, deployed on a massive and still-more-intensive scale, coordinated in an increasingly high-tech way, inattentive to nature's own workings and only concerned to force its way, which it may or may not succeed at doing. It is exactly the style of response you'd expect from the system that produced the problem in the first place. Conversely, if we truly want to address the problem at its core, we need to consider the possibility of responding *in an entirely different style*. Albert Einstein famously said that it is a hallmark of a real problem that it cannot be solved within the same framework that generated it. That's exactly it: what we really need in the end is not a still cleverer or more massive or better-funded application of an existing framework, but a *new* framework. We need to re-imagine the world from the very ground up.

Whole-Systems Design

Take the question of recycling – seemingly the most boring and everyday of "environmental issues". It is not that re-use is a bad idea. It is a fine and even necessary idea. But it cannot be left simply a matter of re-smelting aluminium soda cans or keeping used syringes out of the oceans so that they will not eventually float back up on the beach. It is certainly not simply a matter of adding a collection burden to consumers and municipalities while manufacturers keep on making cans and papers and packaging just as they always have. All of this is, at best, only an add-on, minimal, piecemeal change within the system we already have. It's the "same old framework" all over again. We need to ask what a truly *different* framework would look like.

One starting-point would be this: the entire system must be redesigned as a whole, and precisely *as* a system, that is as one interconnected whole. Thinking in an integrated and holistic way is now vital. The real solution to a problem like recycling may therefore not seem to directly address recycling at all: it may intervene at a very different point in the system. Suppose, for example, that our real task is systematic *pre*-cycling: that is, the design of things with their future use and lives already accounted for and built in, making *re*-cycling mostly unnecessary.[15] This probably means using no more plastics whatsoever, just for one example, or maybe only plastics that totally and quickly biodegrade (and into something that's good for the soil; certainly not just plastics that biodegrade into smaller pieces of plastic, like many of the present so-called "green" plastics). Imagine edible containers, say in dessert flavours, so you could end your picnic by just eating the plates and glasses (not so far-fetched, actually: think of ice-cream cones and tacos and even pizza, where the "wrapper" is already part of the food). Buildings, in the same spirit, could be made of durable parts that can be easily disassembled and rebuilt in other ways, or of natural materials, maybe even still living, that can go their own ways afterwards no worse for the wear.

Maybe even better. In these transitional times, too, we really need buildings made of the currently most accessible and cheap raw materials: that is, well, trash: old tires, cans, bottles, auto parts… and if you think this is some kind of impossible dream, check out the film "Garbage Warrior", a documentary about the "Earthship eco-architect" Michael Reynolds, who in forty-odd years already has built hundreds of ecologically self-sufficient homes completely out of (what everyone else considers) garbage.[16] Two steps down this road and we are designing tires and bottles from the start *as* building materials... and who knows what else? *There's* whole-system design for you.

In some form everything we use will be with us forever. There is really just no such thing as a "disposable". The upshot is that everything we use must be something that we would welcome whenever or however it shows up again. That sounds commonsensical enough, maybe – in the new age it *will* be the "common sense" – but for us it ultimately requires rethinking everything. Look around right now and ask yourself how many of today's most familiar things could meet such a standard. Not that Styrofoam cup, keeping our coffee warm for five minutes, whose crumbly useless shreds will still be more or less the same even when our bones have long turned to dust. Not those paints and glues and hairsprays all over our houses and hardware stores: specialized, long-lived, and often toxic chemicals (if not to us, elsewhere in the system), all of which will eventually return to the air and water and soils to pass through the bodies of our grandchildren, Indonesian cows, the depths of the sea. The other side of this question, though, is a design challenge: how *could* we make things so that we would welcome whenever or however they show up again? It's not an impossible challenge, but it does take a dramatically different kind of attention.

Or again: mass transit figures heavily in the Mobilization plans. We're beginning to realize that however much we redesign cars themselves, we will not even touch the systemic problems associated with automotive transportation: the endless traffic and traffic jams, death and mayhem on the roads, parking lots everywhere, omnipresent traffic noise, junked cars, spectacular highway construction and maintenance costs, global resource wars, degraded land and dysfunctional cities. The best hybrid or hydrogen car in the world will not make a dent in these problems. In truth, though, even buses and trains, though vastly more efficient than the equivalent number of cars, and safer and more compact to boot, will not make a huge dent in most of these problems either, and meantime they still require fuels and massive and continuing investments in tracks, roads, stations, and rolling stock, not to mention time, just to get people around. Mass transit is still, after all, transit.

Again a shift of "frameworks" is necessary. Our commitment both to cars and to mass transit rests on the assumption that people will and should continue to need to travel in the way we do now. But suppose that this assumption itself is the fundamental problem? Maybe in the end we need neither better cars *nor* better alternatives to cars, but alternatives to transportation itself. The real solution is not another kind of car, not another kind of fuel, not even another kind of vehicle – but "re-localization": a system in which we simply do not need to travel so

constantly and there is no serious need for any kind of far-flung and massive transportation infrastructure in the first place.

Imagine communities in which work, school, friends and family, and food and other everyday goods are available close at hand, within an easy walking distance. Radically de-centralized production processes and serious telecommuting could be vastly augmented, and extended to many more jobs. New community structures would arise – next-generation public libraries, colleges, shops, or community centers, for one thing. Sweden is building such "tele-cottages" nationwide, with built-in childcare and family space. Next we could build in a variety of work areas and gardens hooked into new neighborhood commons, reclaiming the space that the street and parking lots used to occupy. Everything down the block from home, or part of a co-housing community's common house (no more "blocks", either).[17]

Shopping? Neighborhoods and co-housing communities or small businesses could manage collective schedules and maybe a jointly-owned vehicle or two to bring in groceries. Some vegetables and maybe fish you'd grow yourself, or some of your neighbors, intensively and right around the corner. Malls could go virtual, for those who really want them, and provide delivery through a morphed form of UPS or FedEx – a few trucks or carts running on small peripheral roads. There could be trains too – we might as well make use of the corridors and tracks we've already got – when it really is necessary to physically go somewhere else, maybe to the beach a few times a year, like the French. New dense neighbourhoods could be clustered around the train stops. (Density can be "sustaining" in general. Do we still want to be living in nuclear families? Why not adapt the African tribal practice of adding on living quarters in family compounds for elders and others as time and families change? Wouldn't this in fact be a lovely new use for our vast reservoir of suburban lawn space?)

We could promote "virtual travel" too – and when we take actual trips, take them long and slow. See the places right in the next town or county (how many globe-trotters, piling on the frequent-flyer miles, have actually explored their own neighborhoods? and correspondingly, here's a design challenge: how shall we make local travel more exciting?) Walk, bike, take a camel, or maybe a blimp…

Earth in Flow

Whole-systems thinking is one way of re-framing our problems all the way down, so to speak. And we must take another large step at the same time. The "system" within which we understand ourselves must now include the whole Earth. It is not simply a matter of redesigning human systems, no matter how radically, as if the Earth itself were only a kind of backdrop or stage-setting, passive and controllable. Better to imagine the Earth more like a vast living thing itself, in flow in irresistible, immense, and largely mysterious ways. We worry over sea level rises still measured in millimeters, for example, but it turns out that sea level has surged almost a hundred meters (that's 300 feet or so) since the end of the last ice age a mere 18,000 years ago.[18]

Tectonic plate shifts (earthquakes, tsunami…), climate swings, new evolutionary pressures, and God knows what else are actually the *norm*. The real challenge is not somehow better or tighter control of natural processes, but something very different: more deft *adaptation*.

Think of New Orleans once again. After Hurricane Katrina we all learned what ecologists had been saying for some time: that the wetlands and lowlands that once stood between New Orleans and the sea – seventy or so miles of buffer that once would spread out and dilute storm surges – have been wrecked by drilling and re-channeling, as well as oil and gas extraction from underneath the whole region, and the shipping lanes meant to bring bigger ships more readily to the city also serve as direct channels bringing storm waters straight into the city. The extent of Katrina's devastation was not "natural" but pre-conditioned by ecologically heedless ways of building. For sure, then, the city's ecology, as much as the city itself (or rather, as *part* of the city itself), must be "brought back better". But it cannot be brought back invulnerable. No coastal city – in fact no city at all – has that option. The coasts draw us by nature, but by nature they are also places sometimes necessarily swept by high winds and flooded by storm surges. There is always a permeable interface between land, sea, and weather. People have lived in hurricane-prone, over-washed coastal areas since time out of mind, only they didn't live there as if the seas and the sands were just stage-props. Ecosystems evolved to adapt to these flows, and our own building, traditionally, did too.

We must begin to think of coastal life itself in a different key. Low-lying coastal areas and barrier islands call for few permanent residences and only the most resilient or adaptable infrastructure. This is not at all to exclude humans, not at all – but it *is* to invite us to the shores in a different, impermanent, and moveable way. Brittle infrastructures of all sorts – the usual power-lines, hard-surface roads, bridges, tract houses, basements, all the rest – are not a good idea. Instead, small, durable, easily-transportable solar power units. Cell-phone networks (or no phones at all) – nothing hard-wired. Windmills as distinctive as the lighthouses on North Carolina's Outer Banks – this region where the Wright Brothers came for the first flights precisely for the winds, but which at present has not a single serious windmill. Sandy roads, vehicles built for the beach. Most travel by boat, as it was not so long ago. The outermost regions just for swimmers and campers and fisherfolk, birdwatchers (hurricanes fling in all sorts of uncommon birds), and boaters and houseboaters (who can *move*).

The summer after Katrina I had the privilege to work with a group of activists and planners along with Louisiana residents and expatriates, re-imagining the future of New Orleans and the Gulf Coast. We began with the stories: loss, pain, disorientation, anger. Terms like "recovery" and "restoration" were in the air. We wanted to affirm and not question people's lives and hopes. Yet at the same time a new vision was our mandate. Is a new New Orleans possible? A new kind of city, even?

One person lamented the loss of her little colony of off-season artist-renters on a coastal island. After they fled, a thirty-foot storm surge took out everything. We sympathized. But we also let the story percolate. Artist colonies are expressive, experimental, and *nomadic*… hmm…

so, what if the returnees consciously and methodically lived as nomads? What if they went back as long-term temporary residents? Why couldn't this sort of neo-nomadism be enabled and enriched – legally, economically, artistically, architecturally – and not just in a new New Orleans but across the hurricane-prone coasts? Whole populations could move inland for the season: what new and intriguing cultural forms could evolve from that? Dwellings themselves could be nomadic. Indigenous nomads developed all kinds of readily-moved or collapsible structures. Elaborate tents? *In situ*, what would it take to build homes that you could just fold back out after the storm? How about buildings – schools, homes, factories -- that allow the winds and waters to pass through: first floors that are essentially screened porches or workshops, maybe, allowing rising waters just to flow under the enclosed second level? People at the edge of the sea traditionally built houses on stilts, protected by swales, with open first floors.[18] What new and intriguing things could architects do now?

Someone else mentions houseboats. Another idea: what about a city that *embraces* the waters – in short, a city that *floats*? Houseboats galore; rafts; larger structures too. When the waters are low, the pontoons may rest on the ground or in the swamps that are in fact the natural state of much of these lands – soaked through, again, rising and no longer sinking. When the high waters come, everything rises. Put in canals, little boats everywhere. Already there are floating cities in Southeast Asia; pontoon architecture is emerging in Holland; there are multiple plans even for ocean-going cities; and certainly there are military contractors and big builders who we could always give something new and constructive to build. Imagine people fishing for crawfish off their porches in a New New Orleans. Imagine Mardi Gras floats that actually float. The charms of Venice added to the sass and sauce of New Orleans. Who says the possibilities of cities are exhausted?

Yes we can

You see, I trust, that the kinds of changes imagined here are not merely "under the hood", taking our current expectations and habits somehow as givens. On the contrary, meeting Thoreau's challenge, a crucial element is to *rethink* those very expectations and habits. Tourism, throw-aways, living in beach suburbs or for that matter any suburbs, and all the rest are not somehow necessities. Work and shopping and enjoyment are *not* necessarily "somewhere else". There is no reason that the average American must continue to spend up to two hours a day in the car, or that we must spend trillions of dollars on roads and road maintenance and therefore only a pittance on public pools and libraries and playing fields and neighbourhoods in general, or even that dwellings stay fixed to the ground, especially where the ground wants to be underwater much of the time. Alternative and in fact fabulous new possibilities open up the moment we question these apparent verities. So for one thing it's certainly not a matter of "going back" to some sort of dreary half-life. The way ahead may make today's seemingly so seductive and unsurpassable life seem, by comparison, only half alive. Maybe *ours* is the dreary half-life? Anyway, so much more is possible!

We can also meet Einstein's challenge. The "means" proposed here are not just further and more desperate applications of industrialism. It is not a matter of enacting resource-intensive but cleverer solutions to a specific problem. Attention shifts instead to reorganizing the social system: re-creating neighbourhoods, for example, re-imagining who we live with and how work is organized, with multiple advantages and wide ripple effects – and to whole-systems views, not "transportation" by itself, for example, but a whole vision of community with and within the natural world in which travel is just one aspect. No more cities on the edge of the sea that might as well be in Kansas except for the dikes. It's all re-imagined and rebuilt at once: neighborhoods, work, food-growing, family structures, houses, wetlands, festivals… everything.

I am not saying that somehow we do not need to mobilize. We *do* need to mobilize. Everything needs to become vastly greener, as soon as possible, and every small step helps. The point instead is that the Mobilization is more like the *last* expression of the outgoing worldview than the first expression of its successor. By the time of our great-grandchildren (yes, we will have great-grandchildren, and yes, they will inhabit a world of their own in which they will not spend all their time wishing they were us) humanity may inhabit not just a new world but a new world*view*. For a true analogy to our own times we may have to go back to the world of the European cities at the turn of the 16th Century, a disheartened and confused time much like our own, just before Galileo's kinematics began to making the whole world calculable and Columbus set sail for the New World. Everything is about to be systematically re-imagined.

Once again, at least, you see that there *are* alternatives a little beyond what we hear in the media and from even the most change-oriented politicians. There is far more room for imagination and improvisation on a global scale. Indeed you can practice it yourself.[20] Stretch, twist, transpose ideas; exaggerate and extrapolate; push beyond incremental changes to qualitative shifts. A truly green world, for instance, will demand a transformed politics – and vice versa. Already people are imagining political communities founded on Affirmations of *Inter*dependence rather than Declarations of Independence: bioregional, deeply participatory and decentralized, spontaneous, festive, varied and multiple in their forms. Go three steps farther: imagine representative assemblies for other beings, say, and/or for future generations. (Seriously: could *you* design such things? Why not?) MIT, backed by the UN, is now promoting a plan to link the whole globe by putting rugged, dirt-cheap, crank-powered laptops into every village in the world.[21] But what then? Just more pornography or on-line shopping? What might we *do* with a radically connected world? How about creating new worldwide political organizations based on direct contact between people, and thus ultimately alternative to the UN (which is, after all, a union of *nations*) and indeed to the nation-state itself? Permaculturist Bill Mollison proposes a new kind of United Nations in which a "nation" is defined by a shared ethic and culture, where all those sharing an "ethic of earth care" might therefore come together.[22] People are already beginning to connect by watershed, bird flyways, pollution plumes, regardless of the official political borders. Global seed exchanges and gardening forums already exist, and already, according to Mollison, the world has far more organic gardeners than active members of political parties. There are alternative economic summits, bioregional congresses, tribal conferences, garden and farm design groups. Every international bigwig political conference now has its

counter-conference. In short, a radically alternative political order is practically here already. Who says that all possible political systems have already been invented?

Religion Gone Wild

Finally, the coming shift also has spiritual dimensions – a side of life not so often explored by environmentalists, while today's religions often return the favor by mistrusting environmentalists in turn. But really: here we are, reawakening to the *whole* Earth, no longer as a mere backdrop or materials-provider or "spaceship" but something vaster, more primordial, more magical, our *Source* and no mere collection of resources, understood now as an interdependent whole, organically and cyclically linked. All of its beings in a deep way kin. How could all of this *not* have a spiritual dimension as well?

We are reawakening to ourselves as animals, for one thing. The Mobilization already has us thinking about animal ethics: the industrialized slaughter of billions of our near-kin every year for food. Ethical qualms are rising, and the ecological costs of meat (waste of most of the protein in the feed, water and land degradation…) are appalling. But right now the most we imagine in response to these problems is to reduce the slaughter: mass vegetarianism, maybe, or bio-engineered food grown in factories. Animals themselves slip out of the picture.

Yet we ourselves are animals. We have co-evolved with other animal intelligences. Most traditional cultures recognize other animals as other "nations". Multiple forms of cross-species interchange still go on. Musicians, right now, jam with whales through underwater microphones and speakers, riffing on each others' contributions around a common theme.[23] Designers are already busy planning for "mixed communities" of humans and other species, for genuine co-inhabitation. The whole world is alert and alive in its own ways. Whales pass around half-hour-long songs over thousands of miles underwater. Millions of butterflies, of all things, migrate three thousand miles or more to breed at long-established sites they have never seen before. All life on Earth, according to James Lovelock, works together to maintain favorable conditions for itself on the planet as a whole.

And we ourselves are Earthlings (that is the literal meaning of the name "Adam", by the way, in Hebrew). But the extent of the Earth is barely unimaginable to us, and the powers at play, even in the way a sunbeam plays over the trees in the wind, are awesome, mysterious, pervasive. Earth itself, in turn, is just a dust mote in the eye of the solar system, let alone the galaxy, and meantime, again, is in interaction with all of it, constantly absorbing the streaming energies of the sun and dust and rock from comets and asteroids and other planets as well as sending some of its own back out. Look inward and there are also worlds within worlds, whole galaxies within a single cell, all of it barely understood. When the God of Sinai finally responds to Job's complaints, he does not offer some kind of tedious moral justification in typical human terms, like Job's clueless friends. He merely lifts the curtain on what Thoreau, centuries later, called "that vast, savage, howling mother of ours, Nature, lying all around, and with such

beauty..."[24] Ibis swoop through; lions and mountain goats come darting from their lairs; hail, thunder, lightning:

> Who laid the cornerstones of the earth
> when all the stars of the morning were singing with joy...?
> Who pent up the sea behind closed doors
> when it leapt tumultuous out of the womb,
> When I wrapped it in a robe of mist
> and made black clouds its swaddling bands...?[25]

Right now many of our churches seem to think that it is enough to just replace the incandescent bulbs in their sanctuaries or edge, a few of them, into uneasy questions like "What would Jesus drive?", as if slightly better mileage is the best even God could hope for. It feels like an exhaustion of both imagination and heart; the last cautious sighs of a tired way of thinking, again, not the first hints of something new. But something new is coming, here too. The religious imagination is already simmering away again, overfull. Interest abounds in the old earth-based religions and in the pagan roots of Christianity itself. Lovelock invokes the Greek Earth goddess Gaia for his theory that the biosphere functions in some ways as a single living being. Evangelicals are beginning to insist upon "Creation Care" with the passion previously reserved for traditional marriage or fetal life. Other Christian theologians reread the prophets and even the Noah and Joseph stories as ecological parables, while some even speak of Earth literally as God's body and reinterpret salvation as a kind of treasuring of all that lives.[26]

Job's God not only speaks "out of the whirlwind" but in the end *is* the whirlwind. There's that hurricane theme again, surely an apt metaphor for the endless and continuing Self-Creation, rushing like a whirlwind through our lives and the cosmos itself. Maybe, just maybe, the natural world is *it*. Not that nature must somehow be shorn from the divine, but rather the exact opposite: divinity, the only kind of divinity there is, is already *here*. Thus we may be headed toward pantheism – a vision of God everywhere and in everything, God *as* Nature – with an ecological face: a theme both old and startlingly new.

To spiritual traditionalists, all of this may still seem like only confusion and turmoil on the margins of real – that is, traditional – religiosity. Maybe it is. On the other hand, the West's great religious traditions themselves had their origins in the very same kind of confusion and marginality, in the midst of dramatic shifts in world-"frameworks" very much like the changes that are coming our way soon. Those changes may still end up regenerating the old religions (though *which* "old" ones is still a question – for of course the truly old-time religions are pagan), but then again, just possibly, we may be in line for something truly new. From our present vantage point, on the threshold, we can only say that a world reinventing its politics and its power-plants and its cities and indeed its entire mode of life will not hesitate to reinvent its religions too – one way or another. Don't imagine for a moment that the possibilities of religion are exhausted either. Everything – yes, everything – is about to go wild.

For reflection

1. Some psychologists suggest that we increasingly feel a sense of sadness and loss for the familiar and loved natural environments that are now changing before our eyes. Some call it "global mourning". Australian eco-activist Joanna Macy believes that we are emotionally blocked from effectively responding to environmental crisis precisely for this reason: the grief and fear and pain of it are so overwhelming that even completely irrational responses (like claiming that there is really no problem at all, or conversely that everything is already so screwed up that there's nothing to do) are actually more psychologically sustainable than facing it and working our way forward. Macy holds that the only way to free ourselves up to act is first to face the pain, to express it fully, however much it may wrack us. *Then* we are free to act. It certainly has been her own experience. What do you think?

2. What has shaped your current idea of environmentalism? Experiences? Films? Popular media? Reading? (Be specific about each of these: e.g. *what* films?) Are these, on the whole, reliable sources? Why or why not? What is the most familiar form of environmentalism to you? Why? I would guess that some of the ideas in this essay probably surprised you. Why? Why do we not hear about these kinds of ideas in the mainstream media or in the universities or from our elected leaders? This question has a variety of answers, by no means all cynical – stick with it.

3. Supposing that the Mobilization wins the day – as it well might, especially if dramatic environmental disasters or abrupt climate shifts occur in the near future – what kinds of changes will occur in everyday life, yours for example? What happens when we are required to radically reduce our "ecological footprint"? (For a useful introduction to "ecological footprint" analysis, see www.footprintnetwork.org/.)

4. Exactly what are the objections to the Mobilization that this essay links to the names of Thoreau and Einstein? Put them in your own words. Do you agree that the Mobilization's "underlying aim is essentially to sustain middle-class, industrial consumerism"? Why or why not? Is it in fact "exactly the style of response you'd expect from the system that produced the problem in the first place"? If so, how could we have missed this?

5. How might you portray and explain a world that really has "gone wild" in some of the ways this essay suggests? Imagine the sorts of sorts of practices, institutions, ways of life – foods, government, arts, medicine, sports, education, child-rearing… – that a radically different world might have. In imagining such across-the-board change, you may want to make use of the "web of culture" concept introduced in this book in the essay by Anne Bolin and Lawrence Basirico. And please remember that by "imagine" I don't mean just a loose sort of dreaminess. Imagination can be systematically practiced: it actually has rigorous methods. Watch for suggestive facts: overtones, hints, clues. Go farther to invite – even force – exotic associations. (Start with a random prompt and then ask what new ideas or associations it provokes when put together with your issue or question: *then* start honing the ideas.) Stretch and twist ideas. Exaggerate and extrapolate. (What's three steps beyond recycling?) Systematically transpose ideas: reverse expected relationships, think opposites. (What would be the opposite of a "weapon of mass destruction"? Some highly visible, dramatic and unexpected acts of social/environmental transfiguration – a *method* of mass *transformation*? Like what?) And get wild. Welcome even the unlikeliest thought, at least for starters. The key rule of brainstorming (yes, brainstorming has rules too) is: Defer Criticism. Let the ideas percolate before critical shut-down. Take them somewhere. What if Heaven is right here? What if a new house of Congress consisted only of young people speaking for the future? How else could the future be made much more visible in the present? Could there be, say, a space program inspired by the ideas in this essay? What would it look like? And could there be wholly new cultural forms (that is, *besides* foods, government, arts, medicine, and all the rest) that only a totally new way of thinking would suggest? Such as…?

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