

**Crossing the Chasm:
From Denial to Acceptance of Climate Catastrophe¹**
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*...grant me the serenity
to accept the things I cannot change;
courage to change the things I can;
and wisdom to know the difference.*
-The Serenity Prayer

*Logic and sermons never convince,
The damp of the night drives deeper into my soul.
Only what proves itself to every man and woman is so,
Only what nobody denies is so.*
-Walt Whitman, "Song of Myself"

Introduction

In early 2006 I read *The Long Emergency* by James Kunstler.² Before then I had been aware that fossil fuels were a nonrenewable energy source in the process of depletion; and I was aware of global warming and climate change as looming major problems. But I assumed that "looming" meant 50-100 years away, at least in terms of reaching some kind of crisis point. I had never heard of peak oil. I had no systematic understanding of the extent to which the global economy, in its vast sweep and in its excruciating details, runs on oil and depends on cheap oil.

All of this changed dramatically for me as I was reading Kunstler and then even more so a few months later when I saw *An Inconvenient Truth*. My son Eric (my only child) was 14 at the time. I was 42 when he was born; in my mid-fifties when my blinders came off about energy and climate realities. In the blink of an eye, my entire concept of Eric's future was swept out from under me. I now understood that energy and climate crises,

intersecting and mutually reinforcing, could land soon and emphatically enough to affect me within the remainder of my own lifespan. But that was not even close to my major concern. I had lived a large portion of my life, and there was still reason to believe that relatively normal conditions could prevail for a while longer (though now measuring in years or decades rather than half-centuries). But I was suddenly confronted with the specter of the major portion of Eric's life being lived under conditions of social and economic disintegration, proliferating scarcities of the most essential items such as food and water, and cascading climate catastrophes. And by extension, not just Eric, but entire generations.

I'm a lifelong lefty activist, and my immediate reaction was: we've got to do something about this; we need to mobilize a movement; we can't let this happen. For the next six years, I put a huge amount of my discretionary time into organizing on these issues. I was part of groups that had some amazing successes. And, of course, a global movement has in fact been mobilized. Nevertheless: by the summer of 2011, I reached the conclusion that we will not avert a global climate catastrophe, and we will not avert economic catastrophes related to both climate change and resource depletion. (Actually we are not averting these catastrophes in present tense.)

For much of the last year I have mostly been quiet about this. Not because I've been thrown into a state of despair – I haven't. To the contrary: after crossing the chasm I have found myself with a lot less angst than I could possibly have imagined. That doesn't mean lack of intensity, and I have been doing a lot of private grieving, which I'll have more to say about later.

I've been quiet for two main reasons. I have not wanted to deter or seem to oppose the many climate activists I know who still believe it's possible to stop the catastrophe, and continue to put so

much time, effort and heart into this cause. I don't think I have a pipeline to the Truth. I've reached my own conclusions for reasons that are compelling to me; but that doesn't mean I'm necessarily right. I have had no desire to tell people who are fighting for their own futures, for their children and grandchildren, for many broader concerns about humanity and other life forms, from motives that represent the best of who we are, that they are wrong to keep fighting.

I've also been quiet because it felt right to mull this over for some period of time before expressing myself in any public context. This is such an overwhelming issue, and such an overwhelming conclusion to have drawn. It's not that I've been wavering over the last several months; I haven't. I've just wanted to sit with this for a while.

Recently I have found myself speaking more openly in conversations with friends. Nothing premeditated; it just has been coming. And now, being a writer, I feel ready to write about it.

My intention is nothing more or less than to share my thinking and my feelings, and hopefully through that to contribute to some kind of public conversation. A conversation about what does or does not remain possible; about the value of resisting the inevitability of horror and the value of letting go of denial; about what life is or can be like when you accept the realities of collapse and catastrophe; about what options remain for action on the other side of the chasm.

This paper is not entirely bleak. If you are willing to walk through the steps that have led me to view catastrophe as inevitable, you'll find that the other side of the chasm is a place where it is possible for the human spirit to flourish. It will take a while to get there, and the crossing can't be sugar coated. But it is a reality that needs to be faced; and the footbridge will hold.

Why I Think We Can't Avert Catastrophe

Here are the critical facts as I understand them:

- Greenhouse gas (GHG) concentrations in the atmosphere already significantly exceed the uppermost safe limits and are continuing to rise.
- Current climate conditions are the result of GHG levels from roughly 30 years ago. It follows that even if all human-initiated GHG emissions were to stop tomorrow, warming and other manifestations of climate change would continue for at least the next 30 years.
- GHG emissions cannot possibly stop tomorrow: apart from the realities of human political, economic, and cultural forces that drive emissions, melting tundra and permafrost are releasing increasing amounts of previously sealed carbon and methane. (More about this shortly.)
- Not only can GHG emissions not stop, they are rising significantly. The Guardian reported in May 2011, "Greenhouse gas emissions increased by a record amount last year [2010], to the highest carbon output in history....Last year, a record 30.6 gigatonnes of carbon dioxide poured into the atmosphere, mainly from burning fossil fuel – a rise of 1.6Gt on 2009, according to estimates from the IEA regarded as the gold standard for emissions data."³ A recent New York Times article about the 2010 emissions spike notes that "researchers...do not expect the extraordinary growth to persist, but do expect emissions to return to something closer to the 3 percent yearly growth of the last decade."⁴ To put this in perspective, annual 3 percent growth would double our current level of emissions within 30 years.

- In 2008, Bill McKibben wrote, “we have, at best, a few years to...reverse course. Here's the Indian scientist and economist Rajendra Pachauri, who accepted the Nobel Prize on behalf of the Intergovernmental Panel on Climate Change last year...: 'If there's no action before 2012, that's too late. What we do in the next two to three years will determine our future. This is the defining moment.'”⁵ We have now arrived in 2012, on the heels of a record spike in emissions, and with an ongoing projected GHG growth rate of 3 percent. We have not reversed course.
- As GHG emissions continue to rise, carbon sinks shrink due to factors including changing ocean conditions, rainforest destruction, forest fires, and desertification.
- Arctic melting is outpacing previous worst case predictions.
- Positive feedback loops are rapidly escalating. These include melting sea ice (leading to increased heat absorption leading to increased melting); carbon and methane released from melting tundra and permafrost (leading to increased warming leading to more melting triggering more release of stored carbon and methane); and massive forest fires which release huge amounts of carbon while destroying sinks (accelerating warming, which accelerates conditions causing more massive forest fires).
- Positive feedback loops may already be at or beyond tipping points (i.e., the point where they cannot be reversed). But taken together with the previous points that current climate conditions are the result of GHG levels 30 years ago, that warming will continue for the next 30 years even if emissions were to drastically reduce, and that emissions are in fact increasing at alarming rates, the conclusion seems to me inescapable that any tipping points not already passed will unavoidably be reached and passed well within the next 30

years.

- The amount of stored methane under the now-thawing permafrost is estimated to be twice the total amount of carbon currently in the atmosphere.⁶
- In December 2011, The Independent reported findings of massive methane emissions from melting permafrost on the floor of the Arctic Ocean. “Dramatic and unprecedented plumes of methane – a greenhouse gas 20 times more potent than carbon dioxide – have been seen bubbling to the surface of the Arctic Ocean by scientists undertaking an extensive survey of the region....Igor Semiletov, of the Far Eastern branch of the Russian Academy of Sciences, said that he has never before witnessed the scale and force of the methane being released from beneath the Arctic seabed. 'Earlier we found torch-like structures like this but they were only tens of metres in diameter. This is the first time that we've found continuous, powerful and impressive seeping structures, more than 1,000 metres in diameter. It's amazing,' Dr Semiletov said. 'I was most impressed by the sheer scale and high density of the plumes. Over a relatively small area we found more than 100, but over a wider area there should be thousands of them.'”⁷
- The strategy most commonly advocated by climate activists for averting catastrophe is massive conversion to renewable energy sources. But as Sharon Astyk has argued, massive short-term production of renewables would require “an enormous front-load of fossil fuels” which would actually further spike GHG emissions during the very period when we most critically need to reduce them.⁸ It is a little discussed reality that producing solar panels and wind turbines is a dirty, carbon-based process; this needs to be squarely faced if we contend that renewables are the key to a sustainable future. If there is any time left in which it remains

technically possible to avert catastrophic climate change through steep reductions in emissions (which is already highly questionable given the progression of feedback loops), it is no more than two or three more years.⁹ There is no reason to believe that massive conversion to renewables, even if it were achievable politically (the prospects of which seem nil), could play a useful role.

On top of this slew of indicators that climate change is cascading out of control, there is the simple reality that fossil fuels are finite and will run out. The implications for an already staggering global economy are enormous, without any coherent planning to address this at present.¹⁰ If there were no climate emergency – if we can imagine a world in which carbon emissions were benign – we would still be facing a civilization-threatening crisis based on energy needs alone. Sustained production of food and all other essential items, along with global transport systems, would still be urgently at risk in a global economy that continues to rely on fossil fuels – oil above all else. But of course we actually face converging energy and climate crises; and fossil fuel depletion and dependence are driving us to increasingly dirty and costly means of extraction, most notably including the Alberta tar sands, natural gas fracking, and deep-sea oil drilling. Despite these last-gasp measures, there is every reason to believe that we are on the cusp of global economic collapse coinciding with the unfolding climate catastrophe.

In September 2008, writing about the first reports of methane bubbling up to the surface of the Arctic Ocean¹¹ (in much smaller amounts than currently), Bill McKibben said in a 350.org communication, “There are moments when the sheer sense of urgency of this work overwhelms us.... We have so little time to solve this problem--Copenhagen in December 2009 is the last real chance that the world will do what needs doing. Which is why we need to be doing everything we can this year to force leaders to

make Copenhagen real. *Everything.*" He was referring to the United Nations Climate Change Conference in Copenhagen in December 2009, which in fact produced no binding agreements and did nothing "real" to reverse the rate of emissions. Still, in 2011, McKibben was telling us that stopping the Keystone Pipeline is our last chance. McKibben is a great guy, and he does incredible work. But isn't it reasonable to wonder how many last chances we have?

Constructive Denial Versus Destructive Denial

A while ago I met a mother of two teenagers who, a few years previously, had been diagnosed with incurable brain cancer and given four months to live. When I met her she was in full remission.

We all know inspiring stories of individuals who refused to accept terminal diagnoses, and stories of political struggles that succeeded against all odds. Who, for example, would have given Nelson Mandela, imprisoned for 20 years on Robben Island by one of the vilest governments on the planet, the remotest chance of regaining freedom, let alone becoming President of South Africa?

These inspiring stories represent what I think of as "constructive denial" - a refusal to give up, a determination to keep fighting in the face of seemingly insurmountable odds. Yet there are also innumerable stories of the more commonplace forms of denial – simple refusals to face hard realities – that at best serve no useful purpose; that often keep us from dealing with problems as well as we might; and that not infrequently compound suffering and cause further harm.

Against the onslaught of facts on the ground suggesting that we have passed the point where climate catastrophe can be

stopped, it is completely understandable that people who care deeply about life on the planet would not easily accept this conclusion. Who would see this as “giving up” or “accepting defeat.” Would insist that the future is unpredictable. Would view letting go of the struggle as putting the last nail in our collective coffin. Would cling to shreds of hope that we can make a difference.

As I said at the onset, it is absolutely not my intention to argue against anyone's determination to keep fighting. I do want to pose a question which I hope can be useful to people at any point on the continuum from fighting climate change to accepting catastrophe: As we face the unfolding climate realities, how can we tell the difference between constructive denial and destructive denial?

One way to approach this is to ask: if catastrophe is not already an accomplished fact, what actually would need to happen to prevent it? My own answer is that the following things would need to happen:

- Large increases in energy efficiency to reduce emissions.
- Significant reductions in aggregate global material production and consumption in order to reduce emissions.
- Systemic economic reorganization, taking place across the globe, but decisively in the direction of decentralization through the creation or re-creation of locally based, cooperative economies that draw on local resources through sustainable practices geared to meeting basic material needs and eliminating excess consumption. This would need to include massive reductions in motorized travel, virtual elimination of air travel, conversion of industrial, petroleum-based agriculture to sustainable organic farming, virtual

elimination of electronic gadgets, vast reductions in use of air conditioning, heating buildings to the 50-60 degree range, and numerous other changes along the same lines which involve far-reaching changes to individual lifestyles and cultural norms not only in developed countries but also in developing countries that aspire to Western norms for material standard of living. It is, in my view, only through changes on this kind of scale that reductions in global emissions could have any possible chance of reaching levels needed.

- Sweeping changes in land management that can create new carbon sinks capable of pulling GHGs out of the atmosphere. Coupled with actual reductions in global human-caused emissions, this would be necessary to offset escalating emissions of carbon and methane from thawing permafrost and thus to stop further increases in atmospheric GHG concentrations and then achieve actual reductions toward the uppermost safe limit of 350 parts per million. The most promising approach I am aware of involves large expansions of grasslands and the management of animal grazing to sustain grasslands as carbon sinks.¹² This approach – if it could be achieved – offers the enormous advantage that grass grows quickly and with proper management absorbs large amounts of GHGs. The planting of trees and expansion of forests, while also needed, inescapably takes many years to achieve given the growth rate of trees; we simply don't have the time left to pin hopes on reforestation as a primary strategy for averting catastrophe. (High tech carbon sequestration schemes appear blatantly crackpot – overwhelmingly likely to have unintended consequences that do far more harm than good.)

How can any (let alone all) of the above possibly be accomplished within the scant two or three years we might have

left to avert catastrophe? My view is, simply, that it can't. Of all the items I have listed, only energy efficiency has gained any kind of traction, and even that at nowhere near the levels that would be needed. Even if there were exponential leaps in energy efficiency measures in the very short term (and there is no indication that this will happen), I see no reason to believe that this by itself would be close to sufficient, among other things because of corporate tendencies to reinvest savings from efficiencies into expanded production, and corresponding tendencies by individuals to invest efficiency savings into further consumption. A sweeping, qualitative change in fundamental values and practices to do with material production and consumption is the single most critical factor in reducing GHG emissions.

What possible strategy could actually achieve this fundamental change in material production and consumption over a period of two to three years? My answer, again, is that it is beyond the realm of possibility. Governments across the globe are united on the imperative of economic growth. Patterns of excess consumption remain widespread in the “developed” world (for example, the day after Thanksgiving 2011, sales totaled a staggering \$13 billion) and in the aspirations of “developing” countries. And we simply lack the infrastructure needed for a massive shift to local resilient economies in such a short period of time.

But for climate activists who maintain that it is still possible to make the needed changes in the necessary timeframe – the challenge is to spell out how in fact this could possibly be achieved. What is a plausible strategy? What are the steps that need to be taken on the ground to make such a strategy a living, robust reality? Who is actually getting mobilized to take those steps? With what success? I am posing these as real, not rhetorical questions. My point is not that everyone should agree with me that catastrophe is unavoidable, but that those who are still working to

avoid catastrophe should be asking and answering all of the incredibly hard questions that the overwhelming realities of climate emergency are forcing on us.

I also understand that there are many points in my analysis that can be disputed. The amount of time left to reverse course; how steeply we need to reverse course; the significance of the feedback loops; the thirty year gap between emissions and climate impact; the role that renewables can play in the solution; the inevitability of catastrophe based on atmospheric GHG concentrations; the feasibility of extremely rapid economic, social and political changes: there are divergent views on all of these issues. But I think the same fundamental questions apply to all of us: What is your understanding of the science? On what basis (if any) can you offer a reasoned analysis that there is still time to avert catastrophe? (Or really catastrophes plural – loss of habitable land, escalating extreme weather conditions, massive food and water shortages, depletion of other key resources, and global economic collapse for starters.) What needs to happen to avert these catastrophes? Within what timeframe? What is a feasible strategy?

In the absence of a cogent analysis and strategy, climate activists are simply going on blind hope. I don't mean to disparage that either, but simply to name it for what it is. For all of us, there are times and places when a simple determination not to give up is the right thing to do, regardless of anything else. The questions for each of us are: How long does this remain useful? And how long does it remain tenable before being overtaken by realities on the ground?

Destructive Denial

It is fair to ask: Even if there is no good reason to believe that we can reverse course, no cogent analysis and strategy for

preventing the catastrophes – what is the harm in trying? Why not keep fighting, even if the only real basis is blind hope? Isn't it worse to give up?

“There's no harm in trying” sounds good, and under some circumstances it really is a reasonable and even admirable path. But under other circumstances it veers into what I am calling destructive denial – when ignoring or disregarding realities in order to keep up the struggle does in fact cause harm. Here are some examples:

Dishonesty to others. It is one thing to honestly believe that there is still time to prevent climate catastrophe and societal collapse. If that belief is based on an analysis of the facts on the ground, and on a clear strategy for how to achieve the necessary changes within a timeframe that is consistent with the analysis, all the better. We may disagree about the analysis and the strategy, but in this case there is no question of dishonesty.

It is quite another matter when climate activists knowingly withhold information from the people we are trying to mobilize in the service of organizing a “powerful” or “effective” movement. The notion that people will be turned off by “doom and gloom,” or can't grasp it, or if they do grasp it will be so demoralized that it can't possibly help us to build a movement – this notion has been widely promoted among well meaning climate activists. Dishonesty is a loaded term; I assume that most climate activists who take this approach would describe it as managing information strategically in the service of building a movement, or something to that effect.

As the facts on the ground become increasingly ominous; as the volume and severity of extreme weather events exceed scientific predictions; as the positive feedback loops escalate – the lure of the information management approach in many ways

becomes that much stronger for those determined not to give up. Why tell people that huge amounts of methane are bubbling to the surface in the Arctic? Why emphasize the fact that even if we stop the Keystone Pipeline, it will not actually stop the production of oil from the Alberta tar sands, or even necessarily slow it down?¹³ Why acknowledge that the production of solar panels and wind turbines is carbon-intensive when it is so much more attractive to describe them as zero-carbon renewables?

Here is a telling recent example. In a 1/25/12 mass email from 350.org, following the President's State of the Union address, Bill McKibben touted Obama's call to end subsidies to big oil companies as “a great thing” that reflects the growing impact of the climate movement. McKibben went on to emphasize the “crucial” importance of ending big oil subsidies: “A new report from the International Energy Agency shows that ending subsidies for the fossil fuel industry will cut half the carbon emissions we need to stop catastrophic climate change.” So I looked at what the IEA is actually saying.¹⁴ Unsurprisingly, it turns out that they are talking about ending oil subsidies globally, not just in the U.S.; that their target date for cutting emissions is in 2035; and that their best case scenario is stabilizing atmospheric carbon at 450 parts per million. You get no hint of any of this in McKibben's rosy one-liner. This from the man who in 2008 said we needed sweeping changes by 2012 (and said it before the innumerable ominous developments of the last three and a half years, the outlook in the interim hardly having improved); and this from the most outspoken proponent that 350 parts per million is the uppermost safe limit, and whose very organization bears that name. (I have never heard anything approaching a cogent analysis of how we could possibly stabilize at 450 ppm given the feedback loops that are already careening out of control.) Of course the oil subsidies should end, and of course it's better that Obama came out for ending the subsidies than if he hadn't. But to say that this could achieve half of what's needed to stop a climate catastrophe is, in my view, pure

deception.

So what's going on here? These are desperate times, which McKibben knows as well as anyone. Desperate times call for desperate measures, or so conventional wisdom suggests. We can't give up the fight. So we have to do everything possible to rally the troops. Which means painting any possible picture of success in order to keep up morale and keep people fighting. Which in turn requires a willingness to spin the truth if that's what it takes to keep us going.

Or are desperate measures that distort the speaker's real perceptions of the truth actually what we need at this critical juncture?

Information management, whether or not you call it lying, assumes that the ends justify the means. There is a very long history, in a wide range of political and social contexts, which strongly suggests that tainted means do not achieve desirable ends, and are rife with unintended harmful consequences. This potential for unintended consequences is set against the backdrop that the *intended* consequences are not being achieved: the avoid-mentioning-doom-and-gloom strategy has not achieved *any* reductions in GHG emissions to date. So what ends are actually being justified when we knowingly minimize how bad things are in our public statements?

There is another, poignant consequence to information management – the loss of personal integrity. I believe that we harm ourselves in a fundamental way when we knowingly withhold or distort information, regardless of our good intentions. If my stance toward others is that I know best what information they can or cannot handle, or that mobilizing a desired action is more important than a full disclosure of what I believe to be true, it diminishes my own humanity. Ironically, it also diminishes

possibilities for mutuality and deep human connections at the very time when these above all are what we will need to manage the unfolding calamities with grace and resilience. There is so much that is beyond our control regarding emissions, climate change, resource depletion, and macro-economics. Why along with that should we sacrifice something that is fully within our control – namely, our commitment to speaking with full honesty about the calamitous conditions we face?

Dissociation. As the facts on the ground get worse and worse; as the dimensions of the looming catastrophe come into focus, on a scale and with potentials for human suffering and loss of life that are truly hard to imagine; as our conceptions of our own lives and the lives of our children and grandchildren are shattered if we allow ourselves to fully take in the magnitude of what is already happening and what is coming – there is an inevitable tendency to block it out. It is simply too overwhelming. Better to cling to our sense of normalcy. Better to cling to our belief that if we just try hard enough, if we redouble our efforts, we can make the nightmare go away.

This understandable tendency to defend ourselves against the realities of catastrophe goes to the heart of destructive denial. Dissociation – the inability to take in and process information – commonly occurs in the midst of overwhelming, traumatic experience.¹⁵ This is common because it serves a purpose in the short run. In desperate situations, particularly those that make us feel helpless and threaten us with devastation, dissociation is a kind of last ditch psychological response that allows us to hold on to some semblance of emotional equilibrium. But when it persists over time, there are huge costs, both in terms of psychological health and in terms of our ability to function. Denial of overwhelming realities cannot possibly serve as the basis for dealing effectively with those very realities.

Constructive denial requires an unflinching willingness to acknowledge and fully face the facts on the ground. The “denial” is not about the realities of the condition, but about the inevitability of the worst-case outcome. The cancer patient who refuses to accept her doctor's pronouncement that she will die in four months had better know as much as humanly possible about the progression of her cancer and the options for fighting it (one of which unquestionably is the will to live). The cancer patient who denies that he has cancer, or who acknowledges the diagnosis but denies that it is life threatening, has no tools with which to fight.

The same is true of fighting climate change. If you ignore the progression of the feedback loops, how can you possibly frame strategies and goals that are commensurate with the problem? (This again is assuming that you are clinging to hope that it's not too late.) If you convince yourself that stopping Keystone will stop the tar sands oil production when this is not the case, what are you actually accomplishing? If, out of desperation, you can't face the carbon footprint of solar and wind production, promoting them as “zero carbon” technologies may well do more harm than good.

I have been tempted to call this “lying to ourselves.” On reflection, not only does this seem needlessly harsh, but also I don't think it's accurate. Dissociation is almost never a conscious process. But overcoming dissociation *is* necessarily a conscious act. This is something that can be done individually, but is done far better in the context of respectful dialogue and mutual support. We need to build a culture that supports all of us to face the realities of the looming collapse and multiple catastrophes.

Lost opportunities for grieving. Emotional expression has been stunningly absent from the climate movement. Considering the magnitude of what is at stake, this seems to me problematic even if you still believe that we can avert catastrophe. But as you cross the chasm to acceptance of catastrophe, emotional processing

and expression become critically important.

There are so many things we need to grieve: The actual or threatened devastation of specific places that hold personal meaning for us. The loss of future. The concrete impacts on our children and grandchildren. The loss of belief in our ability as a species to act thoughtfully and effectively on behalf of our own survival. Ultimately, and in some places already, the massive loss of life.

Put simply, you can't grieve what you deny. The choice to keep fighting is also necessarily a choice to delay or avoid facing overwhelming loss and starting to grieve it. As long as it remains at all plausible that we can in fact avert catastrophe, it remains a reasonable and compelling choice to fight rather than grieve. ("Fight or grieve" is an interesting and telling variation on "fight or flight." It's telling because it reflects the scale of collapse we are facing; in the face of global catastrophe, ultimately flight is not possible.) The question I am posing is how long it is useful to insist on the plausibility of the fight when it requires ignoring or disregarding the facts on the ground, and at what point this becomes destructive of our deep need to give expression to our emotional responses to devastation.

Grieving is a basic, inherent human response to deep loss – as basic, I think, as eating or sleeping or sex. At the personal level, in contexts that are familiar and within our grasp, we know this without having to analyze it. When we lose an important relationship; when we experience the death of a parent or partner or child or friend – we understand, deeply and intuitively, that we need to grieve.

It does get more complicated when we are faced with our own devastation; and I think there are useful parallels between the dying process for an individual and the emotional and

psychological challenges we are facing as we approach global catastrophe. The most common response when people are told they have a terminal illness is not to start grieving; it's denial. Annihilation is really hard to take in. And while there are obvious and huge differences in scale between an individual death and a global collapse, annihilation is annihilation. A global disaster is more than the sum of individual deaths; but individual deaths, the prospects of lives cut short, as well as the prospects for intense suffering preceding those deaths, surely stands at the heart of what is so terrifying about the looming catastrophe.

I strongly believe that it is possible for us as individuals to have good deaths – and that reaching the point where we choose to give up the fight and do the critically important work of grieving the end of our lives is necessary in order to die peacefully and well.¹⁶ To exactly the same degree, it is possible for us to manage collapse and catastrophe with grace, compassion, integrity, and human connection; and to do that we will need to grieve.

Not preparing for what's coming: We not only need to grieve what's coming, but also prepare for it. There is enormous potential for social disintegration and the most vicious competition for increasingly scarce resources as the collapse unfolds. But it is also possible for us to go down with grace, with a flowering of cooperation and mutual aid, and with a marshaling of social, political and psychological resources that bring out the best in us. Of course, these two scenarios mark extremes on a long continuum, with many intermediate possibilities as well. Where we land on this continuum will almost certainly vary according to local resources, cultures, and climate conditions. But where and how we land will also certainly depend on the aggregation of concrete conscious choices that people make about how to deal with the descent into catastrophe. And those choices include at what point to conclude that catastrophe will not be averted, and when and how to start preparing.

It is true that there is a fair amount of overlap between the things we have been trying to do to prevent catastrophe and things that can help us prepare for it. Efforts to reduce energy consumption and to increase reliance on local resources, promoted currently as part of the effort to fight climate change, will also be useful (up to a point) as we go down the steep slope of collapse. But the overlap only goes so far (as I will discuss at more length later on). Using compact fluorescent bulbs saves a lot of carbon but will do no good at all when we reach the point where we are no longer able to generate electricity. Insulating your home saves carbon and also will help people to manage better when we are no longer able to heat our homes, but it does not in itself help us to recognize the prospect that at some point our capacity to heat our homes will collapse. Supporting local farmers reduces carbon and makes local communities less vulnerable to the collapse of industrial agriculture and globalized transport of food; but it does not prepare us for how as communities we will deal with food shortages.

One critical aspect of catastrophe preparation is simply people's awareness of the likelihood that it will occur. Obviously, the more blindsided we are, the less likely or even possible it is that we will respond well. The other critical aspect of preparedness is the concrete development of social structures and resources that enable us to respond effectively and humanely during the many iterations of disaster. There are very concrete questions at stake. As food and water grow scarce, will we share our dwindling resources? Will some hoard while others starve? Will local warlords emerge? Will we have structures in place for mutual aid as we lose our capacities for heating, refrigeration, prescription drugs, high tech medical care, and so on? How will we deal with the migrations of displaced people? Or with being refugees ourselves? As long as we deny that these are looming realities of collapse, we can't possibly start to effectively prepare

for them.

But What About the Occupy Movement?

It may be argued that the Occupy Movement stands out as a stunning counter-example to my contention that we have run out of time to mobilize the changes that would be needed to avert catastrophe. If it is even slightly possible that we still have two or three years left, doesn't the Occupy Movement show that massive social forces can erupt seemingly out of nowhere to create potentials for change on a scale no one would have imagined?

On the one hand, I absolutely believe that Occupy is the best thing that has happened politically in 40 years. But that said, I don't believe Occupy provides reason to believe that we still have time to avert catastrophe.

At a concrete level, Occupy has not made climate or energy front burner issues. Occupy thus far is a wonderfully decentralized movement, and I recognize that there are variations in what has been "front burner" in different places; but overall the primary focus has clearly appeared to be economic and political inequality. This is a critically important issue, and it is also one that is not unrelated to climate and energy policies, given the enormous political power of huge corporations and the super-rich, and the central the role these forces play in maintaining a fossil fuel- and growth-based economy. But these dots need to be connected, and Occupy has not done so in any prominent way.

Moreover, simply taken on its own terms, who seriously believes that Occupy, for all its stunning success with mass mobilization, will achieve any significant redistribution of wealth and power in the next 2-3 years? If Occupy offers hope because it could lead to an end of the corporate dominance that also drives a carbon-based economy; and if that process of change will take a

decade (which seems naively optimistic); and if there would then need to be another period of time (how long?) when the unraveling of corporate dominance would make possible meaningful changes in US energy and climate policies; and if US policy is only one piece of the entire global matrix of production and consumption that is driving increased GHG emissions, which includes ongoing increases in energy consumption by China and India and ongoing global population growth (so that even global decreases in per capita emissions do not necessarily result in an aggregate decrease); and if in the meantime the feedback loops continue to spin out of control – how does Occupy offer reason for hope?

In regard to the looming catastrophe, the great value of the Occupy Movement is that it is voicing values of social equality and cooperation, and doing so in a way which has been compelling for large numbers of people. These are exactly the values that we need to play a prominent role in public discourse as the collapse unfolds. But this is a way of saying that Occupy, pretty clearly unintentionally, is helping us start to prepare for catastrophe – not prevent it.

Life For Me on the Other Side of the Chasm

After concluding that we have passed the point of no return for preventing global catastrophe, I found myself thinking a lot about my son Eric. This was hardly surprising. As I mentioned before, from the get go Eric was my most gripping reason for climate activism. Even if that had not been so, it is natural and (one hopes) inevitable that your child would be your first thought when you see disaster looming.

But my thoughts about Eric were entirely surprising. He's having a really good life, I thought. (Eric is in college at NYU, studying music technology, and loving what he's doing and where he's living.) That was followed by a chain of other unexpected

thoughts: The quality of his life matters more than life expectancy. Eric has a lot of skills and sensibilities that will be socially valuable as the catastrophe unfolds. There will probably be survivors, even if it's one percent (70 million) or a tenth of one percent (7 million) of the current global population; Eric will have the opportunity to help lay the foundation for a surviving culture that is humane and functional.

And then I found myself remembering Eric having a febrile seizure when he was two. He had been pretty sick, and then his fever spiked. I was holding him, we were talking about a video we were about to watch, when very abruptly he stopped talking, his eyes glazed over, and he was gone. He stopped breathing. His lips turned blue. For maybe 15 seconds (an eternity!) I really thought he was dying. Then he started breathing again, and he came back. That evening – after we had gone to the doctor and been told what a febrile seizure was, had been assured that there was no long term damage, had gotten through the rest of the day and had put Eric to bed – Eric's mom and I had a chance to take some breaths and try to process what had happened. We both had the same thought, so much so that I'm not sure which of us said it: “He's had a good life.” Regardless of the doctor's assurance that medically this had not been a serious incident, which we fully accepted, emotionally for both of us it had been a brush with death. Without the benefit of any analysis, we anchored ourselves with clarity about how much quality of life matters. Not that his death wouldn't have been a tragedy for us – it would have been an unfathomable loss. But tragedy does not cancel out the quality of a life that has been lived.

Last summer, stepping gingerly onto the other side of the chasm, these thoughts really came of their own accord. I am not one to sugar coat or look for silver linings. What made this even more striking was the level of dread I had been living with for the previous six years – with a preponderance of that dread focused very consciously on Eric's future. And now here I was, having let

go of my last shreds of hope that Eric could live out the rest of his life under any semblance of normal conditions; and I found myself, without the slightest conscious intention, letting go of my dread in the same breath.

So, unexpectedly, I have experienced a sense of relief.

I don't at all mean to say that I have stopped caring, or that I've caromed into a kind of nihilism. Since crossing the chasm I have been consciously, actively grieving. I live every day with an awareness that what I see all around me is not going to last; that collapse will be pervasive and almost certainly will cause huge amounts of suffering. I take this with utmost seriousness. I cry a lot. I cultivate opportunities to cry – movies and novels can get me going pretty easily, more occasionally some piece of music or something I hear on the radio. I have a number of personal losses to grieve as well, and I'm not fussy about how much I'm crying over the personal stuff and how much it's to do with the looming catastrophe (which of course is also personal!). But my body and my spirit have unclenched.

Grief is a heavy thing, but for me at least, it's lighter than dread. It doesn't feel like despair. I can honestly say that I feel myself to be in a very good place about this. I think this is important to share because the prospect of accepting catastrophe can seem so emotionally devastating to so many people. My experience, very simply, suggests that it does not have to be devastating.

Recently I've also been focusing on how cataclysms are a part of natural cycles; and, as Adam Sacks has pointed out (in an email to the Mass Climate Action Network listserve), the simple truth is that humans are part of nature. Alongside my dread, and very much wrapped into the clenched state I had been living in, were anger, alienation, and simply disgust that as a species we were

doing *this* to ourselves – destroying our own habitat. This had everything to do with seeing humans as outside of nature and destructively acting upon “the environment” as something different from us; as acting in ways that were profoundly “unnatural.”

In fact, destruction is as much part of nature as anything else (you could go on for pages listing destructive forces of nature, from hurricanes to carnivores). Nor is it “unnatural” for species to behave in ways that lead to their own demise. All kinds of animals go through cycles of overpopulating, exhausting available resources, and dying off (whether or not to the point of extinction). We humans are not so special – in the larger scheme of things we're not special at all. This is *not* an endorsement of consciously choosing destructive behavior or being insensible to suffering. Creation, nurturing, empathy, and other constructive behavior obviously are also natural phenomena. But for me, part of accepting the looming catastrophe is accepting that the elaborate role of humans in planting the seeds of our own destruction is not monstrous or even perverse; it is simply part of the intricate dance of life and death.

One of the poignancies of the human condition is our capacity to reflect on our own destructive behavior. Sometimes this capacity is functional and enables us to make critical changes for the better. In other circumstances, when the needed change is beyond our grasp, our capacity for reflection becomes tragic. That, I believe, is the case as we watch the interconnected catastrophes of climate change and energy depletion unfold.

In a different context, John McCutcheon's great song “Christmas in the Trenches” captures the incredibly bittersweet human capacity I'm talking about. Set in the senseless, vile stalemate of World War I (what war is not vile?), the song portrays a spontaneous midnight Christmas truce between British and German soldiers, apparently based on an actual event:

*Then one by one on either side walked into no-man's land.
With neither gun nor bayonet we met there hand to hand.
We shared some secret brandy and we wished each other well.
And in a flare-lit soccer game we gave 'em hell.*

*We traded chocolates, cigarettes and photographs from home.
These sons and fathers far away from families of their own.
Young Sanders played the squeezebox and they had a violin.
This curious and unlikely band of men.*

*Soon daylight stole upon us and France was France once more.
With sad farewells we each began to settle back to war.
But the question haunted every heart that lived that wondrous night.
'Whose family have I fixed within my sights?'*

Through some kind of grace, for a few hours these men are able to pierce the dehumanization of war and recognize each other, simply, as fellow human beings. Then they go back to killing each other. Their shared moments of clarity do not change the realities of war; they are up against something too big for them to change. But they have changed themselves, probably forever, and surely for the better. What is *not* too big for them to change – what they *can* do – is to grieve, with a full sense of their shared humanity, the destruction of war, including their own part in it.

So it is, I believe, with us and climate catastrophe. We can recognize it, fully, in all its dimensions and impacts, including our own individual and collective roles in the destruction. We can respond to this with our full human potential for feeling and grief. But it has reached the point where it is too big for us to stop.

Where Do We Go From Here?

It's tempting to claim that what we need to do to avert catastrophe actually amounts to the very same things that are needed to prepare for the catastrophe. If this were true, it would

resolve the entire tension between fighting climate change and accepting catastrophe. After all, aren't the most effective ways to fight climate change to progressively and quickly get off of carbon; to shift to reliance on local (or at least regional) sustainable resources; to reduce consumption and transition (again as quickly as possible) from a greed-based political economy and culture to societies based on cooperation and simple living; and to create resilient local communities? Aren't these exactly the same things that are most critically needed to prepare for catastrophe if it is in fact coming? And if this is the case, isn't it grossly premature to fuss about the inevitability of collapse and catastrophe when the future remains uncertain? Why not just keep doing good work that is consistent with both hoping for the best and preparing for the worst?

This attractively neat formulation is partially correct – but only partially. As I said before, it is true that there are significant areas of overlap between efforts at mitigation and measures to prepare for collapse. (I consciously do not use the term adaptation because I don't think you can meaningfully adapt to a catastrophe, let alone multiple interacting catastrophes.) All of the items I listed above *are* in fact important parts of what we need to do to prepare for the worst. Reducing carbon emissions will probably slow the pace of collapse and give us more time to prepare; consuming less will help us prepare for conditions under which there is far less to consume; and local resilience and cultures that promote and practice mutual aid will be absolutely essential for us to manage inescapable human suffering and go through the stages of collapse with dignity.

But there are critically important aspects of preparing for catastrophe that are not and cannot be touched by efforts to prevent the catastrophe. One, which I have already discussed at some length, is our need to grieve. There is simply no way to grieve something you don't accept is happening (or will happen). The

emotional task of marshaling every possible resource to try to prevent a horrible outcome is incompatible with coming to terms emotionally with the horrible outcome. I want to honor, once again, that for many climate activists – and just plain for many people – now is not yet the right time to admit the inevitability of catastrophe and to transition into a grieving process. But those of us who are ready to take this step need to start talking to each other, and out of those conversations find ways to start publicly grieving.

It's not for nothing that cultures create public ceremonies and rituals to mourn their most important losses. Those of us who are ready to do so should begin the work of creating public events whose primary purpose is the expression of our feelings about the unfolding collapse of our civilization – through personal testimony, through artistic and spiritual expression, through remembrances and appreciations, through the sharing of silences and tears. This will do an important service for those who participate, and at the same time will create structures and means of expression for others to join as the collapse progresses and the catastrophic conclusions become more difficult (or impossible) to deny.

Then there is the question of preparing for absolute shortages. Not just shortages of quasi- “essential” items like parts for cell phones, computers, and other electronic gadgets, or cars, or the reliable functioning of the internet, but shortages of the most basic material necessities such as food, water and habitable dwellings. Along with this will be shortages of habitable land itself, for example due to rising ocean levels and drying up of inland water supplies, potentially leading to huge numbers of displaced persons. The whole point of working to avert catastrophe is to assure that we don't get to the point where shortages reach this level on any broad scale. (Presumably preventing catastrophe would mean limiting the occurrence of absolute material shortages to discrete “natural disasters” such as hurricanes and tsunamis, and

politically-caused disasters such as civil wars. The privations of these types of events are, for better or worse, what most of us in the Western World accept as normal, regardless of escalating frequencies.) Without going further afield about either the climate or political aspects of the current frequency of disasters – the point for here is that efforts to fight climate change do not and cannot include measures to prepare for absolute shortages in most or all communities, including our own.

Critically, the shortages in food, water and land that I'm anticipating will be due not only to extreme weather events, but to resource depletion (oil needed for industrial agricultural production and transport of food; ongoing soil depletion and desertification due to industrial agricultural practices; and water depletion due to overuse and to melting glaciers). This means we not only need to prepare for the absolute shortages that accompany discrete disasters, such as the flooding that covered 20% of the land area of Pakistan in 2010, but also an era when absolute shortages of essential items will be an ongoing reality of our lives. Preparing for the realities of collapse is, simply, a different enterprise than fighting climate change. It's one we would do well to start as soon as possible.

A related point is that preparing for catastrophe brings with it different points of emphasis than fighting climate change. For example, cooperation based on the assumption that sharing will lead to everyone having enough for their basic needs is a very different proposition than sharing so that no one will starve while everyone experiences hunger to some degree. There are lots of examples of efforts already underway to promote a shift in values and practices in the direction of mutual aid, from the Transition movement to Common Security Clubs¹⁷ to some iterations of the Occupy movement. The question we will need to face, preferably sooner than later, is how to expand these and other similar efforts to include concrete, conscious preparations for maintaining and

even expanding cooperation when we reach the point of absolute shortages. How best to approach this strategically is far from clear, but these are questions we need to start addressing.

It is possible that some of the preliminary work of preparing for collapse could be done as contingency planning by folks who believe that catastrophe is possible but not inevitable. I said before that you can't grieve a horrible outcome you don't accept will happen; but it may be possible to start preparing for a horrible outcome you acknowledge might happen. It's still a very different enterprise than fighting climate change, but some people may be able to do both. If so, this could open up some potentially valuable middle ground between refusing to accept the inevitability of catastrophe and crossing all the way to the other side of the chasm. Contingency planning is common practice when it comes to discrete disasters such as hurricanes and earthquakes; maybe this can provide some context for the vastly broader challenges of contingency planning for collapse.

The stakes are huge. This may seem like a funny thing for me to say, given that I believe catastrophe can't be averted. But the stakes I'm talking about are on the scale of quality of life; and – I I say this very seriously – quality of dying. On the other side of the chasm, the most critical questions involve what we do with the time we have left; whether and how we can manage the collapse with wisdom and integrity.

There is a stark continuum of possibilities for how this will play out. At one extreme, people could cling to the currently prevalent values of individualism, competition, and hoarding, all the way to the bitter end. This is far from unlikely; if anything, a dispassionate analysis would suggest that the progressive scarcity of essential resources is most likely to trigger panic, in-group/out-group dynamics, racism, exclusion, and fierce competition for scarce goods. During the early to perhaps middle stages of the

collapse, while centralized governments still have the capacity to function, growing desperation could easily escalate the already familiar cycles of resources wars, terrorism, and domestic repression. When resources deplete to the point where centralized governments and the related infrastructures of nation-states collapse, the rise of local war lords is entirely plausible. As highly populated coastal regions become uninhabitable, and other areas such as the arid US Southwest can no longer sustain anything close to their current populations, proliferating bands of displaced people could well encounter incredibly ugly responses from communities that – at least for a time – are more favorably situated. All kinds of breakdowns of social order, and versions of social disintegration, follow from the exacerbation of greed-based values and practices in a time of collapse.

At the other end of the continuum, we very simply take care of each other as we go through the phases of collapse. We do so in recognition that under extreme conditions, when quality of life and dying replace survival as the paramount concern, mutual aid is in everyone's individual self-interest. We transition to cultural norms that base status and self-esteem on how much you give to others.¹⁸ We share whatever we have. We accept that we are going down, in all the senses of that phrase, and we recognize that *how* we go down is vastly more important than ultimately futile efforts to avoid individual privations or prolong individual lives at the expense of our basic humanity. Over time, working together, we learn to manage the overwhelming realities of catastrophe with dignity, wisdom, grief, compassion, and grace.

There is an enormous gradation of other possibilities in between these two poles. Almost inevitably, different scenarios will play out in different locales, with some tending more toward greed-based values and cultures, while others tend more toward mutual support. Within any given community, there will be varying degrees of conflicts and struggles over which values and

practices prevail. The main point I am making here is that the work we start doing now can have critical impacts on which values and practices are most likely to prevail once we reach the stages of pervasive collapse. How to find ways to move our communities, to the greatest extent possible, in the direction of sharing and mutual support is extraordinarily challenging. I'm suggesting we start taking up these challenges as soon as we can.

It has become commonplace for critics of ineffective climate action efforts or “green” measures to lament that we're only rearranging deck chairs on the Titanic. Reframing this metaphor, I think we need to start forming support groups on the Titanic. It won't stop the ship from sinking, but it can make a huge difference for how we spend the remaining time and the quality of our experience as we go down. A different metaphor, making the same point, is that we need to find ways to offer hospice care for a dying civilization. These images are only impressionistic, but they offer a starting point and an end point: that how we spend our remaining time matters; that how we die matters.

In the spring of 1968, I was one of the hundreds of students who occupied six building at Columbia University for a week. I was in the President's office. The night we were arrested, we got word a few hours in advance that the bust was coming. This gave us time to prepare for *how* we would get arrested. Would we fight the police? (Something I personally would never have done.) Would we passively resist, lying down and forcing them to drag us out one by one? We had one last meeting (at the end of a week of many meetings!) to figure this out. We weighed our priorities and strategic options. Ultimately we decided that our top priorities were to show solidarity and a spirit of resistance while, at the same time, minimizing the likelihood of people getting hurt. We decided to stand in concentric circles, backs to the police, arms around each other, singing “We Shall Not Be Moved”; and we decided that when the police arrived we would not actively resist and would

passively resist only to the point that they would need to pull us apart, but we would not slump to the floor.

At the time, singing “We Shall Not Be Moved” seemed like a no-brainer. In hindsight, it could be seen as ironic: not only were we moved; we made a calculated choice to walk once the police pulled us apart. But the irony was not intended, and I think the song was sweetly paradoxical. We had no illusions about the outcome. We knew perfectly well that we were going to be moved physically; what could not be moved – what the police had absolutely no control over – was our minds and our spirits.

The differences between a looming bust and a looming global catastrophe are obvious and enormous. I think of our experience at Columbia not as a model for how we might deal with collapse, but more simply as a demonstration of the capacity to deal strategically with an unavoidable outcome: in solidarity; with clarity about our range of choices and their potential consequences; and in recognition that what happens to us physically does not have to defeat the human spirit.

Unlike the exceedingly narrow window (if one exists at all) for measures that could have even a remote chance of averting catastrophe, we have the rest of our lives to deal with the unfolding collapse. This doesn't mean we can afford to postpone preparations until a lot more shit starts hitting the fan. It does mean that we can try to pace our efforts, and – strangely enough – that we don't need to approach the collapse with a sense of desperation.

We need to start somewhere, and I think the starting place is to open up space for public conversations about the chasm. Through open, respectful dialogue, we can make the unthinkable thinkable. My hope is for this paper to serve as an invitation for these conversations to begin.

Notes

1. My thinking about catastrophe and collapse has been particularly influenced by many conversations with Adam Sacks, as well as his writing. See Adam Sacks, "The fallacy of climate activism," <http://grist.org/politics/2009-08-23-the-fallacy-of-climate-activism/>; "Dispassion as the world ends: The absent heart of the great climate affair," <http://grist.org/climate-energy/2009-10-14-the-absent-heart-of-the-great-climate-affair/>; "We have met the deniers, and they are us," <http://grist.org/climate-energy/2009-11-10-we-have-met-the-deniers-and-they-are-us/>; and "The Natural Laws of Collapse," <http://www.culturechange.org/cms/content/view/700/1/>. I am grateful to Eric Sluyter, John Pitkin, and Adam Sacks for their feedback on the first draft of this article.
2. James Howard Kunstler, *The Long Emergency: Surviving the Converging Catastrophes of the Twenty-first Century* (Grove/Atlantic, 2005).
3. "Worst ever carbon emissions leave climate on the brink: Record rise, despite recession, means 2C target almost out of reach," <http://www.guardian.co.uk/environment/2011/may/29/carbon-emissions-nuclearpower>. It is not clear from the linked article whether the cited emission data include GHG emissions from feedback phenomena such as melting permafrost.
4. "Carbon Emissions Show Biggest Jump Ever Recorded," <http://www.nytimes.com/2011/12/05/science/earth/record-jump-in-emissions-in-2010-study-finds.html?ref=greenhousegasemissions>
5. Bill McKibben, "The World at 350: A Last Chance for Civilization," http://www.swaraj.org/shikshantar/resources_mckibben.htm
6. "Super-Size Deposits Of Frozen Carbon In Arctic Could Worsen Climate Change," <http://www.sciencedaily.com/releases/2009/06/090630132005.htm>
7. "Shock as retreat of Arctic sea ice releases deadly greenhouse gas: Russian research team astonished after finding 'fountains' of methane bubbling to surface," <http://www.independent.co.uk/environment/climate-change/shock-as-retreat-of-arctic-sea-ice-releases-deadly-greenhouse-gas-6276134.html>
8. Sharon Astyk, "George Monbiot is Arguing with Me...That Has to be Good" <http://sharonastyk.com/2008/11/25/george-monbiot-is-arguing-with-methat-has-to-be-good/>
9. As previously noted, in 2008 McKibben, citing Pachauri, contended that 2012 was our deadline for sweeping change. In an exhaustive analysis published in 2008 (before recent findings of methane emissions in the Arctic), scientists Kevin Anderson and Alice Bows concluded that if GHG emissions were to peak in 2015 and then reduce by 4 per cent per year, there would be a chance of atmospheric carbon stabilizing at 450 parts per million. "Reframing the climate change challenge in light of post-2000 emission trends," <http://rsta.royalsocietypublishing.org/content/366/1882/3863.short>. Neither a 2015 peaking of emissions nor subsequent 4 per cent reductions seem the least bit likely. Anderson and Bows themselves concluded that "the current framing of

- climate change cannot be reconciled with the rates of mitigation necessary to stabilize at 550 ppmv CO₂e and even an optimistic interpretation suggests stabilization much below 650 ppmv CO₂e is improbable."
10. See Richard Heinberg, "Searching for a Miracle: 'Net Energy' Limits & the Fate of Industrial Society" <http://www.postcarbon.org/report/44377-searching-for-a-miracle>
 11. "The methane time bomb" <http://www.independent.co.uk/environment/climate-change/exclusive-the-methane-time-bomb-938932.html>
 12. See for example Michael Pollan, *The Omnivore's Dilemma*, Chapter 10, "Grass: Thirteen Ways of Looking at a Pasture" (Penguin Press, 2006); and Adam Sacks, "The Climate Solution: Got Cows?" <http://grist.org/climate-energy/the-climate-solution-got-cows/>.
 13. In a recent NPR interview, McKibben emphasized that there is activism in Canada to stop an alternative pipeline to the west coast; and it certainly is possible that successful coordinated activism in the US and Canada could result in some limitations in tar sand production. My point is that the US campaign against the tar sands pipeline has often given the impression that stopping the US pipeline *will* significantly reduce tar sands production, which is not necessarily so. It is also interesting to note a recent analysis by explicitly anti-tar sands scientists concluding that the contribution of tar sands oil to global warming is actually quite small. "Impact of burning oilsands tiny: study," <http://www.vancouversun.com/business/Impact+burning+oilsands+tiny+study/6183092/story.html>. From a different angle, this points to the same conclusion I have drawn – that the Keystone pipeline is far from the make-or-break issue it has been made out to be. I should be clear that I believe there are many important reasons to oppose both Keystone and any tar sands production, including environmental impacts of the Alberta operations, threats to the Ogallala Aquifer in Nebraska, and simply that we should be reducing oil consumption in all possible ways, and opposing expanded oil extraction and production wherever it is proposed or underway.
 14. www.worldenergyoutlook.org, follow links for presentation to the press, executive summary English, and facts sheets.
 15. See for example Judith Herman, *Trauma and Recovery* (Basic Books, 1993)
 16. This is hardly an original thought. See for example Elisabeth Kübler-Ross's classic *On Death and Dying*, Routledge, 1969.
 17. See <http://localcircles.org/what-is-a-resilience-circle/>
 18. There is historical precedence for this. See (Ruth Benedict, "Synergy-Patterns of the Good Culture," *Psychology Today*, 4:1 (1970), pp. 53-77; Riane Eisler, *The Chalice and the Blade* (HarperSanFrancisco, 1995).

I welcome responses to this essay. You can contact me at swineman@gis.net