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Is Relocalization Doomed?: A Response to Staniford's "Fallacy of Reversibility"

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This is a guest post by Sharon Astyk, a very small farmer whom the biofuels companies have yet to offer to buy out, and a writer with two forthcoming books about peak oil and climate change, one (Depletion and Abundance, Fall '08, New Society Publishers) about appropriate responses for families, and the other (A Nation of Farmers, Spring '09, same publisher) about food and agriculture. Her writings can be found at http://casaubonsbook.blogspot.com .

Stuart Staniford's latest opus has taken a shot across the bow at those who advocate Relocalization and de-industrialization. Embedded in his argument is a compelling critique of the prospects of certain parts of the Relocalization analysis. Staniford shows his customary brilliance in analyzing the ways that the biofuels response is likely to overcome impetus towards Relocalization.

But that profound analysis is embedded in a paper that contains some serious errors of reasoning and misrepresentations of the Relocalization movement that I think deserve critique. And his final conclusion, that this should put an end to all hopes of Relocalization deserves some further consideration.

Is it true that peak oil as Staniford put in another post "puts paid" to the notion of Relocalization and local agriculture? Regardless of the answer, I think most of us should be grateful to Staniford for raising an important central issue – the way the biofuels response to peak oil raises agricultural prices and its effect on land prices. But let's ask some questions about some of the other content Staniford ties his argument to.

1. Are there really peak oil thinkers who can justly be called "reversalists?"

This might be a useful place to start. Staniford creates this term, he says, to describe anyone who believes that peak oil will result in a change away from a highly technological society. He says:

So I think the argument of the relocalization advocates essentially is that, since we were using a lot less energy before we were industrialized, and our population was primarily agricultural then, and peak oil implies we will have less energy in the future, or at least less liquid fuel, then it must be the case that the agricultural population will grow again. In other words, having coming come down the curve in the graphs above from the top left to the lower right, our society will now start to retrace its steps back up the curve.

This implies that the process of industrialization and development is a reversible process. We in the developed world have evolved from low-energy high-agriculture societies into a high-energy low-agriculture society. So the thinking goes that we can/should/will reverse that process and go

back to something like what we were 200 years ago (at least on these large macro-economic variables).

He goes on to observe that a “reversalist” is anyone who thinks we might go back to any older, way of practice, including people who think we will need local playhouses and acoustic instruments. Apparently, those who wish to reverse the course of history are only those who want to do so in low tech ways – those, for example, who advocate new nuclear power plants, a technology that was described as increasingly obsolete and unlikely to be used until the advent of peak oil, do not seem to be included. That is the difficulty of coining new words – until they are established it can be the devil to figure out exactly what one means. Those ambiguities mean that new coinage is most valuable in cases where there is no appropriate term. Is that the case here?

In fact, there are several existing terms for people who believe in returning to older models – “relocalization” is the word coined by the groups themselves, but “agrarian” would be quite accurate in regard to agriculture, and also the world view. The agrarian movement is a worldwide phenomenon, which might argue for its particular relevance here. Although the term “luddite” in its origin does not actually mean “technophobe,” neo-luddites, including plain religious groups have to an extent embraced most of the notions encompassed by Staniford’s “reversalism,” and, of course, there’s the term “anti-modernist” – particularly apt in the case of Kunstler, whose critiques are as much aesthetic, and tied to a larger critique of modernist cultural movements, as they are practical.

So why “reversalist?” Generally speaking, when there exist several perfectly adequate terms in common parlance, the only reason to coin a new term is that you are either unfamiliar with the existing ones, or because you wish to subtly or not so subtly change the associations that go with the idea. “Reversalist” which Staniford ties to “wishing” and “nostalgia” is overtly pejorative, a move that I personally would not have associated with Staniford. My hope is that this move was unintentional.

Why focus on this? Staniford invokes his own training as a scientist in his essay. I will only invoke mine as a scholar of language and narrative – the way we tell the story and the words we use shape our thinking. Staniford has a history of unbiased analysis, but this post is overladen with the language of bias in ways that I think are intellectually unproductive.

Besides my doubts about the value of the term “reversalism,” I would also note that the grounds on which Staniford describes relocalization advocates as “reversalists” is sufficiently inaccurate to render the category meaningless. Staniford’s claim is that the primary grounds on which relocalization advocates make their case for more farmers and de-industrializing agriculture is upon a correllative analysis that says, as he does above, “we once had less energy and more farmers, so we will have less energy and more farmers in the future.” This is simply factually untrue, for at least several of the people he names. For example, Staniford mentions The Community Solution here – utterly ignoring the fact that Pat Murphy’s (the author of the paper Staniford cites) primary influence in his analysis of the agricultural system is the case of Cuba. I am quite familiar with Murphy and the Community Solution’s work, and I’ve never seen any sign of the analysis that Staniford claims is the grounds for their reasoning.

Richard Heinberg, on the other hand, has made some rough associations on that hand. And for the purposes of full-disclosure, the essay that Staniford cites, “50 Million Farmers” was influenced to some degree (I don’t know what degree) by my own work on this subject, and I’ve made correllative connections between past use of energy and future need for farmers. I agree with Staniford that this is a weak argument, and entirely insufficient to support the claim that relocalization is a positive future move. But the truth is that neither I nor Heinberg rest the whole

or even a large part of our argument solely on that bit of data – nor does any relocalization advocate I'm familiar with.

What Staniford leaves out is the fact is the power of present-day models of collapse in the thinking of most so-called "reversalists" – Cuba, North Korea, the Soviet Union and to a lesser extent Argentina, America in the great Depression, WWII food restrictions – all of these are referenced in the notes to various of Heinberg and Murphy's arguments on this subject, as well as present day developments in the Global South. I am less familiar with Kunstler's representations on this point, so it is possible that Staniford is accurate in regards to Kunstler but at a minimum, instead of a large cadre of "reversalists" Staniford is down to one.

I admit, I personally believe that Peak Oil thinkers have over-relied on the case of Cuba, and have paid insufficient attention to, for example, the Soviet Union's collapse, which more closely parallels the US, and I think that reliance is open to analytic critique – but it is not a critique that Staniford has made, and cannot be attributed to him. Instead, he's ignored the reliance on other sources entirely.

Staniford's representation of the central argument of those of advocate tranforming the agricultural system, thus, is quite inaccurate, a strawman that he has little difficulty knocking over. But, of course, dealing with the weakest possible case for any analysis reduces the merits of the analysis. So we come to the next question,

Is there a fallacy of reversalism? Staniford goes on to distinguish between reversible and irreversible material processes, and to ask whether industrialization is "reversible." Now there are several problems with the question Staniford asks. The first is again linguistic – it is a matter of opinion as to whether a shift away from an industrial model due energy supply constraints and other related difficulties (remember, I'm aware of no relocalization advocate who believes peak oil will happen in isolation from climate change and other forms of depletion) would constitute "going backwards."

Staniford clearly believes it does, and says explicitly in his conclusion that those who he dubs "reversalists" are guilty of shoddy thinking, wish fulfillment fantasies and nostalgia. These are severe critiques of bias– Staniford is clearly more familiar with the personal motivations of Heinberg, Murphy, Kunstler, Darley et al than I am myself, and he may well know these things to be true. I can only observe that he offers no evidence for this deep understanding of the motivations of others.

But what I can observe is that Staniford presents us with a false dichotomy – the choice between going forward or "reversing" to 19th century style farming. But there is no inherent reason why the readoptation of an older practice constitutes a reversal on the scale Staniford argues for – for example, the growth in organic agriculture (a million acres a year with the last data I have, although that preceeds the biofuels boom and may be less now) in response to consumer demand for a safer, more nutritious food supply, might be characterized as "reversalism" – after all, the practices of organic agriculture are generally centuries old. And yet a highly technological, industrialized society has moved gradually to a growing portion of its agriculture using such backward practices – and demand for organics continues to grow.

The truth is that definitions of what constitutes "backward" or "forward" are very much a matter of preference. Since most of the techniques being advocated, at least by Heinberg and Murphy, are those refined in the 1970s and developed into the present, many are quite cutting edge – for example, the further refinement of efficiency per acre by biointensive agriculture (that is, the ability to use human labor to maximize the total productivity of a piece of land) might be equally

well described as progressive. The same could be said of small scale, largely organic polyculture, which has been proved to increase total food output – and continues to be refined in nations in the Global South where land access is difficult and people must be fed on increasingly tiny pieces of land. I am aware of no relocalization advocate who in any sense advocates a return to 19th or 18th century style agriculture. They advocate a larger number of people on smaller farms, which is similar to older style agriculture, but they also advocate the use of agricultural techniques that are progressing quite as quickly as cell phone technologies. Many of them, including Heinberg, imagine the use of tractors and combines included in the model and are quite specific on this point.

Moreover, and this, I think, constitutes the deepest weakness in Staniford's construction of the "fallacy of reversibility" despite Staniford's claim that industrialization cannot be reversed, we have quite a few examples of exactly that process occurring in recent history.

So when you industrialize a society, is that a reversible process? Can you take it on a backward path to a deindustrialized society that looks in the important ways like the society you had before the industrialization? As far as I can see, the "second wave" peak oil writers treat it as fairly obvious that this is both possible and desirable. It appears to me that it is neither possible or desirable, but at a minimum, someone arguing for it should seriously address the question. And it is this failure that I am calling the Fallacy of Reversibility. It is most pronounced in Kunstler, who in addition to believing we need a much higher level of involvement in agriculture also wants railways, canals, and sailing ships back, and is a strong proponent of nineteenth century urban forms"

Interestingly, Staniford never quite answers his own question about whether it is posible to "reverse" industrialization. He moves on to the signs he asserts we would see if deindustrialization were a logical consequence of peak oil (more on that in a moment), but he never definitively states (but rather implies) that industrialization is not reversible. This is probably a good thing, because, of course, we have several contemporary examples of highly industrialized societies reverting to a lower level of agricultural technology and centralization in recent decades. Cuba, of course, is the most famous in the peak oil community, but the Soviet Union also did so – Soviet gardens and small farms are widely credited with saving the population from starvation. Dmitry Orlov discusses this in his forthcoming book _Reinvening Collapse_, but this has been widely documented – peasant economist Teodor Shanin, for example, describes it in a New Scientist interview: http://environment.newscientist.com/article/mg17523546.300-how-theother-... (note, the complete article is behind a paywall), and the Rodale Institute published data at the time in the mid-1990s showing the influence of small farms and gardens on the diets of millions of Russians and other former Soviet peoples (Organic Gardening, June 1996). There are other, perhaps less apt examples in Bosnia and Serbia and in various African states of a process of moving back (or forward) to a less industrial society.

Using recent historical examples, I think it is literally impossible for Staniford to make the case that agricultural practice cannot reverse to engage more people on a smaller scale. However, he leaves these completely untouched in his analysis. But it seems self-evident that such a "reverse" in fact can happen. Whether or not the US or other parts of the rich world will follow suit in the coming decades is a matter for debate and too large a question for this article, but the answer to Staniford's question about whether industrialization can reverse is a resounding yes, which I think deeply undermines both Staniford's claim (made in the paragraph above) that none of the supposed "reversalists" have even thought about or addressed this question, and also undermines the grounds for his establishing that there is such a thing as "the fallacy of reversibility."

Which brings us to the next question. Staniford offers up five signs that he claims we would expect to see in the industrial agricultural system if relocalization advocates are correct, and then bases his argument that we will not reindustrialize on the fact that we are not seeing signs of any of these. But in order to evaluate the validity of Staniford's critique, we need to move on to the next subject,

-Are these the right questions to be asking?

That is, is it necessarily the case that we would expect to see the particular signs Staniford identifies? Is Staniford looking at the right indicators? Or are these more strawmen? Are there other questions we might ask that would yield different answers? Staniford says,

My central tool for looking at the question is going to be the factors going into the profitability of industrial agriculture. If it's the case that agriculture is going to revert to a manual low-energy process in the face of peak oil, then that should show up in the profitability data. Here are some natural predictions we might make:

· Industrial farming is less profitable at high oil prices than at low oil prices.

· Now that we are at, or close to, peak oil, industrial agriculture is beginning to show signs of strain, indicating it may break down in the future, allowing alternative approaches to take over.

· Industrial farmers use more labor in the face of high oil prices.

· Farms are starting to get smaller now that peak oil is nigh.

· In developing countries, where the farmers never unlocalized in the first place, the dynamics are changing to favor small subsistence farmers over larger mechanized operations.

As we shall see, the evidence doesn't provide any support for any of these propositions, and in fact it tends to provide at least some evidence for the opposite view: the industrial agricultural system appears to be strengthened by peak oil, and is likely to get stronger still in the near future. Rather than industrial farms losing money, land prices dropping, and desperate farmers loooking to throw in the towel and sell out to the hordes of neo-peasant reversalists, we find farm incomes rising, average farm sizes increasing, and no sign of greater use of labor in the production of the core arable crops in the US.

I think there are two deep problems with the questions that Staniford chooses to ask. The first is what I'm going to call "the fallacy of overtly linear thinking" (just for the purpose of identifying a cool fallacy). And it might best be illustrated by analogy.

Let's suppose a patient goes to a doctor, complaining of a severe inflammation and pain in one finger. The problem turns out to be an MRSA anti-biotic resistant infection. The first treatment that the doctor would suggest is probably a course of antibiotics, perhaps several such courses, when the first fails. Thus far, the treatment has been linear – the first step, a milder antibiotic, leads then to a next step on the same basic order, a more aggressive or specific antibiotic, and then perhaps to hospital admission and IV antibiotics. But let's say the patient doesn't get better, and the infection begins to move up his hand – instead of just one finger, the whole hand is infected, and then his arm, and the patient is now very sick, and the patient's life is now endangered. The doctor, having exhausted their course of available antibiotics, may then have little choice but to suggest the amputation of the hand or even arm, in order to save the whole patient. On the face of it, this would seem to be a radical departure from the first course – but

only on the face of it. The patient and his family are probably shocked that amputation is a possible outcome – they'd never thought something so radical might be necessary to solve the problem. To the doctor, the treatment *is* linear – his overarching goal has been to save the patient with minimal suffering and loss. As long as it seemed possible to save the finger, he tried to do so, when it stopped being possible, he cut his losses, and concentrated on keeping the patient alive. A radical shift in response to a progressive situation is linear, if the overarching goals are kept in mind, but it isn't necessarily the linear step someone who isn't looking at the whole would expect.

A backwards analysis of the doctor's course of treatment might ask "but why didn't he immediately amputate the finger upon the discovery of the infection." But a situation whose severity is not immediately self-evident doesn't necessarily call for such radical measures. But that might be a legitimate case should the patient die (as 20% of all MRSA cases do), or require an amputation of the whole hand or arm rather than a finger – perhaps it would have been wiser to immediately amputate. In the case where an appropriate antibiotic response is found, amputation might be an over-reaction – it is difficult to know what the appropriate response is, and ultimately, we must judge based on interpretation. One doctor might choose one course, another a different one given the same data.

Much of Staniford's critique seems to be based upon the idea that relocalization is a radical alteration from the ways that society is presently responding to peak oil, and I think that's an accurate description. The relocalization advocates roughly parallel the doctors who would argue that a patient ought to have an early amputation of the infected finger, shortly after the first course of antibiotics fail. They might argue that the costs of the more aggressive form of treatment are lower than the potential losses, and there is, indeed, a case to be made for that point of view. If a Soviet-style collapse is forthcoming (a topic for another paper), it would be better to decentralize agriculture sooner, to convert to lower energy technologies, and to teach people to grow food in their yards. If, however, no such "reversal" is forthcoming, cutting off a finger would seem unreasonably unlinear, and the choice to consider more aggressive antibiotics might make more sense –but also might entail more risk.

What Staniford portrays in his opponents as ignorance of the real issues, is, in fact, a legitimate disagreement about mitigation techniques. Staniford would choose the more linear, less aggressive course, because he believes there is a strong likelihood that it will be successful. Heinberg, Murphy, Darley and Kunstler believe that we are better off taking the more aggressive course, because the potential consequences of failure (hunger, perhaps starvation) are so severe. Whether the precautionary principle is the correct reasoning tool to apply here might be debated, but that's not the terms in which this debate has been framed. Instead, we are to see it as inevitable that early societal responses to peak oil would look logically continuous with later responses, when the crisis is more severe. In fact, as many commentators pointed out, this discontinuity is part of the point of many analyses of peak oil.

I also believe that Staniford here mistakes the reasoning of relocalization advocates. There may be those who believe that industrial agriculture will simply devolve on its own – for example, Staniford quotes Kunstler saying something that sounds rather like it, so it is possible that Kunstler does make this case (I have not re-read _The Long Emergency_ recently enough to speak to this). Still, I think it is worth noting that _The Long Emergency_ is not merely about peak oil, but about climate change and economic woes as well – that is, the "reversalist" tendencies that Staniford attributes to Kunstler's desire to go back to the past might also be attributed to Kunstler's prescience about the urgency of climate change – Kunstler's call for sailing ships, for example, comes in the context of his analysis of climate change – his claim may

not be so much that we cannot cross the ocean any other way but that we *should not* do so, given the contribution to anthropogenic global warming (Staniford's analysis omits any consideration of global warming, something none of the other thinkers he mention do – I think this is an important observation – accepting that global warming is an urgent problem means accepting that besides the question of *availability* there are issues of whether we should choose more energy intensive solutions over less intensive ones – for example, one possible limitation on biofuels would be mandatory limitations on nitrous oxide, which are created by industrial agriculture).

But Murphy, Heinberg and Darley are also all *advocates* for a practice. None of them claim that deindustrialization is necessarily inevitable, but that we ought to alter the shape of agriculture, rather like amputating a finger, in anticipation of a larger crisis. Staniford implies that they imagine that peak oil will in itself make this an inevitability, and all of them are perhaps guilty (as am I) of assuming that doing so will be helped along by peak oil. I cheerfully admit that I had not, until Staniford performed his remarkable analysis in "Fermenting the Food Supply" fully understood the implications of biofuels for relocalization, and I would place bets that none of the others have done so, either. In fact, I've not encountered anyone, including Staniford himself, who wasn't "floored" by the implications of Staniford's remarkable analysis.

Staniford has undoubtably done the peak oil movement an enormous service, and created a genuine and meaningful critique. It is unfortunate that this critique, valuable in itself, is cloaked with logical errors and a misunderstanding of the reasoning of relocalization advocates – it would be a far stronger case divorced from them.

But Staniford, I believe, has sometimes mistaken *advocacy* for *description* in the habits of relocalization thinkers. That is, Heinberg, Murphy and Darley are arguing that we should deindustrialize agriculture in anticipation of a larger crisis, because advance planning puts us ahead (for example, in Cuba, the average Cuban lost 20lbs in the early stages of the special period – I certainly could afford to lose 20lbs, but my small children and extremely thin husband could not – thus a strategy that creates greater redundancy in the food system would be attractive to me if collapse seemed likely) of the game – potentially avoiding the problem of making a major transition in the throes of a major crisis.

It is not that any of the above agrarian advocates believe that industrial agriculture will magically disappear (although as I noted above, the may well have underestimated its tenacity), but that step should be taken to make it do so. Staniford acknowledges this briefly, when he quotes Heinberg's "50 Million Farmers" essay, which claims that we must deindustrialize rapidly, observing

"I have to say that I really don't like the sound of "at a forced pace, backed by the full resources of national governments". As JD, of Peak Oil Debunked, noted recently there is a history of attempts to forcibly reallocate land to urbanites: it's mainly been attempted by dictators, and the results have made the countries in question bywords of disaster (Cambodia and Zimbabwe are examples in recent decades)."

I can understand and share Staniford's distaste for this idea – in fact, I suspect (I am speculating here) that even Heinberg has some distaste for it. He discusses his own dislike of centralized solutions in _Powerdown_ noting the irony of creating a strong centralized government that must then give up power. Personally, I am not convinced that doing so is the right course. But I do think it worth noting that non-dictatorships have also used the forces of government to move people back to the land – during World War II Britain, for example, the "land girls army" was moved through national programs to take up agricultural production, and, of course, the history of

America's move to industrial agriculture could accurately be described as something done "at forced pace, backed by the full resources of national governments." That is, there is ample historical evidence that we can change our agricultural patterns without moving inevitably to fascism. It is not inevitable that using government to change agricultural policy would end in a Zimbabwe by any means.

But more importantly, I believe Staniford has missed the point that much of what relocalization advocates are arguing is what they believe should happen, rather than what will inevitably happen, in the absence of political will and in the hands of market forces. Staniford is absolutely right that the sheer profitability of biofuels will mean that the use of political and social movements will be much harder, perhaps even fail. This is something relocalization advocates must take into account in future analyses (I will offer some preliminary thoughts on this below, but I think Staniford's analysis will give us much to chew over for some time). But it would be inaccurate to imagine that relocalization advocates imagine that we would now be seeing the unravelling of the corporate food sytems without a powerful counter-movement.

The other difficulty implied in the above points is that they are somewhat circular in their reasoning. That is, Staniford implies that if relocalization were going to happen, it would be happening now. The reason, as he has demonstrated, that it is not happening is (among other factors) the growing profitability of biofuels as a powerful counterforce. If relocalization is to have any success, it will have to be with a political response to biofuels, such as the high tax on biofuels that Staniford himself proposed in "Fermenting the Food Supply." Staniford observed that in fact, it is not necessary that billions of people be starved, that other options are available. And yet, Staniford here is implying that relocalization can never be possible because biofuels will make it impossible. If Staniford has an analysis that suggests that even in the circumstance of heavily regulating or constraining biofuel production, this will still be true, I would be interested to see it.

The truth is that relocalization advocates would not expect the above points to be the case, because biofuels growth is a fact. As I've observed before, I think Staniford is genuinely the first person to play out the full implications of biofuels growth for relocalization, and this is an essential point, but it is not true that the long term future of relocalization is inevitable given the short term growth in biofuels, which, as Staniford notes, will have to be regulated for more important reasons – avoiding millions or billions of deaths by starvation.

The truth is that biofuels are operating as a counter-factor to relocalization, in Staniford's own analysis. But just as those who critique M. King Hubbert's analysis often observe that he predicted a peak in 2000, not 2005 or later, the counter argument to that is that the 1970s oil shocks represent a meaningful counter-force, that pushed off the inevitable. I agree with Staniford that perhaps many figures in the peak oil movement may need to make a stronger case for the inevitability of an agricultural collapse – I think this is an important observation. But it is also worth noting that we have examples of short-term counterforces shaping the history of predictable progressions.

One more point on the limits of Staniford's predictions of what we would expect to see. The third point above, in fact, that "industrial farmers use more labor in the face of high oil prices," seems to me a complete error in reasoning on Staniford's point. That is, I can't imagine any circumstances that would lead the relocalization advocates listed to believe that at this stage in peak oil farms would be using more labor – we are neither at a point of food shortages that require maximum total food output per acre nor are we at a point where energy prices have risen to compete with labor costs. In no sense has anyone I'm familiar with proposed that farms will begin gradually taking on more human labor early in the game – not only because oil prices have not risen high

enough to make human replacements cheaper, but also because of agricultural volatility. That is, a move to human labor requires not just that it be cheaper to employ people than to buy equipment, but that farmers believe that this will continue to be the case, thus encouraging them to sell or not invest in mechanical equipment. Just as oil price volatility perverts our response to peak oil, the volatility of agricultural markets (a factor of peak oil), and the sheer speed with which the agricultural markets have changed over the last two years would give no incentive for such a move. Thus, this would most likely be a very late factor in the process, and I think operates as a red herring here.

I do want to be clear again in indicating that I think that Staniford's analysis, which amounts to the point that unfettered growth in biofuels is seriously damaging to the chances of relocalization is both accurate and brilliant. For all that I believe that this is not one of his best articles, I do think that this is a deep insight, and one that will affect the discourse on this subject.

Staniford clearly demonstrates that the trend is towards the consolidation of corporate agriculture's power. And at least one of the "reversalists" agrees with him. I happened to correspond with Richard Heinberg on the subject of Staniford's original article, "Fermenting the Food Supply" and his immediate response was this, "It's true that if policy continues to support biofuels, re-localization (which is the only sensible survival strategy) will be smothered in the crib, meaning that we have no survival strategy. That's why it's so important to shift policy away from support of biofuels" (quoted with permission).

Like Heinberg, I agree with Staniford on this point – I have written on this subject several times, not primarily in regards to biofuels, but about the likelihood, even in the absence of biofuel growth, that during a period of economic crisis early in the peak oil movement, industrial food producers will benefit. That is, I have argued that small scale, local farmers, who depend on the disposable income of middle class consumers will lose their clientele, who will shift their business at first to Walmart and to other industrial organic (and as they lose the ability to afford even that, industrial conventional) food sources. Although I wonder, if, as biofuels drive up overall food prices, low input organic agriculture in areas not attractive to biofuels producers might not profit from higher food prices, to some degree mitigating this effect. Again, the implications of Staniford's analysis are complex, and this is merely a first response.

Are there other questions that might get us a different picture?

This essay is already quite long, so I'm going to limit myself to simply one suggestion about approach here, with the caveat that I do not fully know what such a data analysis might reveal.

I believe there are a number of questions Staniford might want to consider if he pursues this issue further, many of which (water depletion for example) are major factors (while only 1/5 of all US agricultural land is irrigated, 3/5ths of India's grainland and 4/5ths of China's is - and China is already showing significant reductions of its ability to produce grain – Lester Brown documents in Plan B 2.0 that over 7 years between 1998 and 2005, the Chinese grain harvest dropped by 34 million tons – more than all the wheat produced by Canada and is tied directly to water shortages (Brown, 44-48).

Soil depletion, and the loss of available arable land, which Staniford himself mentions when referring to Jason Bradford's analysis of whether Mendocino County in California can feed itself, is another issue.

The reason I mention this point is because I think the means at getting at evidence of agricultural decline is rather like the means of getting at the Saudi oil peak – that is, indirectly. If we accept

the principle that soil, like any other natural resource, can be drawn down slowly or rapidly, but does have a point of no return (or no return without enormous investments of time and organic material) – and there is no real doubt that it does, since desertification and salinization are major factors in the loss of arable land – we must then accept that just as it is possible to increase rates of extraction for some time. Matthew Simmons, in his critical analysis of the Ghawar, relied not primarily on reduced oil outputs to make his (extremely accurate) predictions of the Saudi oil peak, but on the rate that outside inputs (seawater pumping and extraction technologies) were used to keep the system going. This allowed him to predict the Saudi oil peak in advance of actual decline – and to estimate that rates of decline would be quite high, because the faster we extract resources, the steeper the eventual downslope.

Thus, my own suggestion would be that a further analysis would look not for overt signs of decline (which generally are not there yet – China being a notable exception as above), but for signs of increased draw down. That said, however, this is merely my own suggestion., rather than a critique in itself.

Is Relocalization Doomed?

Does the sheer strength of this trend mean that Staniford's overarching conclusion, then, that Relocalization is a lost cause, is true? Staniford draws a strong conclusion,

"...And in the developing world, another important factor comes into play. As we discussed last week, over half of all households in rural areas in developing countries are net food importers, even though the vast majority are involved in agriculture somehow. Thus, rising food prices will place tremendous stress on very poor households that grow some food, but not enough to live on. They may be forced to sell their land to larger landholders that produce a surplus. Thus, we may see the exact opposite of what the relocalization movement might predict - farm sizes in developing countries may increase in the face of peak oil.

In Conclusion

I've argued in this piece that industrial agriculture is likely to be stronger and more profitable when oil prices are high, not weaker. So the reversalist future of local food production on smaller farms with higher labor input will not come to pass as a result of peak oil. The industrial agricultural sector owns most of the land, and will be in an excellent position to increase their land holdings as remaining subsistence farmers fail or consolidate in the face of high food prices. Industrial farmers will have no reason to sell out to improverished urban dwellers. Thus the industrialization of the land is not a reversible process any time soon - it is a fallacy to think so. The reversalists are expressing wishful thinking and nostalgia for the past, not a reasoned analysis of how the future is likely to play out. And urbanites worried about their future should not be looking to buy or rent a smallholding as a solution to their problems - industrial farmers are extremely efficient, and there is no way to compete with them except by becoming one."

Again, I fear Staniford is right about the first point – there will be powerful incentives in both the developing world and the rich one (rising land prices means higher farm taxes, which small farmers are unlikely to be able to manage) for small farms to be devoured by large ones. The short term, biofuel ruled future is most likely one in which forces are pushing us in the opposite direction of Relocalization.

But that does not mean that Staniford's conclusions are fully justified. Because, after all, Staniford's earlier articles about biofuels make it absolutely urgent that we regulate and limit biofuels growth, because, as he himself has demonstrated, a large portion of the population is

likely to starve otherwise. It is true that this might not happen, but I suspect it will, simply because there is likely to be an enormous outcry, and because the implications will not be limited to the developing world. Already 12% of the US population is regularly priced out of the food market, and that number seems to be growing. Anecdotal evidence, for example, from a Boston Globe article: http://www.boston.com/news/globe/editorial_opinion/oped/articles/2007/10... about malnutrition in small children because parents can't afford to buy both food and heating oil, is an example of this. The reality is that American consumers, who have to cut buy both gas and food are likely to be increasingly squeezed, and malnutrition bellies on American children are likely to be a powerful political motivator. Moreover, it is possible to postulate that even the malnutrition of children in the Global South will motivate change, as I've argued here, in response to Staniford's first article: http://casaubonsbook.blogspot.com/2008/01/three-billion-dead-future-of-b...

In his first article, Staniford articulated that the biofuels problem was most dangerous in the near term – I agree, that in the near term, it is very likely that the political and social implications of biofuels will be so great that they may overpower some portion of Relocalization efforts – certainly any plan to reallocate farmland. Other efforts in the Relocalization bag of tricks will probably become even more important – gardening and small scale subsistence farming, or neighbor to neighbor sale will probably be far more urgent than we have ever predicted, as more and more lower income people find themselves squeezed and in need of inexpensive food. Some small local farmers in regions that are not attractive to biofuel producers (that 1.3 energy return seems to depend on reasonable proximity to a production plant – we could drop below 1 EROEI transporting potatoes from northern Maine to plants in New York, for example) such as my own might well profit – that is, overall rises in food prices may benefit small scale organic farmers who can now compete with the grocery stores. For example, in my own region, local dairy farmers with a reasonable land base are now growing their own grain for their cows, and still reaping the benefit of high milk prices based on those who are buying corn in competition with ethanol producers.

But let us consider the longer term, in which the future could look rather different due to a number of factors. The first would be political solutions to the biofuels debacle, which, raise the price or legally limit the number of acres in production, making biofuels less profitable. That is, the boom could turn into a bust rather rapidly with farmers who expanded rapidly having to unload land whose tax prices haven't descended as rapidly as the price of corn. This would open up access to farmland.

It seems unlikely in the extreme that Relocalization advocates in isolation could have any major influence on policy, but fortunately, Staniford himself has made the case for a large scale political response – the death of millions or billions to hunger is likely to marshall many groups into political responses, and the Relocalization movement is likely to find itself with a large number of political allies – indeed, it already has some of them.

It is difficult to evaluate the likelihood of a collapse due to either peak oil in isolation, or as most of the "reversalists" imagine it, due to a concatenation of factors, including peak oil, climate change and economic instability. I certainly do not claim to be qualified to do so – or to make any other claim other than that we know from observation that some highly industrialized societies do, in fact, "reverse" course. But it is worth noting that a collapse might well overturn the rush to biofuels. Capital constraints, for example, might make it difficult to build new plants, even if such an industry is generally potentially profitable. Generally, societies in deep economic crisis do find it difficult to borrow money – and might find reasons to borrow money for other projects than ethanol production. It is true that such cannot be taken as an inevitability – but there is a case to

be made (and again, out of the scope of this article) that a collapse is a real possibility, perhaps even reasonably likely and that we will lose less if we use the precautionary principle to begin preparing for one now.

And in a collapse situation, there seems to be reasonably good evidence that Relocalization is a useful strategy – that is, home gardens and small farms did keep Cubans and Russians from starving to death in times of great societal disruption and shortage. In the comments section of this essay, Staniford asks this question,

"Could you lay out the scenario of a) how much the available oil supply falls in percentage terms, and how fast, b) what aspects of societal infrastructure fail roughly when as a consequence of that, and c) why a small relocalized farm close to markets (ie cities) will be better placed to survive these infrastructure failures than a large industrial one far from cities."

In the less than 24 hours since I've read this essay, I have yet to come up with a good answer to #1, in part because I am not convinced that oil will be a sole factor in this situation. That is, the move to Relocalization might be initiated by climate change related constraints on industrial food production (and it is worth noting that in fact, according to Bill McKibben's Deep Economy, generally speaking, energy used in agriculture is a tiny portion of the whole – the 2.2% that Staniford cites does not take into account, say, the fact that it takes 10xs as much energy to get a package of frozen peas into your freezer as it does to grow them, or 7xs as much energy as is contained in the food to get a box of breakfast cereal on your table – which might be the beginnings of an answer to part C of Staniford's question (McKibben, 65)), or political ones that interrupt the flow of oil in a collapse situation.

Moreover, I make no claim to be an expert on this subject – and I think this usefully illustrates the distinction between what Staniford at one point describes as "first wave" peak oil thinkers (those who are primarily concerned with rates of depletion and geological facts) and "second wave" thinkers (who Staniford inaccurately characterizes as "reversalists" and whose major characteristic is that they think that peak oil might not be best described by narrow bad economic and scientific analyses, but by larger considerations of historical, political and ethical principles in the context of that data).

It is clear that Staniford, as a scientist, strongly prefers the work of the first wave, who deal with concrete, describable and predicatable conditions, over those second wave thinkers who deal with messy issues like politics, historical analogy, moral arguments and other things that are difficult to quantify. But that preference does not inherently mean that the one is better than the other. It is true, however, that attempting to deal with many unquantifiable variables will always make the solution of those who do not exclude those variables more ambiguous and subject to critique than those who can narrow the terms of their analysis to suit themselves.

The second wave of analysts, of which I flatter myself to be one, don't just use less concrete forms of analysis, part of their implied (and in my case explicit) argument is that peak oil, or really the concatenation of peak oil and climate change that no one has come up with a better term for that "the long emergency" is precisely more complex than can be managed with quantitative analysis – that is, that it is rightly the question of those who are willing to risk the censure of the first wave by describing this issue in historical, political and ethical terms. I think this is an enormously important point, because Staniford does not seem merely to disagree with the use of this approach in this particular case, but to be making an overall attempt to tar the second wave with a brush of heavy bias, poor scholarship and unseriousness, while emphasizing the implied impartiality (because it is quantifiable) of the "first wave" style of analysis, with which he associates himself. Shortly after he accuses the "reversalists" of nostalgia and believing something

simply because they wish it to be true, Staniford asserts his identity as a scientist, with all the cultural associations of impartiality that implies.

But as we have seen, Staniford's analysis has anything but his customary degree of impartiality, and is heavily larded with errors of reasoning and biased language, that distract from and partly taint his larger argument. The notion that the first wave analysis was more quantifiable is indubitably true. That it is a better tool is debatable, but Staniford does not make that argument, he simply implies that it is true, embedded in an argument that is itself, I think a compelling example of why relying on readily quantifiable data is insufficient to describe either what human response will be or what it should be. That is, we need both forms of analysis – neither is sufficient unto itself.

All of which is a long way of saying that I haven't the faintest idea what oil price or decline we would have to have in order to achieve a collapse situation that made Relocalization inevitable. Since I don't claim it is inevitable, and neither does any other peak oil thinker Staniford describes, with the possible exception of Kunstler (again, I simply am not familiar enough with his work to judge), I can't answer the question. I do think that a response to the biofuels crisis might change the circumstances, and I do think that historical evidence suggests that in times of economic collapse, small scale farming and gardening might be a necessary response.

But let's try and draw out a scenario in which Relocalization might be a necessary response. We don't have to imagine one, we might look at the collapse of the Soviet Union. Dmitry Orlov's forthcoming book (which I've had the pleasure of reading an advance copy of) does a careful analysis of the common ground between US and Soviet systems – it is certainly possible to argue with his claim that they are in many ways equally vulnerable (or that the US is more vulnerable), but let us, for now, accept that this falls within the realm of possibility. To support this position, let us note that in Yegar Gaidar's (former interim prime minister of the former Soviet Union) recently translated book _Collapse of an Empire: Lessons for Modern Russia_, Gaidar argues that in fact, much of the crisis in the Soviet Union was caused by the Soviet push to urbanization. That is, the Soviet Union allowed itself to become reliant on imported food, while engaging in social policies that moved farmers into cities, and when the economy collapsed, and bread prices rose dramatically, bread riots spread social instability. If one were broadly construing Gaidar's argument, you might suggest that the Soviet Union collapsed because it had too few farmers. This, of course, is an oversimplification, but it might add some useful fuel to the fire. It also might limit the value of some of Staniford's five listed principles – because, of course, in the case of the SU, an advance sign of collapse was, according to Gaidar, the increasing urbanization of the population and a reduction in the sheer number of farmers.

So one might propose a Soviet-style empire collapse. Or perhaps simply a crisis as simple as one the Lester Brown describes in _Plan B 2.0_.

"The first big test of the international community's capacity to manage scarcity may come with oil, or it could come with grain. If the latter is the case, this could occur when China – whose grain harvest fell by 34 miilion tons or 9 percent, between 1998 and 2005 – turns to the world market for massive imports of 30 million, 50 milllion, or possibly even 100 million ton so grain per year. Demand on this scale could quickly overwhelm world grain markets. When this happens, China will have to look to the United States, which controls he world's grain exports of over 40% of some 200 million tons.

This will pose a fascinating geopolitical situation. More than 1.23 billion Chinese consumers, who had an estimated 160 billion dollar trade surplus with the United States in 2004 – enough to buy the entire U.S. grain harvest twice – will be competing with Americans for U.S. grain, driving up

U.S. food prices. In such a situation 30 years ago the United States simply restricted exports. But China is now banker to the United States, underwriting much of the massive U.S. fiscal deficit with monthly purchases of U.S. Treasury bonds.

Wihtin the next few years, the United States may be loading one or two ships a day with grain for China. This long line of ships stretching across the Pacific, like an umbiliacal cord providing nourishment, will intimately link the two economies. Managing this flow of grain so as to simultaneously satisfy the food needs of consumers in both countries, at a time when ethanol fuel distilleries are taking agrwoing share of the U.S. grain harvest, may become one of the leading foreign policy challenges of the new century." – Brown, 14-15

What happens if trade agreements we made when we were flush with spare food and economic pressures do result in the starvation, not merely of far away billions, but of Americans. In the Great Depression, Herbert Hoover famously said, "At least no one has starved" outraging people as reports began to pour in of real starvation. When 25% of all Chicago school children were suffering from malnutrition, and mothers rioting in the streets because they could no longer afford meat or milk for their children, we were ripe for social change – social change that those who have an existing strategy for getting food to the people might participate in. I do not claim this will work, merely that the possibility is worthy of consideration.

I would also note again that Staniford's analysis does not include climate change at all – it is possible to imagine a number of climate related scenarios that would push the US into various sorts of crisis – extended drought or flooding in the Midwest, combined with other natural disasters (not so very hard to imagine after this last year) or an international agreement to minimize emissions (biofuels, which nitrous oxide is included in the analysis, produce more warming gasses than oil does).

It would require a much longer article than this already very long one to detail other possible scenarios. But it seems to me self-evident that Staniford may simply not be asking the right questions here, in a whole host of ways.

Later in the comments, Staniford argues that Relocalization has no potential benefits for those who practice it – but it seems self-evident that hungry people do find small scale agriculture and horticulture to be deeply valuable to them. That is why gardens proliferated in Moscow (where, according to the Rodale Institute, at the height of the collapse 65% of all households were involved in food production) and in Cuba.

I believe Staniford here may be mistaken in his understanding of some of the claims of the Relocalization movement – it is possible that some of the figures he mentions actually claim that all food in a relocalized future will come from local regions. That is, it may be the case that Staniford believes that those who advocate Relocalization are implying that every area must feed itself or starve. But in a fairly serious review of the literature (brief by necessity to get this response completed), I cannot find any such passage. And I do not believe that this is the central claim of Relocalization advocates. Certainly, I would not suggest it. Nor does the food sovereignty movement, begun by Via Campesina, from which Relocalization derives some of its ideas.

That is, I believe the "tractors or hand labor" question to be something of a false dichotomy. There are regions that will never feed themselves – but Relocalization is a valuable strategy because it offers redundancy, access to food for those who have insufficient income to buy it, and a host of other benefits, including fresher, better tasting food, access to agrarian landscapes for urbanites, etc... I've written about the limitations of, say, the 100 mile diet model here – there are a number of regions whose foodsheds will not support them, and others that will support

more than their present population. I do not claim that peak oil will be the end of all trade, nor have I seen such a claim (although I may have missed it) by any of the so-named "reversalists" – indeed, the cessation of all trade seems highly unlikely. What seems more likely (as Staniford's analysis in itself suggests) is that poor people in both the rich and poor world will be priced out of food markets and need to grow as much food as possible.

A form of Relocalization will likely exist even if the biofuels revolution proceeds to its worst outcome – indeed, it will have to, as people take over greenspace, use their lawns and otherwise grow food anywhere they possibly can to compensate for calories they cannot afford to buy. Oddly, the proliferation of biofuels may settle the (good natured, not very significant) debate between Heinberg and myself about whether 50 million or 100 million farmers are required, with the larger number. That is, if biofuels and related growth push food prices high enough, we may well end up with a vast majority of the population having little or no choice but to grow some food to compensate, to take up their role as farmers (in my own case, the definition of farmers is very broad, including subsistence farmers and gardeners) on a larger scale than would have been required without the biofuels boom. That is, we may find that the biofuels boom leads to a vastly larger number of very small farmers, rather than fewer larger (but still smaller than the industrial model) ones as Heinberg proposes.

My own conclusion is this – Staniford has done enormously valuable work in analyzing the threat that biofuels poses to Relocalization, and he has also done the important work of providing the Relocalization movement with a more potent critique than has thus far been leveled at them. That is, Staniford has offered an analysis that will require me and I suspect others to refine our analyses, to address questions like how likely political work is to succeed and timescales for collapse more directly than we have. In this, the analysis has been enormously useful, and admirable.

Less admirable, however, has been Staniford's attempt to take his analysis further than its own merits can stand – to make a general argument delegitimizing the analyses of agrarian thinkers and also of what he calls "second wave" peak oil thinkers in general. These arguments are weak and tainted by bias, and do him little credit. Staniford is one of the most powerful intellects we have turned towards the problem of peak oil, and his commitment to clarifying the peak oil discussions is a gift to the community. I am in no way diminished in my admiration for Staniford. And yet, I think we would have been better served had Staniford limited his critiques to what the data can support.