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If there's one controversial issue which is obsessed over, probably to a disproportionate extent, by most environmental activists it's that of genetic engineering. It's also a logical place to explore from an anti-civilisation perspective as it involves so many important facets of the primitivist critique — domestication, agriculture, nature, hunger, population, and many others.

There's a high level of misunderstanding at play on the part of environmental activists in focussing so feverishly and fervently on this one topic. I won't attempt to debunk all the myths surrounding GE here as others have done a great job of that elsewhere[1] . However, to sample a few:

- In getting irate over the potentially "catastrophic and unknown consequences" of tampering with crops at the genetic level, activists completely ignore conventional plant breeding techniques such as mutagenesis which are perfectly allowable under organic standards. This, in

[1] E.g. Read Tomorrow's Table by Ronald & Adamchak (2010)

essence, involves provoking many random genetic mutations through the use of carcinogenic chemicals or radiation, and seeing if anything useful comes out of it, a process inherently less predictable than many techniques involved in GE/transgenics.

- Terminator technology is not a commercially available trait and may never be[2] . You can, in fact, still technically save seeds from GE crops (although End User License Agreements may unfortunately make this illegal, a completely different issue involving broader discussions of intellectual property rights). Restrictions (via what are called Plant Breeders' Rights) are also in place on saved seed from conventional/non-GE varieties on other farms, so this really isn't an issue inherent to the technology of GE.

- Horizontal Gene Transfer (HGT) — the transfer of a gene from one species into the genome of another unrelated species — isn't quite as "unnatural" as it's made out to be. As Stuart Brand mentions in Whole Earth Discipline[3] , humans simply wouldn't be human if it wasn't for the vast quantities of viral DNA embedded in our own genome. Inter-species genetic transfer happens at random in nature all the time. Equally, the vast majority of cells in your body aren't even human, they are in fact microbes[4] (e.g. intestinal bacteria) who are constantly swapping DNA in random ways, right inside you.

[2] Despite the fact that it might have a use in *preventing* the spread of genetically modified genes, something rarely acknowledged by conventional anti-GE activists.

[3] Loath as I am to quote from that philosophically reprehensible book.

[4] Human cells are just much larger.

central quote, which goes right to the heart of genetic engineering and our modern culture's arrogance and urge to control:

> "… if nature's forms and systems express a purpose, then we must doubt our absolute suzerainty over nature; we must doubt the assumption that we can engineer nature endlessly with impunity, especially when we do so in ignorance of its purposes. In a blind, purposeless universe we are at perfect liberty to do our will, for there is no natural order on which we might infringe, no destiny to interfere in, no destiny at all, in fact, except that which we create. But if there is a purpose inherent in the way of the world, then the whole bent of science must change from understanding for control's sake, to understanding for the sake of according more closely to nature's purpose."

- Far from being a technology developed solely by the big baddies of Monsanto et al., much (and increasing amounts of) research is being undertaken at public institutions, intended for use in the Majority world, for example. See CAMBIA for an example of this.

Looking at GE from an anti-civilisation perspective is refreshing, though, because we can finally acknowledge that the technologies involved are pretty much a mere extension of what humanity has been doing for circa 10,000 years now.

Since the advent of the first agricultural revolution, humans have done some downright bizarre (and often unethical) things in manipulating their food, with GE being no different. See, for example, seedless grapes, sterile bananas , colour-altered (formerly purple) carrots, turkeys which can't reproduce without artificial insemination by a human hand, geese which can't fly etc. If they have a problem with random acts of control and intervention in "nature", then why is the focus of food activists so narrowly on GE foods?

Regarding Horizontal Gene Transfer, Charles Eisenstein has this to say regarding recent developments in the field of biology:

> "In place of this competition-based world-view, a new paradigm is emerging that emphasizes symbiosis, cooperation, and the sharing of DNA across species boundaries, calling the integrity of the discrete biological self further into doubt.
>
> … Horizontal gene transfer removes the biological underpinnings of the ideology of the discrete and separate self. It suggests a new self, a new identity that might be described as "interbeingness". This is a much more intimate relationship than mere interdependency among life forms. Thanks to HGT, we are all incorporated into each others' being."

This isn't to say that what humans are doing in the field of GE is right, but just to acknowledge that opposing it on the basis of it being "unnatural" is to turn your back on reality and to refuse to acknowledge our species' place in an almost infinitely-complex, beautiful and interconnected biological system.

I've struggled a lot to pin this issue down but think the only conclusion which holds water is that the rapid, inexorable advance of GE (it is, truth told, the fastest spreading agricultural technology in 10,000 years), like agriculture itself, may be a huge philosophical failure with serious biological consequences. As someone opposed to the destructive processes of civilisation, I see how unsustainable agriculture has been in all but a few places globally. GE is, to a large extent, taking our tinkering attempts to heal the harms of agriculture to a new micro level, while ignoring that what really needs to be done is to be rid of agriculture as we know it.

As John Zerzan said in his laudable talk at Stanford University:

> "Technology today is offering solutions to everything in every sphere. You can hardly think of one for which it doesn't come up with the answer. But it would like us to forget that in virtually every case, it has created the problem in the first place that it comes round to say that it will transcend. Just a little more technology. That's what it always says. And I think we see the results ever more clearly today"

GE, it seems, is thus neither the panacea it's made out to be by its proponents, nor is it the ultra-evil which its opponents describe it as. It's simply a further (yet rather dramatic) notch up in speed along the agricultural technological treadmill, a phenomenon well described elsewhere. Furthermore, by

focussing on GE as a human health threat[5] , say, wastes time and attention which food activists should be directing at the very real global health threat that is our industrialised, high-input agricultural system .

In a discussion with a prominent Irish permaculture teacher (of all things) who bizarrely believes that the natural world will be saved by increasingly intensive agriculture[6] , I asked what miracle technologies were going to allow 9 billion humans to be fed without further pillage of the biosphere. The single response he came up with was genetic engineering, an amazing statement for anyone with even a fundamental awareness of the current state of agriculture to make, and evidence of the baseless, deluded belief in a techno-utopia exhibited by the Technologists. None of us are living in space, and none of us are eating meals in pill form , things which were promised to become imminently mundane some time ago. To believe, after millennia of desertification, de-forestation, soil loss and species extinction, that suddenly agriculture will become sustainable if we just tinker with plant genetics is astounding. This smacks hugely of the civilised ('old') mindset discussed in Daniel Quinn's *Beyond Civilization*:

> "If the world is saved, it will not be by old minds with new programs but by new minds with no programs at all… Old minds think: If it didn't work last year, let's do MORE of it this year. New minds think: If it didn't work last year, let's do something ELSE this year."

GE will be discussed here again in future posts, and in the meantime I'm perfectly happy to be corrected on any inaccuracies in this one. Anyway, I'll conclude with this immensely

[5] Remember that not one person out of the many millions who have eaten GE crops over the last two decades have had any adverse health impacts.

[6] Due to its supposed ability to feed more people on less land.