Anarchist Industrial Development(title?)

Anarchist technology is always free. It is owned by no one. Not only is there no intellectual property, there is no physical property, except for the Trash Wizard stick, which might effectively be a part of a Trash Wizards person. The act of creation of an anarchist artifact is a gift to society of that artifact. A trash wizard might grab any technology lying around and re purpose it at any time. Anarchist technology does not recognize the concept of assigning value to things numerically in any way. Anarchist technology may get involved in various value circles, having various thypes of abstract relationships with various value circles, as codified in the Data Feed. Anarchist technology is also energy free in the sense that it always uses ambient energy, be it a set of pedals, a hand crank, a wind turbine, a steam turbine, a tidal generator, a lightning accumulator, or a solar concentrator. Anarchist technology is designed to be as modular as possible, being as friendly with other unrelated technlogy as possible. Anarchist technology does not distinguish between information, energy, and materials--all three are processed as equal participants in the various flow through the system. Technlogy is not to be considered free unless it can be constructed by a small band of trash wizards using their trash wizard sticks using common source materials from the waste stream of the old extractionist economy. The ideology of trash wizardry is that capitalist industry sacrificed itself for the bounty of our new free world. Mining is dangerous and destructive and suicidal, but it's done, and we thank our ancestors, thank their sacrafice and their hard work and the creation of so much material wealth so evenly distributed(you can find a mineral from anywhere pretty much everywhere thanks to the spread of capitalist industrial technology). We give thanks for this great gift from our ancestors and build a society based on free living on the bones of the old world. We accept that things will never go back to how they were before industrial capitalism but that we can live better becasuse of our mineral inheritance. We accept that the ways of the old world were a suicide pact, but also that even in a more free world, we can never be free from change and uncertainty. Ways of life, empires, whole worlds, climates, continents, will rise and fall, and we cannot stop that level of cataclysmic change from happening. But we can build an adaptable and sustainable future based on free values that moves forward into a future actually worth seeing. We can bring adventure back into the human condition, as well as acceptance of a huge and uncertain world, and our role as passengers on it.

Anarchist technology also breaks barriers between customer, worker, engineer. We eliminate these heirarchical notions. We are people. We build things as needed and help each other as needed. We tell stories to express our values with the help of our Data Feed. We break the very idea of an economy open and build a new way of relating to each

other and existing.

Why I Hate Tech Bros

I spend a lot of time in coffee shops working on stuff. Meaning I don't just drink coffee, I sit there fidgeting violently for hours at a time while trying to get a computer to do something or reading or thinking or designing a thing. A ton of business of all kinds happens in a modern urban coffee shop. From multi million dollar startup deals to drug dealing and sex work to contract labor of all kinds to a huge fraction of our creative output as a society, coffee shops are a hub for all capitalist activities, and have been for centuries. One of the main coffee shops I spend time in is next door to a loathesome tech startup incubator which also serves coffee, but has significant daily spillover into the shop I spend time in. Thus I end up overhearing a ton of their conversations and seeing exactly who is part of this modern phenomenon which for some reason is called "tech".

The first thing I notice about them is that their conversations have nothing to do with technology. That is, if you hear a full hour of intense conversation from these people there is zero technical content ever. No belly aching about code that doesn't compile, no arguments about how to implement some type of machine, code, or circuit, no mention of any kind of "technology" at all. Instead the talk is all about marketing, sales, search engine optimization(i.e. marketing and sales), various deals, office politics, and how everyone in the company(the customer is never mentioned) is feeling about all this.

What the fuck is this? To me, the technology business is interesting for two reasons: the technology and the customer. Making cool things is fun, and is an interesting way to spend time. And making things that improve the life of an end user feels nice because you're doing good in the world. As Mike Judge so astutely parodied in his show, all these "tech" startup bros have a pitch that mentions "making the world a better place". But once they actually get down to the day to day operation of their business the user is never mentioned, at least from what I've heard. The mention the "customer" but only in the context of sales. There is no empathy for the actual user. To me the technology business should be an empathic process, where the creators do everything they can to figure out what their users really want or need, and doing this is a never ending challenge that should require intense discussion from before you start the company to 100 years after the IPO. I'm not sure I've ever heard that—no anecdotes about the customer whose life has changed for the better, no cautionary tales about products gone horribly wrong for other customers. Just "number of qualified leads", "number of hits", and various crowing about celebrity customers. So if you're not talking about the customer, what the fuck are you doing?

Well, that brings me to the other reason some of us are pulled toward working on technology: actual interest in that technology. I think most of these people claim to be software people, so presumably that means things like algorithms, various programming languages, IDEs, compilers, and libraries. Computer science is a insanely rapidly developing field, and that development affects these people's business model in a fundamental way. So I expect to hear arguments and ramblings on all these subjects.

Nope. Most of the time I can't tell, even after a full hour of conversation, what technology is being used, who the customer is, what the product or service is, or indeed what sector of the economy they're in besides "tech"(I'm going to keep using scare quotes because I'm so annoyed that these people have stolen this word).
For comparison, I don't see this in any other type of business conversation. When I talk business with people involved in our sex toy company we have to make sure no kids are in earshot because we'll be talking vaginas, clits, nipples, leather, and lube all over the place. You'll have no doubt what we're up to if you over hear us. When I overhear the greedy real estate developers who are infesting Denver talk about their building deals, I see huge stacks of plans of actual buildings, and they're clearly very passionate about actual things that exist on those plans. Arguments happen around where some bushes will be put on the lawn, building code is mentioned, plumbing, constructing contractors, etc.

You have no doubt what these people are up to(building stuff) or who it's for(people who will live in that stuff). An extreme case of all this is the crossfit people, who are talking about their business deals usually in spandex, are insanely jacked with zero body fat, and go on endlessly about kettle bells—again, you have no doubt these people are about the cross fit first and deals and shit after that.

So the modern tech bro is not interested in technology and doesn't give a fuck about the customer. But what are they all about, if not that? From what I can tell, Homo Techbroicus is all about being inside their tribe, which makes money because that's just what they do. Their tribal markers are way more intense than other businesses. I see groups of a dozen at a time blocking the sidewalk daily having their smoke break and the demographics are really remarkable. Out of over 10 of them, 100% will generally be white men between 25 and 40 with facial hair. 100% of them dress in the standard modern tech bro outfit, and look the part of being in this tribe. Technology has never been great at diversity but even by the low standards set by the last 50 years or so of technology culture this stands out. I recently watched the movie The Forbin Project, a near-future sci fi from the late 60s. One thing that stood out was both in terms of gender and race, the team that builds the evil supercomputer in that is waaaaay more diverse than I've ever seen in the "tech" world of

today. The core development team in that involves multiple black people, and a number of women. I'm pretty sure I've literally never seen a black person at that "tech" incubator I go past daily. So after 45 years of supposed social progress, we end up with many times less diverse group of people than in distopian sci fi from the late 60s. Now, I do see women over there periodically, but there are two things to notice about this. First of all they are *never* in the outside smoking cool kid circles I see. Never. Not once. And secondly they're almost comically attractive. They look much closer to the porn star ideal of the "hot young white woman" pushed by the media than, well, actual porn stars. You can work out some calculations about the probability that the women with the best aptitude for building software products also happen to look like they're auditioning for a SoCal porn and that probability will be astronomical. Or it might make sense that a personality quirk of some coders is to dress up all fancy and hot for the lolz sometimes, but every day, when you're going to work on a technology project? Nope. It makes no sense.

Unless of course none of what they do has anything to do with technology or even business in the real sense of making money from goods and services and is in fact just a tribe that has formed around their ability to manipulate society into giving them money and power. If you look at it that way, everything you see over there makes sense. What a shitty way to live your life!! And how sad that as a society we let them get away with it. Fuck these people. Seriously.

All Federal R&D Must be Open

If the taxpayer of a nation is going to spend money on research, there are really only two possibilities: either the work goes into the public domain, or a private company is stealing money from the public. As of now the latter is almost always the case. This will some day be viewed as what it is: outright theft. No one has the right to make a private profit from knowledge the public paid for. Ever. As I've said over and over, the problem with drug profiteers like the hedge fund guy everyone loves to hate is not what the price is, it's that they are in the position to set a price at all. The whole system is evil.

Federal agencies in the US are now finally starting to at least push grantees to publish their work in open access journals. This is a start, and the feds also reserve the right to use patents without royalties if they use it themselves, but this is a red herring. The feds mostly don't actually build things. They pay companies to build things, who are then allowed to demand payment from each other(all of which comes from the taxpayer, who has now paid many times over) for the ideas the public paid to create. If the US government is to keep existing and to keep funding R&D it is time for the following reforms:

- complete elimination of the patent system

- full-open-data policy, where all data as it's found is pushed out to the data sphere for consumption by the whole world.

That's it, really. It's simple. When I close my eyes and try to imagine how different our R&D culture is, I just can't believe this is not on anyones agenda. Without patents or secrets and with full real time data disclosure we could all work a hell of a lot faster and more creatively. The constant need to be create stuff that can get into flashy publications as well as to patent new technologies that can create fundamentally new industries which increase shareholder value distorts everything we do in applied physics R&D. It comes back to the slime-zistor. If I were to develop that in the normal way, it would not be new enough or fancy enough to get funded or build a VC funded company on or get the flashy papers that get those pumps primed, so it could never happen. But if I want to create tons of great data for the dataverse that people can find useful to get me hooked into lots of big value circles, something based on some ubiquitous slime is perfect. Because the more common the slime that has the desired electrical effects, the more useful that knowledge will be to the largest possible number of people.

Free everything.

At the very least, it seems that the Federal Government needs to implement policies that make it easy and create incentives for grantees in the private sector to opt out of all patents and provide full public access. Just as there are set asides for a variety of disadvantaged small business for federal funding there should be monetary incentives built into that process which allow companies in the current system to benefit financially from the choice to go 100% open.

There might be value to a sticker that says "no patents" or something much more explicit like "TrulyFree Hardware" which would be a certification that indicates that the company has taken certain measures to make sure the product is fully in the public domain and is as free as possible. Could for profit companies charge a premium on that sticker and use that for an R&D budget? Perhaps. This would allow for customer-funded R&D, which is different from crowd funding in that the customer is not paying for R&D and the product together for a new product but rather paying today for the R&D to create the product of tomorrow.

I think it is looking more and more like lafelabs.org should have a store where the various parts that need to be made with federal reserve dollars and a global supply chain can be bought and sold. This should all be open and free.

Deconstructing "Capitalism"

What is capitalism? This is something that critics of it weirdly avoid a lot of the time. If you look up various definitions, it generally goes something like this: Capitalism is the economic system in which the means of production are privately owned." I hate this definition.

What this definition implies is that the opposite of capitalism is someone other than "the private owners" or "the capitalists" owning the "means of production", and "economics" being based on something other than private capital. I put all these things in scare quotes becuase I see them all as subtle weapons to inject hidden ideology into poeoples minds by the very wording of the definition. First of all, the anarchist rejection of capitalism rejects ownership of minerals, land, and machines. So any defintion that talks about "who owns what" should already be rejected by the anarchist, and we have already ceded a major point by allowing this definition to stand at all unexamined. Capitalism is a system in which some people, called "owners", claim to have power over certain things which they claim the right to carry out by force if needed. Capitalism is a system in which a military state exists which both feeds of the system of privately owned extraction and enforces the power strucutre that governs it.

The "means of production" is also a problematic phrase. While it is a bit ambiguous, I see this phrase as at least potentially implieing that this the "means" is some sort of fixed infrastrcture. The implication is that "the means of production" is a thing that exists outside of economic systems, which can be controlled by any of various types of government or state. This is total bullshit. The very structure of "production" in today's society is what I would call capitalism. The Soviet system, the various Fascist systems, "democracies", dictatorships, monarchies, I would say every single one of them is capitalist. They all have this basic structure of military power creating a monopoly of force that protects a vast system to extract mineral wealth and destroy it as fast as possible by constant threat of violence. To me calls to "seize the means of production" sound like calls against a king to go seize the palace and tell the king what to do but to keep the palace and king in place. It's the same system, with slight changes. So to let the capitalists define these ideas gives them a victory before a debate even begins: it allows that the existing "means of production" should continue to exist. A true challenge to capitalism is one in which the very concept of production is reinvented. It means building industrial technology from the ground up around different values.

Another problem with the notion of "economic system". I would argue

that economics is again a part of the intellectual descendent of the basic idea of the One God of monotheists. There is a Uniersal Heirerarchy that exists, which allows numbers to be used to asign value to things. Human value becomes a number, always either less than or greater than or equal to any other numerical human value. Part of rejecting the basic ideas of capitalism is to reject this heirerarchy cast down from God. But to even use the phrase "economic system" again lets capitalism be defined in a universe in which nothing other than capitalism exists.

Indeed in some of the definitions I've found online they even add phrases like "as opposed to State ownership of the means of production". In other words the supposed definition of capitalism used by most people is not a definition of capitalism at all, but a clever propaganda piece that creates a world in which the alternative to capitalism is another type of capitalism which is re-cast as the Socialist Enemy. Since I consider all the Soviet style "communist" countries to be capitalist in their philosophical worldview, I find it not surprising that they hold the same warped view of this false dichotomy. The communists can point to "capitalism" as their enemy, where "the ruling class" "own" the "means of production", rather than "the dictatorship of the proletariat". When this goes to shit like it always does and destroys the environment even worse than "capitalism", people on the right say "I told you so" and people on the left say "it will be different next time! it's all Stalin's fault!".

So if we really want to move beyond capitalism, criticisms of it need to start trying to really see it for what it is, and see just how far the viral ideas about God that underly it have wormed their ways into the very language we use to describe it.

Currency Diagrams

This will be pictures not words.

This is now how I see “the system”. A circle of debt and power links all people with business and finance to be deployed as needed to support the military industrial complex. I no longer believe in the words “money” or “government”. These are both fictions. There is only debt, power, and the military industrial complex. All of this exists to use fire to turn earth into debt and power and complete the cycle. Denominating that debt by numbers which have power unto themselves without the whole cycle is a unspoken State Religion adopted by all modern states and corporations.

This is what value should look like:

People do labor using industrial “waste” of the old system until it’s all cycled through the new system, using ambient energy which comes

originally from the sun, and the living ecosystem that is supported by and supports that cycle in circles of value. Circles can be formed large and small, and involve trust between members of the circle which is initially fixed and which has a finite lifetime. Circles can have any of many different possible rules and structures, can live for a long time or very briefly, etc. They might have as part of their interior various physical artifacts or not, or various mathematical artifacts or not.

Circles may intersect in nodes which can have their own sets of rules. The level of complexity of the infinitely expanding system of value circles and nodes and networks has no serious theoretical limit. I imagine that the amount of data required to denote a value circle is always going to be small, even with some fairly verbose ASCII formatted text about background, stories and rules etc. Media might be needed which could take up a lot more space, but that should all be linked to from the core value circle object.

Creation of Value

Suppose I have a motor I have built, and you have need for a motor. Suppose I have built 1000 motors so I can easily spare a couple for your robot. You need a robot, I can give you a robot, so of course I give you a robot. Together, we have created value in the world in this transaction because you having a robot and me having 999 robots is much more useful than me having 1000 robots and you having zero robots. MUCH more!

Right now we have two choices: we can just call it a gift, hand you the robot, and I can feel like a nice guy. Or I can demand some “money” for it, after which we say I “sold” the robot to you. I put scare quotes around these words, as I often do, to denote that I’m about to reject the assumptions of these terms.

When people say “money” they mean debt from the Federal reserve bank, or some other central bank. That debt has value because it is backed by the military might of the United States, which accepts that debt in its collection of taxes. But this is fucked. Why should we need debt from some military backed bank in order to do this clearly positive transaction? Surely just doing this adds value to society and we should be able to denote that without federal reserve debt. But there is not necessarily any motivation for anyone to make that possible.

So what is the alternative? It seems that the most common alternative is the Marx-influenced concept of the time dollar. A local currency can be created based on hours of labor which can be exchanged through a community without any government involvement, taxes, or any banks. But that is of no help for our robot transaction. My robots were built by robots and took no labor. When you get the robot, it will do

labor so you don't have to. By carrying out a transaction that saves labor, we're decreasing the value available in the system according to Marxian labor theory of value. Anything that makes life easier creates deflation in a labor based currency, which users of federal reserve debt can attest to the horror of.

I propose that a usable way to communicate value outside of bank debt will involve the ability of people carrying out a transaction to simply create a marker of the value they mutually created. I also propose that fancy math will not be the basis of this. Especially fancy math backed by faith in libertarian neck beard fucks(you know what currency I'm talking about). It will be based on trust. Trust of the people involved in the transaction, which moves like a bubble through the untrusted mass of society.

I propose that one way to do this is for a transaction to be a chapter in a story, and that that story caries the value. So it works like this: I give you a robot. We write a very short story about this, why we did it why it was a good idea, why the robot is cool, etc. Short, to the point, with some details. Now, I can take this story down to the coffee shop and say "hey, man, can I have some coffee, I gave someone a robot today!" They say "yeah, you can have coffee here for the next week or so for a robot, sure. That's the next chapter of the story. They pass that along to their milk supplier, who adds another chapter and sends it to the fence post company, who takes the longer story to an affiliate coop out in the country who is part of our network, who delivers a much more substantial wood processing robot machine. A real monster. And so on.

It's not a fully formed system, but I don't think a good system ever really will be. It's worth a try, better than nothing, better than federal reserve debt.

More on Value Circles

Another element of the value circle currency concepts is myths. Myths, legends, narratives, call it what you want. One way to create shared trust between members of a value circle is to have shared culture, or folklore.

Do people believe these to be actually true? Maybe. Maybe it doesn't matter. My view is that existing money already has a weird religious belief built in of the most dangerous possible kind: that which people don't even acknowledge IS a belief. The entire world view created by the monetary system where everyone has to exchange central bank debt is not related to physical, social, or biological reality. It's a artificial creation which harms most of the people who without having a choice or even understanding that they made the choice are forced to live their lives by it.

One way to combat what is essentially a very conservative religion is to form a belief system outside it, making the transition from the money belief system to a new one more explicit than just “losing faith” in money which does not force the concept of money to be treated as a religion.

What would be an example? I think initially they would tend to fall into two categories: fan fiction and religion. One of the easiest ways to build a mythology of a value circle is to do something like base things off of Star Wars or Supernatural or something. It helps when people know a thing well enough to have a shared reference easily right from the start. For people who already have some sort of religion, building a trust network based on that both formally and informally is an obvious way to get started. Of course other values would be shared by a value circle, including technically specific elements like “meters of 24 AWG copper magnet wire”, but on top of the specific parts, I believe having something less quantitative and more personal is useful. More on this later, this ongoing stack of aspects to the Value Circle.

On Money and Additive Value

I hate money, and also love it, and that is typical of people in our civilization. I’ve thought a lot about all that over the last year of my total personal disillusionment with capitalism. I’m definitely against most of how our “economy” works, and definitely in favor of something else, but it’s hard to even know where to start with all that.

One habit I’ve acquired over the last few months of reading and thinking about anti-capitalism is replacing the word “money” in my mind with “federal reserve debt”. That’s literally what it is, and constantly reminding myself of that helps me to think clearly about the world around me and what to do about it.

One thing that I hate about money that I want to raise here is that it is dissipative. When a transaction occurs, one party transfers their federal reserve debt to another in exchange for some more real good or service. That transfer has all kinds of losses in it. First of all, in the money system the most value that can possibly exist after the transaction is the amount you started with. Until another party is brought in, in a single transaction, the amount of federal reserve debt always goes down, just as the amount of entropy always goes up in chemistry.

Looking at a system like this it’s clear that the best way to accumulate federal reserve debt is to be the dissipation. One way to do this is literally to take something from the transaction, which is

what paypal and banks and credit cards and the rest of the finance industry do. Another is to make money off taxes, as the military industrial complex does. And a third is to be a middle man in the information channel from seller to buyer, by being in the advertising/ marketing industry. And indeed I argue that these three types of accumulation are the main power lines in our society: military, finance and marketing. Plenty of power and wealth accumulators are all three or some combination, but I argue that most power in our society is based on these three pillars because they are the optimal means to accumulate federal reserve debt. Everything else loses to these dissipations and eventually feeds someone in one of these three pillars more than your little project possibly ever can accumulate.

It is not so much my goal here to attack the concept of central bank debt, taxes, etc. as to think about how to get outside this to add and exchange value without that system. What I argue is that a transaction should add a note of value to both sides, not just one, and that it should require no value on a balance sheet before the transaction. This second part is extremely critical. One of the crippling problems of our current system is that it prevents anyone from being self sufficient, ever. If some group wants to exchange goods and services in a closed economy they need to first get federal reserve debt from the outside in order to even have units of currency with which to work. Add dissipation to that, and eventually they'll always be more and more dependent over time on the outside world, and be forced to participate in global capitalism. A system that addresses these problems must allow parties to agree to do a thing, do it, and create from nothing the value that can be further passed along to the rest of society. Another critical flaw in the money system is the negative value of work. We assume that in any work transaction there is a winner and a loser. E.g. at a gym everyone has to either pay or get paid, it's assumed that the coaches are losing something and the athletes are gaining, so they are on opposite sides of a neutral or net-negative(with rent and taxes etc) transaction. But surely the coaches also gain? Are they not also athletes? And the athletes are working just as hard, why is their work somehow "opposite"?

All this is cleared up by the additive currency concept. Here a transaction creates a value pair, with half taken by each party. Thus when a personal trainer meets with an athlete, they each walk away with a unit of value equal to one times the value of that transaction. Let's now go back to my motor factory supply chain. An urban scavenger rolls up on their bike with a big bin of copper wire, and we each record that that was of value and changed hands. They then take that value token to the local coffee shop who pours them coffee and both sides get the coffee transaction token. The coffee shop buys a coffee grinding machine using one of our motors from one of our customer factories, more tokens are generated on both sides. The coffee shop takes this new hoard of tokens and pays their workers, and

this payment also generates value on both sides, further accumulating the wealth of the coffee shop who is a major pillar in all this. The grinder factory trades with us for motors in bulk, and some bulk material transaction value is again created on both sides of the sheet.

There is a strong analogy between this system and the so-called h-index used in academia. The h index is designed to create a measure of the success of an academic career based on the combination of two factors: how many times has someone published and how much are those publications cited. The idea is to avoid valuing either the one paper that gets 1000 citations or the author who publishes 100 papers a year none of which are ever read. Authors who both publish often and get frequently cited are, on average, going to be the biggest contributors to value in the field. For better or worse, h-index ends up having real value that can get turned into federal reserve debt by having an impact on hiring and promotions of academics. It's not a perfect system by any means and is widely abused by departments but I think it's an interesting proof of principle that this idea can be useful.

A missing part of all this is a proposed implementation strategy. How should the value be accounted for? I could think of a lot of ways to do it but I want to make the point that I think this is much less important and difficult than a lot of techno nerds want you to believe. Any store of value, whether it's paypal, cash, or credit card debt is basically based on trust. Sure, there are anti-counterfeiting measures on bills and encryption on online transactions. But for the most part these systems work because most people can be trusted most of the time. If everyone really were out to steal and cheat, encryption would be nowhere near enough to save it, and it would collapse instantly. All this works because the VAST majority of people would rather do something useful than go into the illegal bill printing business or credit card theft. One way I think it could be done is with an archive of stories. Some kind of shared electronic narrative that includes all the transactions in the network. This is not great for doing illegal shit or avoiding government surveillance, and that is a problem in some ways. But not in the long run because it forces people to push back against the government controls a lot harder and faster and also because that stuff can always still happen with federal reserve debt, alternate and more anonymous systems, etc. Clearly there will be others for whom this doesn't work. But I believe that a story-database-based system of value can work for some people. And if it works for *anyone* it's instantly extremely powerful because it will grow exponentially and naturally find the people who can benefit from it most. Is it taxable? Probably not. If we do things "for free" meaning no federal reserve debt is exchanged at all, what is there to tax? Surely not vast, unencrypted databases of anecdotes and poems describing the actions of millions of people.

And it’s not even really necessarily a threat to the government tax system, I think. Part of how our system is as broken as it is is how differently it serves those who control the pillars of power from the rest of us. The fact is that the capitalist overlords, governments, military machines etc. don’t really need the vast majority of us to exist. Our demands for food, medical care, housing etc. are mostly an inconvenience to them. An economy like this might take what looks like potential tax revenue out of the system, but it also takes an incredibly vast load of social welfare spending off of the existing system, since that kind of value is so much better created in the additive value system.

One more point is that I don’t consider bitcoin to be in any way relevant to fixing the money system. With any form of currency, you have to ask “who do I trust when I place trust in this?” I have lots of criticisms of the central banks, and the federal reserve in particular. But given the choice between central bankers and some neck beard fedora software montherfuckers, I’ll take the central bankers any day of the week. Because the demographic in charge of bitcoin is, in my view, the single least trustworthy group that exists in our society. Also, building deflation into a currency is so bizarrely pathological it’s not even worth looking at. Bitcoin isn’t money, neck beards are not revolutionaries, it’s time to move on.

So where do we start? I think I want to build a supply chain out of trash, and then just try the database of stories method and see what happens. Having a supply chain that is clearly of value will give me the leverage to start a thing like this. So probably another year or two are required, and hopefully by then I’ll be more comfortable with python and will be able to build a prototype software system to start this off.

Our Currency is Based on two things:

1. suffering

2. and minerals

Turning minerals and human misery into numbers is capitalism in a nutshell.

Capitalism is an industrial system in which all value is based on human misery and minerals. By creating misery, some people use threats of violence to control land. They use more minerals, fire, and misery to create minerals ordered with a precision based on their belief in violence and control through military order. The threat of inflicting misery using military techology(not only is our technology military, our concept of military is based on our technology as well, and both are based on the One God beliefs) is how some people known

as capitalists claim "ownership". Ownership is a complex network of violent threats which allow threats of future misery and benefits paid from past misery to be added up numerically, building a ladder of power down which the physical benefits of mineral wealth slowly trickel, with the most landing at the top.

Any proposal to reform capitalism that maintains concept of numerical adding up of suffering and minerals is just capitalism with a new mask on. True reform means finding a set of moral values that informs technological figures of merit which are based on human joy, adventure, hilariousness, beauty, or other things that actually have positive value for everyone, and then re-builds our whole concept of what it means to have a technology up from scratch.

To repeat: to attempt to reform capitalism while continuing to use any of our current technology at all is a lost cause. The ideas of capitalism are built into the position of every atom in a modern technical artifact. If you want a world without capitalism you must re order every atom, completely re design how atoms go together from the bottom up. And it only makes sense to have this system acknowledge that this does not exist in a vacuum: 300-400 years of capitalism gave us the gift of minerals, which we can now live on forever.

Every atom. Every atom changes in how it relates to the whole. Same physics, same atoms, but new ordering principles, breaking out of the military design concepts. No more are the ideal shapes always planes, circles, and perfect grid arrays of objects. No more are tech artifacts locked into a centrally controlling clock that tells them when to work and what to do. No more is there a wall between engineer and customer, where some things are known and some are secret: all information on construction is physically encoded in the artifact, and updated as more edits are made, even if the user does not document(data stream into the dataverse).

All intellectual "property" is theft

I think all private property is immoral. But intellectual “property” is the most blatant form of theft a person can carry out against their fellow people.

I’m sick and tired of hearing people use creators, especially inventors, as the excuse for the existence of the IP(intellectual property) system. The vast majority of the time for the vast majority of creators, be they writers, artists, musicians, inventors, engineers, or scientists, the IP system primarily exists to protect the “rights” of our employers. As with so many arguments in defense of capitalism, we find people howling with rage about their “right” to some minuscule slice of a pie totally controlled by the forces of capital. As long as a creative person gets their 1 penny on the

dollar or whatever, they're happy to defend their bosses' rights to the other 99 cents.

So first of all I believe the defenses of the system are bullshit. I think we have a system that *usually* screws the creators, as in the VAST majority of the time the VAST majority of creators see nothing for their work, while their work generates huge wealth for the controllers of capital.

But even if it did provide some good to someone besides what are effectively lottery winners, the evil is overwhelming and is getting worse fast. Technology is getting even more personal, and even more wrapped up in our daily lives. The smart phone makes technology involved in our personal lives in ways never before possible. We now live in a regime where various capitalists claim to actually own certain things you can or cannot do. Notice I don't say "do online" or "do with your phone" because the line between "do" and "do with your phone" is being erased by the ubiquity of this technology.

Let's put aside shitty .coms suing each other over web design and music piracy and think just a little bit into the future. Suppose wearables start to have more impact on health applications like drug delivery. Further suppose to make it maximally personal that birth control is one of the types of medicine that gets integrated into this "tech" nightmare. I can guarantee that in the current capitalist tech regime this will be patented. Who will own the patent? What if they restrict when it can be used? What if you have to pay extra to not see an ad every time you have sex? What if the government has back doors to turn it off? I should not have to go into much detail here to communicate what a nightmare this is.

But it's important to note that this is EXACTLY where we're heading. If someone developed that technology tomorrow, the natural way for it to be is exactly like that. Notice the pathetic cries of fake outrage over the high cost of some drug that some hedge fund guy recently jacked up. Watching liberal defenders of capitalism whine about that was just bizarre. When you support patents, this is what you support. Either you can OWN an idea or you can't. If you can this is what happens. If you support ownership of ideas you support this, period. If you support capitalism you support this.

The patent system cannot be "reformed" and it is counterproductive to even try. The patent system is part of a legal framework that exists for nation states to use force to strengthen the power of capital over people. The USPTO, like Apple, Facebook, and most of the US government simply should not exist. Money and patents need to be eliminated and replaced by a non capitalist technology. The path we walk with the tyranny of capital over technology is going to get a lot worse before it gets better. And by the time people start to see how bad it's getting it will be clear that reform is not an option.

I believe that energy spent trying to reform the patent system is a waste. Our energy instead needs to be focused on building post capitalist technology outside that whole system of control. When the our technology works and is attractive, the capitalist institutions may well attack us. But if we build things they need and they find that their capitalist structures need our technology just as badly as everyone else, this may turn out not to be the case. I think that if we focus on positive building of technology instead of combat against existing technology, that we may find no such combat ever needs to happen. For now, though, I think it's clear that we are better off building than fighting. Because if it's a fight against capitalism that is planned history tells us that fight is always lost. Capital is just too good at what it does.

Emergent Phenomena

As much as I realize "emergent" is a word that is abused by idiots, I love this concept for all its flaws. I think that a huge danger of our reductionist way of doing science is the tendency to overlook the patterns that emerge in complex phenomena that cannot be found by looking at the parts individually.

This is something I think about very often, but have been thinking about a lot recently in light of the book "Plutopia" by Kate Brown, which I'm still in the middle of reading. There's a lot of stuff in there about nuclear safety and history, accidents etc. But the stuff that really stands out to me is the comparisons just how similar the US and USSR were in some ways in regards to the social structures the two systems created around plutonium production. Both sides furiously studied each other, each copying the other partly out of the usual cold war paranoia of the time. But there is, I believe, something else at work.

I think part of what I'm seeing in the book is how the bad decisions of management(everything about long term biological effects and a lot of safety issues) as well as some good decisions of management(way more creature comforts than the average Soviet citizen and better public infrastructure for the average American citizen) were created not by the systems or the people involved but by an underlying essence of plutonium production as a technology. Certain technologies inspire certain cultural behaviors. Perhaps this is obvious. But if that really is obviously true, it means that the choice between, say, building vast numbers of plutonium bombs or simply doing something else affects more than just whether you have the bombs or not. It has a rippling effect to the whole rest of society that has more to do with the structure of the people around the technology than what the technology itself does.

In case it’s not obvious, I am personally against all plutonium production, and indeed almost all nuclear technology. This is partly because of my personal experience with plutonium at my old job. To make a long story short, someone(not me!) spilled a small amount of plutonium, no one was hurt, but management behaved almost comically badly at every level throughout the process. After seeing that whole shit storm go down I’ve watched things like the Fukushima incident and read accounts like this one and what I see is that middle management in different times and places and political systems behave remarkably similarly when faced with a nuclear accident of this kind. I believe that this means the problem is never fixable by shuffling management around, adding training and procedures etc. It’s fixed by not doing things where they only don’t kill people if human nature is magically changed. I know a lot of people will say some shit about how you need nuclear to generate enough energy blah blah blah. Well, fuck off. If your plan for the future of the human race needs that much energy and you can’t find it another way, your plan sucks.

Everything should die

One of the many things that underlie why I hate society is that nothing is expected to die. Everything dies. Empires, civilizations, churches, businesses, sports associations—like people and trees, all die eventually.
But unlike organisms we pretend that’s not the case. Why should a company that exists for the sole purpose of bringing a new technology to market as fast as possible out live the process of crossing that threshold? Well, maybe there are reasons. But if the assumption is immortality by default, those reasons are never examined, and companies must always either die a horrible death or be turned into something else, often something really nasty. Why can’t the death of a company be planned in the birth? Contracts are expected to have a clear set of exit conditions(and when they don’t it means someone involved in the contract is a scum bag parasite blood sucking predator piece of shit), but why not articles of incorporation? If Google meant their whole “don’t be evil” thing they would have dissolved the company and freed that technology up years ago. But of course “don’t be evil” is not compatible with the ideology of infinite exponential growth and immortality by default. So the nightmare continues.

Same with nations. If the purpose of the USA was to break off from the British Empire, fine. But why is the default that a nation founded by a bunch of slave holding capitalists bent on pillaging a continent lives forever by default?
Also fuck immortality. It’s no accident that the deepest drinkers of free market kool-aid, the silicon valley capitalist ditto-heads, are the people most obsessed with all this “singularity” nonsense. Infinite exponential growth is a religion. Like all religions, those

of us outside of it end up judging largely by how it affects us. And this one is hell bent on destroying everything that is good in the world. Personally I'd rather see the world literally end than a world where the silicon valley elite become immortal gods.

They expect that. They know there will be war with the throw backs who reject their world. What I think they won't expect is how many technology people are on the other side of that war. The ultimate war of the apocalypse, the struggle for a world with death.

Free Feed of the Value Circles

People love their feeds. Facebook, Twitter, Yammer, news feeds, tumblr feeds, text message feeds, push notification feeds. It has proven to be a very widely liked format for a person to see the passage of time of a community of people. Value circles should include this feed concept. Working on your stuff will add media content from your device which gets added to the main value circle database and then fed into various users' feeds based on their filter choices. I think if you are not trying to make money that this whole thing can be much simpler than the existing software and that Facebook etc can be replaced. However, it's also possible that the best first implementation of this will be to do it in a existing commercial system like Facebook. This is obviously dangerous. Dealing with companies like that can have legal problems, control problems, and limitations on what you can do practically. It's not ideal, but it's something to consider. And the free feed that circulates and shares data to a web browser that can be loaded on the pi zero tablets of the trash wizards is a project that should be worked on immediately. Probably tools already exist that can be adapted for this task. This is worth some detail in the first book, it's not physics, it's code and that's faster to deploy.

Free Hardware

What does it mean for hardware to be free?

Free means that a thing can be created with only labor and the waste products of the old world or renewable products of the natural world, using information that is available to the public both physically and logistically.

- If someone claims the legal right to control who can make a thing it is not free.

- If materials mined or otherwise extracted from the Earth are needed to make a thing it is not free

- If professional expertise that cannot be learned in a short time from clear online instructions are required to make a thing it is not free

- If a tool from the consumer capitalist economy is required to make a thing(e.g. a 3d printer from a factory) it is not free

- If the fabrication of a thing requires the use of energy from the Grid or non renewable sources, it is not free

- If a thing cannot be re integrated into the industrial ecosystem in a modular way after its lifetime it is not free

I seek to build a motor that is free in the sense described here. I think of free as that which is not unfree, where unfree is defined by a list like the above. or:

- A free thing can be made from readily available waste *streams* of the existing industrial capitalist system

- A free thing is not patented and is disclosed publicly in sufficient detail to make patenting illegal

- A free thing has publicly shared non copyrighted instructions which enable a non expert to learn what they need to learn to complete the construction of the thing

- A free thing can be fabricated in a scalable way, from single units up through millions of units, with automation at large volume using robots built from same technology

- A free thing uses only ambient energy to function

- A free thing has a post life trajectory built into the design, where all components are easily salvaged into other Free Things

- The construction of a free thing must create value from “nothing”, which can be a medium of economic exchange outside the world of central bank debt

It’s clear why I have to start with the motor here: without a free motor, it’s impossible to build anything else free because it would require automation using motors from the old system. With a *class* of motor that can be built to many specifications, a whole electromechanical technology can be built from the ground up that is all free in this sense.

What is the connection between free hardware and open source hardware?

Open source hardware does not at all have to be free: it can require a vastly expensive factory to actually produce, as long as the design is publicly available. This maintains the power relationships of industrial capitalism: the means of production remain safely in the hands of the capitalists, we are just re-aranging how we share amongst ourselves. The difference between free and open can be more subtle for software where it's always free in the sense that it can be copied an infinite number of times for no cost in principle. Hardware on the other hand is not just information. Without supply chains that are wrested from the control of the masters of the system, what is or is not free is affected very little by "open source" hardware.

Another important shortcoming in the open source model is the lack of demand for the project to be accessible to those outside the technical guild that built it. This is not as bad as it used to be, but it's still common practice for "open" to mean a thing has horrible documentation and usability as contrasted to "closed" commercial software. What this really does is *further* enforce the class divisions in capitalist society by making a hierarchy of who gets free stuff and who doesn't. Those who are in the software tech guild can get free things that are unusable to a normal person, and which have such opaque help that no one outside the guild can be reasonably expected to figure it out.

Avoiding this shortcoming of open source software in the free hardware project will be particularly tricky. This means that if you want to use a permanent magnet and coils of current carrying wire for a thing, the quality of applied physics education you make available to your user determines the freeness or non freeness of your technology. That means that any free electromechanical technology is not really deployed until a whole curriculum is made freely available on classical mechanics and electrodynamics. That curriculum must be held to much higher standards than are presently applied for college or high school physics education. It must be very applied, with direct numerical examples throughout which can be used live using python notebooks. Also it must be able to cater to a very diverse range of learning styles: hands on, mathematical, theoretical, visual, etc etc. *All* of these must be made freely available in multiple open free formats. It must be possible to do this with printed pages and no computer or with any type of computer or personal device and no printer(either). When the thing is built, it must have information printed on it or embedded in some obvious way, which links back to the main free storehouse of documentation. That documentation must also be decentralized to prevent any authority from destroying the information.

This imperative really affects the way that progress moves along. A working wire coil is not enough. It must be well characterized and documented with a series of easily accessible physics experiments. There must be youtube and instructables content showing how to put it

together. These experiments lead to a very fractal level of digression, but in the end they lead to absurdly robust technology which can be recreated from scratch by anyone anywhere quickly.

I'm pretty sure the next physics thing I need to get working on the motor that's not for motor function is the LRC demo. I want to see a damped LC oscillator, measure Q and resonant frequency for a few C values to determine L, then see how L is affected by various high permeability objects placed in or around the coil.

Then I probably want to make a nicer coil winder with a hand crank, buy one more round of 24 AWG copper wire, and wind a bunch more coils, then back to real motor design with the stick frame.

Lux Et Veritas

I woke up this morning with a sudden realization. I've been trying to think how the free motor and free technology movement can have physical space and legal existence. I was thinking of various non profit structures, squats, even religious organization structures. And then I realized: universities.

Universities were around before the rise of the modern military industrial corporate state, and they'll be around after. In some ways they've become less and less relevant, as the most economically valued skills are not taught there, the debt trap ruins many lives, and what used to be a "liberal education" is so watered down as to have no value above the practical. The size of administration continues to grow out of control, faculty have more and more miserable jobs as the pressure of completion adds up, even after the tenure race. Students are encouraged to party for 5 years of pointless "education" before their life long debt peonage begins. Research that is supposedly "knowledge seeking" is more and more a R&D arm for corporate America and the military.

But in spite of all that the power held by universities is staggering. Yale is the largest land owner in the state of Connecticut, they own over half the hospitals in the state, and control much of the area around their home town of New Haven. Their endowment is well over 10 billion dollars, on which they consistently earn extremely high returns. They have consistently had graduates controlling both the supreme court and the presidency for much of the last 100 years. This sort of thing is also true of many large western public schools, and while less true going down the hierarchy of schools, the overall amount of land, money, power, and influence is large for the whole system. And in many ways universities are allowed to exist outside our capitalist system already.

Obviously they're still very capitalist, but just the fact that there

are so many car free spaces is very unusual for just about anything in our society. What else is like that? Corporations have huge green campuses, which you always have to drive to, and which almost never have housing. And they're usually very utilitarian, clearly intended to NOT have the employees lounge around all day playing frisbee on the grounds.
I see this as a distributed campus movement which can exist as organizations on a campus, re-organized departments, takeovers of failing universities, political culture shifts in successful established universities, abandoned factory occupations, and finally full launching of new universities from scratch, buying land, raising big donor funds and all.

Accreditation would not be a goal initially, we'd call it a non-accredited technical university and deal with that later. No tuition would be paid, housing and food would all be free as available. No one would pay or be paid, no materials would be paid for or bought. Supply chains would be established to pipe industrial waste streams to the campus for free. everyone is staff, everyone is student, and everyone is faculty, after they get some minimum level. Education achievement is denoted more like the martial arts than in school: degrees are awarded in systems, with pedigree noted and recorded. Students do not graduate, they simply become more skilled as time goes on, and produce more and more useful knowledge which they can pass on to both more students and the world.

The work and learning and research are all the process of building full robot communism on the campus. The waste stream builds the robots, which can be sold for federal reserve debt to get leverage with the capitalist world, as well as the robots that build out the food production. The initial plan has to address the land use issues: there has to be enough water, air, soil, sun, and open space to carry out industrial production, food production, energy production(this is critical!!), classroom education, student and research lab work(which should overlap in space if not completely in time). This means sitting is very important. A school that is totally on board with the project and has a great team etc. but is in the middle of a desert or has a totally urban campus with no rural land, or has no on site renewables should be ruled out initially to make the experiment a success.

This idea of students staying for life, and contributing to a post capitalist industrial society also solves one of the main flaws in academia: exponential growth. In the current system, a top professor might create several dozen phd's during their career. That means that for all those people to find jobs like their advisor, the number of available jobs has to go up by several dozen over a couple academic generations. While post WWII growth in the sciences was often exponential, it was nowhere near steep enough, ever, to make these numbers work out. The vast majority of phd's have always, and continue, to have to leave and find other work unrelated to what they

studied. Even if they're lucky enough to get a good job, it's always at a rival school to their advisor, so they are automatically forced into competition, destroying the benefit that could happen if a team stayed together for decades, learning and working(this is why national labs are often more productive than university labs).

In this free university system, however, students who have learned skills and ideas from someone for the last 10 years will often spend another 10 years working with that person to grow their work. And this CAN grow exponentially, since the idea is to build a industrial ecosystem that can grow organically to eventually take over from all the elements of the capitalist world.

Faculty are recruited based on their willingness and ability to tackle the major problems which are on the university's "problem list". Problems can be added in any field, and addressed with faculty hires, and new perspective faculty can pitch new problems to add to the list. However no effort is made to "fill out" existing categories outside the problems to be solved. And economists are banned by policy unless a special exception is made based on a consistent pattern of radicalism. No theorists. No guns. No weapons research. No anti personnel specific weapons can be made or used including tasers and their ilk. On site security will be by the judo team. Politically, governance will be mixed. In some cases a project or lab may be a pure collective, in others a more authoritarian structure, in others a democratic mix. The default is temporary autonomous zone, where the temporary part is largely

All work done at the university is truly free: no copyrights, no patents, all publications in the public domain, all publications have layman versions which the public can understand and follow if they need your technology. Technology developed must be able to be built without mining. Exchange is based on a growing system of value circles, and described elsewhere, creating an economic system which can grow with a steep exponent independent of and mostly unregulated by capitalism.

If professors want to consult or still be attached to other universities while at the free university, so be it. They can get federal reserve debt that way, as can students. Eventually students could get accreditation that would allow them access to the graduate school system in the outside, so politically strong ties with the existing university system are important. This must not be seen as just an insurgency, but rather as a process to save the spirit of curiosity and good will and fix the debt problem for students. If presented correctly this can be viewed by the academy as a means of both self preservation and ultimately growth in power and prestige(both of which they're losing).

Looking forward, imagining that this is successful, it's staggering to

contemplate the level of power that could be wielded by the post capitalist industrial quasi-state that is the free university network. What if the Ivy League could be converted by a series of political takeovers on their various corporate boards? Cornell now owns Roosevelt Island. One could imagine a sort of shadow borough in New York, which feeds off of the city's ludicrously massive waste stream and the tidal energy from the East river and builds out a whole post capitalist industrial infrastructure right in the heart of one of the centers of global capitalism.

Ultimately, it's also critical that society at large see this as an asset not a liability. Autonomous zones usually exist in a grey area where they are either barely tolerated by the state or they get fully criminalized, with military attacks by police. But what about zones controlled by the universities, big companies or the military(or all three)? These spaces get huge latitude because they are part of the underlying system: industrial society needs those spaces. If the free university system makes technology that people need and produce media that people like and use, that will be viewed in the same light that universities have in the best of times: as pure creators of knowledge needed by all, and thus protected by the state. If this is done correctly, a state within a state can grow not only outside capitalism but in symbiosis with it on both sides: capitalists get free knowledge and stuff and we get free metal, stone, land etc. from them.

Also note that while the university should have no internal budget in fed dollars, it will have various revenue streams most likely. With no taxes or expenses, what happens to this fed debt money? One of the ways it can get used is to pay the local town more than usual for the voluntary real estate tax. Legally the universities don't have to pay land tax, but the big powerful ones do voluntarily for political leverage locally. These are often pathetically small sums compared to the university's operating budget or endowment. With no expenses a free school could easily multiply those numbers by 10, changing the relationship with the town qualitatively. Given that universities already wield almost godlike powers in their local towns a lot of times, this would effectively give complete control over the town, preventing opposition from city or county zoning authorities. This brings up another major advantage of universities: no one thinks it's weird for there to be high density housing there, and also huge industrial facilities. Where I went to college there were seemingly endless rows of 8 story high dorm housing for blocks, right on campus land. We also had a nuclear reactor. Where else can that happen? Where else can you put a weird little stone hut in the middle of a corporate property and have a senior employee live in it with their dog?

Dealing with heat and AC and power in the post capitalist world is the first task, which the start team has to solve. I'm pretty sure the plan for how to ramp up this free university distributed campus is

going to be a whole book chapter in the upcoming manifesto.

On Why Cryptography is Bullshit

Obviously cryptography has its uses in today's society, but when it comes to building the tools we need for a better society it is bullshit. It's no accident the same people who are obsessed with cryptography are often obsessed with guns and other weapons.

Why do I hate cryptography? Why not just ignore it if I don't like it? Proponents claim cryptography can free us all from having various communications spied on by "the enemy". This enemy can be various criminal agents as well as the federal government which is what crypto people are generally the most worried about.

Well, I have a degree in math, and I kind of like math, can learn it reasonably easily, so I have tried to learn something about crypto. Honestly I find it impenetrable. Everything is not only based on pretty hard number theory, in order to actually make it work there are a ton of subtleties that are not pure math at all, but are more applied computer science. And on top of this everything you read about crypto comes with DIRE warnings against trying to write it yourself out of some simple script, so that you control what's happening. We, the technically competent non-initiates to the technocratic priesthood of IT, are told that without members of the priesthood blessing a given piece of code it should NEVER be trusted.

So the struggle for the supposed freedom of using cryptography for all communications always leads down a circular road back to the same technocrats we're trying to escape. We're told that, essentially, it's really important to pick the RIGHT members of the technocratic priesthood to trust. But why the FUCK should anyone trust people from the tech industry at all? The fact that our lives are all online with shit security, and that this affects all of our ability to function in society comes entirely from the world these same techno priests built. If you don't want tech industry elites to control your life, entrusting your secrets to more of them will never be the answer. Personally I advocate smashing your smart phone, replacing it with a burner flip phone, and leaving that turned off in your desk drawer(works for me).

But let's go back to the problem the paranoid crypto nerds are claiming to solve: intrusion of government into our lives. They get super hysterical if you say you don't need crypto and have endless reasons that having nothing to hide doesn't mean you don't need privacy. Fine. But this totally misses the point. Most of us care about the practicality of all this: are we going to be harassed by the State? Will political opinions or affiliations lead to government

oppression? Will minor non violent drug offenses lead to long prison terms? Will we have to watch everything we say because of the “big brother” listening?

All this is a total red herring. Oppressive states don’t oppress because they have the most expensive computers in the world, they oppress because they’re oppressive. North Korea probably has some of the shittiest IT infrastructure on the planet, and has arguably the most repressive government on the planet. Meanwhile South Korea is a relatively free society with some of the most “big brother”-ish technology you can imagine(phone apps that know your entire route on public transit at all times, all payments made non-anonymously by smart phone, CCTV everywhere, etc.).

If you want a free society, force police to follow the rule of law, and pass laws that prevent them from oppressive action. That’s it, that’s all you can do. The state, as long as it exists, will have the overwhelming advantage in terms of raw force, be it guns, tanks, planes, or computational firepower. I believe challenges to those authorities are important but that direct attacks/defenses based on firepower will always fail. If you don’t have the kind of state that can listen to reason, revolution can be needed but that can only work by ultimately getting a lot of people to switch to your side, including those in the old system. It works that way for every coup, worked that way for the Bolsheviks getting the Tsarist troops to switch over, etc.

I also think there is a utopian argument against the world view of the crypto people. I argue that one of the things that is wrong with our world is all the secrecy and paranoia. In the name of national security the states of the world(and a whole bunch of private sector collaborators) have classified as secret huge swaths of our global industrial system from secret plutonium factories to secret prisons. I would say anyone who’s world view I think should actually be listened to would agree that this has gone way to far and that a whole lot of light shining in the dark places in the world would be good for everyone. Fewer secrets, fewer lies—that’s how I think the world should be. But we’re told by various tech people that lies and secrets are great as long as instead of trusting the government with them we trust them.

Because make no mistake: to trust crypto is to personally trust the techno-elite priesthood. Just as buying tacos from a sketchy street stand involves trust not in some abstract taco theory but in the actual PERSON standing in that cart cooking the meat, the decision to trust cryptographic technology that is opaque to the vast majority of the world is a very personal trust decision.

And why should we trust anyone from tech on this? While we’re told by the techno elite that they’re the ONLY ones qualified to evaluate the

technical soundness of crypto, they would not disagree that on average they're some of the worst people in our society at judging the human elements of anything. Because of course no communication channel is ever really just secured by math and code. All the humans who have the technical and logistical ability to compromise that channel have to be trustworthy. Every. Single. One. Conversely if you're an agent of a government who wants to compromise a server or software or hardware you only need to find one weak link. It could be the manufacturer of keyboards who you pay to put key loggers in that phone home in some bitstream disguised as noise. It could be similar backdoors from screen manufacturers, OS backdoors, hacks of low security apps every idiot downloads on their phones, hacks in third party social media apps, etc etc etc. If you really think that crypto is going to be your main line of safety from oppressive government you have to assume none of these things happens.

So even if you really are that paranoid, and you think the feds seriously give a fuck what you have to say, you have to conclude that this is all bullshit. If you really are that paranoid, if you're doing the sorts of things that NSA is willing to point their extremely expensive ears at intentionally, you're a fucking idiot if you trust tech nerds to protect you. If you want to leak your shit to the Washington Post, put your trench coat on and pass a thumb drive to the reporter in a darkly lit DC bar like a normal fucking person.

And what about the coming police state these people claim to fear? it's already here if you're poor or black, and cryptography is sure as shit not helping those people. Cryptography won't help a black teenager walk down the street without being shot by the cops, and it won't help the black guy in the inner city who's threatened with a long jail term if they do't collaborate with the cops to inform on people for minor drug offenses. And what about the organizers who are actually trying to do something about this police state? Do they need cryptography to organize via twitter and Facebook, get people to show up to public rallies, or bring their message to the media? Obviously not, what they need is the opposite of secrecy, which is generally how activism works. When a group of mostly men making $100k+/year sit around building technology to control how society communicates that's the opposite of activism.

So why do tech people want to talk about cryptography so much? I believe it's nothing more than a power grab. They may not realize it, but I think tech people are generally blind to the dynamics of their own power structure. Whether intended or not, the entire trend of crypto as a culture is about the techno elite priesthood grasping an even deeper control over the lives of the rest of us. Fuck crypto, and fuck the tech industry.

10 years ago, I'd rail against the banks and credit card industry because they were clearly forcing Americans into debt slavery on a

mass scale. Everyone looked at me like I was crazy, and didn't understand why I even viewed credit cards as political. I think what gets called "tech" now, i.e. the silicon valley elites who are building a internet based power structure, will see their social capital erode in the same way the bankers have in the last 10 years. Either that or I'll just completely withdraw from society, because I'd rather live alone in a cabin and forage for berries and rhubarb than live in a world dominated by the tech industry.

The Science I walked Away from

The way I've experienced science is totally unrelated to how I might have expected it to be based on what I learned in school growing up. When I look back at the whole thing as I've seen it, I see it as a rotten institution that I want to have nothing more to do with.

How was I brought up to think it worked based on crap you learn in school and in books? Curiosity draws the scientist toward some question about how the world works. Based on existing science knowledge, a hypothesis is formed, and based on scientific skills an experiment is designed to verify or falsify that hypothesis. Now, with as much objectivity as possible, the researcher carries out the experiment, analyzes the data, and if needed adds some change to the body of what we call knowledge. Then, based on greater knowledge, this all repeats. All this is glorious and good. If it's not obvious how great it is, just look at all that great stuff it makes! Antibiotics! Refrigeration! Nuclear energy! The future is glorious, and it's just a natural side effect that this glory reflects on the scientist. This is as it should be! Scientists, almost by accident, since they're driven totally by pure curiosity, happen to produce the raw materials for an infinitely expanding and glorious future.

Obviously my views have changed, based on what I've seen.

Let's take a look at how my career would have worked had I continued. I started physics in high school, loved it, wanted to know more, and studied it in college, along with math. Note that every step of this was influenced by science fiction. I got sucked into physics and math in middle school because we wanted to understand how someone could build a TARDIS as seen in Dr. Who. Then in high school, I watched Star Trek, where we learn that the natural next step in science is some kind of application of general relativity and quantum mechanics to understand space time well enough to manipulate it, as in Dr. Who. We see a future where hundreds of years in the future Einstein and Hawking are both considered important enough that the crew of a space ship play poker with them in their spare time.

Then I got to college and found out what the science is like that the people who claim to have "gotten Einstein's office" do. In short, it

sucks. High energy physics has done nothing useful in decades, either for technology or for understanding how the world really works. And it's structured in GIANT hierarchies where almost everyone is a tiny cog in a giant machine. Most likely in that field you will work on something that is engineering, math or management and not science at all in any classic sense of curiosity driven research. And then, after decades of hard work, you will get some result that is useless to society and the rest of science. All the while watching your funding slowly diminish in real dollars and crush the culture of your field. So, fuck that. Most of the people I went to college with who wanted to do that stuff as freshman figured out otherwise after a couple years or so. Most of us found that much more interesting work is happening in atomic physics, nuclear physics, biophysics, and solid state physics, or just left altogether.

But then as an undergrad I was exposed to yet another sci fi world that changed everything. I read the Diamond Age by Neal Stephenson, and my whole view changed. In that book, while dystopian in some ways, there is still a glorious and shiny future available for those who apply physics correctly. That world was based on "molecular nanotechnology" as described in the 80s and 90s by K. Erik Drexler, Ralph Merkle etc. I *believed* in that! I was totally obsessed. I believed I would one day become an immortal planet sized being wandering the universe studying physics if I could just be there when the big breakthrough happened. That drew me to nano physics/"condensed matter", and I worked in a top lab at Berkeley for the year in that field after I finished undergrad there.

That was super fun, I learned a ton, and it really was a plugged in lab. Great funding, great facilities, everyone went on to get top jobs, our advisor was super famous etc. And it led smoothly to another research position based on where I was living the next year, at a top lab at Yale, also in nano physics.of sorts. That led to a phd, and before graduating I had a job lined up based on connections from that lab. I ended up going to work for someone whose phd adviser got his phd under the professor who my phd advisor did his post doc under. I moved fields slightly but ended up back in a field that overlapped with my phd advisor's phd advisor from caltech. My point is that this whole process is very much a "family affair": once you're in the inner circle of elite science you tend to move around in it based on personal/professional relationships, not based on the science itself.

To be clear, let me go back to the idealized picture from my youth. I would have imagined something like this: I'm curious about how electricity moves through various materials, so I pick some material that is particularly interesting, dive in, and hope that it turns out to yield fruit. Nope. What you work on as a professional scientist is more of a tribal identity than a question that occurred to you based on looking at the world as you find it around you. Now the

caveat to that is you never want to compete directly with your advisor after moving on in your career, because it's essential that they support you and that goes against that. Also they have a head start by many years so it's not a good idea. So typically what one does is move to a slightly separate sub-tribe for the post doc than you did for the phd. That's what I did. So then, the next step would have been to apply for a "real job" as a faculty member, based on some ambitious hybrid of those main sub-tribes I was exposed to. Maybe throw in some twist to that that makes it my own, some slightly "new" idea, usually one that's already around that you know will work, but that is not being pushed at the moment. It also helps to blend in something fashionable(the role of fads and fashions in science is about 10 more long blog posts so I'll try not to go into that here).

And where would that leave me? What questions would I be answering if I did that? In my view, none. The main "question" if you want to call it that, from my old field is "can the United States government successfully build a quantum computer to break codes?" That is the central question that all work in my old field feeds into. People find side questions along the way, but in the end that's where all the money and power are and if you're not pushing that objective along, you'll lose out on both and become irrelevant or unemployed. And what exactly does this work involve? Are we building a computer that you can actually use? No. Are we learning how the universe works? No, quantum mechanics is not being changed by this work, the theory stands as it has for decades in terms of its basic structure and how it explains things like atoms.

What it is, in fact, is a sort of stunt based extreme sport. Just as in skateboarding you're constantly pushing to ollie over a bigger object, spin the board more times in a kick flip, or get a higher air on a vert ramp, the modern "scientist" is usually trying to demonstrate some sort of epically extreme "trick" with a better score than their predecessor. In the case of quantum information "science", this means longer coherence time qubits, better control, more gates, scaling up the systems, etc. As in any extreme sport, you get points for style: even if your coherence time is not much better than other groups, if you do it in some super macho bad ass way, you still get props at the conferences, which lead back to more money and respect.

But what if I just want to build a microprocessor out of mud and soot? My background in solid state physics should set me up for that. It appears that it should be doable. Even if it's huge and slow, doing fab without the current fab infrastructure would be huge for society, and it's frankly more scientifically interesting to study dirt and soot than some fancy bullshit. But that's not "serious". If you study what is effectively dirt, but do it in a way with a lot of expensive equipment and trendy materials(e.g. graphene!) it's called science and you can still play with the big kids. But if you simply grab some random dirt and start playing with it and measuring it with a 20

dollar Arduino board, you've gone rogue, become a kook. And theory is even worse. Theorists not only have no interest in helping society solve real problems or studying the world around them in a way that might possibly be related to curiosity, they won't even help experimentalists solve problems that would get money and power if they were solved in the applied or experimental parts of science. They can only work on stuff that's so obscure that only another theorist can do it, because that's how you get money and power within theory. So inevitably this leads to a sort of academic wankery event horizon where at the worst you have string theorists totally disconnected from any kind of reality or experiment or society at large, doing useless math no one but them can understand and expecting the rest of the world to take them seriously as the purveyors of the Ultimate Truth.

I'm going to cut this short now and do something else, but in short here is what I've come to believe. Science as a world view and science as an institution act like a religion, is less useful all the time, is not fun to do, is a net negative for society, and generally is just a huge bummer. I'm not sure what to call this thing I'm trying to do now, but it's not that. Fuck science.

Restate the mission

I'm against the machine. That's what this is all about. I hate industrialized society, and I resent that the good products of it are used to hold us all hostage to the totality of The Machine. The military machine, the capitalist machine, the consumerist machine, the extraction of raw materials machine, the political machine, all of it. We're told that if we it's all or nothing. Don't like nuclear bombs? No vaccines for you. Sick of the Internet giants controlling your life? Well, I hope you like writing letters by hand, asshole, you must be a Luddite. That's the message over and over from the mainstream of society.

I challenge all that. I say that the course of the last 300 years of industrial development has not been just fixed by some immutable laws of nature but has in fact been the product of decisions made which could very well have been made differently while still learning how the world works and how to make useful technology to better navigate that world.

I am against professionalism in all forms. I'm against engineering and design as professions. While specialization can be useful, I believe our society has created a soul-less techno-priest class which is evil enough in its very nature that technology needs to be re-built from the ground up outside that system. If your technology needs the techno priests to function, it means your technology sucks and needs to be replaced. If it needs extraction of raw materials from the earth or any control over large tracts of land in a centralized way to

function it is bad technology and needs to be replaced. If it requires secrecy or proprietary control of information and use it is bad technology. If it can't function without capitalism it is bad technology and needs to be replaced.
We need to start over from scratch and build a technology without the existing techno priests which can be built and maintained by anyone with the desire to do so, using waste streams of the old system. This has to happen in thousands of parallel tracks in many different fields of applied science and technology. My goal here is to start a couple of those tracks which fall in my area of expertise: namely electromechanical devices for practical consumer products and some electronic devices.

At the center of this is The Motor, or The Philosophy Engine, or whatever it ends up getting called. But I also want to build up a way of studying and deploying new electronic materials that breaks the chains of the old system. This means cheaper and simpler experiments, all done on available waste materials.

Nuke talk at the coffee shop

Most people can tell they should avoid talking to me in public. At least normal people, which is good because I have a very low tolerance for their drivel about the Denver Broncos or whatever other shit normal people always want to talk about. Conversely the kind of person who wants to discourse on history of trains for half an hour at the bus stop or sell a obviously stolen hammer for a slice of pizza instantly picks me out of a crowd to talk to. That's fine with me, I'd rather buy a hammer(I still have that hammer, bought in Berkeley in the mid 90s) or hear about trains than talk to anyone remotely normal. The thing about this is sometimes it opens up amazing stories from people who are odd but not actually kooks. Today was one of those days, and boy howdy did I learn some things!

The person who started talking to me initially was a middle aged guy who looked like a sort of hippie college professor type. He saw that I had the book Command and Control by Eric Schlosser, and asked about it because he read Fast Food Nation, also by Schlosser. But as I talked about plutonium and nuclear weapons his wife got involved and that's where things got interesting. She graduated first in her class from Moscow State in chemical engineering back in the Soviet days, then worked in oil and gas in Turkmenistan for 10 years during a time that overlapped the collapse of the USSR. I'll repeat things I learned in random order.

"Your CIA have NO BRAINS[while pointing at her head]". She told stories about watching Iran's nuclear scientists walk off with both nuclear weapons knowledge and nuclear materials from Turkmenistan after the fall of the Wall. "Your CIA is surprised now to find they

have this capability because they are idiots. I saw with my own eyes as a massive amount of nuclear expertise went over the border to Iran. I can name the scientists, who did that, who moved the materials, no one cared". I mentioned anecdotes I heard in grad school from the grapevine about Americans sent over to the Soviet bloc with suitcases filled with 100 dollar bills to distribute to scientists to prevent them getting up to any nuclear mischief for lack of money since the Soviet government had stopped being able to pay salaries. She snorted at this, and said "not everyone is motivated by money. You think scientists are motivated by money? Stalin locked up half of them, and even for free, in the gulags, they would keep working. Why? Because they can't stop, they want to use their minds." True. All true.

Then there were the rabbits. She's given up oil and gas engineering because they are evil(I got confused by her accent but she said something about consumption destroying the world), and now raises rabbits for a living here in central Denver, the hair of which makes amazing hats apparently. But another thing the rabbits do is die quickly when exposed to plutonium or uranium. Faster than humans, which makes them a very good indicator that things are about to get bad. I was glad to hear her Denver rabbits are quite healthy. However the word on the street among rabbit people is a good source of data on actinide issues elsewhere. Apparently Ft. Collins, CO has bad water, with uranium in it from a local nuclear weapons related facility. She said the feds have assured people it's all ok but that this is all bullshit and is based on flawed models of how heavy metals move through the earth. In official models, they're assumed to follow liquid water, which in turn follows gravity. Heavy metals in general do neither of these things, they follow gradients in chemical potential which can be uphill just as easily as downhill, and are essentially impossible to predict. So once you know uranium is in the ground water you're not going to know where it goes next until someone's bunnies die. She took this seriously enough to forbid her daughter from going to Colorado State University in Ft. Collins due to the threat of uranium poisoning. I've read and seen enough of how feds are around nuclear materials to find all this 100% credible.

Also, why does she know so much about uranium when she worked on oil and gas? Well it turns out if you were part of the technical elite in the USSR one of the things you had to do was a weekly study group on nuclear, biological and chemical weapons. They had what looked like a house to be "subtle" which they all went into every week and got an ongoing survey of details on engineering of all the most horrifying weapons ever conceived. Good times. And for the record she agrees with my position that the only way to be safe with nuclear weapons is to eliminate them completely from all nations, no exceptions.

I asked her if she has a Geiger counter at home. Her view is that for safety from things like uranium or plutonium in the ground water, Geiger counters are of little use and she doesn't have one. Basically

by the time you hear a click on the counter, you're already fucked if it's long term exposure to heavy metals you're worried about. Still, regardless of what she says about that particular poison I tend to think that in the future there will be a lot more radiation detectors around as well as, hopefully, cheap mass spectrometers so we can verify "clean" soil and water. Add that to the list of cheap physics things to build from trash!

Supply Chains and Supply Lines

An essential part of any manufacturing operation is "supply chains". For reasons that are not clear to me military people use the term "supply line" at least historically. I shall now ramble about both in the context of things I've been reading recently. First of all, I just finished a book about US involvement in Asia from the turn of the last century through the end of WWII, which was fascinating, called Empires on the Pacific. Also, unrelated, I saw a news story about the owner of a plumbing shop in Texas who's suing a car dealer because he saw his logo on a truck used by ISIS on the TV. Apparently the truck somehow made it from Texas to the middle east and was acquired by ISIS.

What struck me about this story is that reading about the conflict of various imperial powers during WWII, supply lines were always one of the biggest issues for all parties involved. The Americans, British, Germans, Russians and Japanese were all competing for very specific raw materials like rubber, oil, and various metals. These are very specific demands. The war machine of each major power individually needed a supply line of rubber from the plantation to the jeep factory if they wanted rubber tires on their jeeps.

Not so now. Anyone with money can get anything now, almost immediately. Does ISIS have some supply chain of rubber, steel, copper, silver, and gold to make trucks? No. Just oil. With oil they can get money and with money they can get anything. From anywhere. And it's not that they wanted a truck from Texas, they just didn't care and neither did the global market. Was the truck American and made in Mexico or Japanese and made in Georgia? Were the parts made in China or Eastern Europe? Who knows? Who cares?

The world of the modern supply chain is almost unbelievably different now than it was half a century ago. I believe that this is a fundamental shift that government and corporate structures have not yet caught up with. If rubber, steel, plastic, copper, silver, gold, aluminum, glass, etc. are all everywhere and moving around the world all the time, the assumptions that industrial empires have been based on in the past fall apart. Corporate and state structure have a lot to do with economies of scale. In the age of industrial empires nations the size of the USSR or USA and companies the size of IBM or

Dow win over their smaller rivals due in large part to economies of scale. I claim that those economies of scale are worth way less in today's world than they were.

I realize this is nothing new and has been said better many times and with more facts to back it up. But it's relevant for my project because it relates to how I want to recast the supply chain problem. I believe that if we are to have a brighter future or in fact any future at all it will be by abandoning the economies of scale of past empires and building with what is on hand, which was extracted and refined by the old system. Humanity used to have to make do with what was available, which often meant not getting what we needed. There is no reason that this would be true in a post industrial future, however, since the last 300 years have already extracted enough to live on forever. That is the goal.

On the other hand, it's a bit horrifying to think how unstable this could all end up. If industrial empires really are obsolete, what replaces them can be very very good in some cases, but very very bad in others. The way for the good to triumph is to build a system that easily absorbs more people rather than rejecting them as our current systems do. Everyone in major industrial empires agrees adding population due to refugees will create economic hardships because it will mean more people competing for available jobs. But this is totally irrational. Surely we need a lot of work done, just look around at all the important stuff we supposedly don't have resources for. The system that wins will be the one that moves beyond the industrial empires and can absorb the refugees from the decentralized evils like ISIS in such a way as to smoothly grow. No one wants to live under ISIS or work a shitty minimum wage job in capitalist America. People do both because they have no choice. If supply chains were short enough that you only need to get 50 people together to build a functioning industrial society,most people would go that route given the choice. We just need to show the way and people will follow.

My story with plutonium

I've never really written down the whole story of what happened, and now that I have a proper blog is as good as any time to write it all down.

On June 9, 2008 I was at a conference at a nearby city(Broomfield, CO, a 25 minutes drive) for the day instead of at work. My memory is hazy now but throughout the week I was dropping by work for an hour or two here and there after the conference so I was around and hearing things but not actually on site all day. I remember being on campus and hearing something about a "plutonium spill". This was said casually

as if it's not that big a deal. What the fuck? Doesn't that mean we evacuate? No alarm sounded. I check my official work email. Nothing. hours pass, and some rumors go by. I forget the exact time line here but I definitely remember standing by the front door and seeing people with Geiger counters in the hall. We asked what was going on, and the management was very casual.

If I remember right, the NEXT day, this bullshit was still going on, and this is where it gets much worse. No evacuation, no real quarantine was formed. College undergrads who were doing a summer internship were "volunteered" to use Geiger counters and paper towels(!) to clean up "hot" spots along the long tiled hallway. Me and my boss both screamed bloody murder about this, and the managers didn't even see why we were upset. Ultimately the undergrads heard enough lies over that day from management that they all just holed up in the conference room refusing to do any work. We told them to just leave and not come back until they hear on the news that the site is safe and to not trust NIST management about it.

What came out over the next days weeks and months was that through ought this period the lawyers who work for NIST back in Maryland(none of whom got fired over this) were instructing management specifically to keep the information both from the public(even after it was known the lab was sending plutonium down the drain into the city waste water), the press, and staff(at least officially). For at least the first 3 days or so no official communication happened from management. One middle manager lied to my face on the first day or two saying that "email was down" which obviously it wasn't, as we all used the same .gov email the rest of us were sending and getting email the whole time(including the usual spam from managers) .

We also found out later that as soon as a spill was known to have happened, collaborators on the project from one of the DOE nuclear weapons labs offered to drive up immediately and take over the cleanup. Our managers TURNED THAT DOWN. That's right, when offered the chance to allow competent personnel from the kind of lab that can turn plutonium on a lathe to completely take responsibility for the spill, managers decided that they would choose to interpret "spin control" to mean "ask a bunch of college kids to clean up a nuclear accident with paper towels".

This is why it's hard to take seriously 911 conspiracy theorists(well, one of many reasons). Among the truthers' many odd theories is that NIST management was part of what would surely be the vastest secret the government has ever kept from the American people and press. Now I watched in real time these same managers fail to keep a conspiracy of only local proportions secret from the DAILY CAMERA, Boulder's local paper. If you're not familiar with Boulder, this is the same level of shit kicker local booster newspaper you'd expect in any town of about 100,000 yuppie dick heads. Not exactly Woodward and

Bernstein here. This vast conspiracy lasted all of about 4 hours. So I'm pretty sure the same bunch of morons did not fake all the data on melted steel beams or whatever and keep it secret for 14 years. But I digress.

The next step was for management to go into full defense mode. Many huge "mandatory all hands meetings" were had. Ultimately it was decided that "safety culture" needed to be boosted, one radiation safety officer was fired, the lowly temp worker post doc who actually spilled the stuff was fired, various mangers were shifted around in ways that didn't affect their status or pay, just moved them away from the blame areas, and we had a ton more rules. Much as 911 gave every shit head fascist in America an excuse to push all their toxic shit, every shit head bureaucrat in our management chain who wanted to prevent useful work from getting done took this as a chance to make life worse without actually making it safer. Many more months of meetings followed where we heard all about "safety culture", as well as "safety stand downs"(whatever the fuck that means). We all had to work on making huge word documents for "standard operating procedures", which was just busy work that ended up with a bunch of managers standing around assessing the minor safety issues that were easily fixable, and then re-justifying all the decisions that had been made based on cost or hassle the first time.

I was never a huge fan of NIST management but this was a real line in the sand for me. I lost a lot of respect for several colleagues who banded together with management to circle the institutional wagons and make sure no one was held responsible for the safety disaster. As I talked with people familiar with the Rocky Flats nuclear incidents that had happened in a nearby Colorado town, and read more about Chernobyl and other nuclear incidents, I saw more and more the same story. Surely no one but a very rigidly controlled organization can responsibly deal with nuclear materials—but those very organizations have fundamental flaws that will ALWAYS lead to this type of incident when materials like plutonium are handled.

I need to add a bit of background, as I've skipped a lot of technical details: What, exactly happened?

One of the labs in the same division I was in was working on very sensitive detectors of nuclear radiation. Perhaps somewhat ironically the main applications are nuclear security: making the big machine that UN inspectors can wheel up to the reactor in a "rogue state" to detect compliance with anti proliferation agreements. Rather than build detectors and ship them to a weapons lab for testing(as I mentioned before they had collaborators set up to do this already), they decided the detectors should be tested in house. And for some reason that the right material for this was powdered plutonium. I italicize that because that was one of the many very bad decisions that were key turning points: had the sample been potted in some sort

of epoxy this incident never would have happened. The powdered sample was then encased not in a welded stainless steel canister but(again for reasons that were never clear) in a fucking GLASS VIAL. Yes, a highly toxic material that standard practice and common sense would dictate are sealed in welded steel was in a tiny thing glass tube, fused at the end(if you've done any scientific glass blowing this is the first crude thing you learn to do).

Ah, but it gets better. They had "double containment", which I shit you not, was TWO ZIP LOCK FUCKING BAGS. Ok, that's not ideal, but maybe the bags might hold the plutonium powder in if the tube broke? Not if you use duct tape to attach the bags to the bottom of the detectors, and then repeatedly stick and un-stick the duct tape. In the war between a sandwich bag and a roll of duct tape, the tape will win every time. So yes, the glass broke, and the bags leaked, and the guy using them then washed off in the sink(which drains to the city sewer), walked his now-radioactive shoes down the hall, over to the urinal in the mens room, then to the sink where he washed more plutonium down a second sink. He then told someone in his lab, and the rumor and spin process began in earnest. In the mean time, however, yet another egregious safety problem was that the main plutonium work area was near the front door of a very large multi-use lab that has a wire bonder near the back. About 25-50 people had access to that machine, with probably as many as a dozen using it often. Among the people exposed were a number of researchers in other parts of the org chart who, not knowing anything was up, walked in and out using that machine while the plutonium was already all over the place.

In the end, no one was (apparently) exposed at a high enough dose to (probably) affect their life expectancy significantly. So that's good. But this was not due to anything that management did, it's just the limited size of the plutonium sample and a ton of blind luck that this wasn't much worse. What is clear to me, however is that management literally could not have acted much worse if they'd tried. To me the idea that this should end careers was obvious, but the only question was whether there would be criminal liability. But that wasn't even mentioned ever.

Also, I should note that the chain of negligent management went all the way to the very top of the org chart. The director definitely knew that this had happened during the period where management was covering this up and not evacuating.

I was fucking pissed this whole time, and raised a bit of hell as I was able. The first thing I did was call the Nuclear Regulatory Commission whistle blower hotline. Due to a paranoia that now feels very silly, I did this from a payphone and didn't give them my name, and I'm pretty sure that went nowhere. NRC was, in my view, as guilty as our management because they had to sign off on NIST having the

license to get the plutonium in the first place which clearly never should have happened based on staff's ignorance of nuclear safety. My next call was to the office of our local representative at the time, Marc Udall. Since then he moved up from the house to the senate, then lost that seat recently, but at that time he was the local rep from our area and lived pretty close to our lab. The staffer I talked to on the phone was familiar with the case, and promised to forward my information, which was this: "the main way management is culpable is in failure to notify staff in a timely manner, ask the NIST director about that."

A couple days later, the committee in congress that was investigating the incident came up on CSPAN and I was pumped to see if some democracy stuff was going to happen, so I tuned in. And my elected representative, to his credit, actually asked my question! Woo! Democracy!

…and was promptly stone walled. I can't even remember the content of gibberish that the director spouted off to the committee but it sure as hell was not an answer. So then, a gavel was banged, congressmen agitatedly stood up and demanded that he answer or face charges for contempt of congress!!!!! Just kidding. When faced by yet another executive branch official blatantly stone walling a congressional inquiry, every single person in the room just let it slide and moved on. No blame was placed at the upper levels, everyone with power kept their jobs.

That's about the end of my story. My take home was that middle management behaves badly not because three mile island, the fukushima plant and Chernobyl all happened to be run by unusually bad people, but because a giant bureaucracy that runs a nuclear site will always behave badly in a similar way for reasons that are pretty fundamental and will not change, probably ever.

Free Energy

What is free energy? Usually this term is used by various conspiracy nuts to describe ways of "getting energy for free" from something like the zero point quantum energy or the Earth's magnetic field. Both of these are nonsense, as are all the free energy schemes presented throughout youtube and the rest of the Internet.

No, we are told, energy is not "free". It has to COME from somewhere. But this notion is based on a capitalist world view. Energy is deemed "free" if you don't have to get it from a mine and labor. Renewable energy is not free: much labor is expended to build the infrastructure out of mined minerals which have a finite lifetime and eventually go to landfill to be replaced by more mining and labor.

But if free energy is energy that can be useful but is not derived from mining and labor, then free energy can and does exist. Energy not spent on air conditioning when you build under a shade tree is free energy. Energy from the sun that warms through your front window is free energy. And the electrical energy stored in salvaged rebuildable capacitors from salvaged rebuildable robots storing ambient energy is free.

Capitalist logic always looks for ways to show that things are not really free, because capitalism is based on the ideas that value comes from labor and mined minerals. If we approach industrial development from an anarchist perspective, however, we seek to build technology which is truly free, where no mineral extradction is implied in its construction.

A technlogy is free when it gives more than it takes. For instance a robot might require a few hours of service from human labor once a year. But if it does the equivalent of even just a few hundred hours of human labor it has a net negative cost in labor-value. In terms of minerals if it is built from minerals that were polluting the world around us, the mineral cost is negative: as opposed to subtracting value from the land as mining does it adds value to the land. And finally the energy of the technology must be free in the sense that it absorbs from something unwanted elsewhere.

Ultimately what is being built here is a form of artificial life. Life takes only what can be given from somewhere else. Our technology exists in a world where humanity is God. This all goes back to the notion that the structure of our technology is based on the monotheism of its initial architects. We have built a technilogical world where Man is God and only God is above Man(to use biblical sounding gibberish).

But this technology will be alive, will exist as animals and plants do, without a God. This means that while it needs humanity to help it survive at all stages and can easily be controlled by humanity it will exist on its own and can funtion to a large extent on its own, following it's hardware-progammed logic to find what it needs in the environment to keep living and carying out its mission.

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