Trash Magic

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Chapter 1

Capitalism

1.1 Chapter 1: Capitalism

What is best in life?

To care for one another, and to have adventures.

Technology can help us do both of these things, building societies where all physical needs are taken care of as well as which preserve the adventure that makes life worth living. However, as technology has advanced it has increasingly served its own needs. Because it has had such a powerful overall positive effect on the human condition(in some material ways), we have allowed the rules of technical progress to dictate the rules of the rest of our society. In this chapter I discuss how I view capitalism as an underlying force which drives this process,

creating great suffering for humanity and the rest of the living world.

What is Capitalism?

What is capitalism? This is something that critics of it avoid a lot of the time to their detriment. 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, and I think it's held back our collective effort to fight it for the last 150 years.

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 because I see them all as subtle weapons to inject hidden ideology into peoples 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 definition 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 structure 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 implying that this the "means" is some sort of fixed infrastructure. 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 false. 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 without discussion. 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 is 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 Universal Heierarchy that exists, which allows numbers to be used to assign 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 hierarchy 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 recast 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 becomes a nightmare 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.

I will give capitalism the following definition:

Capitalism is a system of belief in which numbers are used to denote all value.

That, I believe, is the heart of the matter. And it points to why experiments like the USSR have ended up having problems so similar to those in the western capitalist world. In a word, money. Money is not just metal or paper or faith in a government, it is the idea that a number, specifically an integer number(money can usually be subdivided but only up to a point) can be used to denote all human values. This is why I believe the concept is so slippery, and so hard to break out of. You can replace dollars with time dollars, bit coin, gold, silver, bags of salt or gold-backed e-dinar and it's really all the same thing: numbers. Integer numbers. As long as there is an exchange rate between a system of value and an existing currency you have not really broken free of the current system.

And what is money? The purity of numbers has proven to be incredibly powerful. Users of the num-

ber based values have literally moved mountains with the power they have been able to deploy using money. In particular money based values have been excellent at several things, some of which are good but most of which are bad. I will now explore the nature of money more specifically.

The Nature of Capitalist Money

Our currency is based on two things:

1. suffering
2. and minerals

Turning minerals and human misery into numbers is capitalism in a nutshell, and is the basis of our monetary system.

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 technology(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 trickle, 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 in building this it makes sense to acknowledge that 300-400 years of industrial 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).

Capitalism as Religion

Capitalism is the hidden religion. It does not admit to being a religion and its believers(at this point almost all humans) do not realize they are in this religion but they are. Even members of various other religions decry people leaving their flocks for the "secular" world but won't directly name this as a competing religion. But a religion it is, complete with odd beliefs of all kinds.

In my observation, the beliefs of capitalism include:

1. Private property is sacred
2. All value can be added up using numbers
3. All value must be extracted from the Earth or from human misery
4. Human society is described by something called an "economy", which is a system for laundering mine

products and human misery into numerical media of exchange
5. Hard work is an intrinsic good
6. Our world can all be described by a giant hierarchy, people, animals, objects, gods, ideas, all are always ranked and this ranking is ordained by the highest authority, whatever that is.

I believe that number worship is an underlying hidden religion that is integrated into all other modern mainstream capitalist religions. What is monotheism? It is the belief that there is only one true god. But this implies that you can count gods. That is the underlying assumption. It separates parts of the universe that are god from non-god in a rigid way, breaking up gods or potential gods into discrete numbers that one can count, rank, and ultimately then put one on top of all others. From this we get hierarchy of all kinds down through the ages and all the horrors of capitalism. But if you are a monotheist note that your One True God is almost certainly also a universal part of your world. So what makes you believe you can count gods? This other, hidden, religion that is required to phrase the questions and answers about your god using numbers. So do not take my attacks on the structure of industrial monotheism as an attack on your One God–I do not deny your god, merely your ability to count gods.

That being said, I do think this counting has led

to other problems in industrial monotheism which must be combated, namely patriarchy. Monotheistic religions have a strong tendency to extend the counting hierarchy from their bearded man-god down to all Things, building an instant patriarchy into their world view. Don't do that!

Number worship, the belief in numbers as a superior picture of reality than other models. BBC documentary on history of numbers is actually blatant capitalist religious propaganda nonsense. Vietnam war, big data, the very word "rational", always the assumption that number-based ideas are superior than ideas not based on numbers.

Professionalism: A Capitalist Cancer

I am against professionalism in all forms. Professionalism divides us. We have split up philosophy, physics, chemistry, biology, design, manufacturing, theology, art, and technology, and very much to the detriment of them all.

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 is bad 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.

Specialization is fine up to about 100 people then it is a luxury for special projects. If you need someone who makes up less than 1% of the population to do something your technology needs a reset and it is bad. Our goal is total freedom for 100 people.

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. I will focus on the parts relevant to my area of expertise: applied physics.

Capitalism Stifles Innovation

Part of what has led me to write this work is my frustration as a professional scientist with how capitalism has, in my view, held back scientific, technical and cultural innovation by decades if not centuries.

There are several aspects of capitalist ideology which have had devastating effects on science. The first is the obsession with novelty. This is probably the largest prob-

lem, which I would say has gotten progressively worse as science got more advanced over the last 100 years or so. The problem is that in order to be seen as a success in science you need to prove that what you did is really new, and that newness takes priority in value over almost everything else. What this does is create a very broken ladder of importance of things to study. If you have the choice between two experiments which both show the same science, and one involves just seawater, dirt, and a mobile phone, and the other involves a 1 million dollar machine, a trendy new molecule, and some advanced math using a new computer algorithm, the latter is considered vastly superior. And this is based on the ideology of private property, even when legal intellectual property is not involved. Even in the public domain, when a researcher publishes a sufficiently new thing, that thing is attached to their name, and can be turned into real tangible monetary value.

All the elements I describe in the example above should be called out for causing problems with science progress. First of all, the use of expensive machines. This not only makes sure there is a barrier between the work of the lab scientists and the general public, it usually increases the distance between the researchers themselves and the subject matter. I believe that the purpose of all science is to create the closest possible link between the human mind and the world we live in. The more expensive your machine, the larger the barrier between

mind and world. Expensive machines are great for building capitalist jobs(I've had these jobs!) But this is at cross purposes with what should be the goal of simplification. To eliminate a machine is to eliminate a high paying technical job, which hurts us as workers in science. Thus the incentive is opposite of what we want to do, which is always cut down the the size and number of machines needed to interact with our world.

Another element of the problems I've listed here is the "trendy material" problem. That is, science is strongly biased in favor of newly "discovered" materials over those we all know and have access to. This is created by capitalist ideology because we all need to try to own the property, both legally and intellectually, of "new" things in order to get the fame required to advance in our careers. If you prove that "your" substance has a different chemical structure than any that someone else has studied, and publish something not very impressive, you can get famous, and name the molecule. But if you do something impressive, but not really new, on something common like tap water or ground up moss or a soda can, you have to call it "educational demonstrations" and will not be taken seriously in high level research circles. But again, this is creating an incentive to do the opposite of what is good for science. Someone who interacts with tap water or pavement has a connection to much larger fraction of the world than someone who interacts with an obscure form of soot made in a special chamber that only

exists in their lab. If our goal is to connect our minds to the world as well as possible, it's always better to follow the most common elements of that world, then things we find around us. Capitalism pushes the researcher away from those things both because of the need for novelty and also because the more obscure a molecule is the more likely it is that a capitalist can make a profit on it. A product based on a simple recipe with tap water and gravel is worth infinitely less money than one based on a complex and expensive process.

The ephemeral concepts of "ownership of ideas" above pale in evil compared to legal intellectual property. This could be a whole polemic work of book length on its own but suffice it to say that the corrosive effect excessive patent and copyright are now so severe that anyone who's worked at all in science in the last 10 years is already pretty upset about this issue. Even those who claim to support the system agree that it's now so far beyond even the twisted intent that originally existed that they are against it in its current form. However, for the record, my position in this work is that it is pure evil to claim the concept of ownership over science or technology. The scale of the evil is partly escalating as the technology becomes more personal. As our technology becomes more a part of not just our lives but our selves, we find corporations claiming to legally own parts of our lives and even our bodies with their patenting of genes both in humans and in our various bacterial neighbors we carry on our

bodies. Eventually, the property ideologues will, if left unchecked, build a world where humans are all owned by a consortium of corporations, where we are all literally the property of corporations and machines. Science fiction warns of the possibility that a "rise of the machines" will cause us all to become slaves to artificially intelligent machines, but I would argue that AI is not needed for us to become slaves to machines: humanity is in the process of enslaving ourselves to non-intelligent machines.

I touched on the problem of professionalism already but I need to elaborate on this in the context of science specifically. We have always claimed in philosophy and science that unification is a goal. Unification of electricity and magnetism into one theory and then the weak force in with that are all seen as great triumphs of physics. Bringing all the atomic elements together into a single unified periodic table is rightly seen as a great triumph of chemistry, etc. But in modern applied science we find huge incentives in the opposite direction of unification. Because we are all forced to carry out science in the professional system, and there are never enough professional positions to go around, those with the good professional jobs must all jealously guard our positions. This means a biologist who can do good physics or a physicist who can do good biology are both potential threats to each others' jobs. Whereas the biologist who creates an even more obscure form of biophysics that gets its own whole new department is the most powerful of all: the unique special-

ist who owns their field entirely. The highest salaries and most honored and secure positions will go to those who do the opposite of unification. And sure enough, the last few decades have seen a proliferation of tiny sub-fields with their own jargon no one else can read in all fields of science. This has coincided with the rise of extreme market ideology since the 1970s which drives universities to behave more like businesses and research departments to behave more like marketing departments. The corrosive force of capitalism has inflicted a sort of Babel curse on all science, making it impossible to talk to each other anymore.

This concept of unification applies in particular to building the tools we use for science. The most useful tools are the most universal: razor blades, tweezers, optical microscopes, or pliers. And yet no professional scientist can make a living selling any of those, so we're not incentivized to make more tools like those. We can make them for our own use in our labs, but capitalism directs those types of tools to be made by the cheapest possible labor, so building them is avoided by the professional classes. Conversely, the tool which only does one thing extremely well can be a perfect monopoly on that thing, creating a large markup and building a comfortable place for the professional. Again this is a case of capitalist ideology constantly pushing us all to build the opposite tool from what would benefit our fellow scientists or the rest of humanity.

These claims are just claims when stated in a a manifesto like this. I state them without extensive proof because the proof that abandoning capitalism can push science and technology forward much faster has to be by example. We must actually go out and do this, build science and technology up from scratch on non capitalist principles, without professionalism and without property. Ultimately this ends up looking more like an artistic movement(for which a manifesto would be a normal part of the creation process) than a part of science. Trash Magic will take many forms in the future, but its initial form will indeed be that of an artistic movement, because that's the simplest way to build things while casting off the old figures of merit used by engineers and the rest of the technocratic priesthood.

Death to Capitalist Math!

Math is not objective reality. This is obvious to most people who don't do math, as well as to most working mathematicians, but it's an amazingly popular belief among technocrats. Math, like any other model built in the human mind, is a sort of reflection of the world. A very powerful one, yes, but still just a part of our minds, and like any other model, there are choices we made to get where we are with math which could have been made differently.

The example I'll give here is a paradox that I find particularly interesting in terms of what it tells us about hidden ideologies. Mathematicians call it the Banach Tarski paradox, and it generally arises in parts of the math curriculum concerned with point set theory. Never mind exactly what that is, it's something usually taught in the late undergrad or early grad level in pure math(as opposed to applied math which is not concerned with these issues).

What this so-called paradox does is create a way to construct two spheres of points from the points in one. That is, all the points in the first sphere are re-arranged in such a way that those same points make two spheres of the same volume as the first.

Why Now?

Now is the time for *drastic* change unique in our history.

Why now in particular?

Both the positive and negative sides: danger to humanity is imminent, but also opportunity is greater than ever before because of the vast mineral wealth that is everywhere and a critical mass of processing and communication technology. Marx was about 100 years early, and didn't have access to the information or materials we do today. Globalization and Capitalism really have literally sewn the seeds of their own destruction, by creating

seeds for millions of new societies by spreading mineral wealth everywhere around the globe.

The very destruction of capitalism focuses us on the better future in several ways. For one thing, the sections of society most exploited or crushed by capitalism are often also those closest to the massive waste and destruction streams of the present system. Often the poor and dispossessed live near dangerous waste which also contains what could be priceless mineral wealth if we had the technology to bring it back. Wherever you find the most oppressed people you will also usually find the most ruined land with the most material waste. Just like the people our economy casts aside, these materials often exist outside the ownership system, they are claimed by no one and valued negative or not at all by our economic system. But this creates a potential opportunity to build very rich new forms of industry that exist without ownership or money: built by people who no one pays, made from materials considered "toxic waste" by the ownership society, and given freely to a community who also owns nothing undermines the entire structure of the existing system.

This connection between the people and the materials cast aside is what Trash Magic is really about. People who's time capitalism does not value can use the materials it does not value to truly work magic: to build great works of art that we can live off of using the powers of our minds.

Purpose of this Book

This book is a manifesto. That is, "...a public declaration of the purpose, principles, or plan of action of a group or individual.", as it's described on manifestos.net.

Note that novelty is not my goal. I believe that the obsession with novelty in applied science is a toxin of capitalism and that by ignoring where ideas come from and using them as needed, with no expectation of novelty that much faster and better progress can be made. This work comes from the heart and mind of one person but none of that comes from just me: I assume everything I say here has been said elsewhere and that I've been exposed already to most of what I present here, in various forms, in books I've read or from people I've talked to.

Paths Out of Capitalism

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.

Chapter 2

Free Technology

2.1 Chapter 2: Free Technology

What Does it Mean for Technology 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.

I will start with a list of what makes technology non-free. Since this is a manifesto, it makes sense to call out what the problems are that I aim to work on with this project.

What does it mean for hardware to be non-free?

- 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

What about free technology, what is that?

- 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 it 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 and to be produced

- 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 then create value outside the world of numerical currency

- An individual thing by itself is free if it is also part of a larger group of technologies, which I call a "complete technological set", which can be used to reproduce themselves and to provide all basic human needs

- Free technology does not distinguish between technology and art: it is always both.

- Free technology naturally reproduces with the help of people and/or other animals. If left out somewhere, people will naturally choose to use the thing and information contained in it to make more and to continue the development of that technological path.

What is the connection between free technology 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-arranging 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 a challenge in some cases. This means that if you want to use something involving the physics of magnets to build 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 easily run by a novice on any computer or phone. 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 both video and written 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.

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. Most modern 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 extraction is implied in its construction.

A technology 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 hu-

manity 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 technological 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 singular separate 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 function 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 carrying out its mission.

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 types 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 technology 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. Technology 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 sacrifice 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 because 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 hap-

pening. 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 hierarchical 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.

Destroying the Economy

That is the goal. Fuck "the economy". It is as it always has been an evil system to force all of humanity to help evil people to do evil things. Fuck trade. Fuck money. And fuck all private property, now and forever.

Fundamentally, as every shit head capitalist will explain, the economy is about making it easier for people to trade different kinds of things. And it is of course assumed that you need things from some asshole you don't know who wants to trade money for stuff you "need" (even if that need is artificial, based on those assholes controlling all the communications technology on the planet).

So the way to destroy that is with technological Complete Sets. A technological Complete Set is a set of tech-

nological methods and tools which allows the users to live without an economy. That means they already have everything they need with that core technology plus some work that is not too arduous for them to do(less arduous than engaging in the outside economy).

A complete technological set has the following needs met:

food clean water disposal of human waste temperature control inside sheltered areas: heat and cooling of air in indoor environment of some kind, construction of those shelters such that this needs minimal energy(use natural heat and coolness from the environment) communication/networking/controls/automation/audio/video/VR/AR these are the real reasons we need "computers" medicine and drugs make any of the tools needed for the rest of this, and do what industry might be needed to adapt to changing conditions: more people, fewer people, new

That's enough. The rest comes from that. And this is very hard and encompasses a lot of things.

Food is the one people always gravitate towards first, but I think that's a mistake. Growing your own food does not give independence, especially if that food is tied to land that is part of the ownership system. To be truly free you have to be able to get food fast anywhere with gathering, hunting, and *rapid* and *dense* agriculture. My guess is that a new agricultural technology will be needed that integrates the rest of the complete set with food *and* drug production, since it will all be part of the fractal

reactor system, moving nutrients around as needed to grow both food and also other things that can be grown like drugs and even carbon nano structures. So when I put food on here, I'm not thinking of farms I'm thinking of a huge range of options. For societies that have chosen to live in water, I'm imagining 24/7 aquaculture driven by high intensity grow lights made from organic LEDs which are driven by tidal energy, combined with reactors that get needed nutrients from the sea while removing undated salt. For deep sea dwellers, the main energy source will be violent wave action and wind, which can power floating worlds of aquaculture in the same way.

I propose that the problems that need to be solved for food independence will be solved as a side effect if we focus on medicine first. This is one of the ways the capitalists use of controlling us. And they fucking know it. "Sure", the capitalists say, "go live in your hippie tree commune. But when you need an MRI and some antibiotics or AIDS drugs, you'll have to come to us and if you don't have federal reserve debt currency to pay for it we'll let you die, so have a nice life fuck you."

As applied physicists it is our job to build the tools that let people practice medicine. That means chemical testing and processing, growing of all types of microbe and plant needed for medicine in house with short lead times, non-invasive imaging, surgery, prosthetics, and a lot of other measurement tools, as well as the ability to quickly and accurately access the sum total of human

medical knowledge. The last part will require a complete reorganization of how medical knowledge works, and elimination of the arbitrary lines between doctor, nurse, pharmacist, patient, technician, and all the rest. That is a hard problem, but it has to be solved to destroy capitalism, because we need medicine to live good lives and the capitalists have one of the most vile monopolies on that.

So we need a chemical reactor that can work with microbes as well as chemicals, but this also covers a lot of other useful things! It's how we get clean water and turn human waste into useful products, including food, covering several of the points above. It's also how a lot of manufacturing will happen, because a closed environment of tubes and chambers and pumps is such a good place for assembler robots to function.

And what about cooling? We need refrigeration for a lot of things, including food and medical storage, as well as cooling to make spaces not too hot to live in. That means pumps, and fluids. If you can pump and move fluids around you can cool, with any of various working fluids, including water and some readily available other chemicals like ammonia. Making ammonia from urine and then using compressors to make coolers out of that seems like a good choice for a universal basic cooling unit.

Heat should really be the clever use of solar(as in heat, not some photo voltaic bullshit) as much as possible. And cooling of human habitat should be the clever use of cool

deep water and cool deep earth as much as possible. The heat is there and the coolness is there, we just need to think the heat flows through a bit more. And with private property fetishism eliminated, and the States finally smashed, migration can be a huge part of this. It is a simple fact of life that some places are much nicer one time of year than another. One of the great crimes of the nation-state is forcing humanity to pretend this isn't true. Migration to a different climate on the time scale of a season is not hard technologically, it's all politics that stops it. Fuck your borders, fuck your nations, fuck your property.

So now the list above needs to get re-arranged into a list of things to actually build. Pumps, motors, generators, energy storage electrolytic cells, energy storage in pumped water, construction of all sizes of tubes, all this forms the matrix the rest is built in. And I need the generic assembler/editor technology mentioned before, where manipulators can cut and weld from the nanoscale up through the meter scale the found objects thrown away by capitalist society.

That should form the seed. If it's easy to do a chemistry process, build a good environment for a biological process, and reverse engineer and edit arbitrary semiconductor circuits, people with expertise on these things will be able to quickly replicate the capitalist technology they use now. Most "professionals" are being screwed by capitalism now, and using shitty tools that make it hard to

do their jobs. Given the alternative of free and also better technology they'll move over in droves and drive this thing really fast, we just need to light the spark, make that first set of tools, and lay down the design rules that make this progress work well while continuing to avoid capitalism. Part of how this needs to work is we need tools that people can adopt *quickly*. A trained doctor should be able to use our medical tools immediately because their function is obvious, simple, and easy to modify as needed by a person competent in their trade but with zero background in our specific technology. We seek to remove the technician and engineer completely from the process of technology usage.

How does this all add up to destroying the economy? The best people will jump ship the instant they see that we have a better offer than the capitalists. The capitalists rely on the exploitation of the professional class(with lots of perks thrown in to differentiate them from the working poor) for their system to work. Given a choice, if people switch instantly to our methods, their system of fear will crumble. They will keep paying people to do work, but the wages will have to spiral upwards as the best people refuse to work for money. Eventually the working class can actually bankrupt the capitalists by removing their labor from the money system. If the last capitalist wants to pay the last professional a trillion dollars a year to sell themselves stuff, so be it. Without the labor of the masses, they're just another LARP club, and harmless.

And that's how you kill the fucking "economy".

Chapter 3

Principles

3.1 Chapter 3: Core Principles

Statement of Principles

- All technology should be free
- All people should be free to leave a technical sphere and enter or build another one
- All national borders are not legitimate and must be abolished
- The world is magical. The properties we have always called "magic" can be ascribed to all things in the physical world, and these powers can be harnessed by the techniques of Trash Magic
- Capitalism cannot and should not be reformed, it should be opposed in all places and times until it

dies

- The concept of professionalism is harmful to the human condition, it poisons the soul, and is evil

- The concept of finite number to represent human values is a mind virus must be purged. The infinite exposes deeper truths than finite. These problems go to the deepest level of our mathematical thought from arithmetic to the underlying axioms of mathematics
- Morality consists of a set of axioms. An axiom is a unproven statement which we take to be true in order to build up a system of thought which can guide action. The principles in this list are put forth as axioms.
- It is not our role to debate capitalism with its defenders. Every possible basic argument for or against capitalism already exists on the Internet. Our job is to build a set of moral axioms, a set of technical skills and knowledge and build up a practical society from that. It is not our job to waste time repeating the same arguments with capitalist apologists and time wasters.
- No technology should be made from mass-mined materials
- The sum total of all money that exists in the world is a small fraction of what would be needed to compensate the victims of capitalism from its crimes(e.g. slav-

ery and imperialism), thus there can be no justice within that system
- Every single word said every single idea ever put forth by an economist is a vicious lie. Economics is not a science, and this work is rejecting traditional science anyway. It is not our job to argue with the economist it is our job to build a better world in which they are not welcome.
- The wage system must be abolished
- End work. I am against work in all forms. We must attack the concept of work at all levels.
- Technology is personal, as it should be. Relationships between technology and the human body are always in mind.

Design Rules

Engineers who build technology usually use something called "design rules" and "figures of merit" as guides for how to build a thing. The following are the different design rules in which we may deviate from capitalism to end up with technically different results:

1. The more general solution is always better
2. The Most readily available materials are always the first choice to use as well as to study
3. The most obvious solution is the best, although what is obvious may not be obvious

4. Self similarity is a desirable property, and by default it will be built in for several(but not infinite!) zoom factors to all technical systems
5. All technology is art, all art is technology
6. All technology contains its own data, is linked to itself on the web, self documents how to make more, where it came from, where it is going
7. Technology is not really deployed until you can create it with zero federal reserve debt or consumption of mined or extracted material. To deploy a technology is simply to make it and have it get used, and you must spend zero money to make that happen. Selling it after that is optional, and can be done for workers to get central bank debt currency but can also not be, and all parts can float in and out of different value circles(more on this later in this work)
8. Absolute precision will scale linearly with scale, meaning that we might keep just 10% relative precision at different scales, with gross motion at 1 meter with a few cm uncertainty, then a few cm motion with a few mm precision, on down to 1 nm motion with 1 angstrom precision.

9. Every piece of technology should be as versatile as possible, with clear and easy instructions encoded in it for many uses
10. We will not build or work with those who build

antipersonnel weapons. Drones and other machines are fair game as targets, however

11. Every technological component should have the maximum possible number of uses, and should be cross referenced with other instances of itself so that the user can find out those other uses instantly, and this should be true of all the sub-components of a technical artifact
12. Every technological artifact and component should tell a personal story, connected to users, builders, and artists.

Chapter 4

What is Trash Magic?

4.1 Chapter 4: What is Trash Magic?

What is a Trash Witch? What is a Trash Wizard?

Witches and Wizards have for centuries been symbols of humans' ability to wield various magic powers. I draw on many traditions for this concept, from pagan lore through Tolkien and Harry Potter. The traditions built up from fiction, culture, and religions of various kinds give us a picture to draw on for the archetype of the Trash Magician. I don't want to use the term "magician" too much though because it can be mistaken for the per-

son who puts on a magic show. Perhaps that is not all bad, though! The magic show can both teach and inspire wonder and that is certainly one goal of Trash Magic.

A potential downside of calling us all witches and wizards is that those can be gendered terms, and that's not what I'm looking for with this new society. But I will propose for the sake of this work a non gendered definition of witch and wizard. The person wielding trash magic at any time is practicing witchery or wizardry if they are doing witch like magic or wizard like magic.

What?

Well, for example, let's say you're in the woods at night, doing some hard core potion making and saying something like "fair is foul and foul is fair", and there's a lot of cackling. That's witchery. If you're in a huge field of rocks swinging your Trash Staff around and launching lighting bolts at the other rocks, that's wizardry. It doesn't matter what gender the practitioner may or may not have–if you are wizarding you're a wizard, if you're witching you're a witch. At least for the moment. Mostly trash magicians have both Trash Wizard and Trash Witch natures, and most magics we practice will use both as well.

But I have still only loosely defined this way of being. The Trash witch is someone who believes in a world where we both have a element of adventure and mystery in our lives and where we have the advantages of what we now call "modern technology". We believe that this magic

should be available freely to everyone in the world, and that everyone in the world should have the freedom to wield this and modify it as they see fit, and use or not use whatever magic they need or don't need.

Trash Wizards and Trash Witches use the laws of physics and the methods of applied physics as a form of magic. We teach that magic to others, and spread both the serious scholarship of Trash Magic and the basic practical skills needed to give the magic to all.

All our teaching and building is free. Free, meaning outside the money system and capitalist economy. But also free meaning people have total freedom to take this and duplicate it and modify it and make it truly their own. A love of pure science demos is a core value of the Trash Wizard or Witch.

Another goal is independence. A group of just Trash Witches should for example be able to live on their own, with a good quality of life. Maybe dozens of Wizards or dozens of Witches can easily form tribes to build and scavenge and do adventures and art. But also tribes can form super-tribes which merge to build truly large works. The only way giant social structures can be optional and not control us all is for us to be able to live freely with just a few people. The magic we plan to wield here is designed to give people that power.

We also strive to amuse. You don't want to learn about magnetic fields just for the hell of it or just because they're useful. You can see from us that they're

actually magical! Magical enough that a show put on with magnetic fields or electric fields is very much worth watching. In fact, one of the most popular shows in most science museums is the electric field demonstrations with giant lighting machines.

So a Trash Magician uses a combination of Wizardry and Witchery to amuse and provide for people with Trash of the world. Trash is generally stuff that is not only free but infinitely free. Not only can you go find one or two or 10,000 of a thing, you know that later you can go back and do that again as many times as you want. This is true with flowing water from spring snow runoff or from tides or drainage of some large rainy area. It's true of winds that always blow, of the sun, of sand and dirt and rocks. It's true of sticks shed by the lower sections of pine trees. And it's true of the plastic bottles thrown away by capitalist society.

A society of free stuff is not one with "zero cost". It's one where cost is infinite but value is also infinite. We are moving to a value system that works mostly with infinities. That is part of what makes Trash Magic actually magical. And if you're a Trash Witch or Wizard, that's your stuff! You wield the magic that moves the trash around!

In addition to Trash Wizardry and Witchery one might be a Trash Daemon or Trash Imp. Trash Goblins can have a place in our community but not Trolls.

Trash Wizards are always there for everyone. We wel-

come the refugees of capitalism and it's evil twin, war. WE do not recognize the validity of borders and are here to help subvert them as needed to help the down trodden.

What is a Trash Wizard?

What do we do?

What is best in life, redux

How the trash wizards teach the world our methods

What kind of world we build

Many wizardries, many paths

How does the value circle work?

how do trash wizards spread the value circles?

Specific examples of value circle use: manufacturing, food, robots, coffee, R&D, art

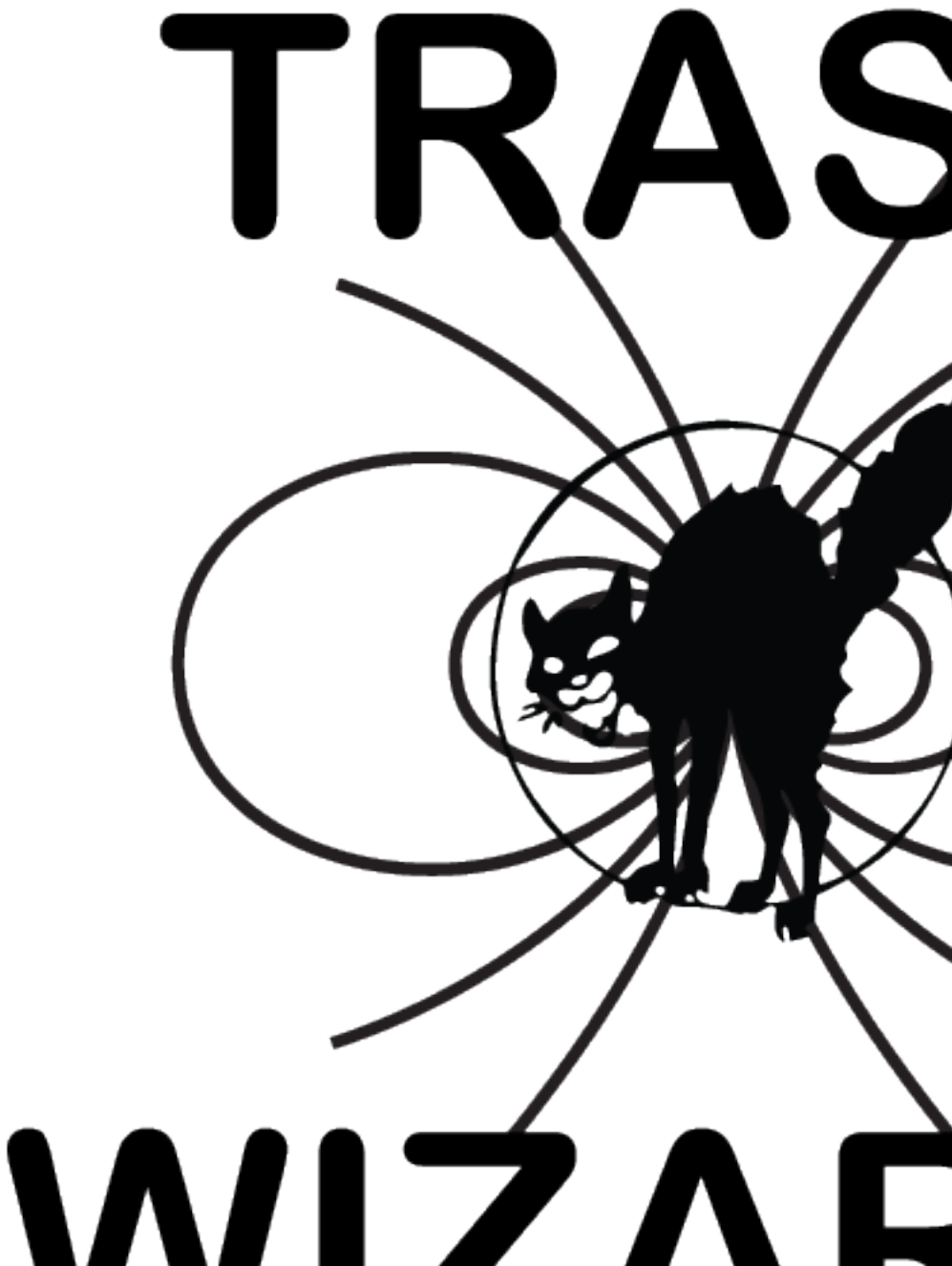
Many technical details on trash wizard sticks, how they're used, designs, plans, images, examples, etc etc. on the sticks.

Use of sticks with cars, computers, phones

using the stick to replace the smart phone eventually

What Does the Trash Wizard Stick do and have?

1. built in measuring stick in SI and English
2. build in measure tool for AWG of wires
3. LRC meter that reads out on phone
4. conversion to robot mode where it drives itself around
5. convenient single shoulder strap for comfortable wear like a bike messenger pack


TRAS
WIZAR

6. random flash sticks which store MP3's of music ripped from youtube on the pi, controlled by the smart phone, and then replayed later
7. speaker built from our technology, reading flash drives out with the pi zero
8. pi zero
9. High voltage storage caps(detachable)
10. medium voltage storage caps(detachable)
11. super cap(detacheable)
12. LiPo Battery(detacheable)
13. direct wire connect silicone and copper switch board for power with fail safes of various kinds
14. screen for pi zero to read out a special dumb ass bat phone
15. measure nonlinear voltage response to impulse of various random blobs you find around
16. can harvest energy using a built in magnet and coil setup
17. water pump always available
18. trash wizard app for phone is set up for physics, interfaces with existing physics packages

Trash wizard multi tool

I want the trash wizard multi tool to be able to measure inductance easily. How to do that? I want the L/R time of something to be long enough to see something on the arduino ADC. But what R? If L is 0.001 H and R is

1 ohm, L/R is 1 ms. Perhaps a 1 ohm shunt resistor somewhere.

Or maybe I want to measure the reverse EMF from changing the current quickly through the coil. V = L dI/dT. For a 1k series resistor driven by 3 V we have 3 mA of current. If that can turn off or on in a few microseconds, it should be possible to induce a good fraction of a volt. But given that the sign will reverse, having this go to ground would be a problem for the ADCs on the arduino. So what I want is a 500 ohm resistor going from the DAC to a node between two 500 ohm resistors in series making a voltage divider between 0 V and 3.3 V. that middle node then goes to the ADC and pulses should be visible. This I will not proceed to build and test.

kook industry

I think I have decided I want to join the kook industry. I have noticed that on Amazon there are people selling e-books for 0.99 cents about the end of the world, nuclear war, all sorts of crazy stuff. Then there are you tube people who make a living doing really dangerous things with electricity. And professional trolls who somehow get food and shelter from strangers all over the internet in support of their asshole online persona. I don't want to be any of these specifically. I don't want to sell an e-book about the end of the world, be an asshole for money, or

court death with high voltage youtube experiments.

But I do think I'm realizing that I can't function, or rather refuse to function, in normal society and that this makes me a member of the kook industry. I'm seeing this whole world more and more. Years ago I had a job with a friend delivering furniture. It was a super fun summer, although I was glad to stop when it was over. But one thing I realized was that there was a whole world of pairs of guys who drive around. Delivery guys, maintenance guys, cops, pool cleaners, and a range of other jobs that are usually done by two guys who often have time to stop at the same dunk n donuts. Many jobs, but one world.

And I think the kook industry is similar. Some are college professors, others are called artists, others are called activists, others bloggers, but fundamentally what people in the kook industry do is similar. The kook industry produces media content of various kinds that people can consume to get ideas outside the mainstream. So now I think I've defined my problem. I'm not going to get a job, I'm not going to sell stuff. Or not useful stuff. I'm going to distribute weird information and get paid by patrons. That patron might be a consulting client, people buying weird shit online they don't need, youtube fans... who knows. But that's the goal. What i want to do for society that I actually get compensated for is create very odd ideas that cause change in the world. In a post apocalyptic society I'll point out eccentric and useful ways to move water around or something.

The next step here is to build a media presence for my lab with the technical goals spelled out and a clear channel to produce content that people want and also that can get people involved to build out the post capitalist infrastructure so this can grow beyond money. I want the financial scale of the project to be very modest, to not have a for profit or non profit corporation, just me and whatever other weirdos I can recruit to this corner of the kook industry.

Now for a manifesto and a place to put it, onward!

Free Phones of the Future

One of the many idiotic things capitalists say to shut up their critics is to point out that capitalism is the source of the smart phones that anti capitalists inevitably use. These devices are indeed amazing, and are no longer luxury items by any means. On the contrary, they are very much a survival tool used by the oppressed classes now, and it's very dangerous to ignore that role this technology plays. But what aspect of them is so great? The social networking. That's always what you need: access to the web, various messaging systems, and various commercial things like Uber and Lyft.

Does that really need to be a computer? A truly free phone would be a pure communication tool that communicates in a distributed way like fido net of old. the sole purpose of the hardware would be to communicate

images, sounds, text, and to decide where those should go. That's it. What the hell do you need a computer for? Mostly so that The Man can spy on you and figure out how to sell you shit you don't need, and force you to constantly throw more federal reserve debt back into the machine for more advanced machines to get more indoctrination to continue the cycle.

It's all bullshit! Don't be fooled by the dominance of the computer technology into believing that's inevitable. It's not. We can get orders of magnitude more benefit from peer to peer networks than we do today as slaves to the military industrial machine if these phones were all free like freedom, linked up on free hardware all the way. This can actually be the basic informational skeleton of the value circles.

I believe that the hardware can be re worked from the ground up based on our approach to applied electromagnetism to get something with totally new fab. But in the mean time, given that that is a lengthy applied physics research project, what can we do? My answer is to watch closely everything that has anything to do with Raspberry Pi and other "internet of things" projects in the open hardware domain. I say "open hardware" here and not free hardware, because it's not free according to my strict definition: it relies on mine- driven fab and capitalism, and there is IP in the supply chain(and some other problems). But it's way better in terms of open and free than the whole android/apple ecosystem.

as seen here: https://www.adafruit.com/products/2885 (https://www.adafruit.com/products/2885) The pi zero sells for 5 dollars! And it's free like freedom as far as the software goes, as I understand it. The problem of course is that it's not what you'd call a product still. You need to buy a screen separately, and a battery, and some other odds and ends, and then put a package together, get all the software working, etc. It's not trivial. Not insanely hard, but not trivial and also not really as usable as a apple or android. But surely this could change? If people want to work within the system of existing "tech" a fantastic place to focus efforts would be making this technology closer to truly free. This will be a combination of figuring out sourcing logistics on the hardware, making the software closer to what a phone user expects, and writing new software to make more free infrastructure that runs on the free hardware. If a truly free platform were to allow for the kind of peer to peer labor and goods sharing that for profit platforms now have, capitalism might just collapse overnight as people spontaneously are able to work and do things by communicating freely.

Don't like the phone but like "tech"? make a free phone. It will happen one way or the other, but the more ways it happens the better for everyone.

How to Build the Team to build the Technology

I'm clearly not going to build all the things I'm describing here. And even the things I do build, I hope to have what I build be a insignificant fraction of the total number of units produced in the future. How to recruit? Who to recruit? Where will they work? I've been contemplating these questions, and I see several ways to proceed.

Largely the various ways forward will involve decisions about where to be on the spectrum of working inside the system vs. outside. Some choices will involve getting very conventional, and I fear they will end up being coopted by the existing system. One of those would be to structure the way ARPA was in ins heyday. Many top academic, corporate, and government research labs could receive targeted funds to work on problems, where the funds come from various donations and military applied science grant money. The work would then be done by the usual suspects: grad students, post docs, and various staff researchers inside the current system. I think the biggest danger here is that the developed technologies will not be free in the real sense because it's so hard for a expensive R&D lab to ever build a thing that's not based on expensive equipment.

Another way forward is to focus on commercial applications in the old economy. One could for instance build a very reliable and cheap water pump, and build a rapidly growing for-profit company on that which funds

R&D to free technology through its profits. This is, I think, the worst of all possible choices. Capitalism poisons everything it touches. And I think the way I'm going to define capitalism for the purpose of this work is "the belief that value can be measured using numbers". It's that simple. Any kind of money or equivalent value unit that can be counted is the poison we all know from our capitalist nightmare, and that's what I'm going to focus on purging from the technological supply chain.

At the other end of the spectrum, one imagines seizing a abandoned factory building and building the R&D infrastructure up from scratch in a squat environment. I predict that going too far down this path ends with the usual endless war with cops and landlords that always happens when good people try to use land without the System. Even if you imagine buying the land so that there are no direct legal challenges, cops and landlords will be an ever-present problem, as will generating enough federal reserve debt to keep the bastards off our backs. A lot of time will have to be spent on just keeping the site running.

Seizing land and building up the means of production makes sense when you have a working technology that can be instantly deployed and then also broken down and moved later when you need to move. But before the technology is mature, it makes sense to be completely distributed geographically. Also, for this project to work as I want it too, we need strong cooperation between the

developing world and the developed world, and between diverse people living on land that has different types of local resources available from whatever their local trash streams are, as well as the very diverse energy considerations, and the diverse cultural considerations which should be considered early not later.

How does this distributed system work? I believe part of it involves the structure of the actual book document. I don't feel that the Jupiter notebooks are quite where I want them yet, but they're close, and I think that the structure will be based on software that comes out of that basic structure. Users will make modules to solve various technical problems, as well as post new ones, and they'll all be integrated into the combined book. This is, in many ways, what the open source software people do using their git hub bullshit. I think git up is a giant festering piece of shit, however, and loathe most software communities, so this is a tricky game. Somehow the innovations from that world should be used without poisoning the whole project and creating yet another tech bro shit head club.

One way I want to differentiate from a lot of computer software bullshit is by having a coherent narrative. Something that drives me crazy about their culture is that things are so distributed that you can't actually figure out where to start. It's not just that there are forks, it's that there are many forks all the time for everything and everyone is a giant dick about all of it. I'm not

above simply banning anyone with any tech company affiliations from contributing to the main document.

This is a book. A book is a finite thing. As time goes on content will be added, but other content will also be deleted. It will all be archived, but if someone wants to they can approach from zero, start at the beginning, and have a coherent narrative to follow as they build up to actually having the ability to use the technology themselves. There will be various versions to account for many human languages as well as some various tracks that might exist, but all of the parallel versions and tracks must be self contained and linear(or at least with the option of treating them as linear). I need to keep a very close eye on how things progress with the various jupiter like things out there, because it's moving fast. It all has to work on a free trash wizard stick, but that should be fine with the HTML5 stuff that everything now runs on inside a browser. Is there a simple way to go back and forth between jupiter notebooks and a fully compiled .pdf in book format? Surely there is, and if not, it should be some combination of existing scripts chained together.

My job as initial author is to create well posed problems in the first draft of the book, and to make it appealing for people to contribute solutions to those problems. This will be extremely hard to get right on a first pass, and part of getting this whole thing to work will involve shifting that format over time. When things are really working, the R&D will be all done in the value circle

economy, where people are constantly creating that form of value as they do R&D. This has the potential to be a very hard chicken-and-egg problem: the book needs a lot of work in order to have value circles work, but without value circles people can't work on it effectively. That's why this all starts with me working alone in my underwear at home. And remains that way for a while. Because I need to first have the system working with me as the only user, then me and some close associates, then a few "followers" who just build kits, and then, when that team has worked for a few years, more people can ease their way into the system to grow it. Of course as the serial/parallel global crises of capitalist disaster accelerate, we may find that things grow explosively instead. If that happens it happens, but I will plan for something that is built much more carefully.

This blog post was going to go into a list if the types of experts needed to get the various jobs done, but on looking where it ended up going that looks more and more like a useless exercise at this time. I'll build up the vision of what should get built, build my own parts of that technology and distribute them, and then a sort of chemical potential will form which brings in the right experts. It's dangerous to specify exact professional qualifications too early, as it will end up losing out on some opportunities to bring in talent outside the organized technical professions, which creates lots of biases in class, race, nationality, age, etc. It's much better to pose problems

clearly with no jargon, in as many ways as possible and just see who turns up with a solution.

Also Skeletron needs to be addressed in this chapter

Since it doesn't get its own chapter in the non technical work there has to be a exposition of it here, with pictures and 3d files and examples.

Why Trash?

Who owns a dog turd left on the street? Who owns the piles of plastic bottles that collect in an eddy of an urban stream? Who owns the soot that collects on the walls of a bus stop? No one. The concept of private property, which I regard as evil, does not incorporate all things. For capitalism to function it has to have both "assets" and "liabilitites", which the capitalists associate with opposite signs of numbers. What if a turd is not a liability or an asset? It does not exist in the capitalist universe, it is their ultimate trash, of value to no one, and it is the seed that we must use to create a better world.