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An Anarcho-Transhumanist FAQ

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respect to it. In the green v blue debate we feel it's pleasingly apropos that the the primitivists take the color of the earth and us the color of the sky.

Of course it must be noted that in many other contexts color symbolism can vary and in a number of countries – with some quite notable exceptions – where political parties express their orientation in color, blue is often claimed by conservatives. But so too in statist political spectacle are other colors claimed by deplorable bastards. Black by fascism. Red by tankies and nazis. Pink by social democrats. We don't feel any need to care about the internal color schemes of our enemies any more than they care about the internal color schemes of anarchists. Our politics are obviously the exact opposite of conservatism.

What's all this about anarchism and transhumanism?

The term “anarcho-transhumanism” is a relatively recently one, barely mentioned in the 80s, publicly adopted in the early oughts and only really popularized in the last decade. But it represents a current of thought that has been present in anarchist circles and theory since William Godwin¹, who tied the drive to perpetually improve and perfect our social relations with the drive to perpetually improve and perfect ourselves, our material conditions and our bodies.

The idea behind anarcho-transhumanism is a simple one:

We should seek to expand our physical freedom
just as we seek to expand our social freedom.

In this we see ourselves as the logical extension or deepening of anarchism's existing commitment to maximizing freedom.

“Transhumanism” is often shallowly characterized in the media merely in terms of wanting to live literally forever, or wanting to upload one's mind to a computer, or fantasies of an self-improving AI suddenly arriving and transforming the

¹ Godwin is frequently cited as the first prominent anarchist in modern times – although PJ Proudhon would later be the first to explicitly use the term. Godwin was a prominent philosopher and utilitarian, but was eclipsed by his partner and lover Mary Wollstonecraft (often cited as the first modern feminist), and their daughter Mary Shelley (often cited as the first science fiction author). Godwin called for the abolition of the state, capitalism, and many other forms of oppression, but also bundled these in with calls for the radical extension of technological capacity, including many farseeing possibilities like life-extension and the defeat of death. Godwin was just one of a great many historical anarchists who spoke in sharply transhumanist terms. Voltairine de Cleyre for instance praised the development of greater technological freedoms and saw the end goal as “an ideal life, in which men and women will be as gods, with a gods power to enjoy and to suffer.”

world to a paradise. And there are a number of individuals attracted to these things. But the only defining precept of transhumanism is that we should have more freedom to change ourselves.

In this transhumanism opens up an attack on fixed essentialisms and is part of a wider discourse in feminist and queer theory around cyborg identities and “inhumanisms.” Transhumanism can be seen as either an aggressive critique of humanism, or alternatively as an extension of specific humanist values beyond the arbitrary species category of “human.” Transhumanism demands that we interrogate our desires and values beyond the happenstance of What Is, accepting neither the authority of arbitrary social constructs like gender nor a blind fealty to how our bodies presently function.

As one would expect, trans issues have been core to transhumanism from the 1983 “Transhuman Manifesto” on. But transhumanism radically expands on trans liberation to situate it as part of a much wider array of struggles for freedom in the construction and operation of our bodies and surrounding world. Anarcho-transhumanists work on immediately practical projects that give people more control over their bodies like abortion clinics, distributing naloxone, or 3D printing open source prosthetics for children. But we also ask radical questions like why our society is not only okay with the involuntary decay and death of the elderly but moralizes for their perpetual extermination.

Life-extension is certainly not the entirety of transhumanism, but it is an important example of a struggle that we’ve opened and shockingly largely fight alone. The notion that an objectively “good life” extends to seventy or a hundred years but no further is clearly arbitrary, and yet such an opinion is both nearly universally held and violently defended. Many early transhumanists were shocked by the bizarreness and brazenness of this response, but it illustrates how people will become staunch proponents of existing injustices for fear of

lives... or something that’s a part of their identity and unique life experience.

Ultimately we seek to queer the distinction between “impairment” and “augmentation” as well as between “want” and “need.” No “baseline” should be oppressively normalized.

Why the color blue?

Blue has a long history as a symbol of the future. Blue is the color of the sky and the seas, distant horizons to be explored. Blue pigment is very rare in nature, with blue roses and blue flowers more generally signifying the artificial, the futuristic, the hopeful, and the infinite. Blue is overwhelmingly the characteristic color used in science fiction.

Blue also widely connotes acceleration and speed more generally, with all other colors “blue shifting” when an observer accelerates towards an object.

Of course most simply and obviously we choose blue a decade and a half ago because on the color wheel of anarchist schools it was the last major color unclaimed. We wanted to establish and defend our ideas and aspirations in a way that didn’t follow the traditional 90s-era red v green arguments. It was important to differentiate ourselves from more conventional currents of syndicalism and communism, without trying to negate or dominate the existing representations of those. Many of us are enthusiastic about very classic aspirations shared by Kropotkin and Bookchin, others are post-leftists intensely critical of organizationalism and ideological rigidity, others come from more market-oriented traditions like mutualism. But many of those differences are orthogonal to our shared focus on physical conditions and technological means.

The most interesting debate is ultimately not over nineteenth century economic systems but over how we want to live in the universe and what our values should be with

as opportunities for meaningful resistance and positive change that aren't exclusively cataclysmic total breaks.

Does anarcho-transhumanism intersect with Veganism?

Very strongly! Anarchist biohackers have worked on projects like getting yeast to produce the critical milk enzymes in normal cheese—just put yeast in a warm vat with sugar and let it fall out! Others have for example worked on custom algae production that provides many times more efficient ways to produce useful protein and carbs from sunlight than conventional agriculture, removing even the death toll from tractor operation.

Even further out, in the long run after rewilding the majority of the planet, a more aware stewardship of our ecosystems might enable us to make tweaks that reduce net suffering. Or even find out how to talk to Dolphins and persuade them not to be such murderous rapist dicks.

How does anarcho-transhumanism address issues regarding the differently abled and non-neurotypical?

As you would expect the transhumanist and anarcho-transhumanist position is to let a billion physical and cognitive architectures bloom! We want to radically attack and remove stigmas and constraining social norms so that a great diversity of experiences can be lived without oppression. At the same time we also want to provide people with the tools to exercise control over their bodies, minds and life conditions. It should be up to everyone individually to determine what might constitute an oppressive impairment in their own

otherwise having to reconsider standing assumptions in their own lives. In the same way that people will defend mandatory military service or murdering animals for food, the arguments for death are clearly defensive rationalizations:

“Death gives life its meaning.”

How is death at 70-years-old more meaningful than death at 5-years-old or at 200-years-old? If an eighty-year-old woman gets to live and work on her poetry for another five decades, does that really undermine your capacity to find meaning so badly that you'd have her murdered?

“We would get bored.”

So let's build a world that isn't boring! Never mind the wild possibilities embedded in both anarchism and transhumanism, it would take almost three hundred thousand years to read every book in existence today. There's already 100 million recorded songs in the world. Thousands of languages with their own ecosystems of conceptual associations and poetry. Hundreds of fields to study on rich and fascinating subjects. Vast arrays of experiences and novel relationships to try. Surely we can do with a few more centuries at least.

“Old static perspectives would clog up the world.”

It's a pretty absurd and horrifying to instinctively appeal to genocide as the best means to solve the problem of people not being plastic in their perspectives or identities. Over a hundred billion humans have died since the dawn of homo sapiens. At best they were only able to convey the tiniest sliver of their subjective experiences, their insights and dreams, before everything else inside them was abruptly snuffed out. People say that every time an elder dies it's like a library being burned to the ground. Well we've lost literally a 100 billion libraries over the course of homo sapiens. There are no doubt infinite myriad ways we might live and change, but it would be strange indeed if the

sharp binary of sudden, massive and irreversible loss that is currently standard was universally ideal.

This is an illustrative example in that it gets to the heart of what transhumanism offers as an extension of anarchism's radicalism: the capacity to demand unexamined norms or conventions justify themselves, to challenge things otherwise accepted.

Anarcho-Transhumanism breaks down many more of our operating assumptions about the world, just as it seeks to expand and explore the scope of what is possible. Radicalism is all about pressing our assumptions and models into alien contexts and seeing what breaks down in order to better clarify what dynamics are more fundamentally rooted and anarcho-transhumanism seeks to advance anarchism through this kind of clarification—to get it into a better fighting shape to deal with the future. To make it capable of fighting in any situation, not just ones highly specific to a given context.

It's easy to say "all this talk of distant science fiction possibilities is an irrelevant distraction while we have present struggles" and we certainly don't advocate abandoning the day-to-day of anarchist resistance and infrastructure building, but it is forward thinking that has often won us our biggest advances. Indeed it's arguable that a great deal of anarchism's potency has historically derived from our correct predictions. And this is a widespread pattern. While the internet is obviously the site of major conflict today, many of the freedoms still provided by it were won by radicals decades ago who were tracing out the ramifications and importance of things long before the state and capitalism caught up or grasped the ramifications of certain battles.

On the other hand, if there's one takeaway from the last two centuries of struggle it should be that it often takes radicals a really long time to field responses to things. We've adapted very slowly to changing conditions and at best it's taken us a decade

How does anarcho-transhumanism differ from Left Accelerationism or Fully Automated Luxury Communism?

We're not Marxists but anarchists and thus our analysis goes deeper than mere political economy. Anarchists focus on tackling domination and constraint on every level, not just the macroscopic or institutional. And as anarchists we want more than a merely classless society, we want a world without power relations—our ethical analysis extends to challenging interpersonal dynamics of power including more complex, subtle, informal, or even mutual relationships of domination and constraint.

While we share their aspirations for a world where the efficiencies of technologies lead to a world of abundance and liberated from the drudgery of work it's impossible as anarchists to accept their prescription of "verticalism." We likewise oppose short-sighted immediatism but find in the details of their "strategy" many of the the same old Marxist reflexes looking to establish an elite who will run the revolution/society.

This allegiance leads them to sympathize with and misidentify aspects of our world, suggesting that certain corporate and state structures reflect necessary hierarchies rather than wasteful cancers propped up by systemic violence and actually actively suppressing science and technological development.

More broadly Marxism shares a troubling tendency with its ideological offshoot Primitivism to speak in mystical terms of macroscopic abstractions like "capitalism" or "civilization." In their analysis these entities are imbued a kind of agency or intentionality and everything within them is seen as constituent dynamics serving a greater whole, rather than as conflicting and rearrangeable. This often blinds both ideologies to the aspects of better world now growing in the shell of the old, as well

everyone has a veto rather than through the coercion of majoritarian democracy.

To provide people with tools but also somehow also try to top-down restrict or control what they can do with those tools or what else they can invent is basically impossible without implementing an absurdly extreme authoritarian system that suppresses almost all function of those tools. This can be seen in the struggle to impose and enforce “intellectual property” on the internet, or the war against general purpose computing. In this sense all statist transhumanists fall short of transhumanist ideals due to their lingering fear of liberty and superempowered proles.

On a philosophical level it’s impossible to reconcile transhumanism’s embrace of greater agency in our bodies and environment with simultaneously advocating for oppressive social institutions that broadly constrain our agency.

This difference of values crops up in a number of differences. We’re obviously a lot less sanguine about letting states and capitalists monopolize control or development of new technologies and we support serious resistance to both attack their centralized infrastructure and liberate their research and tools for everyone. Killing Google is of paramount importance.

Lastly there’s a quite disappointing current in non-anarchist transhumanist circles that focuses on the development of artificial intelligence rather than the liberation and empowerment of the billions of minds already on this planet. If we want an explosion of intelligence then the surer and quicker path would be to liberate and empower all the potential Einsteins currently trapped in slums, favelas, open mines and fields around the world. Further, it’s rather terrifying that the default approach to AI has largely been “how can we most effectively control/enslave it?” If we are to have such children they deserve compassion and liberty.

to try out various approaches, settle on the good ones, and then popularize them. We have an increasing tendency to dismiss futurism and instead just shrug and say “we’ll solve that problem through praxis” but what that dismissal really boils down to is: “we’ll figure it out through trial and error when the shit hits the fan and we don’t really have time for years of error and stumbling.”

A lot of folks are finally coming around to the realization that the simplicity of our responses and our slow adaptation times have often left us predictable to those in power, our instinctual short-sighted responses already integrated into their plans, and thus our struggles effectively start functioning like a pressure valve for society.

It might seem bizarre and disconnected to try and interrogate exactly what anarchists really means by “freedom” when considering a context where “selves” and “individuals” are not clearly defined and conventional appeals to autonomy fall short. One might seek to dismiss the present-day existence of twins conjoined at the brain who use pronouns weirdly or people who experience multicameral minds as “irrelevant” or “marginal” and dismiss brain-to-brain empathic technologies as too distant to be worth even speaking of (never mind the couples who’ve already utilized limited prototypes). But what dismissal of anything beyond one’s present particular experience ends up doing is confining anarchism to a parochial context, leaving it a superficial and soon-to-be-antiquated historical tendency like Jacobism—incapable of speaking more broadly or claiming any depth or rootedness to our ethical positions.

If we get a hundred years down the line and anarchism becomes one of those cobwebbed ideologies or religions that clings to old theoretical frameworks and refuses to update itself to changes in what’s technologically possible, the world will be losing a lot.

It's important to be clear however: Proactive consideration of the possible is not the same thing as small-minded prefiguration. Anarcho-transhumanists are not making the mistake of demanding a single specific future—laying out a blueprint and demanding that the world comply. Rather what we advocate is the enabling of a multiplicity of futures.

Doesn't focusing on the future take away from the present?

If we lived directly in the present with no reflection we wouldn't be self-aware. Mental recursion—modeling ourselves, others and our world—is central to consciousness itself. What defines a mind as a mind is its capacity to preemptively think a few steps ahead. To not just roll immediately down the steepest slope like a rock, but to grasp our context, the landscape of our choices and possible paths and sometimes choose ones that don't immediately satiate.

Sure, yes, there's dangers of becoming ungrounded but there's dangers to everything if you do it stupidly. Futurism in no way obliges a disconnect with the struggles of the present, but it does have implications for what we prioritize in the present. For example, refusing to accept a reform that might improve our lot in the short term but seriously impede our capacity to struggle in the future. Liberals are famous for their dismissal of the future, "In the long run we're all dead," goes Keynes' famous quote, an attitude which they use to justify shortsighted actions like ecological devastation and granting the state ever more power over our lives. There's a sense in which sometimes we have to improve our lot in the short term just to keep fighting, but we must always be aware of what we're trading away. Otherwise you get anarchists supporting socialist politicians.

Thankfully a good chunk of the reactionary contingent abandoned transhumanism when they finally realized how inextricable the liberatory components were. "The death of the gender binary? That's not what I signed up for!" Many of these idiots have gone onto form a fascism-for-nerds cult/fandom called "neoreaction" as part of the alt-right. In a particularly revealing reversal many now hope for and advocate the collapse of civilization. They expect this will lead to a post apocalyptic landscape where their absurd notions of biological essentialism reign supreme—where "Real Alpha Men" rule as warlords and the rest of us are used for raping, slaving, or hunting. Or where we are forced back to tribal-scale relations, better enabling (small scale) nationalistic identity, interpersonal hierarchies and traditionalism. Others envision small corporate fiefdoms and some kind of AI god that will help them maintain their desired hierarchies by stopping oppressed groups from gaining, understanding, or developing technology.

Obviously these fascists can go die in a fire. We're glad they've left transhumanism and hope to make any remaining ilk of theirs follow.

Sadly while the outright reactionaries have left, a majority of transhumanists still presently identify with liberalism, state socialism, social democracy, and similar technocratic cults of power. The most infamous instance is Zoltan Istvan who simultaneously ran for president and biggest embarrassment in transhumanism.

Obviously we find non-anarchist transhumanists to be politically naive at best and dangerous as hell at worst, but we also think that transhumanism without anarchism is a totally untenable position.

A world where everyone has increased physical agency is a world where individuals are superempowered and are thus obliged to solve disagreements through consensus as though

You may think this a “trivial” point but it’s a deep one. It’s hard to provide an objective metric of just what counts as “more mediation” and it’s harder still to try and claim such a metric means something.

There is no such thing as “direct experience.” To see anything requires an immense amount of processing as raw signals are processed by neural columns in our visual cortex into ever more abstract signals. Artifacts from this processing can be found in optical illusions and patterned hallucinations. And in turn our experiences shape what pattern recognition circuits form with what strengths. To experience “directly” without mediation would be to not experience or think at all.

Sure one can try to distinguish between “human created” mediation and not, but such a distinction has no fundamental correlation with how viscerally or accurately we experience things. While there’s a different flavor of danger to someone tapping or censoring your community mesh wifi network, such interference or sabotage applies in various ways to all our means of communication, including cultural and linguistic constructs.

It’s nonsensical to talk of “more” mediation rather than different flavors with different contextual benefits and drawbacks. Even John Zerzan wears eye glasses to better his overall capacity to visually experience and engage with the world around him. In many ways modern technologies can be used to expand the depth and richness of our engagement with nature and each other.

How do anarcho-transhumanists differ from other transhumanists?

Transhumanism is a quite simple position and so there’s a wide array people who’ve been attracted to it. Inevitably some of them are obnoxious, shortsighted, naive, or reactionary.

It’s not that there’s absolutely no chance we couldn’t get some kind of democratic socialist utopia if we all really put our minds and bodies to it that might immediately improve our lives, it’s that there’s a limit on those improvements. And, once achieved, its authoritarian tendencies might deepen and become even harder for future generations to overthrow.

Similarly a permanent collapse of civilization might improve the lives of (a very few) survivors, but it would forever constrain our options and aspirations to some scant freedoms.

What insights does anarcho-transhumanism offer for resistance?

If fascism is so powerful why hasn’t it totally triumphed? Our world could be so much worse than it is. Despite all the things our enemies have going for them—all the vast wealth and coercive force they’ve accumulated, all the ideological and infrastructural control, all the systemic planning and surveillance, all the ways humans are by default inclined to cognitive fallacies, cruelty, and tribalism—they have clearly been massively impeded on every front. And those societies or movements that have sought to embrace the strengths of authoritarianism more directly have failed. We—despite our own myriad shortcomings and imperfections—have time and time again, won. The host of those in fealty to absolute power, to mindless surrender and violent simplicity, are legion. And yet we have crippled their ambitions, outflanked their worldviews, bogged down their campaigns, sabotaged their projects, creatively struck back, preempted them and changed the landscape out from under their feet.

We are winning because free people are better inventors, better strategists, better hackers, and better scientists. Where the ideology—or rather infectious psychosis—of power fails is

in its necessary weakness at leveraging complexity. Power innately seeks to constrain the possible, freedom is about unleashing it.

Having more tools available gives us more possible ways to approach a problem. While the “choice” some tools provide is can be superficial and of little causal depth or impact and choosing certain tools can shrink choice in other regards, at the end of the day you can’t continuously maximize freedom without also continuously expanding one’s toolset.

Expanded degrees of freedom from such tools empowers attackers over defenders. When there are more avenues by which to attack and defend, the attackers only need to choose one, the defenders need to defend all, making the defense of rigid extended institutions and infrastructure harder and harder.

Thus in the broadest lens technological development ultimately bends towards empowering minorities to resist domination and makes cultural habits of consensus and autonomy increasingly necessary—because in some sense everyone gets a veto.

Similarly, information technologies unleash a positive feedback in sociocultural complexity. While early crude information technologies like radio or television were seized and controlled by the state and capital to form a monopolistic infrastructure promoting monolithic culture, the wild array of technologies we’ve blurred together as “the internet” have come so fast as to resist this tendency and instead promote an increasing hypercomplexity of fluid discourses and subcultures.

This provides an amazing source of resistance because it makes mass-control harder and harder. What is hip moves so fast and is so diverse and contingent that politicians and businesses stumble more and more when trying to exploit it.

Our feedbacking sociocultural complexity constitutes a Social Singularity, a reflection of the Technological Singularity—a process where collaboratively feedbacking technological in-

with some challenges (the base or “floor” of the structure that faces upward will obviously have to be lined with some water-resistant material) and then build it. And maybe it’d be quirky all upside-down looking and your kids would get a kick out of it. But the point is this: we don’t have to argue over whether or not it might be “impossible” to build. The problems, such as they are, are engineering/building/doing-the-math problems, they’re problems that might take shorter or longer than we forecast to accomplish, but they can be done.

Most of the things we’ve been talking about fall very far to the doable side of the spectrum—there’s no chance they’re prevented by physics, mathematics, chemistry or the like—we’re not talking about wormholes, for example. They’re merely engineering problems, albeit challenging ones. That plenty of experts are cranking away at and that the established consensus is confident about. Asteroid mining for example is like satellites in the 50s were. We know we can do it, we know it will pay off, we just have to fucking do the mounds of busywork in our way first.

None of this is “magic”, what we’ve been talking about is very simple, very conservative sorts of “well this will obviously be possible” kind of stuff. Estimates of how long until naturally get subjective, but it requires conspiratorial science-denialism to pretend that engineering robots to mine will somehow be impossibly hard or require equivalent amounts of human labor.

Doesn’t technology mediate our experiences and stop us from living direct lives?

All causal interactions are “mediated.” The air mediates the sound of our voices. The electromagnetic field and any intervening material mediates our capacity to see. Culture and language mediates what concepts can be expressed with clarity.

turned fusion into a laughingstock on late night television, it remains a reasonable and known source of incredible clean energy only limited by engineering challenges rather than any issues of basic science. And recent history has been littered with a chain of incremental successes and benchmarks passed.

While all these may provide cheap energy, the only way we'll reverse global warming at this point is with carbon negative technologies that leave behind solid carbon as a byproduct. There are many already proven means of doing this from ancient gassification technologies to an array of algae farming approaches.

That none of these have been widely adopted is political. State violence subsidizes our incredibly inefficient infrastructure because such props up centralized large-scale economic entities. Similarly, much of our energy consumption presently goes toward war and frivolities, supply and demand are aggressively distorted, and the environmental costs have been systematically shifted away from certain companies and industries.

It does not have to be this way. Technological development innately expands options and so it should come as no surprise that our recent technological innovation has moved away from massive centralized hamfisted infrastructural structures and towards organic, decentralized and reconfigurable approaches along the lines of 3D-printing and open source.

Isn't it just magical thinking to refer to technologies which currently do not exist?

There's a profound and all-important distinction between "physically doable but not yet engineered" and "who knows."

Let's say that no one has ever yet built an upside-down treehouse. No one has even designed an upside-down treehouse. Yet you immediately recognize that such a thing is doable. One would have to draft a design, figure out a good way to deal

sights and inventions grow too fast to be predicted or controlled.

Silicon Valley is desperately trying to avoid the reality that the net profitability of the entire advertising industry is in decline. Since the advent of the internet people have begun wising up and advertisers are having less and less impact on the whole. All that remains marginally effective with the younger generations are more individually-targeted outreach campaigns – think businesses trying to get in the meme game or paying popular instagram teens to reference their products. But these are clearly suffering diminishing returns. When a hypercomplex teen fashion subculture constitutes 30 people it's no longer worth the energy for Doritos to try to target them.

What makes your analysis of technology any less superficial than primitivism's?

Transhumanism isn't a claim that all tools and applications of them are—in all contexts—totally wonderful and without problematic aspects to be considered, navigated, rejected, challenged, or changed. Nor is transhumanism an embrace of all the infrastructure or norms of tool use that currently exist. We do not argue that all technologies are positive in every specific situation, that tools never have biases or inclinations, or that some arbitrary specific set of "higher" technologies should be imposed. Rather we merely argue that people should have more agency and choices in how they engage with the world.

Being more informed and having a wider array of tools to choose from is critical to this. Because in the most broad scope of things, "technology" is just any means of doing things, and the definition of freedom is having more options or means available to you.

Our realization is that—while there will inevitably be a lot of contextual complications in practice—at the end of the day we want more options in life and in the universe. In much the same way that anarchists have argued for having as many different tactics available to us as possible. Sometimes one tactic or tool will be better for a job, sometimes not. But expanding freedom ultimately necessitates expanding technological options.

What's deplorable about our current condition is the way that technologies are suppressed until all we are allowed is a single technological monoculture, often with some very sharp biases. On the one hand this comes through the suppression and erasure of more simple or primitive technologies but on the other hand it comes through the vicious slowing or curtailment of technological development thanks to Intellectual Property laws and myriad other injustices. Similarly the conditions of capitalism and imperialism distort what technologies are more profitable and thus what research is poured into.

That does not mean that technological inventions under capitalism are innately corrupted or useless. And it certainly doesn't mean that we should start entirely from fresh cloth, ignoring all discoveries and knowledge accumulated along our trajectory.

But many of the industries and commodity forms that are standardized in our existing society would be unsustainable and undesirable in a liberated world.

For example: There are hundreds of ways to make photovoltaic solar panels, but when the People's Republic of China uses slave labor and eminent domain to seize, strip and poison vast swathes of land they end up lowering the cost of certain rare earth minerals—and thus making money flow more towards research in photovoltaic approaches that use such artificially cheap rare earths than towards alternative viable research branches using more common materials. Similarly, two centuries ago—using not much more than simple

entific discourse on green energy covers dramatic changes in orders of magnitude. Highly plausible reductions in footprint by a factor of 100x or 1000x would constitute a monumental difference, not some trivial reform. Humans have always had an effect on our environment and the Earth's ecosystems have never been static. Our goal should not be some unchanging and sharply constrained lifestyle with literally zero footprint but to enable our ingenuity and exploration in ways that don't bulldoze the Earth.

If we put a small fraction of the current hydrocarbon energy into solar we'll have enough power to replace it. It's possible to get incredibly high power from solar using even 1800s technology of mirrors and steam pipes. There are a great many condensed battery options and more being developed, things like high-density biochemical storage, etc. Meanwhile photovoltaic has leaped past every supposed barrier and diversified the materials necessary, including quite simple approaches with tiny ecological footprints. The energy return on solar is close to 12x and is rocketing upward. It's gotten to the point where governments like Spain have outlawed private use of solar without paying a steep tax to keep fossil fuels and centralized grids competitive—they've even started conducting fully armed SWAT raids of houses with solar panels.

While nuclear still carries many extremely negative associations among the 80s ecopunk set, many of these concerns are only valid in the context of cold-war-style reactors. Specifically reactors that were built to be highly centralized, state-run and only work with material that would produce weaponizable byproducts. On the other hand many liquid fluoride thorium reactor designs have literally no capacity to meltdown, run on a radioactive material already naturally in poisonous abundance on the earth's surface and leave remains with relatively quite low half-lives.

Similarly, while some specious reporting on "cold fusion" and overenthusiastic claims about normal fusion in the 80s

lead to the other as cheap energy means more cost effective metals recycling and cheap metals means cheaper batteries and expanded access to energy sources like wind. The earth is not a closed system and for example several major corporations are now racing to seize nearby asteroids so rich in rare metals they would crash the metals markets and shutter nearly every mine on the planet.

And let's note that it is highly unlikely such a collapse would return us to an idyllic eden. Many centers of power would likely survive, almost nowhere would fall below iron-age technology, billions would die horrifically, and the sudden burst of ecological destruction would be incredible. It even turns out that the spread of forests in northern latitudes would perversely end up making global warming worse because trees are ultimately poor carbon sinks and changes to the Earth's albedo (from darker forests) cause it to absorb more energy from the sun.

No matter the odds we must fight against the unfathomable holocaust of a collapse. We have an obligation to struggle, to have some agency in our future and our environment, and to take some responsibility for it. Only with science and technology will we be able to repair ancient disasters like the Sahara, manage the decommissioning of horrors, and rewild most of the Earth.

But aren't green energy and green technologies basically a myth?

This is just wrong. If you read in any depth on green technologies the actual scientists working on them aren't somehow myopic idiots that have systemically overlooked life-cycle analyses. They do consider things like concrete, transportation costs, and energy storage density. Capitalists love to green-wash absurdities in shallow press releases, but the actual sci-

mirrors—Augustin Mouchot demonstrated a fully functional and (at the time) cost-efficient solar steam engine at the world's fair. It would have gone into mass production had the British not won battles in India enabling them to enslave large populations in coal extraction and dramatically drive down coal prices.

These are not crackpot claims but historical facts. Institutional violence frequently alters the immediate profitability of certain lines of research versus others. Canadian miners are replaced by Congolese slaves working in horrific open pit coltan mines.

Primitivism oversimplifies the situation, saying that what exists must necessarily be the only way to enable certain technologies. It also frequently implies a single linear arc of development where everything is dependent upon everything else, ignoring the often great latitude and diversity of options along the way and failing to investigate the vast potential for reconfiguration.

Are you at least opposed to civilization?

Any discussion of "civilization" is necessarily going to involve a sweeping and over-simplistic narratives. Our actual history is far more rich and complicated than any tale of simple historical forces can account for. Systems of power have been with us for a long time and are deeply enmeshed in almost every aspect of our society, our culture, our interpersonal relations, and our material infrastructure. But if we're to speak of some kind of characteristic or fundamental "culture of cities" it's begging the question to write domination in from the start.

There have always been constraining power dynamics in every human society from hunter-gatherers on up. While larger scale societies have naturally made possible more showy expressions of domination, such is not inherent.

Throughout the historical record cities have been quite diverse in their degrees of internal hierarchy and relations with surrounding societies and environments. A number of city cultures left no trace of hierarchy or violence. What should be remembered is that by definition more egalitarian and anarchistic city societies didn't waste energy building giant monuments or waging wars, and thus are naturally going to be less prominent in the historical record available to us. Further, because we currently live under an oppressive global regime, it goes without saying that at some point any more libertarian societies had to have been conquered and we know that victors often intentionally destroy all records. Similarly, non-anarchist historians have leaped to assume that the presence of any social coordination or technological invention in egalitarian and peaceful city-cultures like Harrappa proves the presence of some state-like authority—even when there's zero sign of it and strong indications to the contrary.

Urban concentrations arose in some places like the British Isles prior to agriculture. Indeed in many places around the globe where the land could not support permanent cities people nevertheless struggled to come together in greater numbers whenever and for however long they could manage it. Frequently early societies would be both hunter-gatherers and temporary city dwellers, transitioning back and forth with the seasons.

This does not remotely fit an account of cities as solely runaway concentrations of wealth and power—a single cancerous mistake. If cities were such a bad idea why do people with other options keep voluntarily choosing them?

The answer of course is that living in large numbers increases the social options available to individuals, opening up a much greater diversity of possible relationships to choose from.

Instead of being confined to a tribe of a hundred or two hundred people—and maybe a nearby tribe or two—living in a

city enables people to form affinities with those beyond their happenstance of birth, to organically form their own tribes by choice. Or better still shed off the limiting insularity of closed social clusters. There's no good reason your friends should all be forced to be friends with each other as well. Cities enable individuals to form a vast panoply of relations extending off in far larger and richer networks.

Such cosmopolitanism enables and encourages the empathy necessary to transcend tribal or national othering. It expands our horizons, enabling mutual aid on incredible scales, and helping flourish far richer cultural and cognitive ecosystems than ever possible before. If there is any single defining characteristic “culture of cities” or “civilization” it is thus one of wild anarchy, of unleashed complexity and possibility.

What we want is a world with the teeming connectedness of cosmopolitanism, but without the centralization and sedentary characteristics of many “civilizations” so far. We want to fulfill the promise and radical potential of cities that led humans to voluntarily form them again and again throughout history.

Why care when the collapse of civilization is inevitable?

It's true that our present infrastructure and economy is incredibly brittle, destructive and unsustainable—in many ways serving and intertwined with oppressive social systems. But there are so many other forms yet possible. Our global civilization is not some magical whole, but a vast and complex battlefield of many competing forces and tendencies.

The “inevitability” of the supposedly coming collapse is in fact itself quite brittle. Any number of single developments could massively derail it. An abundance of cheap clean energy for example, or an abundance of cheap rare metals. Each would