

ANARCHO-TRANSHUMAN IS A JOURNAL OF THE UNCONTENT, OF THOSE WHO REFUSE TO EVER SETTLE OR TEMPER THEIR DEMANDS.

IN THE WORDS OF ANARCHISTS THROUGHOUT THE AGES, WE DON'T WANT ANY ONE THING, WE WANT EVERYTHING.



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ANARCHO-TRANSHUMAN

A JOURNAL OF RADICAL POSSIBILITY & STRIVING



ISSUE #4 OUTER SPACE & COSMIC AMBITIONS

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ANARCHO-TRANSHUMAN

A JOURNAL OF RADICAL POSSIBILITY & STRIVING

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Points of Unity

Opposed to all power relations and social structures limiting or constricting agency; including but not limited to capitalism, the state, racism, sexism, heteronormativity, speciesism, and basically being a dick. Although technically if you want to become like a giant penis we suppose that's your own matter. For cognitive and morphological freedom.

Some works straight up borrowed when we could not contact original author.

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ISSUE 4

Contents

Space is Queer and Radical E Whitney Buck	1
Anarchists Need Space Because We're Fighting in All Directions Emmi Bevensee	7
Squatting In Space Mixel S Laufer	15
Ephemerization for Post-Capitalist Space Exploration Kevin Carson	23
Setting The Universe On Fire William Gillis	29

The revolutionary old mole, which is now gnawing at the foundations of the system, will destroy the barriers that separate science from the general knowledge that will be accessible to everyone when people finally begin making their own history. No more ideas of separate power, no more power of separate ideas. Generalized self-management of the permanent transformation of the world by the masses will make science a basic banality, and no longer a truth of state.

Humanity will enter into space to make the universe the playground of the last revolt: the revolt that will go against the limitations imposed by nature. Once the walls have been smashed that now separate people from science, the conquest of space will no longer be an economic or military “promotional” gimmick, but the blossoming of human freedoms and fulfillments, attained by a race of gods. We will not enter into space as employees of an astronautic administration or as “volunteers” of a state project, but as masters without slaves reviewing their domains: the entire universe pillaged for the workers councils.

Eduardo Rothe

In isolated form, this is the *characteristic gesture* of cosmism, what we might call the “cosmist impulse”: to consider the earth a *trap*, and to understand the common project of philosophy, economics, and design as being *the formulation of means to escape from it*: to conceive a jailbreak at the maximum possible scale, a heist in which we steal ourselves from the vault.

Benedict Singleton



The thought processes of a tribe, a clan, a country or a nation-state are essentially two-dimensional, and the nature of their power depends on the same flatness. Territory is all-important; resources, living-space, lines of communication; all are determined by the nature of the plane (that the plane is in fact a sphere is irrelevant here); that surface, and the fact the species concerned are bound to it during their evolution, determines the mind-set of a ground-living species. The mind-set of an aquatic or avian species is, of course, rather different.

Essentially, the contention is that our currently dominant power systems cannot long survive in space; beyond a certain technological level a degree of anarchy is arguably inevitable and anyway preferable.

To survive in space, ships/habitats must be self-sufficient, or very nearly so; the hold of the state (or the corporation) over them therefore becomes tenuous if the desires of the inhabitants conflict significantly with the requirements of the controlling body. On a planet, enclaves can be surrounded, besieged, attacked; the superior forces of a state or corporation - hereafter referred to as hegemonies - will tend to prevail. In space, a break-away movement will be far more difficult to control, especially if significant parts of it are based on ships or mobile habitats.

Iain M Banks

indifferentiable, but contains rich dynamics too fine, multitudinous, and energetic for our clumsy troglodytic eyes to pick out and discern. A world of heroic angels, much less a closely inter-networked one, would not be a world of gray peasants, but one where the engines of art and drama move even faster.

The second response is that such a utopian abstraction of a static end is misleading. The point here is not the fire itself but the setting of the fire. When evaluating pathways here the point is the choice, to maximize the possible, the intersections and forkings of new choices, continuously, in as wide an expanse of spacetime as possible. Liberation is not something cast beyond some arbitrary horizon, but something to be maximized the whole way. The “end” in such a finite conclusive sense is never reachable, all we have is a vast stretch of time across a vast world.

We can fill it with choice, we can set fires so that they spread and never quench, or we can take some bullshit order.

Meaningful inquiry and creativity are removed. In short we are not allowed to be scientists, or inventors, or artists. The rich potential for reconfiguration that we have within the jelly of our brains, has no impact, it dies or is suppressed beyond our skulls.

It is not so much that we want ownership over our creations, nor that we need some kind of sense of belonging and embeddedness within some community or ritual, it's that we want impact in the world.

We take another customer's order and flash a sweet smile or a grimace, we try to sneak in tiny gifts and jabs, a thin insurgency or frail art project, snuck in between the methodically determined. We struggle to construct possibilities outside the gaze of our boss.

The tyrant wants to control a wider expanse, to own it, to shape it in set ways and exclude any alternatives for it. What we want is merely to affect it. To expand what is possible. At the furthest heights this can be a probe leaving our solar system or a piece of art that enhances how billions of other people see the world.

What's critical here is that such freedom is not rivalrous. The intermixing of our efforts compounds. We can each be heroes, we can each change the world.

In formal physics terms the dynamics being described obviously relate strongly with entropy, which is not so much a matter of decay as the number of possibilities, although it is important to emphasize the interdependence and contingency emphasized in our picture. The idea that the point of consciousness is to increase something like entropy is an old one, that constantly reoccurs to a great many people.

The standard response given to the entropy-maximizers is that a world of maximum entropy, a world where static lattices of dead rocks are liberated into a hot gas, where the universe is set on fire, would be itself a drab affair. And much the same is said when such is mapped to more everyday social relations. Anarchy would be boring. A world of equally heroic angels would be a world without the drama and sacrifice of war and hierarchies.

There are two responses to this. The first is that a hot plasma is not

Space is Queer and Radical

E Whitney Buck

I've had the same argument so many times that I can parrot what my opponent is going to say.

"Why are we spending money on space when we have problems like starvation and climate change here?"

"Only rich people are going to be able to go to space, so why should I care?"

"Space exploration is going to be just another avenue of colonialism."

Followed by a, "So, fuck that," from them, and a change of subject, with me significantly more disheartened than before. In going toe-to-toe with my fellow radical queers, it's hard not to feel like they're right. They're right in the way that nihilism *seems* right. Which is, right up until the very last point of it, when it's wrong. Because the conclusion of it amounts to nothing, nothingness. It's an empty meal, to dismiss space travel. There's no spark of joy, no impulse towards growth, or even life, in the thought that space belongs to the abhorrent capitalist colonizers *and that is that*.

I love space. It probably started early- my father would wake me and my brother up early when we were kids to go lay on a dew-drenched soccer field to look for shooting stars. I never saw any, but I the excitement of the astronomical expedition lingers. When I got to take a summer college course in high school, I took Astrobiology, and

loved it. I learned about how virtually impossible the chances of multicellular life existing on this planet were, and how we measure the presence and size of different planets outside of our solar system by calculating the gravitational wobble of the stars they orbit. My dream date is an overnight to one of the local observatories. I have NASA Jet Propulsion Lab posters on my wall now, as a grown-up, proudly boasting to all guests that NASA made the stunning vintage-style travel posters to exoplanets to be released as high-resolution versions to the public *just to get people excited about space*.

Somewhere along that timeline, I also came out, married a woman, blurred my conception of my gender, and just overall amounted to a lot of kinds of queer, in some exuberant fashion or another. Being queer, I befriended other queers, and am so grateful to feel a part of a wide network of radical people. But this space thing, it just keeps coming up, and I couldn't compute why me and so many other radical queers are on such different pages about it.

When starting to research this article, I thought its target audience would be the primitivist-leaning queers that seem to pop up in my spaces. It makes sense that those who are opposed to the use and pursuit of technology oppose space exploration. But when I did a call for comments from my social media friendships, I received opinions from many people of a variety of political opinions who expressed hesitant, and mostly grounded, opposition to space exploration. Some were even genuinely heartbroken about it.

I want to both oppose the opposition to space exploration among the primitivist gays I keep encountering, and give queers of all inclinations some solid reasons for being excited about space. Because relinquishing space exploration to a few wealthy assholes is surrendering our future to them as well, and we're not done fighting for that.

Now, I definitely cannot argue that a few rich assholes don't currently have the monopoly on space, nor that those environments are welcoming of *teh gayz*, let alone radical ones. Trump nominated the now-confirmed Jim Bridenstine, a climate change denier who has spoken out against marriage equality, gay inclusion in the Boy Scouts, and equal treatment of transgender students, to head up NASA, the

particles but set off a cavalcade of interactions. And one might just as well think of billiard balls here. When first breaking, a large array of angles one might choose would send the cue ball off to little impact, missing the grouped balls. But in contrast a smaller choice of angles suddenly have rich potential.

In the overall system choice between a few lonely trajectories doesn't amount to much choice at all. The configuration of the system remains largely the same.

When evaluating human choice in society and the wider universe the story is much the same. Every choice is a a branch with many further branches, and these branches fork to different degrees and at different depths.

One option may contain a rich array of further options, but no more. An explosion of civil violence may shake off the norms and well worn habits of a society, leading to all kinds of novel situations, but perhaps with all such paths still quickly terminating in death or ruin. A small explosion of brilliant fire, but a brief one, leaving nothing but passive ashen mud.

Similarly another option may lead to a decrease in options in the short term, going to a strictly structured school for example, or avoiding a temptation, in order to potentially expand one's options later.

We could, in theory, index these potential pathways in physically real terms, like extent in space and time, and measure the particle by particle expanse of configuration states and possibility trees opened by an individual's choice.

But for most casual things our human concepts apply easily. Why do we prefer to create and share memes than work more productively at our jobs? Because however much memes may be derided as trivialities, our individual choice has consequence or the potential for consequence upon our friends and possibly well beyond. Taking someone's burger order is methodical, there is almost nothing we can do that will affect the wider world one way or the other. We are replaceable and our jobs are strictly determined.

Setting the Universe on Fire

William Gillis

Let's say you hunger for liberation, you want to increase freedom. What is freedom but choice?

One might quickly think to equate this with the raw number of immediate options you have. But consider these options as a branching tree. What other options are opened up by choosing a specific option?

It has long been pointed out that if you have a choice between a hundred flavors of toothpaste that's a very limited set of choices because once you make the choice there's not much left to do. There's very little different between the experience of brushing your teeth with one flavor of toothpaste versus another, nothing hangs on it, the impact upon the wider universe is very limited, and no further choices get opened up.

We can see choice in the context of a tree like structure. At each joint there are a number of branches, and these branches themselves have branches, and so on. Some branches have very few sub-branches.

To check that we're not creating disconnected abstractions, phantasms unrelated to reality, at the most fundamental physical level we could consider the branches to be the causal impact of a moving particle. If its angle of deflection from another particle is a free parameter, what are the consequences in the configuration state of a wider system?

At many angles the particle might shoot off on an uninterrupted and boring trajectory, at other angles it might smash into other particles, and at some very unique range of angles it might not only smash into other

National Aeronautics and Space Administration¹. This was before 45 signed the Space Policy Directive 1, which called for NASA to work with private sector partners to return US astronauts to the surface of the moon, creating a waystation for exploration further afield². In August, 2018, Pence announced plans to form a new branch of the U.S. military called the Space Force, which asserts the view that space is a "warfighting domain"³. In the private sector, divisive capitalist Elon Musk, in a particularly excessive display, launched his own car into space⁴. The message of all of this new space exploration is clear: space is the domain of the wealthy, the powerful, the violent. The whites, the men, the straights.

But does it have to be? Is space exploration but the manifest destiny of colonialism continuing in perpetuity, spiraling out into the cosmos? If that is the case, from whence will rise the concurrent legacy of revolution and upheaval as subversion of any and all attempted hegemonies in this new theatre beyond our atmosphere?

In the extraordinary play *Angels in America* (go watch the HBO miniseries, I'll wait. Plus I'm about to spoil a part for you), an Angel comes from on high to deliver a prophecy to the AIDS-stricken Prior Walter. He is to deliver in turn to his global contemporaries at the end of the millenium the following:

"STOP MOVING.

Forsake the Open Road;

Neither Mix Nor Intermarry: Let Deep Roots Grow:

If you do not MINGLE you will Cease to Progress:

Seek Not to Fathom the World and its Delicate Particle Logic:

*You cannot Understand, You can only Destroy*⁵"

1 <https://www.advocate.com/politicians/2018/4/19/anti-lgbt-climate-change-denier-will-head-nasa>

2 <https://www.businessinsider.com/trump-nasa-moon-space-policy-directive-federal-funding-2017-12>

3 https://www.washingtonpost.com/business/economy/pence-details-plan-for-creation-of-space-force-in-what-would-be-the-sixth-branch-of-the-military/2018/08/09/0b40b8d0-9bdc-11e8-8d5e-c6c594024954_story.html?noredirect=on&utm_term=.5630f21b1bee

4 <https://www.theverge.com/2018/2/10/16997124/elon-musk-spacex-tesla-art-starman-advertising>

5 *Angels in America II: Perestroika*, p. 178

This is the voice of heartless nihilism, a hopelessness in humanity, and where does it lead us? The decree stymies us from understanding our environment, from even attempting to understand, because in trying to understand something, through own own growth and exploration, we destroy it. Like imperial colonizers bringing smallpox wiping out entire indigenous populations, we run the risk of bringing destruction with us into space. It does make sense to advocate not exploring, then. Best to stay on our own planet.

And yet, who else advocates for people to stop this whole moving around thing? Those in favor of militarized borders, who oppose immigration, miscegenation, and gay stuff. Go back to where you came from. You destroyed your own country, so now you have to come to ours to do the same? You don't belong here. Speak English. Act like a girl. Boy. This is America.

My open-border politics believe in movement, and that extends beyond our planet. I support teeming, productive, creative life. I believe in queers finding and creating spaces that are safer, which come in thanks almost entirely to our ability and capacity to *move*, because not often, certainly not in Western societies, did those spaces exist before. We, and our transcestors, had to make them. I bless the transqueers caravanning across multiple countries to seek asylum in places where they may be safer ⁶, and support their right to do that. Space exploration—the moon, Mars, even ultimately extra-solar travel—presents entirely new opportunities for such growth, learning, engagement, community-making. Is it totally audacious to think that queers, some of the historically (and currently) most marginalized from every kind of capital in the System As We Know It on earth, especially when intersecting with race, class, ability, citizenship and more, will be a part of such an opportunity?

Of course. And don't we queers excel at audacity? Our very survival often requires it. Some of us do, and must, carry our differences quietly, the barest whispers inside ourselves as passing takes precedence. Others, given the chance to do so safely, or even, god bless them, without such a guarantee, display their other-ness for all to see: leaning into it in clothing, hair, language, art, expression,

infrastructure as the jumping off place to build the next stage when it became necessary for the needs of the existing system, Kennedy chose an arbitrary goal for its symbolic value — and the moon has since gone unvisited for forty years while the U.S. space program atrophied.

Henley also, anticipating those who point to Elon Musk's space ventures as a hopeful sign, points out that "*the private Mars foundation gang admits that their strategic plan way underestimates the likely cost.*"

But it's worth considering that the same blockbuster projects that diverted the space program from sustainability also tended to push it towards high-cost technologies beyond the reach of voluntary associations.

The effect of the space program's focus on blockbuster projects like Apollo was to push space travel technology towards extreme capital-intensiveness, and away from the kinds of modular, granular, multi-purpose and reusable building blocks that could evolve into a sustainable technological ecosystem.

Corporate space efforts like Musk's are a first, intermediate step towards developing an affordable, sustainable infrastructure for exploring and developing outer space. And projects like Copenhagen Suborbital and Bitnation Space Agency are completing the evolution by relying entirely on open-source hardware, and replacing high-overhead managerial bureaucracies with peer-network governance.

Things look genuinely optimistic for the future of space exploration and human expansion into the solar system. The reason for hopefulness doesn't lie with the state; and with luck, maybe it won't lie with Elon Musk for much longer either.

⁶ <https://wagingnonviolence.org/2017/08/trans-gay-migrant-caravan-rainbow-16/>

crew and repaired his disabled ship based on crowdsourced advice from the Openshot global network.

Once you've bootstrapped affordable orbital ferries, the addition of 3-D printers and other cheap, open-source micromanufacturing technologies that can be used to construct interplanetary craft in orbit or construct buildings on the surface of other worlds means that the path to the entire solar system lies open. The focus by both corporate ventures like SpaceX and open-source ventures like Copenhagen Suborbital and Bitnation Space Agency, on developing bottom-up infrastructures, one step at a time, arguably amounts to backtracking to a crossroads and getting on the path that space exploration should have taken in the first place.

Jim Henley of Unqualified Offerings, in a comment at Pixel Scroll, noted that the Apollo project essentially destroyed the long-term future of the U.S. space program by diverting it away from the necessary work of building a sustainable technological ecosystem:

When I was but a lad, reading Golden Age Science Fiction like Grandpa used to write, because it was what was in the middle-school libraries back in the early 70s, I was struck by how late the dates for a first moon-landing were in stories from the 40s and 50s. I think the earliest date I encountered was maybe 1978, and some of them placed it in the 1990s. And I thought, "Hah! We already got there!"

But the mistake those Campbell-era authors made was assuming we'd do it right. That first we'd build a real space station, and develop a sustainable outer-space infrastructure, and then when we went to the Moon, go for keeps.

Instead we raced to get there with a few cans full o' humans, hit some golf balls, planted a flag, and – bagged the whole business. By 1978, that earliest date for a moonshot I'd encountered in fiction, it was like we'd never been there at all.

Rather than organically building an entire technological ecosystem from the ground up, with infrastructures that were immediately useful in their own right at each stage, and then using the existing stage of

and relationships that flaunt standards and expectations and anything that's ever come before. Queers are already made to be alien on our own planet by our genders and orientations- which is not to say that we should not belong here, but that we can also embrace the alien, unknown life that awaits humanity in space.

And that's the wind-up of the thing: humans are going to space. One way or another we will be attempting to expand ourselves further afield, endeavoring whole new ways of existing and facing impossible, inhospitable conditions with the only goal to survive and thrive. This is already the world we know- the dystopia of murdered trans women and sex workers and evangelical Christians exporting their homophobia and emboldened nazis and a president that reminds us of our alcoholic fathers that will oops us into nuclear war any day now. The world we struggle in. That struggle amounts to something- for us and the gaybies to come. I'm saying we can handle space, and we should.

I certainly can't advocate that we *all* abscond to Mars. I absolutely love Earth, and so many fights live here. But those who want to make anarcho-queer space communes should be supported as another facet of the may-headed radical movement, such as it is. This is as opposed to facing the shut-down-the-conversation critiques launched at "space" by the queers I referenced at the beginning: money, irrelevance, colonization. But space exploration doesn't have to be the playground for the evil super villains of the world, diverting needed resources, colonizing and thereby ruining currently untouched environments. Space exploration should instead be part and parcel with our vision for post-scarcity societies, as how in the utopian setting in Star Trek in which society's ills are solved, allowing for exploratory humanitarian space missions. But if we're ever going to get there, "there" being both equity on Earth and space exploration, they will happen together, both inspiring the other.

These queer critiques of space exploration exhibit a crisis of imagination, wherein only the most disastrous outcome seems possible. I want to look, then to how such futures have been imagined successfully. The solarpunk visions, which exist almost entirely online at the moment, growing initially out of Brazil⁷, is the future, solar-

7 <https://www.scribd.com/document/64379041/Antologia-SOLARPUNK->

powered equivalent of steampunk, dieselpunk and the like. It presents a utopian wonderland where sustainability and harmony with the environment is achieved, but not through the austere aesthetic of cold, dark cities we see so in films. Instead, an appreciation for the sun that comes from having a solar-power-based society extends into abundant green spaces and community gardens. Accessibility is the norm rather than the exception, from public transport to public art. Solarpunk comes up in direct response to our cultural obsession in apocalypse which, of course, remains quite likely, whether through climate change or any other myriad risks. The significance of solarpunk is in providing a binding and optimistic vision for our future, one of a mosaic of possibilities that give us something to look forward to. And, space plays a role, as the Brazilian anthology first introduced: “*Now imagine large space sailboats driven by solar radiation, production of biofuels via nanotechnology, the advent of photosynthetic humans, and, as there is no perfect society, even terrorism against corrupt businesses and governments.*” Terraforming Mars would be a solarpunk dream project- to build anew, using technology to give us life.

As another example, in Afrofuturist Octavia E. Butler’s Parable Duology, a central tenet of the religion borne of their climate hellscape is that the “*Destiny of Earthseed is to take root among the stars.*” She continues:

“On new earths.
It is to become new beings
And to consider new questions.
It is to leap into the heavens
Again and again.
It is to explore the vastness
Of heaven.
It is to explore the vastness
Of ourselves.”⁸

Again about spoilers, but, Earthseed ultimately succeeds, or at least hint towards succeeding, more than anyone else. Earthseed does so by connecting their very religious essences to the study of science

8 <https://godischange.org/the-destiny-of-earthseed/>

celestial bodies like the Moon or asteroids.

7. Research alternative energy sources, mainly anti-matter trapped in the Earth’s magnetic field.

8. Research and develop technology for mining minerals and resources on other celestial bodies, like the Moon or asteroids.

9. Creating communication networks and datacenters in Earth orbit, beyond the reach of any state or regime to work toward total immunity and neutrality of the future IT-infrastructure.

10. Building fuel-depots and an international network based on virtual currencies for refueling of satellites and other space vehicles.

11. Doing research in the field of space-medicine and the effects of microgravity and cosmic radiation on living organisms.

12. Doing research on the effect of cosmic radiation on electronic components in order to develop new technology that is able to withstand the harsh environment of outer space.

The agenda of milestone projects in the Plan — including orbital satellite launches, moon shots, probes to near-earth asteroids and the deployment of a permanent space station by the end of 2020 — seems implausibly ambitious. But to be fair, even the fully and partly funded items at the top of the list (e.g. the BULLDOG rocket launch for deploying a payload in low-earth orbit is partly funded) are quite impressive. Extrapolate the Copenhagen Suborbitals and BSA model far enough and you get something like Openshot, a fictional open source moon shot in a short story by Craig DeLancey¹⁴. The open source hardware spacecraft, the Stallman, was the product of a network of ten thousand volunteers worldwide — and it beat the big corporate players in a competition to be “the first non-governmental organization to put a person back on the moon.” Cutter, leader of one of the corporate-funded teams, warned that “the Opensource Rocket Program will have a tremendously pernicious effect on humanity and human destiny by destroying the benefit of privatizing space exploration with an unscalable stunt.” And in the ultimate irony, the Stallman’s crew rescued Cutter’s

14 “Openshot,” Analog Science Fiction and Fact, December 2006

into space, is expected to be tested¹².

Bitnation — a transnational network created to organize a variety of non-state governance services using the Blockchain infrastructure — has created a Bitnation Space Agency. The Agency intends to be a coordination platform for open-source space efforts around the world, and has its own Five-Year Plan for crowdfunded technology development and space missions. Iman Mirbioki (“Bitnation Space Agency,” A Blog About Nothing Particular, June 2, 2015), who co-founded the venture with Susanne Tarkowski Tempelhof, estimates BSA will radically cheapen spaceflight by eliminating administrative overhead altogether (an 80% cost reduction by itself) as well as open-sourcing all technologies. Tempelhof argues that corporate efforts like SpaceX are “just the beginning of democratizing the technology”; BSA will “take it further, not just make it accessible to people outside of the government, but also make it open source, and DIY friendly”¹³

The Agency’s Five Year Plan states a list of objectives:

1. Create a decentralized and open-source space agency.
2. Research and develop new and better technology for space-travel/space-missions.
3. Develop new eco-friendly fuel for space vehicles. (Rocket fuel)
4. Develop a new generation of navigational systems, as the current GPS accuracy and maximum performance (speed and altitude) is limited due to enforced rules by the U.S military.
5. Create a cheaper technology and platform on an open source basis that enables those with limited budgets to reach space and/or do experiments in microgravity environments.
6. Develop new and cheaper space vehicles able of reaching LEO (Low Earth Orbit), GSO (Geostationary Orbit) and other

12 Anthony Wood, “Copenhagen Suborbitals dreams big with Spica rocket,” Gizmag, August 25, 2015

13 Jamie Redman, “BitNation and Spacechain: The Mission to Decentralize Space Exploration,” Coin Telegraph, June 22, 2015

and a myopic vision of their destiny. They build schools training scientists and technological innovators and astronauts and visionaries. They face violent discrimination and occasionally get lucky. And they achieve what they set out to do. As far as I can tell, there is a movement online prosthetizing Earthseed as a modern religion, more power to them.

Perhaps neither vision moves you as it does me, if technology is something so repugnant to you that you cannot imagine any good to be associated with it. In that case, let me offer you a third vision, from tumblr:

*russianspacegeckosexparty asked: Idea: Story that looks like it'll be typical white centric colonize Mars premise, with Earth "a lost cause" but surprise, it's a solarpunk story. Generations after the elite left Earth, the little blue planet is thriving. Mars society is stagnate + caste based. They all think Earth is "dead" but no, we're all living responsibly and holistically. Technology has drastically advanced and there's been an artistic Renaissance. Ecosystems are flourishing, no more plastic or pollution.*⁹

I love this- the Earth shedding the rich like a bunch of fleas, leaving the rest of us to prosper.

These visions seem “right” to me too, in the opposite ways as the dystopias we imagine do. Having a vision in and of itself is a kind of fulfillment. I know I tread on dangerous ideological territory here, because we inherited a runaway train that just continues to accelerate towards climate change disaster. One cannot vision that reality away. But neither should one only descend into nihilism at the prospect. The problems, and their solutions, are simply going to be more complex than that. The climate, technology, and culture are going to keep being dynamic and interdependent. As queers, we are pushing the levels of complexity within culture, relationships, gender, and beyond. It is out of sync with the way we push boundaries of all kind to dismiss the many possibilities of space exploration out of hand. Can we queer it instead?

9 <http://kdhume.tumblr.com/post/176488414142/solarpunk-story-premise-the-disgustingly-wealthy>

Anarchists Need Space Because We're Fighting in All Directions

Emmi Bevensee

Anarchism requires creative experimentation and needs all the spaces possible to achieve its goals. Because these spaces and projects are vulnerable we need all the defenses with the least tradeoffs we can muster. Space-friendly anarchism offers us new horizons to create, explore, and practice while simultaneously generating new and more defensible dynamics for our radical networks. Whether as roaming insurrectionary pirates or horizontalist communes, we must make a case for space-centric anarchism and then work through the intricacies of its ethics and practical requirements.

Our Vulnerability is Our Strength

Our enemies, especially tankies, always gloat over the fact that anarchists always get slaughtered. “An anarchist revolution has never succeeded!” Regardless of this misunderstanding of longstanding anarchist projects and societies, and the backhanded glorification of brutalist authoritarian regimes, they're right in that it is hard to protect anarchism especially while it blossoms. We abhor unnecessary games of domination and the manipulative power plays that they require. We shy away from the zero-sum outlook that characterizes most of these so-called “successful revolutions” of the authoritarian communist or corporate capitalist varieties alike. We want to build societies where

presumably corporate) bureaucracies by using off-the-shelf components whenever possible.

One man's kitchen sink valve is another rocket man's missing component. A D.I.Y. spaceflight project can start with a good rummage at your local plumbing or hardware store. With everyday, off-the-shelf products, the guys behind Copenhagen Suborbitals found cheaper solutions to expensive, complex systems.

“Instead of trying to invent our own valve for instance, why not buy one that's been produced maybe a million times,” explained Kristian.

The peer-to-peer nature of the project means much faster turnaround times or iteration cycles — “OODA loops,” in the late Col. John Boyd's words — than is possible in government or corporate bureaucracies.

Since Copenhagen Suborbitals is bereft of the red tape and regulations characteristic of federally or commercially funded space projects, Kristian explained that his team can go from a revised sketch to an improved prototype, sometimes in less than five minutes. That's far quicker than NASA, of course, where he helped to design new moon rovers and co-authored the agency's Human Integration Design Handbook.

As for their achievements,

so far, their accomplishments are impressive: their solid-and-liquid-fuel rocket, the HEAT-1X, is the first “amateur” rocket flown with a payload of a full-size crash test dummy, and the first to perform a successful Main Engine Cut-Off, or MECO command, and the first launched from a “low budget” sea-based platform. It's also the most powerful amateur rocket ever flown.

Since then, Copenhagen Suborbitals has tested the Sapphire (with improved guidance and maneuver systems), and has a Nexø I & II in the work. The Spica II, the rocket actually intended to send a live person

with a lot of great experiments.

According to Tim Fernholz,

This is akin to the way that massive container ships ply the oceans to bring components between far-flung factories. Planners don't rely on a specific ship to make it across the Pacific at a discrete time, but instead imagine the ships as a kind of conveyor belt, constantly in motion, and plan their operations around the idea that goods are constantly in motion between two given sites.

The first mission will be followed by several Dragons in 2020, and in 2022 a larger number carrying the infrastructure for a permanent base on Mars — laying the groundwork for the planned transportation of human passengers in 2024.

Speaking of which, SpaceX's Mars project — which envisions humans living in a permanent base constructed there — is easily the most famous.

But if state-directed space exploration fizzled out, let's not accept, as the alternative, human expansion into the solar system under the direction of corporations and billionaire venture capitalists.

Even now, there are all sorts of interesting space projects operating on relatively little capital, and taking advantage of cheap, ephemeral micro-manufacturing technology.

Copenhagen Suborbitals, for example, is an amateur, crowdfunded spaceflight program based in Denmark¹¹. They use a sea-based launch platform. At the time of Aaronson's 2012 article, the venture was "comprised of a coterie of 20-plus specialists determined to create the first homemade, manned spacecraft to go into suborbital flight." The estimated cost of such a mission is expected to be in the hundreds of thousands of dollars, eventually falling to \$63,000 a shot.

The project achieves enormous economies over government (and

people don't have to destroy each other to get their needs met. We want societies where people have positive freedom not just social contracts with cartels of state and corporate violence. But we don't just want it. Anarchists are practical. We dream but we also birth these visions into the world. We struggle against coercion at every level. It's exhausting but, to an anarchist, everything is a front in the struggle for positive freedom. We are in constant struggle even if many parts of it just look like love and joy.

We don't take the simple comfort of picking our battles as a movement even if we prioritize projects individually. For this reason our movements are diversely rich... and vulnerable.

Because we don't focus on the game of thrones for power we are vulnerable to those that do. Our enemies seek to master the weapons that we rightfully fear. It corrupts them but they get better and better at it. It's no coincidence that so few anarchist societies have thorough weapons training and the ability to practically defend themselves. We don't want to build power. We'd much rather try to build a world where a focus on offensive violence is unnecessary. So even in places where anarchists, or societies that practice anarchist values have found the ability to defend themselves such as Rojava, Spain, and the Zapatista autonomous zones, our physical defense has often either still eventually failed or succeeded because of their relationship with other, often creative, strategies.

But it's not just monopolies of violence that we're bad at, it's also politics in general. We lean extraparliamentary as a movement and often try to build parallel movements outside of the reign of deeply compromised electoral politics. So while we're building our own infrastructure and ways of doing things, the career politicians who are intimidated by us are always amassing their forces against us whether through the ballot or the police.

These examples are just a taste of the ways in which our greatest assets, the very core of what we love, are some of our largest attack vectors.

11 Xavier Aaronson, "Spaced Out: Open Source Outer Space," Motherboard, Dec. 18, 2012

Insurrectionary, Parallel, and Creative Spaces for Experimentation

Because we're vulnerable on all sides, we need space. In the immediate sense we need a place to meet, virtual or physical. We need to spread out. Space can be the abstract and general notion of the distance between two objects or the concrete but expansive area beyond our atmosphere. The fact that they share a word in English (and many other languages) is itself evocative of what we want. In our love of outer space, we are actually committing to our love of the path between things. The heart of anarchism is creative experimentation and the interplay between theory and practice. Our attempts at traversing these paths are often delicate.

Our experiments have the advantage of being decentralized and as such generate resilience. You can't pick off our leaders if we have none. You can't destroy our movement if it's completely dynamic and constantly adapting its edges and vectors. They attack one point and that point just changes form or gets mimicked somewhere else. We have the power of whack-a-mole. But that resilient adaptivity alone isn't enough.

Tankies take this problem and use it to justify authoritarian centralism. "You can't have a revolution without gulagging the saboteurs and enemies of that revolution! You need domination to create freedom!" Because we recognize the interdependent relationship between ends and means we fundamentally doubt the viability of movements that employ such tradeoffs and search for strategies without them.

Insurrectionary anarchism seeks to create these spaces through creative and stigmergic revolutionary pockets. In the joy of liberation people can experiment with alternative modes of self-organization. Insurrection carves out the spaces in time and place that allow us to build without the constant attacks and pressing dynamics of power as it is. The longstanding gradualist processes and parallel infrastructures that we've been working for in the margins are then able to come in and take roots. We defend these spaces from all sides using a variety of means.

Ephemerization for Post-Capitalist Space Exploration

Kevin Carson

At a time when government space programs like NASA's seem to be in permanent retrenchment — shifting to a strategy focused on uncrewed probes, fighting to maintain an "International Space Station" that looks like a joke compared to Golden Age science fiction visions of giant cartwheel stations in orbit — a lot of people see Elon Musk's private space venture SpaceX as a sign of hope that we have a future in space after all.

SpaceX has had considerable success developing reusable spacecraft and orbital boosters — the Dragon spacecraft has resupplied the International Space Station — and has achieved a controlled descent with tail landing by a Falcon booster.

Starting with the first Dragon spacecraft to Mars, Musk has committed himself to regular Mars runs every 26 months, using low cost vehicles¹⁰. The goal is an affordable and predictable cargo route, in order to encourage Mars-related research and industry.

Essentially what we're saying is we're establishing a cargo route to Mars. It's a regular cargo route. You can count on it. It's going to happen every 26 months. Like a train leaving the station. And if scientists around the world know that they can count on that, and it's going to be inexpensive, relatively speaking compared to anything in the past, then they will plan accordingly and come up

¹⁰ Tim Fernholz, "Elon Musk is building a supply chain to Mars," Quartz, June 13, 2016

NEIL: How do you get this information?

KELSO: It just comes to you. This stuff just flies through the air. They send this information out, I mean it's just beamed all over the fucking place; all you have to know is how to grab it. See, I know how to grab it.

The elements to doing so are fairly straightforward: you need an antenna, a filter so you are just getting the part you want, and then a computer to interpret the data stream. A linux box with a DVB-S card is sufficient, and there are plenty of tools which will let you tune to get the specifics you are looking for, and dump the contents from a stream into audio, video, and data decoders.

Free-to-air, and Wildfeeds are constantly coming down off of satellites with an incredible amount of content, which you can just grab. Are you still paying for your dish TV subscription? No need. You can grab NASA's feed off of the Horizons-1 satellite at 127°W, You can grab the DoD news off AMC-1 at 103°W, and Al Jazeera english is on Galaxy-19 97°W. The list goes on.

The Meek Shall Inherit the Stars

With all but a dozen or so locations on the surface of the earth claimed and ruled by one government or another, space is one of the next logical options for autonomous zones. Like everything which is sufficiently different from the status-quo to allow for new paradigms, access to space is being cloistered away from those without influence. However, like everything which has come before, real people will find ways to subvert the systems for the benefit of the people, instead of the rulership.

Don't wait for the gatekeepers to let you play in space. Go when you like.

Space Changes the Rules

Space travel throws the entire game board up in the air.

The first and most obvious way is that it makes the available places to build much more numerous. The notion that anarchists could have our own spaceships and be exploring and setting up shop on distant rocks might seem absurd now, but it's an eventuality in time. The technology will continue getting cheaper. We will steal and reverse engineer. The radicals will go to space and when we get there, we will find places with no life on them that we're can't introduce microbiomes and decimate and we will be able to practice our ways of being without having to pry the space back from the landlords capitalists and state thugs. Or if there are signs of life, because anarchists actually care about deeply rooted ethics, we'll be thoughtful and considerate about what our presence could mean.

We need to play to our strengths. We should try to avoid war not just because it is fundamentally terrible, but because we're not well suited for it. Guerilla insurrection we can do, but the losses are extreme. Because we'll never have the monopoly on brutality we should try to go somewhere where we're not bothering anyone and can more or less do our own thing. We would obviously still need to be able to defend ourselves but we can completely disentangle ourselves from the imperial geopolitical games of earth.

To those ends, we should avoid trying to militaristically seize territories whenever possible because it sucks and again we suck at it. Assuming colonies will get set up on every rock within humanities ever expanding sphere of reach, we shouldn't just keep to ourselves. We can do our thing and infiltrate and agitate and challenge everywhere we are but the vastness of space gives us more room to be ourselves. We can deter a lot of threats by just being far enough out that we are perceived as a non-threat and that travel costs make attacking us less appealing anyways.

It works similarly with politics. Rather than playing the endless tug-of-war with reform and direct action we can follow our instincts and just

leave the whole thing alone. We can actually put our ideas into practice without the constant sabotage of state political repression and counterproductive liberal progressivism.

Obviously anarchist ideas, practices, and victories often make it into the mainstream of society but nonetheless we are often a movement in the margins. This isn't a defeatist view either. It's just because the truly nuanced struggle for freedom is always going to be, in a sense, opposed to the prevailing order. That's why we need to carve out our spaces here on earth, but if we can find them out there, it would be even better.

The typical lefty retort to something like this is to compare the inherent homesteading attitude of these ideas to homesteading as it was practiced by colonists on earth. To be clear, the homesteader movement in the U.S. and most other places is deeply entrenched in the violence of indigenous dispossession and outright genocide. But what makes it bad isn't the desire to move and to explore. Remember, those very same indigenous people also moved and explored depending on the timescale at play. What makes it bad is the murder and dispossession. With space colonization it's a very different situation because the vast majority of places we would go will be completely lifeless. We will not be murdering or dispossessing anyone. In that sense the entire paradigm of colonial extraction is mis-played. So while the explorer mindset is horrifying for brutalist conquistadors, for nerdy anarchist scientists deeply rooted in a desire not to harm, it's a very different situation.

Aside from issues of defensibility and minimizing the need for defensive violence, there's also a range of other practical issues. For example, if we can scrape together some rock hoppers we can ethically harvest materials from asteroids to develop and sustain our societies. No slave labor. No deforestation. No ecocide. We can build research labs unencumbered by the fascist nationalism and capitalism in our present society that massively throttle progress. We can have ecosystems of testing that allow us to try out a wide range of anarchist approaches to existence. The love of space and the love of anarchism are themselves related in the degree to which they provide habitable environments to the other.

the magic of various subterfuges to disguise traffic, it's becoming harder and harder to maintain open channels online.

I dream of industrious hackers finding whitespace in the broadcast spectrum, and setting up independent uplink/downlink systems with upcycled tv dishes and tinfoil coated umbrellas.

We could stop fighting for "net neutrality" if we just built one of our own.

Take the Data and Run

So let's say that you don't have the stomach for space travel, and you don't quite have the chops to hack into a defunct satellite and get it running again. There is still more occupation which can be done.

The objects in space are still spewing out information, and you can reach out and take it, even the disused ones. NOAA-9 went up in 1984, and you can still hear its transmissions, which have been likened to a drunkard whistling. All you need to do is build yourself a little YAGI antenna out of coathangers and coax cable, or chicken wire and refrigerator tubing, and you can listen. Check the timetable for when it is due to fly over your location and listen to 136.770. If you jack some VHF stuff into the system, you can transmit as well. That's illegal without a license, but let's not let the law stand in the way of good extraplanetary communications.

There is so much out there to be caught. Once you start listening, it's hard to stop. This is why amateur radio enthusiasts are so insufferable in their endless enthusiasm. In the 1995 film *Heat* the character Kelso is pitching a job to Neil, and they have the following exchange:

KELSO: Like I was saying that's not really an estimate, these are exact figures. I have a printout here of the cashflow of the bank for the past few months.

hijack the working satellites and bring free internet to everyone. Outernet [before it was called Othernet] originally was a company trying to bring free open-source internet to rural areas. You could build a receiver with a raspberry π and a minidish, and be able to download a curated block of the most popular data on the internet every day. But now it is just another cog in the nonprofit industrial complex trying to make people buy their proprietary hardware, and subscription services, while pretending to be altruistic. Let's do better.

The possibilities for this are endless: data havens sending huge volumes of IP down, monitoring drone activity from space, open-source space surveillance of government black sites, pirate radio from space, maybe even a new internet.

Right now, the old iridium satellites are being decommissioned. They are being replaced with new ones, but the old ones still work really well. Some of them are so-called “hot spares” which have *never* even been used! They were low-orbit non-geosynchronous communication satellites, and what is super cool is that they were a mesh network. You communicate directly to your local satellite, and it bounced the signal amongst neighbor satellites until it gets to the one closest to your intended recipient. Imagine if instead of letting these billion dollar spacecraft just fall out of orbit and burn up in the atmosphere, or crash into the ocean, a group of dedicated hackers used the information that Stefan “Sec” Zehl and Schneider, and their group managed to get by reverse-engineering the system in order to hack it, broke in, and kept them aloft in order to build an open global satellite data network that everyone can use with cheap open source hardware, like the r0ket and rad10 badges.

Of course this brings up the romantic notion of the freedom of radio which once existed: anyone who can grab the signal can listen, and anyone who can send a signal can be heard. This was the freedom that radio amateurs of the 20s 30s and 40s felt, before the FCC decided that electromagnetic waves were the domain of the government. Also similar to the freedom of the early days of the internet, and more recently of the various darknets out there. The problem with the darknets is that they still sit on top of the infrastructure of the internet as it exists, and despite

Much like anarchists, earth itself faces existential risks from all sides. Whether climate change or the boogey-man of unaligned AI, the human race faces massive threats to continuity. Humans will go to space and it's up to us to decide what that looks like. For anarcho-transhumanists specifically, we know that the existential risks facing humanity will require us to dramatically shift our notions of what being human means at a core level. We need to make ourselves into swarming, stigmergic networks of interconnected minds. We need to technologically, pharmacologically, emotionally, and intellectually widen the bridges between us, increase our abilities, and decrease our needs. We need to develop what consciousness can be and hack ourselves to be able to meet the challenges we face. For climate change we need to change what our bodies need and what conditions we can live under. For AI we need to grow alongside it if we hope to maintain any of what makes being human special and meaningful. Our adaptations to both AI and climate X-risks aid our ability to go to space and our ability to blossom once there while simultaneously cultivating our adaptive resilience as a weapon for positive change.

Changing what it means to be human is a part of changing what we see as possible in terms of our anarchist visions. One important piece of changing what it means to be human is changing where we associate being human with. For those of us who know that we stand in the lineage that hopes to create paths not just to survive, but to radically thrive in space and a transhumanist world, these are the exciting questions. We know that we want and need space and are more than anything just excited to build and dream.

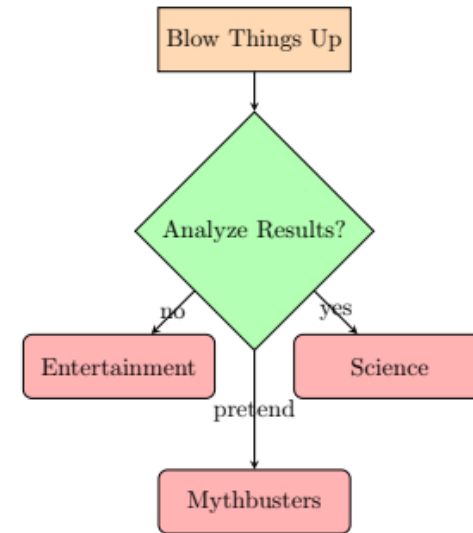
We are here for the gritty details. How can we steal or build ships to mine asteroids? How will we terraform in a way that promotes non-hierarchical societies of exchange and mutual-aid? To what extent can we cultivate connections that would give us access to the closed source patent world of space-tech monopolies that we need to liberate? What do we need to learn now to survive then? How will we hold up against the sheer expanse of space? What vegetables would grow best on a long-distance space flight? How could we network our minds to catalyze our problem solving abilities? Should we settle-down or stay on the move?

In the anarchist struggle we get tired of fighting battles in all directions at once. When you get tired, I encourage you to take some space and notice the feeling it gives you. Respite and recharging. A revitalization and centering of our vision and faculties. The playful curiosity is born again anew. When we follow that curiosity we often find something amazing hidden in its path. Our eyes get big and glittery with awe. This is a tiny shard of what we want. Space gives us a chance to transform the struggle into a joyous militancy of hope capable of exponentiating our goals.

And if we don't do it... we all die anyways. So we might as well try our damndest to do it and do it radically.

Besides building our own better world and salvaging this one though, who but us will fight the authoritarians and space capitalists and prevent them from expanding their sphere of havoc?

Let's not forget the flow chart model of science:



Comandeeing From Afar

Now, the number of actually inhabitable spacecraft which have been disused over the years is small, but the number of functional items in space itself is quite high.

There are 98 derelict satellites currently orbiting earth. Most of these still have power from their nuclear radioisotope thermoelectric generators, so they still *could* be running. Their owners just got bored, and decided to waste taxpayer dollars on something new. If you hacked in, you could get them running again, and do more science. This is the essence of hacking: do more with less.

Satellites are so often abandoned, there is a technical term for it: passivization. Isn't that awful, on like, every level?

The glory of hacking is that we can occupy places/spaces/objects without being physically present. Let's use the unused satellites which could be giving free cell phone service to everyone, and give it. Let's give satellite radio to everyone. Not just to listen, but to broadcast. Let's

detritus will be filtered through Shenzhen just like all technologies, and we'll have access to last year's technology, which still works just as well.

Better than the state funded space programs, or the commercially funded space programs, the discoveries that will happen by space explorers un beholden to overlords will be of a scope heretofore never imagined. We will learn about psychology when people who were not screened spend indefinite periods of time in confined spaces with a small group of people. We will learn about astrobiology when we see how the microbiome of an unsanitized space station develops.

We will learn about nutrition, as people eat in a closed-loop system for long periods of time. New experiments will be run on particle physics, using the vacuum of space, instead of the ultra-high vacuum systems which are so expensive on earth. Art of new media will come to be, and we will be in awe. Most importantly, ideas and discoveries will be made which are so divergent from our present thinking that they will spawn new fields of inquiry. So much will come from what so many will call reckless, and what the truly free will call a testament to the human spirit.

Maybe, the first people to settle on Mars, or Enceladus, or Europa, or on little chips in the Oort Cloud, won't be the agents of a state or of a megalomaniacal billionaire, but just people who decided they *wanted to go*. They will develop custom genetically modified organisms artificially adapted to live on those places once thought to be too hostile to support life. We will see entire artificial ecosystems of synthetic astrobiology, which will develop both organically, and artificially, but will have started entirely artificially.

Creative solutions borne out of necessity, way beyond the risk profile set by investors or oversight politicians will create new techniques of space exploration and travel. Will things fail? Undoubtedly, but we will learn from that too.

Burt Monroe set records that will never be broken because he didn't have safety gear. This is why people who are sufficiently brave can get to space if they really want.

Squatting In Space

Mixael S Laufer

Everybody thinks they want to be an astronaut when they grow up. When people learn that space programs are controlled by governments which spend obscene amounts of money on them instead of feeding or educating their citizens, and only take the most privileged members of society, that dream melts, and people get down to the shitty business of survival.

Space travel sucks. Everything about it sucks: it's dangerous, it's expensive, it's unavailable to almost everyone while simultaneously being romanticized to the point where everyone wants to do it.

Not well publicized is the fact that there are defunct craft in space which are lying fallow, just waiting to be refurbished in space and re-inhabited. The reason this is not widely publicized is because space programs don't want the flack associated with throwing away multi-billion dollar hardware and burning it to vapor by letting it fall into the atmosphere at 7,000MPH.

Seemingly as a belated april fools day joke, on april 2nd this year the burnt remains of the space-station Tiangong-1 crashed into the pacific ocean.

That's like buying a Bugatti Veyron, and then instead of changing the oil at 1000 miles, just sending the thing over a guardrail. The sticker price on the Veyron is \$1.7 million. Comparatively, the cost of the Tiangong-1 clocks in at \$3.1 billion. So, really, letting that fall into the pacific ocean is like dumping 1,800 Veyrons over a guardrail before the

oil change. And that's over triple the total that have ever been produced anyway.

Over 21,000 pieces of space trash larger than 10 centimeters and half a million bits of junk between 1 cm and 10 cm are estimated to circle the planet. This is a huge problem, because when things are zooming around at 7,000 miles per hour, and they hit each other, bad things happen to delicate scientific instruments, even the ones hardened for space.

The traditional methods are to track these, and or “de-orbit” them, meaning to crash them, so they are no longer in circulation. But better if they were instead used as parts to fix up the abandoned spacecraft to then be inhabited by brave space-steaders. What if we didn't wait for progressive space programs to give their unused tools to the public domain for the world to use, but instead just seized the damn things before the orbits decayed so much they started to catch on fire? One of the most beautiful tenets of the squatting philosophy is that functional infrastructure should not be allowed to sit fallow, if it could be used by others.

If one regards legality to be worth anything, space is technically international waters, and so is the right of every human being to explore as they wish. But much as peasants of old couldn't sail the ocean, because they couldn't afford a ship or crew, modern folks with a desire to travel in space are often barred from it de facto, as they can't afford a spaceworthy craft.

While legally you are a pirate, because space is covered under international maritime law, it's important to recall that there is nobody to come after you: for the same reason governments spend so much to send space vehicles up, they can't afford to send anyone after you to stop you. Flip them all the bird from 26,000 miles up.

Many people and organizations are already gunning to try to turn space into just another market for the extraction of resources and exchange. Let's get in there first, and keep it wild. In 2015 the so-called “Space Act” was signed into US law, violating the Outer Space Treaty of 1967, by allowing claims to be laid to extraterrestrial territories and

resources. This was a result of caving to the asteroid-mining lobbyists, who are clearly only daunted by the fact that there aren't indigenous people on asteroids on whom they can commit a genocide like in the good ol' days of colonial resource extraction.

However, we should hardly be surprised: the first piece of space legislation the united states ever passed was in 1958, drafted moments after Sputnik-1 launched, to ensure that space would be treated as a capitalist market, and not a communist playground.

More space stations are going to be built, and they will similarly be abandoned. We need to be ready to pick up the garbage. Space will be the new Jakarta.

There is a point in the stratosphere where there is a peak temperature of about 0°C just over 50km up. Manned high altitude balloons can easily reach this spot, and have done so twice recently by the skydivers Felix Baumgartner and Alan Eustace, both setting records for freefall skydives. If they had prepared just a little differently, they might have stayed up there, instead of jumping back to earth.

Industrious folk will use high-altitude balloons to get high enough, close to the mesosphere, and will use booster rockets or use a skyhook momentum exchange tether systems to catapult themselves up by crashing their balloons, and jump the gap to the thermosphere where the abandoned space stations are, and attach home made add-ons with aquaculture farming units, and new models of zero waste permaculture will be developed in real-time adaptive trial runs.

The new shantytowns will be zero-G raft cities in orbit. There will be a new group of people who transcend race and class, and become the space-squatters on jerry-rigged space garbage that has been upcycled. The Uru-nuevo, Xin-Tanka, or Makoko-akotun.

Exploring space has a genuine possibility of testing new economic and social models. You have to truly start from scratch, because there is literally nothing up there. Can you maintain? It is a question of will, technology, and luck. Let's see.

As the development of technology for space travel progresses, the