# 1AC

## 1AC – Capitalism

### Contention 1: The Space Industrial Complex

#### Private space activity is expanding, 2022 is the crucial year to demonstrate profitability

Kramer 1-4-22

(Miriam, https://www.axios.com/private-human-spaceflight-2022-8ec6082a-e3ae-4d6b-8073-3f8af3e7e2a5.html)

The private human spaceflight industry delivered on long-held promises in 2021, but 2022 is the year where it will need to prove itself to the public. Why it matters: The space industry is predicted to be worth more than $1 trillion within the next 10 years. But for that to happen, companies will need to turn the extraordinary feats of the last year into routine operations. What's happening: Last year, Blue Origin and Virgin Galactic both launched their founders — Jeff Bezos and Richard Branson respectively — to space for the first time. Blue Origin followed that up with two more suborbital human flights in 2021. Those missions marked the culmination of decades of work for the two companies and delivered on a promise of sending more non-professionals to space. SpaceX also consistently launched crewed missions to the International Space Station for NASA, a major customer that will influence the continued growth of the company, and had a huge success with four non-professionals flying to orbit without a pro-astronaut onboard on the Inspiration4 mission. What to watch: Now, those companies are trying to demonstrate they can consistently deliver these services — and turn a profit from them. That means flying more. Blue Origin, Virgin Galactic and SpaceX are expected by space watchers to fly people to space consistently and safely this year. That will be key to determining whether the successes of the last year are one-offs or if they can get into "some sort of rhythm and make some money," Carissa Christensen, founder and CEO of BryceTech, told Axios. SpaceX is planning to launch the Axiom Mission-1 mission to the International Space Station early in 2022, which will act as a followup to the Inspiration4 mission and could be an indicator of the market for more amateur orbital flights. It's hard to gauge whether private companies like Blue Origin are profitable — because their finances aren't open to the public — but routinely launching, which is expensive, can act as a proxy for it, Christensen said. Yes, but: Transforming these missions into routine services won't be easy. It will require companies to increase launch cadence, which is challenging because they're working with relatively newly-developed technology and within complicated regulatory frameworks. The big picture: The public demand for these types of services could also become more clear this year. Studies indicate there is "substantial demand" for suborbital spaceflight, Christensen says. "You have a larger pool of people that can afford it now." According to a May 2021 note sent to investors by analysts Ken Herbert and Austin Moeller, of Canaccord Genuity, the suborbital tourism market could reach $8 billion by 2030 with 1 million potential customers. Between the lines: Demonstrating they can turn a profit will be important for the companies working to make consistent, private human spaceflight a reality, but it's likely a small portion of the revenue for the space industry overall. However, human spaceflight will be one of the most important public-facing elements of the overall industry. Major failures and successes will shift the way the public sees the industry, adding to its support or detracting from it. The bottom line: Last year, the private spaceflight industry showed what it can do, but this year, these companies will need to capitalize on it.

**Private space enterprise *requires* massive inequality-it’s viewed as a *spatial fix* that allows infinite expansion of state backed colonialism**

**Penny 20**

(Eleanor Penny is a writer, poet and essayist based in London. She is a senior editor at Novara Media, <https://inthesetimes.com/article/space-privatization-future-technology-silicon-valley-elon-musk-jeff-bezos>, 12-17)

The eye-watering upfront costs of these exploratory, high-risk, high-reward endeavors can be absorbed by Silicon Valley venture capitalists and the personal fortunes of its aristocracy**. A concentration of capital stands ready to risk big money to secure a stake in future markets** (which will double down on its power in existing ones). The point is to ensure a slice of the territory everyone else will be clamoring for. This form of ​“creative destruction”—an idea developed by economist Joseph Schumpeter, understood in neoliberalism to describe the boom-bust cycle of innovation — **is often packaged in the mythology of moonshot genius that drives human progress**. But Schumpeter’s theory has a less discussed underbelly: Such creative destruction is usually twinned with **market capture.** As competitors are tossed onto the **scrap heap of history** by their own sudden irrelevance, **oligarchies and monopolies flourish**. The riches of the asteroid belt make earthly mining look positively parochial. The problem is that a sudden, vast supply of (formerly) precious metals would make market prices plummet. Journalist Aaron Bastani, author of Fully Automated Luxury Communism, notes that satellite-delivered digital information has the potential to replace our earthbound Internet networks with ​“space-based global Internet” — the way music streaming has replaced CDs and CDs replaced cassettes and vinyl — or to at least render them much cheaper (through, for example, open-access 3D printing). SpaceX and Blue Origin surely share a goal to make space transport cheaper. The question is, for whom? **These ventures train their sights on infinite excess**, with dwindling marginal costs as the supply of key materials and digital resources expands. This paradigm is great for those interested in the advancement of human civilization, but not so much for a grinning billionaire’s fixation on the bottom line. At first glance, expanding industry beyond Earth sounds like a pragmatic fix to the **earth-shatteringly simple dilemma faced by capitalism**: that it must grow to survive, but the planet **it grows upon is finite**. But to maintain profit margins in conditions of plenty (a demand of industry), **legal and political fixes** are required. If you exclusively own mining rights to asteroids rich in platinum — and precious little platinum is left on Earth — you can charge whatever you like for platinum. The diamond industry perfected this technique decades ago. (Elon Musk’s family fortune comes partially from a Zambian emerald mine.) Hence, the focus of the new space race is not on the production of goods or their most efficient sourcing, but on **ownership of land and transport networks**. In this latest phase of capitalism, as national growth slows, productive industries dwindle and wealth concentrates in fewer hands. As economist Thomas Piketty has observed, this phase is accompanied by a pivot toward rent-seeking as a profit mechanism. In other words, the scramble for space is the scramble to own satellites and ​“starways,” gatekeep the riches of the solar system and charge rent on the moon. Against this backdrop, Space Force might seem retrograde, a warped nostalgia for a time when the space race was about petty terrestrial wars rather than Musk’s supposedly enlightened vision to colonize Mars. **In reality, the two visions go hand in hand. Military might physically captures and secures territory, enforces the American political and legal apparatus and ensures business can function** (even on the moon). The darlings of this new space age paint their vision as daring futurism, a wild-eyed libertarian dream of human elevation. **But history repeats and the story is old.** Like Bezos and Musk, Cecil Rhodes — mining magnate and premier villain of the British Empire — also succumbed to dreams of wealth in the night sky. ​“**Expansion is everything**,” Rhodes said. ​“I would annex the planets if I could.” Where technology opens up the yawning unknown of new territory glittering with potential profit, private enterprises hustle for dominance — backed by the military and legal capacities of earthbound nations. **Colonialism in space is not some post-humanist utopia**, but the age-old dominion of land barons and mining magnates, billionaires sloughing off the wreckage of one planet and setting out for the stars.

#### Capitalism is not natural or inevitable, extending it to space is a political choice. Empirics prove it will be disastrous

Penny 20

(ELEANOR PENNY is a writer, poet and essayist based in London. She is a senior editor at Novara Media, <https://inthesetimes.com/article/space-privatization-future-technology-silicon-valley-elon-musk-jeff-bezos>, 12-17)

Space is our birthright. ​“Americans should have the right to engage in commercial exploration, recovery and use of resources in outer space,” President Donald Trump wrote April 6, 2020, issuing the ​“Executive Order on Encouraging International Support for the Recovery and Use of Space Resources.” In the stroke of a pen, Trump planted the U.S. flag on ​“the Moon, Mars and other celestial bodies.” As Trump declared these space lands and resources open for business, you could hear the cheers — mostly from ​“moonshot” corporations that have clamored to sweep away the patchy, unregularized Cold War-era space law in favor of new, unregulated corporate plunder of the solar system. While the institution of private land ownership is now widely taken for granted, it was — like many so-called natural things — invented. Before the muddied, grueling transition from feudalism to capitalism, peasants in Britain and much of Western Europe depended on their right to farm, forage and harvest on common, community lands. The land was controlled by local lords, but it belonged (in a loose, de facto sense) to the communities living on it and dependent upon it. Eventually, common lands were ​“enclosed” and became the private property of aristocrats. This exclusive right to land use (to own and profit from land) was the contrivance that established the new economic order. No longer held in common, the planet’s resources were parceled off to strictly private hands. No longer could peasants scrape by, subsisting on the commons. Instead, they depended on the grace and favor of a wage. Life in feudal times was no bucolic idyll, but enclosure was synonymous with disaster, destitution and death for many people. This model was mirrored in the capture, theft and enclosure of colony lands, the people (and resources) of which fueled the early capitalist transition and later the industrial revolution. Capitalism must grow to persist, and as it grows it must transform ripe, unregularized commons into private fiefdoms — at home and afar. So it seems only ​“natural” to carve up the moon into stretches of valuable real estate, just like Manhattan and the metal mines in the Democratic Republic of Congo. After all, Earth’s resources dwindle by the day, and boundless resources beyond the stratosphere could be a backstop for planetary scarcity. Never mind that our crisis of resources is, in part, the result of this system of private ownership that rewards ruthless, short-term profiteering at the expense of the long-term survival of the natural commons. This future access to a new natural commons is now a stress test on governmental priorities. As Trump proclaimed, ​“Outer space is a legally and physically unique domain of human activity, and the United States does not view it as a global commons.” Trump’s executive order to ​“encourage international support for the public and private recovery and use of resources in outer space” heralds yet another public-private boondoggle, where nominally public institutions thrash out fresh boundaries of corporate activity. As an example, look no further than SpaceX’s Crew Dragon capsule, which successfully transported NASA astronauts Bob Behnken and Doug Hurley to the International Space Station on May 31, 2020. The NASA-SpaceX crossover branding leaves no room for misinterpretation: The next small steps for mankind will be giant leaps for corporate America. Elon Musk, who founded SpaceX in 2002, talks misty-eyed about a relatively near future when humanity will have risen out of the mud, setting its sights on colonizing Mars — with SpaceX transportation rocketing there. In 2020, Musk began launching a cavalcade of thousands of satellites into low-Earth orbit to form the Starlink satellite system. As of November 2020, nearly 900 satellites had been launched (42,000 are planned in total). This network will potentially seed an extraplanetary monopoly for key economic infrastructure, such as domestic internet access. Fellow billionaire escapist Jeff Bezos, Amazon CEO, has been romanced by the wealth among the stars as well, founding his own aerospace company, Blue Origin, back in 2000. ​“We are going to build a road to space,” Bezos said in 2019. ​“And then, amazing things will happen.” Bezos has invited us all to cosplay his daydreams with the Amazon-funded, interplanetary sci-fi thriller The Expanse, in which a roll call of stock anti-heroes (the rogue policeman, the war-beleaguered pilot, etc.) tumble through a far future when only wise plutocratic innovators can plumb interstellar riches and deliver the solar system from interstellar war. Microsoft, too, has its fingers in the intergalactic pie, launching Azure Orbital in September 2020 to enable satellite operators on its cloud computing platform, along with a SpaceX partnership the following month. According to Forbes, 2019 was a record year for private space investments, with ​“venture capitalists [investing] $5.8 billion in 178 commercial space startups worldwide.” As Earth’s billionaires burnish the power of new stratospheric tech, Trump launched Space Force, the first new branch of the U.S. military in more than seven decades. ​“Space is the world’s newest war-fighting domain,” Trump said. ​“Amid grave threats to our national security, American superiority in space is absolutely vital.” Space exploration has long been tied to military ambition. From its Cold War founding, NASA’s task was to advance the practical interests of the American state as it squared off against the Soviet behemoth. The new field of battle included space-guided missiles and satellite technology. Astronauts are still generally selected from the ranks of the military. Grumman (now better known as half of Northrop Grumman) made parts for both the NASA spacecraft that leapt into the great unknown and the military machines that waged war in Vietnam. As the shadow of nuclear war retreats in the bright light of a digital dawn, the mission of Space Force is to protect the economic and military infrastructure (communications and surveillance technology) seemingly threatened by rival global powers (namely, Russia and China) gearing up their own military space operations. The 1967 Outer Space Treaty, signed by the United States, the United Kingdom and the Soviet Union, attempted to guard against the militarization and the privatization of our shared stratosphere. The treaty limited governmental (and non-governmental) bodies from sending nuclear weapons into space and prohibited the annexation of the moon and temptingly mineral-rich asteroids. As the treaty outlined, any country could use and explore outer space but there could be no ​“appropriation” of astral territory. It was, at heart, a disarmament treaty — one whose ropey legalities were enforced by the now-defunct Cold War brinkmanship between its main two signatories. The treaty never foresaw the dizzying rise of private enterprise clamoring for a slice of the sky. Nor did it foresee the slow shelving of publicly funded U.S. space exploration (especially the manned variety) that would allow venture capitalists to stake their claim in a new space scramble.

**Risks of private space activity vastly outweigh- government space programs are regulated and equitable. Private space risks handing a megalomaniac their own death star**

**Kaminska 14**

(Izabella is an FT Alphaville reporter. <https://www.ft.com/content/02aac296-a920-11e3-bf0c-00144feab7de> 3-14)

For a long time the idea of commercial space was an eccentric billionaire’s pipe dream. A fanciful desire of those with a penchant for Isaac Asimov novels. **Not so any more**. Elon Musk’s SpaceX has been sending payloads to space on a commercially viable basis since 2010. Sir Richard Branson’s Virgin Galactic is on track to take its first fully paid-up customers into near-space by the end of this year, all of which was revealed by my colleague John Sunyer’s recent piece on property space wars. And a company called Planetary Resources is making serious attempts to identify asteroids for commercial mining missions in the not too distant future. Small surprise then that the issue of extraplanetary property rights has been raised by the likes of Robert Bigelow, founder of Bigelow Aerospace, a company hoping to put private living quarters in space. Above all, Bigelow is worried that if the capitalist west doesn’t go about annexing celestial bodies in the name of private enterprise, some other nation will go empire-building in its own name instead. The argument pro property rights is simple. **What we’re approaching is a new Wild West period for humanity**. A time when anyone ingenious or intrepid enough to get themselves into space should rightfully be rewarded with ownership and autocracy over the land masses they discover or forge. Especially since this time around there are no native inhabitants, or at least none that we humans can divine, to be displaced in the process. Call it the classic expansionist approach to property allocation. Or as comedian Eddie Izzard once joked, stealing countries with the cunning use of flags. If you can claim it and defend it, it becomes yours. The problem with this way of thinking is that the **Wild West is a poor analogy for space exploration**. First there’s the access issue. Getting to the New World may have been harsh and costly, but it was still exponentially easier **– and thus more equitable** – than getting to space. Second, when the pilgrims set sail for America, they never looked back. Yes, they still depended on trade, but they did so on an equal footing with their trade partners because they had just as many valuable resources, if not more, to exchange. The American war of independence was about shedding the yoke of the old land, which still desired to rule the colonies despite their self-sufficiency. The same clearly does not apply to the hostile territory of space. The chance that any colonist on Mars, the Moon or an asteroid will be self-sufficient enough to break their dependence on Earth is **infinitesimally small.** To the contrary, private missions are likely to remain **dependent on national jurisdictions** for launches and life support for decades if not centuries. Is it a risk, then, that nation-states will see this as an invitation to go empire-building in space instead? Unlikely. Article II of the UN Outer Space Treaty already sets out the parameters clearly: “Outer space, including the Moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.” It is a treaty we should be thankful for, not least because it paved the way to a truly unprecedented era of international co-operation, resulting in, among other things, the International Space Station. If any sovereign state dared to break it, say by invading the Moon, they would, without a shadow of a doubt, find themselves testing the international community, and consequently the established nuclear power balance here on Earth. That means, for as long as a space colony depends on Earth-based ties, the incentive for a nation-state to abide by Earth-based rules remains. It’s game theory. Unfortunately, the same cannot be said for private enterprise**. A power-hungry space baron** could feasibly argue that the UN treaty does not apply to them since they are not a sovereign state. Then there is also the caveat that the treaty only refers to celestial rather than man-made bodies. This is what you could call the **dark side of space commercialisation**. The point at which open access to space creates a **Pandora’s box** effect that in the name of competition **compromises space co-operation and disrupts the power balance** we’ve achieved both in space and on Earth. The point when a power-hungry billionaire could find a legal path to **building his own Death Star.** Elon Musk’s testimony to the Senate appropriations hearing on March 5 speaks of the potential power play in hand. As he argued, US national security is being undermined by the country’s dependence on Russian parts and launches, especially in light of the latter’s de facto annexation of the Crimea region. It would be much better, says Musk, if the US transferred more of its business to private enterprises like SpaceX. To Musk, access to space should be treated the same way access to commodities is treated on Earth. The only problem with this analogy is that private corporations competing for commodities still have to abide by national rules. Commercial space enterprises, it seems, would prefer it if sovereign states **became dependent on private enterprise instead** – the surest way of exposing Earth to the **risk of a megalomaniac that wants to rename Mars one day**.

**Utopian space fantasies are precisely that, they will never happen. Their purpose is to distract the public from a new age of capital accumulation**

**Marx 21**

(Paris Marx is a socialist writer and host of the Tech Won't Save Us podcast. <https://www.jacobinmag.com/2021/07/billionaires-space-richard-branson-jeff-bezos-elon-musk> , 7-13)

But as these billionaires had their eyes turned to the stars and the media showered them with the headlines they craved, the evidence that the climate of our planet is rapidly changing in a way that is hostile to life — both human and otherwise — **was escalating.** Near the end of June, Jacobabad, a city of 200,000 people in Pakistan, experienced “wet bulb” conditions where high humidity and scorching temperatures combine to reach a level where the human body can no longer cool itself down. Meanwhile, half a world away, on the West Coast of North America, a heat dome that was made much worse by climate change sent temperatures soaring so high that the town of Lytton, British Columbia, hit 49.6ºC, beating Canada’s previous temperature record by 4.6ºC, then burned to the ground when a wildfire tore through the town. The contrast between those stories is striking. On one hand, billionaires are engaging in a dick-measuring contest to see who can exit the atmosphere first, while on the other, the billions of us who will never make any such journey are increasing dealing with **the consequences of capitalism’s effects on the climate** — and the decades its most powerful adherents have spent stifling action to curb them. At a moment when we should be throwing everything we have into ensuring the planet remains habitable, billionaires are treating us to a spectacle to **distract us from their quest for continued capitalist accumulation and the disastrous effects it is already having.** The Spectacle of Billionaires in Space Last May, we were treated to a similar display of billionaire space ambition. As people across the United States were marching in the streets after the murder of George Floyd and the government was doing little to stop COVID-19 from sweeping the country, Elon Musk and President Donald Trump met in Florida to celebrate SpaceX’s first time launching astronauts to the International Space Station. As regular people were fighting for their lives, it felt like the elite were living in a completely separate world and had no qualms about showing it. They didn’t have to make it to another planet. Over the past few years, as the billionaire space race has escalated, the public has become increasingly familiar with its grand visions for our future. SpaceX’s Elon Musk wants us to colonize Mars and claims the mission of his space company is to lay the infrastructure to do just that. He wants humanity to be a “multiplanetary” species, and he claims a Martian colony would be a backup plan in case Earth becomes uninhabitable. Meanwhile, Bezos doesn’t have much time for Mars colonization. Instead, he believes we should build large structures in Earth’s orbit where the human population can grow to a trillion people without further harming the planet’s environment. As we live out our lives in O’Neill cylinders, as they’re called, we’ll take occasional vacations down to the surface to experience the wonder of the world we once called home. **Neither of these futures are appealing if you look past the billionaires’ rosy pitch decks**. Life on Mars would be horrendous for hundreds of years, at least, and would likely kill many of the people who made the journey, while the technology for massive space colonies doesn’t exist and similarly won’t be feasible for a long time to come. So, **what’s the point of promoting these futures in the face of an unprecedented threat to our species here on Earth**? It’s to get the public on board for **a new phase of capitalist accumulation** whose benefits will be reaped by those billionaires. To be clear, that does not even mean anything as grand as asteroid mining. Rather, its form can be seen in the event last May: as Musk and even Trump continued to push the spectacle of Mars for the public, SpaceX was becoming not just a key player in a privatized space industry but also in enabling a military buildup through billions of dollars in government contracts. The grand visions, rocket launches, and spectacles of billionaires leaving the atmosphere are all cover for the real space economy.

### Contention 2: A New Hope

#### Thus, I affirm that the appropriation of outer space by private entities is unjust.

#### Nationalizing space industries socializes risk and reward- public funding is the basis of most innovation, private space guts progress through brain drain

Aronoff 18

(KATE ARONOFF is a staff writer at The New Republic and author of Overheated: How Capitalism Broke the Planet — And How We Fight Back. <https://inthesetimes.com/article/elon-musk-spacex-tesla-falcon-heavy-launch> , 2-8)

Scientific American gawked, ​“Elon Musk Does It Again,” praising the ​“bold technological innovations and newfound operational efficiencies that allow SpaceX to not only build its rockets for less money, but also reuse them.” That view — shared by several other outlets — fits comfortably with the Tony Stark-like image Musk has crafted for himself over the years: a quirky and slightly off-kilter playboy genius inventor capable of conquering everything from outer space to the climate crisis with the sheer force of his imagination. One of Musk’s long-term goals is to create a self-sustaining colony on Mars, and make humanity an interplanetary species. He hopes to shoot two very wealthy people around the moon at some point this year. Musk has invested an awful lot of public money into making those dreams a reality. But why should Americans keep footing the bill for projects where only Musk and his wealthy friends can reap the rewards? Enter: the case for nationalizing Elon Musk, and making the U.S. government a major stakeholder in his companies. The common logic now holds that the private sector — and prodigies like Musk, in particular — are better at coming up with world-changing ideas than the public sector, which is allegedly bloated and allergic to new, outside-the-box thinking. Corporations’ hunt for profits and lack of bureaucratic constraints, it’s said, compel cutting-edge research and development in a way that the government is simply incapable of. With any hope, more of these billionaires’ breakthroughs than not will be in the public interest. The reality, as economist Mariana Mazzucato argues in her 2013 book The Entrepreneurial State: Debunking Public vs. Private Sector Myths, is very different. Many of the companies that are today considered to be headed by brilliant savants — people like Steve Jobs and, yes, Elon Musk — owe much of their success to decades of public sector innovation, through repackaging technologies developed over the course of several decades into new products. Take the iPhone, essentially a collection of Defense Department research and National Science Foundation-grant projects packed into one shiny machine. “The prospect of the State owning a stake in a private corporation may be anathema to many parts of the capitalist world,” Mazzucato writes, ​“but given that governments are already investing in the private sector, they may as well earn a return on those investments.” As she notes, Musk’s future-oriented empire — Tesla Motors, SolarCity and SpaceX — has benefitted from around $5 billion in local, state and federal government support, not to mention many years of foundational public research into programs like rocket technology. SpaceX itself exists largely for the sake of competing for government contracts, like its $5.5 billion partnership with NASA and the U.S. Air Force. The U.S. Department of Energy invested directly in that company, as well as in Tesla’s work on battery technology and solar panels. The latter is perhaps the biggest success story of the Department of Energy stimulus grant that also supported Solyndra, a solar energy company reliably held up by the Right as an example of the government’s failure to make wise investment decisions. ​“Taxpayers footed the bill for Solyndra’s losses — yet got hardly any of Tesla’s profits,” Mazzucato notes. As Mazzucato finds, the private sector hasn’t done much to earn its reputation as a risk-taker. Corporations and venture capitalists often adopt conservative thinking and fall into ​“path dependency,” and are generally reluctant to invest in important early-stage research that won’t necessarily turn a profit in the short-run. This kind of research is inherently risky, and the vast majority of this kind of protean R&D (research and development) fails. For every internet — birthed in the Defense Department — there are a well over a dozen Solyndras, but it’s virtually impossible to have one without the other. The problem runs deeper still. Whereas in the past public sector research has been able to attract top-tier talent, the myth that the private sector can do what the State can’t has created a negative feedback loop whereby bright young scientists and engineers flock toward a private sector that goes on to further its reputation for being the place where the real innovation is happening. The alternative Mazzucato suggests is to socialize risk and reward alike, rather than simply allowing companies that enjoy the benefits of public innovation to funnel their profits into things like stock buybacks and tax havens — or, for that matter, flamethrowers. When companies like SpaceX make it big, they’d be obligated to return some portion of their gains to the public infrastructure that helped them succeed, expanding the government’s capacity to facilitate more innovative development. All this is not to say that there isn’t a critical role to play for people like Jobs and Musk in bringing new technology to the market. In all likelihood, Tesla’s Powerwall and SolarCity panels will play a key role in our transition off of fossil fuels. But lionizing Musk as the sole creator of the Powerwall and this week’s space launch stands to perpetuate a dangerous series of myths about who’s responsible for such cutting-edge development. Through smart supply-and-demand-side policy, states can play a crucial role in shaping and creating markets for the technologies we’ll need to navigate the 21st century. This can happen not just through R&D but also through developments like fuel efficiency standards, which encourage carmakers to prioritize vehicles that run off of renewable energy. Given the mounting reality of climate change and the necessity to rapidly switch over to a clean energy economy, there’s also a bigger question about how actively the state should be encouraging certain kinds of research and manufacturing. During World War II, the United States essentially had a planned economy: By 1945, around a quarter of manufacturing in the country was under state control. The reason for that was simple — the U.S. government saw an existential threat, and directed some of its biggest corporations to pitch in to stop it or else risk getting taken over by the state. There’s some Cold War nostalgia to hoisting shiny objects into orbit — a telegenic show of America’s technological supremacy. But it may not be much solace to coastal residents forced to flee in the coming decades, whose homes are rendered unlivable by a mixture of extreme weather and crumbling, antiquated infrastructure. And if you’ve watched any number of big-budget sci-fi productions over the last several years, it’s not hard to imagine Musk’s Martian colony spinning off into some Elysium-style eco-apartheid, where the rich — for the right price — can escape to new worlds while the rest of us make do on a planet of dystopian slums, swamps and deserts. Today, the risk posed by climate change is greater still than that posed by fascism on the eve of World War II, threatening to bring about a planet that’s uninhabitable for humans, and plenty hostile to them in the meantime. In such a context, do we need to launch cars into space? Maybe not. If the public sector is going to continue footing the bill for Elon Musk’s fantasies, though, he should at least have to give back some credit, and a cut of the profits.

#### Nationalization of space replaces dystopian, militaristic visions with educational, valiant ones. Space has the possibility to transform national competition but must be vested from private hands

Roberts 21

(Spencer Roberts is a science writer, musician, ecologist, and rooftop solar engineer from Colorado. <https://www.jacobinmag.com/2021/09/socialist-space-exploration-publicly-funded-nasa-education-futurism> , 9-8)

In 1961, Soviet cosmonaut Yuri Gagarin flew higher and orbited longer than Richard Branson and Jeff Bezos combined aboard Vostok 1, the world’s first piloted space flight. Upon his return to Earth, Gagarin became a global celebrity, traveling the world and recounting what it felt like to drift weightless and see the planet from above. For a brief moment, **he transcended the boundaries of the Cold War**, greeting cheering crowds in both Soviet and US-allied countries, capturing our collective fascination with the cosmos. The Vostok mission was meticulously planned and engineered, its cosmonauts trained for years. Its successor, Soyuz 1, was a different story. The 7K-OK spacecraft had been hastily constructed, its three unmanned flight tests all ending in failure. According to one account, Gagarin helped detail over two hundred structural concerns in a report urging the flight be called off. It’s rumored that he even tried to take his fellow cosmonaut Vladimir Komarov’s place piloting the doomed mission. In the end Komarov’s parachute failed to deploy and he burst into flames on reentry, plummeting at forty meters per second into the Earth. In aeronautics, the margin between triumph and tragedy is narrow. While hubris may have been Soyuz 1’s fatal flaw, the **pursuit of profit** has similarly incentivized corner cutting in the US space program. NASA, once the crown jewel of the public sector, has been **slowly sold off to private contractors in the neoliberal era**. Since 2020, NASA astronauts have ridden SpaceX Falcon 9 rockets into orbit, a model that has raised safety concerns among engineers and logged more failures since its debut in 2006 than the space shuttle did in thirty years. Recently, another NASA contractor, Virgin Galactic, was grounded for investigation by the Federal Aviation Administration after its pilots failed to notify the agency that its celebrated Unity flight was veering into commercial airspace. Mission objectives have changed as well. While perhaps always mythic, **the once allegedly valiant aspirations** of the space program have given way to openly **touristic and militaristic goals**. Corporations pursuing commercial space flight have received billions in public financing, and the US Space Force alone already has nearly three quarters the total budget of NASA. The true ethos of space exploration, however, **is one of public works and education**. Peering into the void of space inspires the deepest questions facing humanity: Who are we? Where do we come from? Where are we going? While a space program catering to the science fiction fantasies of billionaires is **decidedly dystopian**, conceptualizing space exploration as an **educational mission** to remotely probe the depths of the galaxy can help animate a **more equitable vision of futurism.** Space Exploration for the People How can space exploration serve society? Our first priority must be to decarbonize space flight. Without achieving this, the emissions that space flight generates are hardly justifiable given the state of our planet. Like the space blanket and cochlear implant, the applications of zero-carbon jet fuel would go far beyond the space program that developed it. Commercial aviation contributes an estimated 3.5 percent of effective radiative forcing — a figure that space tourism could skyrocket. Due to the weight of batteries and other logistical challenges, hydrogen fuel cells are considered one of the few viable pathways to decarbonizing long-distance flight. While some private space corporations have begun incorporating hydrogen, the fuel production is likely emissions-intensive and the technology remains proprietary. A publicly directed moonshot research program, coupled with tight restrictions on fossil-fueled rocket launches, could greatly accelerate the implementation of green hydrogen fuel cells in aviation and other difficult-to-decarbonize sectors. In addition to our atmosphere, we must respect the sanctity of orbital space, which we have littered with trash. The Defense Department’s Space Surveillance Network currently estimates there are more than twenty-seven thousand pieces of debris orbiting Earth. Yet even as their own ships run a gauntlet of garbage, billionaires are **trashing space more than ever**. While perhaps none match the vanity of the Tesla Roadster, competing commercial satellite networks like Musk’s Starlink and Bezos’ Project Kuiper actually **pose a much greater collision threat and are also egregious sources of light pollution and electromagnetic interference**. These redundant and dangerous **monuments to the egos of oligarchs ought** to be taken down from our skies along with other forms of space trash. Rather than granting billions in subsidies to enable this pollution, governments should instead **collect the taxes** that corporations like SpaceX, Blue Origin, and Virgin Galactic have evaded and **use them to create public sector careers** cleaning up their mess. To the extent that it is useful, **publicly sponsored infrastructure in private hands should be nationalized**

### Contention 3: The Thanos Paradox

#### Capitalist realism makes it easier to imagine *the end of the world* than the *end of capitalism*. We don’t need a revolutionary break, we need a progressive series of steps that redefine political economy and space is a crucial starting point. The end if capitalism isn’t *possible*, it’s *necessary*

Robinson and O’Keefe 20

(ABOUT THE AUTHOR Kim Stanley Robinson is the author of more than twenty books, including New York 2140, Red Moon, and the Mars trilogy. ABOUT THE INTERVIEWER Derrick O’Keefe is a cofounder and editor of Ricochet Media and is the author of Michael Ignatieff: The Lesser Evil? and A Woman Among Warlords, coauthored with Afghanistan’s Malalai Joya. Derrick is a longtime political organizer in Vancouver, BC. <https://www.jacobinmag.com/2020/10/kim-stanley-robinson-ministry-future-science-fiction>, 10-22)

DOK I wanted to ask you about the now-famous quote attributed to Jameson, which is actually a bit of a paraphrase: “It is easier to imagine the end of the world than to imagine the end of capitalism.” It strikes me this book is coming out in a year when it’s become pretty easy to imagine the end of things, and that the real challenge is to imagine the beginnings of some kind of socialist system. As much as The Ministry is about the future, it suggests that those beginnings we need are already here with us now and that it’s really a matter of scaling up some of those alternatives. KSR I’m a novelist, I’m a literature major. I’m not thinking up these ideas, I’m **listening to the world and grasping** — sometimes at straws, sometimes just grasping at new ideas and seeing what everybody is seeing. If we could institute **some of these good ideas**, we could **quickly shift** from a capitalism to a post-capitalism that is more sustainable and more socialist, because so many of the obvious solutions are contained in the socialist program. And if we treated the biosphere as part of our extended body that needs to be attended to and taken care of, then things could get better fast, and there are already precursors that demonstrate this possibility. I don’t think it’s possible to postulate a **breakdown, or a revolution, to an entirely different system** that would work without mass disruption and perhaps blowback failures, so it’s better to try to **imagine a stepwise progression** from what we’ve got now to a better system. And by the time we’re done — I mean, “done” is the wrong word — but by the end of the century, **we might have a radically different system than the one we’ve got now**. And this is kind of necessary if we’re going to survive without disaster. So, **since it’s necessary, it might happen**. And I’m always looking for the plausible models that already exist and imagining that they get ramped up. DOK The cooperative economy of Mondragon, in the Basque region, comes up as one such model in a number of your books. And in The Ministry, there is the example of Kerala, because India is so central to the book’s action as a leader of the transition to dramatic climate action. KSR I’m very interested in both these examples. I’ve actually never been to either region, but I’ve got contacts in both. In Mondragon, they are aware of me as an American science fiction writer who likes them, because my Mars trilogy books are translated into Spanish and do quite well in Spain. With Kerala, I’ve been studying it for twenty, twenty-five years. Like, why is it different and how is it different? Could it be a tail-wagging-dog situation for the rest of India? And so on. I did put places that I’ve been in the novel, because I needed some anchoring points — principally Zurich [where the titular ministry is headquartered]. My wife and I lived in Zurich for years, and I finally managed to put that into fiction, which was a great pleasure. But as for the rest of the world, and for these kinds of leftist precursors, or already existing leftist states that are at a regional or town level, I’ve often thought to myself, “Is there any reason that these can’t be taken as models?” Is there any real reason — since obviously there are ideological reasons; **if you’re a defender of capitalism** per se, then you would say these are outliers of sorts or **too small to be relevant** — but if you’re a leftist, you look at them and see the public support for what they’re doing, and you ask, “Why couldn’t that work at a larger scale?” Especially if you’re trying to imagine futures that are working better, which is what a utopian science fiction writer does, then you’re kind of desperate for real world-models. DOK When I originally heard the synopsis for this book, it struck me immediately as something like an ecosocialist Looking Backward 2000–1887. The main character in that work by Edward Bellamy had fallen asleep for over a century and then woke up in a sort of post-capitalist utopia in the year 2000. In contrast, The Ministry is more about the journey to 2050 or so, a world that is very different from today both economically and politically. How do you situate this work, and your work more broadly, within the utopian tradition? KSR Well, Bellamy’s is a good book to think about, because it had an impact in the real world. There were Bellamy clubs, and the whole progressive movement was energized by Looking Backward. I’ve steeped myself in the utopian tradition. It’s not a big body of literature, it’s easy to read the best hits of the utopian tradition. You could make a list, I mean roughly twenty or twenty-five books would be the highlights of the entire four hundred years, which is a little shocking. And maybe there’s more out there that hasn’t stayed in the canon. But if you talk about the utopian canon, it’s quite small — it’s interesting, it has its habits, its problems, its gaps. Famously, from Thomas More (Utopia) on, there’s been a gap in the history — the utopia is separated by space or time, by a disjunction. They call it the Great Trench. In Utopia, they dug a great trench across the peninsula so that their peninsula became an island. And the Great Trench is endemic in utopian literature. There’s almost always a break that allows the utopian society to be implemented and to run successfully. I’ve never liked that because one connotation of the word “utopian” is unreality, in the sense that it’s “**never going to happen.”** So **we have to fill in this trench**. When Jameson said it’s easier to imagine the end of the world than the end of capitalism, I think what he was talking about is **that missing bridge** from here to there. It’s hard to imagine a positive history, but it’s not impossible. And now, yes, it’s easy to imagine the end of the world because we are at the start of a mass extinction event. But he’s talking about hegemony, and a kind of Marxist reading of history, and the kind of Gramscian notion that everybody’s in the mindset that capitalism is reality itself and that there can never be any other way — so it’s hard to imagine the end of capitalism. But I would just flip it and say, it’s hard to imagine how we get to a better system. Imagining the better system isn’t that hard; you just make up some rules about how things should work. You could even say socialism is that kind of utopian imaginary. Let’s just do it this way, a kind of society of mutual aid. And I would agree with anyone who says, “Well, that’s a good system.” The interesting thing, and also the new stories to tell if you’re a science fiction novelist, if you’re any kind of novelist — almost every story’s been told a few times — but the story of getting to a new and better social system, that’s almost an empty niche in our mental ecology. So I’ve been throwing myself into that attempt. It’s hard, but it’s interesting. Homo Economicus Is a Fraud DOK Amidst and between all the action of The Ministry, there are some polemics carried out, is that fair to say? One recurrent polemic is against mainstream economics, a theme running throughout the book that there’s a need for new metrics and new indices both to quantify the biosphere and to express what we truly value rather than just GDP and the stock market. KSR There is a polemic for sure. First, I would want to make a distinction between economics and political economy, because by and large, economics as it’s practiced now **is the study of capitalism**. **It takes the axioms of capitalism as givens** and then tries to work from those to various ameliorations and tweaks to the system that would make for a better capitalism, but they **don’t question the fundamental axioms**: everybody’s in it for themselves, everybody pursues their own self-interest, which will produce the best possible outcomes for everybody. **These axioms are highly questionable**, and they come out of the eighteenth century or are even older, and they don’t match with modern social science or history itself in terms of how we behave, and they don’t value the natural biosphere properly, and they tend to encourage **short-term extractive gain and short-term interests**. These are philosophical positions that are expressed as though they are **fixed or are nature itself**, when in reality **they are made by culture.** Political economy is a kind of nineteenth-century thing, a more open-ended idea where we could have different systems. And that accounts for a lot of the struggles of the twentieth century. **But capitalism likes to pretend that it’s nature itself**, and that’s what economics is today, largely. Take the term **“efficiency.”** **In capitalist economics, that’s just regarded as almost a synonym for “good**,” but it completely depends on what the efficiency is being aimed at. You know, **machine guns are efficient, gas chambers are efficient.** So, “efficiency” as such does not mean “good.” It is a measure of the least amount of effort put in for the most amount gotten out. One of the things you’re seeing during the pandemic is that the global system of creating masks is efficient, but it is also fragile, brittle, and unreliable because redundancy, robustness, and resilience are all relatively inefficient, if the only rubric of efficiency is profit. **Capitalist economics misunderstands and misjudges the world badly**, and that’s why we’re in the mess we’re in — caught between biosphere degradation and radical social inequality. These are both natural results of capitalism as such, a result of the **economic calculations we make under capitalist axioms**. Distinctions have to be made here. Quantification is really part of science. Social science has some tools for understanding and generalizing from the particulars of individuals to what the group might want. Twenty-five years ago, I might have said, “Economics, we have to throw it out.” That doesn’t hold for me anymore**. Economics has a set of tools**. And social science tools, working with the right axioms, could make for a **socialist economics.** There could be a post-capitalist economic system. But what you’re then talking about is a different political economy. That’s one of the things The Ministry is about. Can you morph, by stages, from the political economy that we’re in now, which is neoliberal capitalism, to what you might call anti-austerity, to a return to Keynesianism, and then beyond that to social democracy, and then beyond that to democratic socialism, and then beyond that to a post-capitalist system that might be a completely new invention that we don’t have a name for? Right-wing thinking is supremely hypocritical and convoluted and self-contradictory, and that needs to be pushed on and pointed out at every chance. This is why I hold myself to calling it “post-capitalism,” so as not to try and define it by any of the nineteenth-century political economies. I think many of the solutions can be found in socialism, but I don’t call myself a socialist. I would want to keep it a little more open to the idea that **we have to morph capitalism as such**, and that we might shove it to the margins, where we might have a market for the non-necessities. I think the market itself has to be reexamined, and this is so fundamental to the way that modern society works that it’s frightening, and, for me, **it’s better to think in a stepwise fashion and to imagine society from where we are now transforming to an undefined better political economy.** Planetary Heat Death or the End of Capitalism — We Can Choose DOK One of the axioms of that better political economy is expressed in The Ministry as “Public ownership of the necessities, and real political representation” — two things together that we are far from having, by greater or lesser degrees, really almost everywhere today. A key part of getting from here to there, to a new political economy, involves the question of finance. In New York 2140, one of your characters is a Wall Street trader speculating on intertidal markets, and much of the action concerns finance and the banks. In The Ministry, even more radical measures are contemplated for putting finance at the service of a livable, non-submerged future. Where did you get the inspiration for Carbon Quantitative Easing and the rest of the transformation of finance imagined in this book? KSR Carbon Quantitative Easing is not my idea. I really am just a listening facility here, trying to amplify ideas. That one is out there. Recently, even Lawrence Summers — who was the treasury secretary for Bill Clinton and a neoliberal of the first order — and his think tank have been putting out stuff about some kind of CQE. So it’s been spreading quickly as an idea, and I’m glad. But in the years since I wrote New York 2140, I learned more about the central banks and realized that nationalizing the banks, which happens in 2140, wouldn’t be going far enough. It would be great if all banks were owned by the people, and if banks were not private profit-making enterprises, that would be great — but it would only be one step along the way; it would not be enough. Because, at this point, central banks are only concerned with stabilizing money and maybe helping employment levels, and they will not do anything else unless they are under enormous pressure. They need to be changed, and that’s a lot of what this novel’s about. Changing the way we regard money, that would be a step toward post-capitalism right there. If money was created from scratch but not given to the banks to loan to whatever they wanted but given to decarbonization projects first, then flowing out into the general economy — the first spending money by governments, which make money in the first place, would be targeted toward decarbonization efforts. This strikes me as a good idea, a necessary idea. Because saving the biosphere doesn’t make a profit in the capitalist order, we will never do it, and we are therefore doomed. So a very fundamental reform of how we regard money itself is absolutely necessary. I’m saying that a post-capitalist political economy that **regards money as created for the public good** and is spent on that first — and then trickles into the general economy — is a fundamental shift, and without it, we’re in terrible trouble. DOK A lot of the action takes place in Switzerland, as you mentioned, because many of the main characters are members of the Ministry of the Future headquartered in Zurich. Do you worry that your story could evoke right-wing tropes like the globalist, world government bogeyman that nationalists talk about to avoid action on climate change? KSR Well, maybe so, but I would say **the Left has to fight fire with fire**. Right-wing ideas are also conceptions of globalization, in terribly poor disguises as being nationalist. But **the nationalist system is embedded in capitalism**; it’s just completely international and global. These right-wingers, if they could make an extra dime an hour by selling out national citizens by sending their industries to China or India — they’d do it in a second, and they already have. So they need to be called out for being completely inconsistent and hypocritical. And the Left needs to be much more aggressive on that, **and say the problem is not globalization per se**; the problem is bad globalization, which is capitalism, as opposed to good globalization, which is mutual aid and cooperation among the nation states by way of international treaties and things like the UN. The Paris Agreement is crucial. It’s a major event in world history. It could turn into the League of Nations, in which case we’re screwed. Or it could turn into something new in history, a way to decarbonize without playing the zero-sum game of nation against nation. So all this needs to be fought at the **level of the discursive battle**, **and no concessions can be made on that point**. I mean, right-wing thinking is supremely hypocritical and convoluted and self-contradictory, and that needs to be pushed on and pointed out at every chance — these supposed nationalists are also going to sell you out. This discursive battle, it’s very important. DOK You talked about the Great Trench, of how we get from here to there, and it strikes me that this book is very grounded. There’s no reference to a lunar colony, let alone to any Elon Musk Inc. version of Mars, and there’s no mention of off-planet gated communities like in the film Elysium. **Does this absence imply that saving the earth,** or transitioning to a livable system, **requires stopping the capitalist colonization of space**? I kept waiting for an Elon Musk character. KSR Well, since there are 106 chapters — I guess that I could have made it 107, and I could have talked about that. But maybe the absence does speak louder than words. All of those things are fantasies, and billionaire fantasy trips are not going anywhere. In Red Moon and Aurora, I’ve made my statement about what’s possible and what isn’t. Because in the capitalist world, you have to make a profit, and **even the billionaires don’t have enough money to properly fund these ventures on their own**. So they talk about asteroid mining **— that’s bullshit**. They talk about **Helium-3 mining on the moon — that’s bullshit**. **There is no profit in space**. **It’s just a fantasy** of our culture right now, because everybody’s been convinced by science fiction writers [laughs], and they’re not paying attention **to the numbers game**, I guess. I believe in space science. I’m totally in love with NASA, and with **public space science**, as part of government. There’s this saying of NASA’s, “space science is Earth science,” and I totally believe that.

#### Beware the space industrial complex- “corporate innovations” are really government handouts that extend unequal social relations to the stars. Neg futurism should be viewed with extreme skepticism

Savage 21

(Luke, Editor, https://www.jacobinmag.com/2021/05/spacex-blue-origin-musk-bezos-space-race-endless-frontier-act)

In its promethean quest to conquer the heavens and transcend the limitations of earthly existence, the human race may be on the cusp of reaching an historic milestone: in this case, the successful launch of a giant barrel filled with pork into outer space. Thanks in large part to the **giant corporate PR machines** now in the fray, the burgeoning contest for dominance of the twenty-first century space travel market tends to be perceived in the **loftiest of terms**: **saturated with futurist mythology and defined by grandiose pronouncements** about asteroid mining, multiyear voyages to Mars, and interstellar colonization. But, as this week’s wrangling in Congress suggests, the accelerating rivalry between Elon Musk’s SpaceX and Jeff Bezos’ Blue Origin is destined to play out in a decidedly **less than utopian fashion**. The tell, as documented in a recent report from the Intercept, is an absurd $10 billion amendment to the sinisterly titled Endless Frontier Act introduced by Washington senator Maria Cantwell. Under the highly dubious auspices of funding scientific and technological research, the cash would almost certainly go straight to Blue Origin — which last month narrowly missed out on a lucrative contract to put astronauts on the moon, and just so happens to be based in Cantwell’s home state (the contract instead went to SpaceX, a move NASA has justified with the absolute howler that it was attempting to “preserve a competitive environment”). The question at hand may officially concern lunar exploration, but **the whole episode looks like a textbook case of pork barrel politics run amok**. In introducing a rival amendment intended to strip the bill of its absurd $10 billion handout to Blue Origin, the famously direct junior senator from Vermont simply had this to say: “It does not make a lot of sense to me that we would provide billions of dollars to a company owned by the wealthiest guy in America.” As is typically the case, Bernie Sanders had it right: Jeff Bezos’s wealth is by this point less an actual number than a matter for philosophical debate, and there is no tenable justification for handing him public money. He was equally right in using the occasion to **question the whole idea** of privately led space exploration: When we were younger, and Neil Armstrong made it to the Moon, there was incredible joy and pride in this country that the United States of America did something people had forever thought was impossible: we sent a man to the Moon … an extraordinary accomplishment for all of humanity, not just the United States…. I worry very much that what we are seeing now is two of the wealthiest people in this country — Elon Musk and Mr. Bezos — deciding that they are going to take control over our [efforts] to get to the Moon and, maybe, even the extraordinary accomplishment of getting to Mars…. I have a real problem that, to a significant degree, **we are privatizing that effort**…. This is something that … **all of us should be part of, and not simply a private corporate undertaking**. As the free market **innovates its way to monopolistic control of the solar system** by the Earth’s two richest men, it remains as yet unclear how far both technology and capitalism will actually allow the billionaire-dominated venture to go. Bezos and Musk, as you might expect, **paint a utopian portrait of interplanetary** colonies and abundant life flourishing off-world. Investors in speculative companies like Planetary Resources and Deep Space Industries, meanwhile, hope that the mining of precious metals from asteroids will unlock untold wealth and bring about a new industrial revolution. The most probable scenario for such efforts, of course, is also far more banal: **a primary focus on control of vital infrastructure like satellites by large corporations and their billionaire owners.** In the unlikely event that technology ever does allow interstellar colonization to be both possible and profitable, however, it’s safe to assume the result will look more **like Blade Runner than Star Trek** if people like Musk and Bezos are involved. There’s no reason to believe, after all, that extending the profit motive into outer space would yield a **different set of social relations** than the ones it already produces here on Earth (think orbital Tesla workhouses and overworked Amazon employees trying to relieve themselves in zero-g). Either way, this week’s absurd congressional wranglings over glorified handouts to the world’s two wealthiest men are as good a reminder as any that a privatized space race has far more to do with earthly vice than off-world utopia. Billionaires have already been allowed to devour much of the global economy. **Must we let them own the solar system too?**

**FW**

**The standard is maximizing expected well-being. To clarify, hedonistic act util. Prefer –**

**1] Pleasure and pain *are* intrinsic value and disvalue – everything else *regresses* – robust neuroscience.**

**Blum et al. 18**

Kenneth Blum, 1Department of Psychiatry, Boonshoft School of Medicine, Dayton VA Medical Center, Wright State University, Dayton, OH, USA 2Department of Psychiatry, McKnight Brain Institute, University of Florida College of Medicine, Gainesville, FL, USA 3Department of Psychiatry and Behavioral Sciences, Keck Medicine University of Southern California, Los Angeles, CA, USA 4Division of Applied Clinical Research & Education, Dominion Diagnostics, LLC, North Kingstown, RI, USA 5Department of Precision Medicine, Geneus Health LLC, San Antonio, TX, USA 6Department of Addiction Research & Therapy, Nupathways Inc., Innsbrook, MO, USA 7Department of Clinical Neurology, Path Foundation, New York, NY, USA 8Division of Neuroscience-Based Addiction Therapy, The Shores Treatment & Recovery Center, Port Saint Lucie, FL, USA 9Institute of Psychology, Eötvös Loránd University, Budapest, Hungary 10Division of Addiction Research, Dominion Diagnostics, LLC. North Kingston, RI, USA 11Victory Nutrition International, Lederach, PA., USA 12National Human Genome Center at Howard University, Washington, DC., USA, Marjorie Gondré-Lewis, 12National Human Genome Center at Howard University, Washington, DC., USA 13Departments of Anatomy and Psychiatry, Howard University College of Medicine, Washington, DC US, Bruce Steinberg, 4Division of Applied Clinical Research & Education, Dominion Diagnostics, LLC, North Kingstown, RI, USA, Igor Elman, 15Department Psychiatry, Cooper University School of Medicine, Camden, NJ, USA, David Baron, 3Department of Psychiatry and Behavioral Sciences, Keck Medicine University of Southern California, Los Angeles, CA, USA, Edward J Modestino, 14Department of Psychology, Curry College, Milton, MA, USA, Rajendra D Badgaiyan, 15Department Psychiatry, Cooper University School of Medicine, Camden, NJ, USA, Mark S Gold 16Department of Psychiatry, Washington University, St. Louis, MO, USA, “Our evolved unique pleasure circuit makes humans different from apes: Reconsideration of data derived from animal studies”, U.S. Department of Veterans Affairs, 28 February 2018, accessed: 19 August 2020, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6446569/>, R.S.

**Pleasure** is not only one of the three primary reward functions but it also **defines reward.** As homeostasis explains the functions of only a limited number of rewards, the principal reason why particular stimuli, objects, events, situations, and activities are rewarding may be due to pleasure. This applies first of all to sex and to the primary homeostatic rewards of food and liquid and extends to money, taste, beauty, social encounters and nonmaterial, internally set, and intrinsic rewards. Pleasure, as the primary effect of rewards, drives the prime reward functions of learning, approach behavior, and decision making and provides the **basis for hedonic theories** of reward function. We are attracted by most rewards and exert intense efforts to obtain them, just because they are enjoyable [10].

Pleasure is a passive reaction that derives from the experience or prediction of reward and may lead to a long-lasting state of happiness. The word happiness is difficult to define. In fact, just obtaining physical pleasure may not be enough. One key to happiness involves a network of good friends. However, it is not obvious how the higher forms of satisfaction and pleasure are related to an ice cream cone, or to your team winning a sporting event. Recent multidisciplinary research, using both humans and detailed invasive brain analysis of animals has discovered some critical ways that the brain processes pleasure [14].

Pleasure as a hallmark of reward is sufficient for defining a reward, but it may not be necessary. A reward may generate positive learning and approach behavior simply because it contains substances that are essential for body function. When we are hungry, we may eat bad and unpleasant meals. A monkey who receives hundreds of small drops of water every morning in the laboratory is unlikely to feel a rush of pleasure every time it gets the 0.1 ml. Nevertheless, with these precautions in mind, we may define any stimulus, object, event, activity, or situation that has the potential to produce pleasure as a reward. In the context of reward deficiency or for disorders of addiction, homeostasis pursues pharmacological treatments: drugs to treat drug addiction, obesity, and other compulsive behaviors. The theory of allostasis suggests broader approaches - such as re-expanding the range of possible pleasures and providing opportunities to expend effort in their pursuit. [15]. It is noteworthy, the first animal studies eliciting approach behavior by electrical brain stimulation interpreted their findings as a discovery of the brain’s pleasure centers [16] which were later partly associated with midbrain dopamine neurons [17–19] despite the notorious difficulties of identifying emotions in animals.

Evolutionary theories of pleasure: The love connection BO:D

Charles Darwin and other biological scientists that have examined the biological evolution and its basic principles found various mechanisms that steer behavior and biological development. Besides their theory on natural selection, it was particularly the sexual selection process that gained significance in the latter context over the last century, especially when it comes to the question of what makes us “what we are,” i.e., human. However, the capacity to sexually select and evolve is not at all a human accomplishment alone or a sign of our uniqueness; yet, we humans, as it seems, are ingenious in fooling ourselves and others–when we are in love or desperately search for it.

It is well established that modern biological theory conjectures that **organisms are** the **result of evolutionary competition.** In fact, Richard Dawkins stresses gene survival and propagation as the basic mechanism of life [20]. Only genes that lead to the fittest phenotype will make it. It is noteworthy that the phenotype is selected based on behavior that maximizes gene propagation. To do so, the phenotype must survive and generate offspring, and be better at it than its competitors. Thus, the ultimate, distal function of rewards is to increase evolutionary fitness by ensuring the survival of the organism and reproduction. It is agreed that learning, approach, economic decisions, and positive emotions are the proximal functions through which phenotypes obtain other necessary nutrients for survival, mating, and care for offspring.

Behavioral reward functions have evolved to help individuals to survive and propagate their genes. Apparently, people need to live well and long enough to reproduce. Most would agree that homo-sapiens do so by ingesting the substances that make their bodies function properly. For this reason, foods and drinks are rewards. Additional rewards, including those used for economic exchanges, ensure sufficient palatable food and drink supply. Mating and gene propagation is supported by powerful sexual attraction. Additional properties, like body form, augment the chance to mate and nourish and defend offspring and are therefore also rewards. Care for offspring until they can reproduce themselves helps gene propagation and is rewarding; otherwise, many believe mating is useless. According to David E Comings, as any small edge will ultimately result in evolutionary advantage [21], additional reward mechanisms like novelty seeking and exploration widen the spectrum of available rewards and thus enhance the chance for survival, reproduction, and ultimate gene propagation. These functions may help us to obtain the benefits of distant rewards that are determined by our own interests and not immediately available in the environment. Thus the distal reward function in gene propagation and evolutionary fitness defines the proximal reward functions that we see in everyday behavior. That is why foods, drinks, mates, and offspring are rewarding.

There have been theories linking pleasure as a required component of health benefits salutogenesis, (salugenesis). In essence, under these terms, pleasure is described as a state or feeling of happiness and satisfaction resulting from an experience that one enjoys. Regarding pleasure, it is a double-edged sword, on the one hand, it promotes positive feelings (like mindfulness) and even better cognition, possibly through the release of dopamine [22]. But on the other hand, pleasure simultaneously encourages addiction and other negative behaviors, i.e., motivational toxicity. It is a complex neurobiological phenomenon, relying on reward circuitry or limbic activity. It is important to realize that through the “Brain Reward Cascade” (BRC) endorphin and endogenous morphinergic mechanisms may play a role [23]. While natural rewards are essential for survival and appetitive motivation leading to beneficial biological behaviors like eating, sex, and reproduction, crucial social interactions seem to further facilitate the positive effects exerted by pleasurable experiences. Indeed, experimentation with addictive drugs is capable of directly acting on reward pathways and causing deterioration of these systems promoting hypodopaminergia [24]. Most would agree that pleasurable activities can stimulate personal growth and may help to induce healthy behavioral changes, including stress management [25]. The work of Esch and Stefano [26] concerning the link between compassion and love implicate the brain reward system, and pleasure induction suggests that social contact in general, i.e., love, attachment, and compassion, can be highly effective in stress reduction, survival, and overall health.

Understanding the role of neurotransmission and pleasurable states both positive and negative have been adequately studied over many decades [26–37], but comparative anatomical and neurobiological function between animals and homo sapiens appear to be required and seem to be in an infancy stage.

Finding happiness is different between apes and humans

As stated earlier in this expert opinion one key to happiness involves a network of good friends [38]. However, it is not entirely clear exactly how the higher forms of satisfaction and pleasure are related to a sugar rush, winning a sports event or even sky diving, all of which augment dopamine release at the reward brain site. Recent multidisciplinary research, using both humans and detailed invasive brain analysis of animals has discovered some critical ways that the brain processes pleasure.

Remarkably, there are pathways for ordinary liking and pleasure, which are limited in scope as described above in this commentary. However, there are **many brain regions**, often termed hot and cold spots, that significantly **modulate** (increase or decrease) our **pleasure or** even produce **the opposite** of pleasure— that is disgust and fear [39]. One specific region of the nucleus accumbens is organized like a computer keyboard, with particular stimulus triggers in rows— producing an increase and decrease of pleasure and disgust. Moreover, the cortex has unique roles in the cognitive evaluation of our feelings of pleasure [40]. Importantly, the interplay of these multiple triggers and the higher brain centers in the prefrontal cortex are very intricate and are just being uncovered.

Desire and reward centers

It is surprising that many different sources of pleasure activate the same circuits between the mesocorticolimbic regions (Figure 1). Reward and desire are two aspects pleasure induction and have a very widespread, large circuit. Some part of this circuit distinguishes between desire and dread. The so-called pleasure circuitry called “REWARD” involves a well-known dopamine pathway in the mesolimbic system that can influence both pleasure and motivation.

In simplest terms, the well-established mesolimbic system is a dopamine circuit for reward. It starts in the ventral tegmental area (VTA) of the midbrain and travels to the nucleus accumbens (Figure 2). It is the cornerstone target to all addictions. The VTA is encompassed with neurons using glutamate, GABA, and dopamine. The nucleus accumbens (NAc) is located within the ventral striatum and is divided into two sub-regions—the motor and limbic regions associated with its core and shell, respectively. The NAc has spiny neurons that receive dopamine from the VTA and glutamate (a dopamine driver) from the hippocampus, amygdala and medial prefrontal cortex. Subsequently, the NAc projects GABA signals to an area termed the ventral pallidum (VP). The region is a relay station in the limbic loop of the basal ganglia, critical for motivation, behavior, emotions and the “Feel Good” response. This defined system of the brain is involved in all addictions –substance, and non –substance related. In 1995, our laboratory coined the term “Reward Deficiency Syndrome” (RDS) to describe genetic and epigenetic induced hypodopaminergia in the “Brain Reward Cascade” that contribute to addiction and compulsive behaviors [3,6,41].

Furthermore, ordinary “liking” of something, or pure pleasure, is represented by small regions mainly in the limbic system (old reptilian part of the brain). These may be part of larger neural circuits. In Latin, hedus is the term for “sweet”; and in Greek, hodone is the term for “pleasure.” Thus, the word Hedonic is now referring to various subcomponents of pleasure: some associated with purely sensory and others with more complex emotions involving morals, aesthetics, and social interactions. The capacity to have pleasure is part of being healthy and may even extend life, especially if linked to optimism as a dopaminergic response [42].

Psychiatric illness often includes symptoms of an abnormal inability to experience pleasure, referred to as anhedonia. A negative feeling state is called dysphoria, which can consist of many emotions such as pain, depression, anxiety, fear, and disgust. Previously many scientists used animal research to uncover the complex mechanisms of pleasure, liking, motivation and even emotions like panic and fear, as discussed above [43]. However, as a significant amount of related research about the specific brain regions of pleasure/reward circuitry has been derived from invasive studies of animals, these cannot be directly compared with subjective states experienced by humans.

In an attempt to resolve the controversy regarding the causal contributions of mesolimbic dopamine systems to reward, we have previously evaluated the three-main competing explanatory categories: “liking,” “learning,” and “wanting” [3]. That is, dopamine may mediate (a) liking: the hedonic impact of reward, (b) learning: learned predictions about rewarding effects, or (c) wanting: the pursuit of rewards by attributing incentive salience to reward-related stimuli [44]. We have evaluated these hypotheses, especially as they relate to the RDS, and we find that the incentive salience or “wanting” hypothesis of dopaminergic functioning is supported by a majority of the scientific evidence. Various neuroimaging studies have shown that anticipated behaviors such as sex and gaming, delicious foods and drugs of abuse all affect brain regions associated with reward networks, and may not be unidirectional. Drugs of abuse enhance dopamine signaling which sensitizes mesolimbic brain mechanisms that apparently evolved explicitly to attribute incentive salience to various rewards [45].

Addictive substances are voluntarily self-administered, and they enhance (directly or indirectly) dopaminergic synaptic function in the NAc. This activation of the brain reward networks (producing the ecstatic “high” that users seek). Although these circuits were initially thought to encode a set point of hedonic tone, it is now being considered to be far more complicated in function, also encoding attention, reward expectancy, disconfirmation of reward expectancy, and incentive motivation [46]. The argument about addiction as a disease may be confused with a predisposition to substance and nonsubstance rewards relative to the extreme effect of drugs of abuse on brain neurochemistry. The former sets up an individual to be at high risk through both genetic polymorphisms in reward genes as well as harmful epigenetic insult. Some Psychologists, even with all the data, still infer that addiction is not a disease [47]. Elevated stress levels, together with polymorphisms (genetic variations) of various dopaminergic genes and the genes related to other neurotransmitters (and their genetic variants), and may have an additive effect on vulnerability to various addictions [48]. In this regard, Vanyukov, et al. [48] suggested based on review that whereas the gateway hypothesis does not specify mechanistic connections between “stages,” and does not extend to the risks for addictions the concept of common liability to addictions may be more parsimonious. The latter theory is grounded in genetic theory and supported by data identifying common sources of variation in the risk for specific addictions (e.g., RDS). This commonality has identifiable neurobiological substrate and plausible evolutionary explanations.

Over many years the controversy of dopamine involvement in especially “pleasure” has led to confusion concerning separating motivation from actual pleasure (wanting versus liking) [49]. We take the position that animal studies cannot provide real clinical information as described by self-reports in humans. As mentioned earlier and in the abstract, on November 23rd, 2017, evidence for our concerns was discovered [50]

In essence, although nonhuman primate brains are similar to our own, the disparity between other primates and those of human cognitive abilities tells us that surface similarity is not the whole story. Sousa et al. [50] small case found various differentially expressed genes, to associate with pleasure related systems. Furthermore, the dopaminergic interneurons located in the human neocortex were absent from the neocortex of nonhuman African apes. Such differences in neuronal transcriptional programs may underlie a variety of neurodevelopmental disorders.

In simpler terms, the system controls the production of dopamine, a chemical messenger that plays a significant role in pleasure and rewards. The senior author, Dr. Nenad Sestan from Yale, stated: “Humans have evolved a dopamine system that is different than the one in chimpanzees.” This may explain why the behavior of humans is so unique from that of non-human primates, even though our brains are so surprisingly similar, Sestan said: “It might also shed light on why people are vulnerable to mental disorders such as autism (possibly even addiction).” Remarkably, this research finding emerged from an extensive, multicenter collaboration to compare the brains across several species. These researchers examined 247 specimens of neural tissue from six humans, five chimpanzees, and five macaque monkeys. Moreover, these investigators analyzed which genes were turned on or off in 16 regions of the brain. While the differences among species were subtle, **there was** a **remarkable contrast in** the **neocortices**, specifically in an area of the brain that is much more developed in humans than in chimpanzees. In fact, these researchers found that a gene called tyrosine hydroxylase (TH) for the enzyme, responsible for the production of dopamine, was expressed in the neocortex of humans, but not chimpanzees. As discussed earlier, dopamine is best known for its essential role within the brain’s reward system; the very system that responds to everything from sex, to gambling, to food, and to addictive drugs. However, dopamine also assists in regulating emotional responses, memory, and movement. Notably, abnormal dopamine levels have been linked to disorders including Parkinson’s, schizophrenia and spectrum disorders such as autism and addiction or RDS.

Nora Volkow, the director of NIDA, pointed out that one alluring possibility is that the neurotransmitter dopamine plays a substantial role in humans’ ability to pursue various rewards that are perhaps months or even years away in the future. This same idea has been suggested by Dr. Robert Sapolsky, a professor of biology and neurology at Stanford University. Dr. Sapolsky cited evidence that dopamine levels rise dramatically in humans when we anticipate potential rewards that are uncertain and even far off in our futures, such as retirement or even the possible alterlife. This may explain what often motivates people to work for things that have no apparent short-term benefit [51]. In similar work, Volkow and Bale [52] proposed a model in which dopamine can favor NOW processes through phasic signaling in reward circuits or LATER processes through tonic signaling in control circuits. Specifically, they suggest that through its modulation of the orbitofrontal cortex, which processes salience attribution, dopamine also enables shilting from NOW to LATER, while its modulation of the insula, which processes interoceptive information, influences the probability of selecting NOW versus LATER actions based on an individual’s physiological state. This hypothesis further supports the concept that disruptions along these circuits contribute to diverse pathologies, including obesity and addiction or RDS.

**2] Substitutability—only consequentialism explains necessary enablers.**

**Sinnott-Armstrong 92** [Walter, professor of practical ethics. “An Argument for Consequentialism” Dartmouth College Philosophical Perspectives. 1992.]

**A moral reason to do an act is consequential if and only if the reason depends only on the consequences of either doing the act or not doing the act.** For example, a moral reason not to hit someone is that this will hurt her or him. A moral reason to turn your car to the left might be that, if you do not do so, you will run over and kill someone. A moral reason to feed a starving child is that the child will lose important mental or physical abilities if you do not feed it. All such reasons are consequential reasons. All other moral reasons are non-consequential. Thus, **a moral reason** to do an act **is non-consequential if** and only if **the reason depends even partly on some property that the act has independently of its consequences. For example, an act can be a lie regardless of what happens as a result of the lie** (since some lies are not believed), and some moral theories claim that that property of being a lie provides amoral reason not to tell a lie regardless of the consequences of this lie. Similarly, the fact that an act fulfills a promise is often seen as a moral reason to do the act, even though the act has that property of fulfilling a promise independently ofits consequences. All such moral reasons are non-consequential. In order to avoid so many negations, I will also call them 'deontological'. This distinction would not make sense if we did not restrict the notion of consequences. If I promise to mow the lawn, then one consequence of my mowing might seem to be that my promise is fulfilled. One way to avoid this problem is to specify that the consequences of an act must be distinct from the act itself. My act of fulfilling my promise and my act of mowing are not distinct, because they are done by the same bodily movements.10 Thus, my fulfilling my promise is not a consequence of my mowing. A consequence of an act need not be later in time than the act, since causation can be simultaneous, but the consequence must at least be different from the act. Even with this clarification, it is still hard to classify some moral reasons as consequential or deontological,11 but I will stick to examples that are clear. In accordance with this distinction between kinds of moral reasons, I can now distinguish different kinds of moral theories. I will say that **a moral theory is consequentialist if and only if it implies that all basic moral reasons are consequential. A moral theory is then non-consequentialist or deontological if it includes any basic moral reasons which are not consequential**. 5. Against Deontology So defined, the class of deontological moral theories is very large and diverse. This makes it hard to say anything in general about it. Nonetheless, I will argue that no deontological moral theory can explain why moral substitutability holds. My argument applies to all deontological theories because it depends only on what is common to them all, namely, the claim that some basic moral reasons are not consequential. Some deontological theories allow very many weighty moral reasons that are consequential, and these theories might be able to explain why moral substitutability holds for some of their moral reasons: the consequential ones. But even these theories cannot explain why moral substitutability holds for all moral reasons, including the non-consequential reasons that make the theory deontological. The failure of deontological moral theories to explain moral substitutability in the very cases that make them deontological is a reason to reject all deontological moral theories. I cannot discuss every deontological moral theory, so I will discuss only a few paradigm examples and show why they cannot explain moral substitutability. After this, I will argue that similar problems are bound to arise for all other deontological theories by their very nature. The simplest deontological theory is the pluralistic intuitionism of Prichard and Ross. Ross writes that, when someone promises to do something, 'This we consider obligatory in its own nature, just because it is a fulfillment of a promise, and not because of its consequences.'12 Such deontologists claim in effect that, **if I promise to mow the grass, there is a moral reason for me to mow the grass, and this moral reason is constituted by the fact that mowing the grass fulfills my promise.** This reason exists regardless of the consequences of mowing the grass, even though it might be overridden by certain bad consequences. **However**, if this is why I have a moral reason to mow the grass, then, even **if I cannot mow the grass without starting my mower, and starting the mower would enable me to mow the grass, it still would not follow that I have any moral reason to start my mower, since I did not promise to start my mower**, and starting my mower does not fulfill my promise. Thus, **a moral theory cannot explain** moral **substitutability if it claims that properties** like this **provide moral reasons.**

**3] Reject non-naturalist ethics**

**Papineau** David [Professor of Philosophy King's College London], First published Thu Feb 22, 2007; substantive revision Tue Mar 31, 2020 https://plato.stanford.edu/entries/naturalism/#MorFac

Moore took this argument to show that moral facts constitute a distinct species of non-natural fact. However, any such non-naturalist view of morality faces immediate difficulties, deriving ultimately from the kind of causal closure thesis discussed above. If all physical effects are due to a limited range of physically-grounded natural causes, and if moral facts lie outside this range, then it follow that moral facts can never make any difference to what happens in the physical world (Harman 1986). At first sight this may seem tolerable (perhaps moral facts indeed don’t have any physical effects). But it has awkward epistemological consequences. For beings like us, knowledge of the spatiotemporal world is mediated by physical processes involving our sense organs and cognitive systems. If moral facts cannot influence the physical world, then it is hard to see how we can have any knowledge of them. The traditional non-naturalist answer to this problem is to posit a non-natural faculty of “moral intuition” that gives us some kind of direct access to the moral realm (as explained in Ridge 2014: Section 3). However, causal closure once more makes it difficult to make good sense of this suggestion. Presumably at some point the posited intuitive faculty will need to make a causal difference in the physical world (by affecting what people say and do, for example). And at this point the causal closure argument will bite once more, to show that a non-natural intuitive faculty would implausibly imply that some of our actions are strongly overdetermined by two metaphysically independent antecedents. Moral non-naturalism has had something of a revival in recent years, with defenders including Russ Shaffer-Landau (2003), Ralph Wedgwood (2007), Derek Parfit (2011) and David Enoch (2011). Still, the challenge of accounting for our access to non-natural moral facts remains, and it is debatable whether any of these writers has found a satisfactory alternative to a causally problematic faculty of intuition. Perhaps the most developed suggestion is Enoch’s (2011) appeal to the indispensability of non-natural moral facts to moral reasoning, a line of argument that is analogous to Hilary Putnam’s case for non-natural mathematical objects, to be discussed in the next section below. But Enoch’s appeal arguably faces many of the same general objections as Putnam’s argument, as well as objections specific to the moral realm (see Leng 2016). In light of the difficulties facing moral non-naturalism, most contemporary moral philosophers opt instead for some species of naturalist view. We can divide the naturalist options here into two broad categories: irrealist and realist. Irrealist moral naturalists aim to account for moral discourse by offering naturalist accounts of the social and linguistic and practices that govern it, but without supposing that moral utterances report on moral facts with a substantial independent existence (Joyce 2015). By contrast, naturalist moral realists agree with moral non-naturalists that substantial moral facts exist, but seek to locate them in the natural realm rather than in some sui generis non-natural realm (Lenman 2014). Both these broad categories have further sub-divisions. Among the irrealists, we can distinguish explicitly non-cognitivist views like emotivism and prescriptivism which deny that moral judgements express beliefs (Hare 1952, Blackburn 1993, Gibbard 2003) from cognitivist views that accept that moral judgements do express beliefs but deny a substantial reality to the putative facts to which they answer; and among the latter cognitivist views we can distinguish error-theoretic fictionalist options which view moral judgements as simply false (Mackie 1977, Kalderon 2005) from projectivist options which hold that moral discourse is sufficiently disciplined for its judgements to qualify for a species of truth even though they do not report on independently existing causally significant facts (Wright 1992, Price 2011). Naturalist moral realism also comes in different varieties. In recent debates two versions have figured prominently; “Cornell realism”, which includes moral facts among the causally significant facts but resists their type-reducibility to non-moral facts (Sturgeon 1985, Boyd 1988), and “moral functionalism” which is happy to equate moral facts with straightforwardly descriptive facts (Jackson 1998). Any kind of moral naturalist realist needs to reject Moore’s open question argument. There are two alternatives here. One is to insist that Moore’s posited openness is relatively superficial, and that there is no principled barrier to inferring moral facts a priori from the non-moral natural facts, even if such inferences will sometimes require a significant amount of information and reflection. The other is to argue that the constitution of moral facts by non-moral natural facts is an a posteriori matter, akin to the relation between water and H2O, and that therefore Moore’s openness only points to a conceptual gap, not a metaphysical one (Ridge 2014: Section 2).

## Extra

**Profit motive makes equitable space exploration *impossible*-rejecting private appropriation enables socialization of space and its benefits**

**Marx 20**

(Paris Marx is a freelance writer, host of left-wing tech podcast Tech Won't Save Us, and editor of Radical Urbanist. <https://www.jacobinmag.com/2020/06/spacex-elon-musk-jeff-bezos-capitalism>, 6-8)

The May 30 launch symbolized both Trump’s desire to project an image of revived American greatness and Musk’s need not only to bolster the myth that makes his wealth possible, but to set the foundations for a privatized space industry. The space billionaires — Musk and Amazon CEO Jeff Bezos foremost among them — **have little stake in the well-being of the majority of the population**. Their space visions are designed for wealthy people like themselves, with little mention of where the working class would fit in. They’ve built their wealth on **exploitation**, and their visions of the future are **little more than an extension of their present actions**. A History of Violence The business practices of Musk and Bezos are increasingly well known and have been on clear display during the pandemic. Musk tried to claim Tesla’s Fremont, California factory was “essential” until authorities forced him to close it; then he reopened it in defiance of health orders. As Tesla CEO, Musk has a long history of opposing the unionization of workers, presiding over a high rate of worker injuries (which the company tried to cover up), and even having a former worker hacked and harassed after he became a whistleblower. Meanwhile, Bezos has a similar history of abusing Amazon workers. Amazon’s warehouses are known for having higher injury rates than the industry average, the company has fought unionization, and the stories of the terrible conditions experienced by workers are legendary. During the pandemic, that has continued, with the company failing to enforce social distancing or provide adequate protective equipment until workers began walking out, refusing to be open about infection information, and firing workers who dared criticize the company, all while Bezos’s wealth has increased by more than $30 billion. But it goes beyond that, because **the worldviews** of these billionaires began to be formed long before they started the empires they currently lord over. Musk did not have a regular childhood, but rather a wealthy upbringing in apartheid South Africa. His father was an engineer and owned part of an emerald mine in Zambia, telling Business Insider, “We were very wealthy. We had so much money at times we couldn’t even close our safe.” In Elon Musk: Tesla, SpaceX, and the Quest for a Fantastic Future, Ashlee Vance describes how Musk got money from his father when he was starting one of his original ventures. He also had a particular admiration for his grandfather, who moved to apartheid South Africa from Canada after rallying “against government interference in the lives of individuals.” Bezos has a not dissimilar story. His father was a well-off oil engineer in Cuba while Fulgencio Batista was in power. In Bit Tyrants, Rob Larson explains that Bezos’s father left the island after the Cuban Revolution and passed his libertarian views down to his son. Bezos’s parents invested nearly $250,000 in Amazon in 1995 as it was getting started. These **space barons made their billions through the exploitation of their workers and came from well-off backgrounds made possible from resource extraction**. When digging into their visions for a future in space, **it’s clear that they seek to extend these conditions into the cosmos, not challenge them in favor of space exploration for the benefit of all.** The Future They Want Musk and Bezos are the leading drivers of the modern push to **privatize and colonize space** through their respective companies, SpaceX and Blue Origin. Their visions differ slightly, with Musk preferring to colonize Mars, while Bezos has more interest in building space colonies in orbit. In 2016, Musk claimed he would begin sending rockets to Mars in 2018. That never happened, but it hasn’t ended his obsession. Musk is determined to make humans a multi-planetary species, framing our choice as either space colonization or the risk of extinction. Bezos says that Earth is the best planet in our solar system, but if we don’t colonize space we doom ourselves to “stasis and rationing.” **These framings serve the interests of these billionaires**, and make it seem like colonizing space is an **obvious and necessary choice** when it isn’t. It ignores their **personal culpability** and the role of the **capitalist system** they seek to reproduce in causing the problems they say we need to flee in the first place. Billionaires have a much greater carbon footprint than ordinary people, with Musk flying his private jet all around the world as he claims to be an environmental champion. Amazon, meanwhile, is courting oil and gas companies with cloud services to make their business more efficient, and Tesla is selling a false vision of sustainability that purposely serves people like Musk, all while capitalism continues to drive the climate system toward the cliff edge. **Colonizing space will not save us from billionaire-fueled climate dystopia.** But these billionaires do not hide who would be served by their futures. Musk has given many figures for the cost of a ticket to Mars, but they’re never cheap. He told Vance the tickets would cost $500,000 to $1 million, a price at which he thinks “it’s highly likely that there will be a self-sustaining Martian colony.” However, the workers for such a colony clearly won’t be able to buy their own way. Rather, Musk tweeted a plan for **Martian indentured servitude** where workers would take on loans to pay for their tickets and pay them off later because “There will be a lot of jobs on Mars!” Bezos is even more open about how the workforce will have to expand to serve his vision, but has little to say about what they’ll be doing. His plan to maintain economic “growth and dynamism” requires the human population to grow to a trillion people. He claims this would create “a thousand Mozarts and a thousand Einsteins” who would live in space colonies that are supposed to house a million people each, with the surface of Earth being mainly for tourism. Meanwhile, industrial and mining work would move into orbit so as not to pollute the planet, and while he doesn’t explicitly acknowledge it, it’s likely that’s where you’ll find many of those trillion workers toiling for their space overlord and his descendants. Space Shouldn’t Serve Capitalists In 1978, Murray Bookchin skewered a certain brand of futurism that sought to “extend the present into the future” and desired “multinational corporations to become multi-cosmic corporations.” Much of this future thinking obsesses about **possible changes to technology**, but seeks to preserve the existing social and economic relations — “the present as it exists today, projected, one hundred years from now,” as Bookchin put it. **That’s at the core of the space billionaires’ vision for the future.** Space has been used by past US presidents to bolster American power and influence, but it was largely accepted that **capitalism ended at the edge of the atmosphere.** That’s no longer the case, and just as past capitalist expansions have come at the expense of poor and working people to enrich a small elite, so too will this one. Bezos and Trump may have a public feud, but that doesn’t mean that their mutual interest isn’t served by a renewed US push into space that funnels massive public funds into private pockets and seeks **to open celestial bodies to capitalist resource extraction**. **This is not to say that we need to halt space exploration**. The collective interest of humanity is served by learning more about the solar system and the universe beyond, but the goal of such missions must be driven by gaining scientific knowledge and enhancing global cooperation, **not nationalism and profit-making.** Yet that’s exactly what the space billionaires and American authoritarians have found common cause in, with Trump declaring that “a new age of American ambition has now begun” at a NASA press briefing just hours before cities across the country were placed under curfew last week. Before space can be explored in a way that benefits all of humankind, **existing social relations must be transformed, not extended into the stars as part of a new colonial project**.

#### No turns- space billionaires aren’t unique geniuses, they are accidents of history. Allowing them to control space guarantees the worst aspects of exploitative capitalism take over the galaxy

Spencer 19

(Keith A., Senior Editor, https://www.salon.com/2019/07/28/earths-robber-barons-are-salivating-over-bringing-authoritarian-capitalism-to-space/)

If the Nazis were to follow imperialism to the next logical step, and establish human colonies on other worlds — asteroids, moons, space stations, or on planets like Mars — a social and political system rooted in oppression, hierarchy and racial superiority would spread, like an infection, to other distant bodies where they would be far more difficult to extract. Part of that is due to an intractable communication problem: even between the most distant regions of Earth, the speed of light is not a noticeable constraint on the amount of time it takes to communicate. The same is not true in space. Authoritarians, of both the Nazi and the corporate variety, are not necessarily fond of free speech nor free communication; they are powerful tools for upsetting the social and political order. Even here in the United States, supposed bastion of liberal democracy, we've seen this play out before. In 2011, the Bay Area Rapid Transit (BART) public transit system suppressed communications networks in order to stifle dissent. As protests over the BART police shooting of Charles Blair Hill spread around the Bay Area, the regional transit system literally turned off the underground cell phone towers that would allow cell and data transmission while underground. The agency, unwisely, openly admitted it: "Organizers planning to disrupt BART service stated they would use mobile devices to coordinate their disruptive activities and communicate about the location and number of BART Police," the transit agency said. "A civil disturbance during commute times at busy downtown San Francisco stations could lead to platform overcrowding and unsafe conditions for BART customers, employees and demonstrators." The American Civil Liberties Union issued a harsh rebuke, and questioned whether the move was even legal for a government agency to do this. "All over the world, people are using mobile devices to protest oppressive regimes, and governments are shutting down cell phone towers and the Internet to stop them," said Michael Risher, a staff attorney for the American Civil Liberties Union of Northern California. "It's outrageous that in San Francisco, BART is doing the same thing." If this is how an American governmental agency behaves when confronted with the prospect of a legitimate peaceful protest, imagine how pro-Martian colonizer Elon Musk — who notoriously detests labor — will behave when his Martian dishwashers strike for higher wages. My point is, if you think that social and political struggles are difficult on Earth, where oxygen is free and the outside is traversable without an airtight suit, just wait until you see what happens when you bring humans to Mars — a planet where round-trip communication with Earth takes forty minutes at a minimum, and nighttime surface temperatures vary between -100 and -195° Fahrenheit. On our capitalist planet, there are no workers whose employers can threaten to leave them stranded, 80 million miles from home, if they don't do their bidding. On Mars, a disgruntled worker's employer could compel them to work by threatening to ever let them go home to Earth again. The potential for slavery on the red planet cannot be underestimated. Historically, the worst capitalist labor abuses on Earth happen to the most powerless workers in situations where no one is looking. Horrific tales of sexual harassment in Antarctica made sense inasmuch as its barrenness makes it an ideal place to be manipulative without anyone noticing. Mines, given their remote nature, are often rife with exploitation — and the history of miner treatment should give us pause as to how workers on Mars or on one of Jeff Bezos's space stations might be treated. This warning is prescient currently because of the intense focus of both government and private actors on the potential to privatize space travel. NASA Administrator Jim Bridenstine wants to create a "robust commercial marketplace" for space travel, has proposed a public-private partnership for the moon, and has spoken of privatizing the international space station. Elon Musk, one of NASA's suppliers in the brave new privatized world, is perfervid about building a Mars colony. Jeff Bezos, the richest human in the world, plans to build giant space stations; his rationale for space colonization is that "we are in the process of destroying this planet," something he actually stated with no palpable sense of irony. There are many who adulate Musk and Bezos, and view them as our generation's heroes. Yet the fact that these men honestly believe they are the ones to lead humans to space has nothing to do with any of their unique qualifications; it is due to a series of historical accidents that randomly thrusts sociopaths to the top of the capitalist food chain. Five decades of deregulation, neoliberal economic policy, and reduced taxation on the highest tax bracket have led us to a unique point in human history, where a few individuals are so wealthy that they have the ability to fund space travel. Again, this is not because these individuals are uniquely competent, nor qualified, to jumpstart colonization; it is an accident of history and economics that makes this situation possible. Nothing more. My fear with space colonization is that humans tend to think of it as inherently different than other political struggles, merely because humans haven't gone to space yet. The idea of space colonization as a cool, fun, exciting, sci-fi thing inhibits our ability to think critically about what it would actually mean to let a bunch of tech CEOs unilaterally colonize the solar system. There are precedents for the political aftereffects of space colonization: we have seen situations where a controlling institution tries to stifle communication on their property to prevent protest; we have seen how workers are exploited in cordoned spaces where their employers think no one is paying attention; we have seen how corporations entrap workers in hostile environments by giving them housing and food, and using that as a wedge to prevent dissent; and we have seen how corporations harvest the labor of the poor and vulnerable in order to avoid paying first-world wages to people who expect benefits. All of these scenarios seem likely to play out in our future if we don't fight back against the space imperialists. If you thought capitalism on Earth was horrific, wait till you see what it looks like in a vacuum.

#### There is no such thing as “space philanthropy”- private actors are interested in self promotion, not saving humanity. Their efforts directly gut government programs to allow market capture

RIEDERER 18

(RACHEL <https://www.jacobinmag.com/2018/07/space-barons-review-elon-musk-bezos-thai-cave>, 7-19)

It is impossible for any reader living through the ravages of global warming to scan these sentiments without skepticism. If someone is going to invest enormous amounts of wealth and time in an engineering project, gathering together some of the smartest scientists on the planet to develop and test creative solutions to an intractable problem, in the interest of saving the future of humanity, how could you choose any focus but climate change? Davenport doesn’t ask, taking at face value the space barons’ declarations that they are motivated by planetary rescue. For those interested in the movement to privatize space exploration and space itself, The Space Barons does serve as a useful primer, laying out the timelines and geneses of these companies. But it stops short of posing critical questions about what it means for such enterprises to be privately held — a line of questioning that, given the history of labor problems and tendencies toward monopolization at the barons’ non-space companies Amazon and Tesla, might be very good questions to ask indeed. It instead leans heavily on colorful anecdotes about the companies’ founders and their philosophies. Bezos, obsessed with the accomplishments of NASA ever since he watched the moon landing at the age of five, commissions an underwater search party to recover the Apollo-era Saturn V rocket engines from the floor of the Atlantic. Branson evangelizes about the “life-changing” effects of experiencing space and trains for spaceflight in a spinning centrifuge, declaring the adventure “rather fun.” A young Musk floats an idea for a Martian greenhouse project straight out of the sci-fi of Kim Stanley Robinson, “a P.T. Barnum-like stunt” in which he would launch a greenhouse full of seeds and growing medium onto the surface of Mars and make the red planet bloom. A more seasoned Musk sues the US Air Force for the right to compete for national-security launches alongside established aerospace contractors like Boeing and Lockheed Martin. Running through all of these engineering and business adventures is the rivalry between Bezos and Musk. Both are working toward the same goal: developing and producing rockets that can be reused on multiple flights, making regular spaceflight more efficient. When SpaceX successfully launched — and then re-landed — the Falcon 9 for the first time, in December of 2015, Musk was ecstatic. Until he saw a tweet from Bezos offering his congratulations and saying “Welcome to the club!” Bezos had done the same, with his rocket, the New Shepard, the month before. Musk took the success of the Falcon 9 as validation of his long-term goals. “It really quite dramatically improves my confidence that a city on Mars is possible,” he said. “That’s what this is all about.” Well, it’s part of what this is all about. The desire to be beloved, to be seen as a great visionary rescuer, is what’s so grating about Musk’s recent public announcements of altruism, and it’s present throughout the history of all of the companies profiled in The Space Barons. In addition to amassing billions of dollars in personal wealth and living out their rocket-launching boyhood dreams, the space barons insist on framing their pursuits as inspirational and civic-minded. The tension in the recent dust-up over Musk’s unused Thai-cave rescue pods isn’t about whether Musk and his engineers created the rescue pods, but why. Was it a good-faith effort to help a group of desperate kids, or a megalomaniacal attempt to place himself and his companies at the center of a giant news story? Musk wants the answer to be simple, defending his behavior by insisting that “something’s messed up if this is not a good thing.” The space barons are fond of metaphors of exploration and frontiers. They compare themselves to Shackleton and Magellan. “The thing that actually gets me the most excited about it,” Musk says, “is that I just think it’s the grandest adventure I could possibly imagine. It’s the most exciting thing — I couldn’t think of anything more exciting, more fun, more inspiring than to have a base on Mars.” This enthusiasm is fine, of course. But it also shatters the notion that Musk and company are trying to thrust humanity into space to save us all from planetary disaster. Outer space, a flooded network of caves — anywhere dangerous and sparsely visited will draw to it both adventurers and rescuers. But their work proceeds differently, and someone who’s out for a grand adventure shouldn’t pretend to be a planetary EMT. Perhaps the worst thing about the space barons is that they’re burnishing their reputation by rushing into areas vacated by state divestment — divestment that in many cases, they themselves have helped promote. Witness Musk’s recent pledge to “fund fixing the water in any house in Flint that has water contamination” while lavishly contributing to the Republican Party. Musk and his brethren have hoovered up billions of dollars, funded plutocratic causes — and then balk when anyone raises a peep about their narcissistic antics. “They were driven by the business opportunities in space, by adventure, and by ego,” Davenport writes of the group he profiles. “[I]magine the Promethean legacies they’d leave after opening up the Final Frontier.” Yet Promethean legacy is a double-edge sword: the trickster who stole fire from the gods and gave it to mankind is as much a symbol of tragic consequences as of human progress.

#### A progressive vision of space would tax billionaires to fund public space efforts

Robinson 18

(Kim Stanley, <https://inthesetimes.com/article/kim-stanley-robinson-space-exploration-socialism-mars>, 4-22)

So how should progressives think about SpaceX? They should be grateful that at least one billionaire is interested in space science. Actually there’s more than one. But I think it’s legitimate to go further and ask, ​“Why are there people as rich as this anyway?” Why aren’t there progressive taxes on both income and capital assets, as economist Thomas Piketty suggested, such that the richest people max out at a certain nicely high number, beyond which wealth is passed through to the collective that made it? People and corporations could be taxed at the high rates we had under the Eisenhower Administration, for instance, with perhaps the additional perk that individuals could choose which government programs some portion of their taxes would go to — a kind of direct democracy support for the different functions of government. If the various agencies’ funding was partly a matter of popular ​“vote by taxes,” rather than entirely the result of Congress’ corrupted appropriation process, then it would be interesting to see how much money NASA ended up with, as well as the National Science Foundation (NSF), National Institutes of Health (NIH) and so on. If you were president, would your budget proposal put money toward these agencies? I would look at the relative worth of each agency and how much of a budget increase it could handle. My proposal would suggest that NASA be funded at about $100 billion a year (currently it’s $20 billion), taken out of the Pentagon budget (currently $770 billion a year), because many of the same industries support and are supported by both agencies. I’d fund NSF at $200 billion a year (currently $7 billion), and the Department of Energy at $100 billion. NIH $200 billion a year. Then I’d let the scientists figure out how best to spend that money. They would have to scramble at first to find enough worthy projects — a good problem to have. Putting humans on Mars would be low on my list. Our robots are doing fine there. I’d like to see robotic explorers sent to the moons of Jupiter and Saturn first. What does post-capitalist space exploration look like? It looks like NASA. It’s government, exploring a commons of sorts, doing it in the usual ​“of the people, by the people and for the people” way.

#### Private control of space replaces democracy with technocracy. Mars should stay *red*, not become a racist country club

Spencer 17

(Keith A. Spencer is a freelance writer and graduate student from the Bay Area. <https://www.jacobinmag.com/2017/02/mars-elon-musk-space-exploration-nasa-colonization> , 2-5)

As the Western liberal order continues to unravel, can you really blame anyone who wants to get off this planet? Since space travel became technologically feasible in the twentieth century, many thinkers — from Arthur C. Clarke to Buckminster Fuller — envisioned the human colonization of other planets as all but inevitable. “Man will not always stay on Earth,” wrote Soviet rocket scientist Konstantin Tsiolkovsky, “the pursuit of light and space will lead him to penetrate the bounds of the atmosphere, timidly at first, but in the end to conquer the whole of solar space.” In their heydays, both the American and Soviet space programs funded research into Mars colonization, viewing it as the next logical step for humanity. In the past two decades however, people have started to pin their hopes for intergalactic travel on private groups instead of public agencies. While President Obama was privatizing much of the American space program, a flurry of ventures released competing proposals to visit and/or colonize the red planet. These schemes’ feasibility and harebrained-ness vary: the Mars Foundation, run by multimillionaire former investor Dennis Tito, is soliciting private donations to send a couple on a flyby of the red planet. Mars One, a Dutch nonprofit, wants to fund a permanent human colony through “merchandise sales, ads on video content, brand partnerships, speaking engagements, [b]roadcasting rights, intellectual property rights, games & apps, and events.” The most famous — and perhaps most likely to succeed — comes from entrepreneur and engineer Elon Musk, the multibillionaire CEO of SpaceX and Tesla Motors. Musk’s articulation of his Mars mission reveals not only what’s wrong with how we think about extraterrestrial colonies and resources, but also how little faith most people have in democracy here on Earth. Interplanetary Technocracy Given his reputation as an engineering genius, Musk’s vision for colonization seems the most plausible of the private missions to Mars. After all, SpaceX, which he admitted to founding specifically to colonize the solar system, became the first private company to successfully launch a rocket into orbit in 2008. In September 2016, at the International Astronautical Congress in Guadalajara, Musk laid out a detailed vision for his colonization project, including financial estimates, engineering specs for the reusable “Interplanetary Transit System,” and the price of a passenger ticket — around $200,000. Musk’s presentation even included a snazzy computer-animated video of the transit system in action and details about the long trip there, which would offer colonists games, restaurants, and entertainment. “It’ll be, like, really fun to go . . . You’re gonna have a great time,” Musk said. His approach to colonizing Mars comes straight out of Silicon Valley’s playbook: Musk has taken a “problem” — how to colonize Mars — and hacked a feasible “solution” that is one part engineering, one part moxie. Just add investors and we’ll be building cities on the red planet in no time. Though vague, Musk reiterated that his vision would need funding. His talk of “tickets” implies that colonists will likely pay for much of the mission. Unlike a space agency’s astronaut selection process, then, his Mars mission will be limited to those who can afford it. In that sense, Musk’s colonization plan looks a lot like joining a country club or gated community — or any other model of private access to space for those who can afford it. Musk’s proposal — heavy on the engineering and business details, light on the philosophical or political implications of colonization — epitomizes technocracy. He doesn’t seem interested in thinking through Mars’s policy or governance, the labor necessitated by building a civilization from scratch, or the problems that will arise from sending rich tourists to self-manage in a place with scant resources demanding communal organization and thinking. The True Value of Mars For some, sending a few rich folks off to Mars seems like a great idea. After all, it’s hardly an Eden waiting to be destroyed. Unlike previous colonial projects, there are no natives to exploit; no wildlife to hunt to extinction; no ecosystem to radically alter; no fossil fuels to extract; and no climate in danger of destruction from carbon emission. Mars’s atmosphere is already 96 percent carbon dioxide! Why not let Musk and his millionaire buddies take off for a few rounds of golf on the frosted dunes? If they get stuck there, all the better. From a humanistic perspective, however, even a lifeless world like Mars holds incredible scientific, educational, and environmental value. To let private interests colonize, terraform, or populate it without considering this collective value would be short-sighted. Indeed, when it comes to colonization, we should hope humanity has learned from its past mistakes and is ready to set upon a more democratic process. Perhaps Earth can agree to hold a public discussion before we set about strip-mining Mars’s glorious dunes, vistas, and mountains, lest the tallest mountain in the solar system become a trash heap like Everest. Government space agencies have gone to great lengths to keep the scientific and social benefits of publicly funded exploration intact. This is why NASA makes all its mission data public, and also why it insists on sterilizing space probes to avoid contaminating other worlds with cellular life from Earth — one stray terrestrial extremophile could confuse the search for microbial life off-planet. The agency, recognizing its work’s educational value, has sent elementary school children’s experiments into space and hosted public naming competitions for geographic features. Likewise, NASA thinks beyond the engineering challenges: they also consider space travel’s psychological and biological effects, surely an important field of study in anticipation of the long space flights required for interplanetary travel. Private industry will be unlikely to follow these collective practices, as its desire for profit or for exclusive property rights — physical and intellectual — will outweigh any public benefit. I Want to Believe The public and media reaction to Musk’s presentation — more than the presentation itself —reflects the current state of our politics. “The mood at the conference was almost as giddy as a rock concert or the launch of a new Apple product, with people lining up for Mr. Musk’s presentation a couple of hours in advance,” wrote Kenneth Chang in the New York Times, who devoted 1,200 words to it. “Elon Musk finally told the world his vision for colonizing Mars, and it turned out to be one hell of a show,” exclaimed Loren Grush in a video article for the Verge. Grush noted that Musk drew an “insane crowd,” describing how “people actually stampeded into the hall where his lecture was in order to get a good seat.” He began in lofty tones: “I want to . . . make Mars seem possible. Make it seem as though it is something we can do in our lifetimes.” This statement implied that we needed some great technological leap forward before embarking on this adventure, but, in fact, travel to Mars has been possible for well over half a century. Given the political will, we can go right now. The subtext of Musk’s message, then, was that our democratic governments will never execute big science and engineering projects. People should trust in the private vision for colonization and space travel instead. In Earth politics, this lack of faith in democratic institutions is nothing new. This idea’s policy implications — that collectively we can’t have big public projects or any sort of real democratic decision-making, and must cede our whims to privately funded foundations and technocratic “experts” — have already taken hold of most countries. As far as I could find, none of the magazines that covered Musk’s announcement mentioned this metatheme, namely, that a public and democratically organized colonization of Mars will never happen. No one questioned the premise that we must let billionaires decide how and when to go to Mars — or that it is the only possible way to get there. Musk’s tech-industry social circle benefits from branding technology as synonymous with progress. As a result, many tech employees work long hours to achieve this invisible notion of progress, but their work just fattens their employer’s profit margins. One can imagine the grueling labor required to make an inhospitable planet habitable. On Mars, employees would exhaust themselves for a corporation under the guise of “survival.” After all, regardless of whether a foundation or a corporation spearheads the colonization effort, they will be incentivized, even forty million miles away, to squeeze as much labor out of their workers at the lowest cost. Further, the question of who is allowed to go to Mars will become as important as the question of who isn’t. If, as Musk proposes, the trip requires a “ticket” — which, as he claims, will eventually drop to only $100,000 — it seems probable that those who can afford to go will mostly resemble, ethnically and politically, Earth’s ruling class. Imagine: the red planet turned racist country club. These questions matter more than how to engineer a rocket or how to build greenhouses or how to harvest water. In fact, state-funded research has already largely solved these technical problems — or, at the least, led to numerous creative ideas about making a Mars colony self-sufficient. The Martian Commons Any colonization effort on Mars — even if only a small number of humans go — will present huge political challenges in terms of the labor and personal rights of its citizens. To wit: what kinds of reproductive restrictions will exist on a planet of scarce resources? How will colonists ration food and activity? What about personal privacy? If Martian citizens are working in a life-or-death situation, can the workers strike? At least in its early years, Mars would have a scarcity economy — in other words, resources would likely have to be rationed in order for the collective to survive. A private colony would be unlikely to make any kind of egalitarian guarantee — after all, if there’s a ticket price, there will certainly be a Martian service economy pampering the space tourists. Inequalities will emerge in terms of labor, housing, food, and access to other resources. In fact, we already know what a privatized Mars might resemble: Mount Everest. At higher elevations, it becomes a barren, lifeless, cold world, where climbers require oxygen tanks to survive. The cost of ascending is as steep as the mountain: between $30,000 to $100,000. Climbers’ journeys are only made possible by their Sherpas’ exploited labor, many of whom die in accidents and are paid as little as $5,000 a year by Western companies. Now imagine this situation replicated forty million miles off, on a lifeless planet, where two-way Earth communication takes almost an hour, and you can envision how dire things could get. A New Hope Musk spent nearly an hour of his speech detailing the technological aspects of Mars travel: the landers, the rockets, the fuel costs, and so on. Musk takes a technology-first approach and rarely mentions the numerous social aspects. His speech and its collective reactions attest to a naïve, John Galt fantasy about how policy and engineering come to pass: through the mind of the lone genius, who alone holds the key to humanity’s future. We saw the same fantasy at work last week when, in the wake of President Trump’s executive order banning emigration from seven majority-Muslim countries, Starbucks CEO Howard Schultz announced his plan to hire ten thousand refugees and was immediately hailed as a liberal hero. The message was clear: we can’t hope to help refugees ourselves, or on a democratic basis — we must rely on the whims of the rich to push forward progressive causes. Alas, the reaction to Musk’s speech also demonstrates how public sentiment has changed: collectively, we no longer believe in public space exploration. Even if we know state agencies can launch a Mars mission, few think it will happen. This doesn’t bode well for how we think of the commons. Are rich people and their foundations the only ones who can save us? The plethora of private Mars proposals reflects a lack of faith in democracy on Earth, in particular in our democratic influence over the directions science and engineering research take. And while faith in public institutions sits at an all-time low, we seem more than happy to hear what the rich can make possible and to believe their promises. Musk is just one of many technocrats who think of a Mars voyage as a technological problem. Not only is it not a technological problem, it’s not even a problem. Colonization of Mars should be seen as a complex social and political policy, with so much potential to create inequality and oppression that it cannot rationally be undertaken without political consensus and a stratagem for maintaining democracy and egalitarianism. We are ready to colonize Mars, and have been for half a century. Doing so without a democratic plan will present unimaginable dangers for the planet and colonists alike. As socialists, our rallying cry should be this: Keep the red planet red!