## 1NC

### Plan

#### We affirm: The appropriation of Mars by private entities is unjust

#### Mars should be established as *res communis* through the non-appropriation principle in the OST to prohibit private entity appropriation

van Eijk 20

Cristian van Eijk “Sorry, Elon: Mars is not a legal vacuum – and it’s not yours, either”, Völkerrechtsblog, 05.11.2020, doi: [10.17176/20210107-183703-0](https://doi.org/10.17176/20210107-183703-0). // HW AW

The principle of non-appropriation SpaceX risks breaching OST article II, the “cardinal rule” of space law ([Tronchetti, 2007](https://iislweb.org/docs/Diederiks2007.pdf)). This principle is a jus cogens norm [(Hobe et al. 2009, pp. 255-6)](https://elibrary.bwv-verlag.de/book/99.105025/9783830522195) establishing Mars as res communis, rather than terra nullius. I must acknowledge, with tongue firmly in cheek, that SpaceX is partly correct – states have no sovereignty on Mars. But that does not leave Mars a “free planet” up for grabs – SpaceX has no sovereignty either. On plain reading, article II OST lacks clarity on two key points: i) whose claims are prohibited, and ii) what exactly constitutes a ‘claim of sovereignty’. The first has been answered; per the then-customary interpretative rules and travaux préparatoires, there is quite broad academic consensus ([Hobe, et al. 2017](https://elibrary.bwv-verlag.de/book/99.105025/9783830522195); [Tronchetti, 2007](https://iislweb.org/docs/Diederiks2007.pdf); [Pershing, 2019](https://digitalcommons.law.yale.edu/yjil/vol44/iss1/5/); [Cheney, 2009](https://perma.cc/W3QU-GMTY)) that **sovereign claims include those by private entities**. This is consistent with OST article VI; private entities act in space with state authorisation, and thus state authority. It also accords with the law of state responsibility, wherein conduct of entities exercising state authority is attributable to the state, even if ultra vires ([ARSIWA](https://legal.un.org/ilc/texts/instruments/english/draft_articles/9_6_2001.pdf) articles 5, 7). The second issue is more complex. Much has been written on whether claims to space [resources](https://www.universiteitleiden.nl/en/law/institute-of-public-law/institute-of-air-space-law/the-hague-space-resources-governance-working-group) or space property ([Nemitz v United States](https://opil.ouplaw.com/view/10.1093/law:ildc/1986us04.case.1/law-ildc-1986us04)) are sovereign. In this case, the territorial claim is less clear; is establishing a jurisdiction a sovereign claim “by other means”? SpaceX purports not to create law horizontally via contract, but to establish the only law on Mars – a vertical structure endemic to sovereign legal orders. International caselaw on territorial acquisition agrees; sovereign acts include “legislative, administrative and quasi-judicial acts” (Case concerning sovereignty over Pulau Ligitan and Pulau Sipadan (Indonesia v. Malaysia), [para 148](https://www.icj-cij.org/public/files/case-related/102/102-20021217-JUD-01-00-EN.pdf); Decision regarding delimitation of the border between Eritrea and Ethiopia, [para. 3.29](https://legal.un.org/riaa/cases/vol_XXV/83-195.pdf)) with the exercise of jurisdiction and local administration having “particular, probative value” ([Minquiers and Ecrehos (France v. UK), p. 22](https://www.icj-cij.org/public/files/case-related/17/017-19531117-JUD-01-00-EN.pdf)). Also relevant are attempts to exclude other states’ jurisdiction ([Island of Palmas (USA v. Netherlands), pp. 838-9](https://pcacases.com/web/sendAttach/714)). An attempt by SpaceX to prescribe its own jurisdiction on Mars would constitute a sovereign claim in breach of OST article II, and entail US responsibility for an internationally wrongful act. Of course, as Thom Cheney [points out](https://www.instagram.com/tv/CG71f4KjwSg/?utm_source=ig_web_button_share_sheet), this is all just words until it isn’t – but there is cause for concern. The Federal Communications Commission (FCC) has been consistently accommodating to commercial space actors, and to SpaceX [in particular](https://fcc.report/IBFS/SAT-MOD-20200417-00037/2274315.pdf), preferring to leave regulation up to markets rather than regulatory bodies. As Commissioner O’Rielly [said](https://docs.fcc.gov/public/attachments/FCC-18-164A1.doc) upon granting SpaceX market access: “our job at the Commission is to approve the qualified applications [by SpaceX et al.] and then let the market work its will.” It is not unforeseeable that the FCC would [prioritise](https://www.vice.com/en/article/z3bxx3/ajit-pai-still-thinks-killing-net-neutrality-was-a-brilliant-idea) corporate objectives over principle, and under an administration increasingly [dismissive](https://www.whitehouse.gov/briefings-statements/remarks-president-trump-74th-session-united-nations-general-assembly/) of the international rule of law, might fail to regulate SpaceX in case of breach. Both SpaceX’s actions or FCC inaction risk breaching OST article II, and could leave the US facing reparations claims from injured state(s). Mars nullius: A thought experiment But **this problem extends beyond the legal**. As previously mentioned, the OST, especially article II, designates Mars as res communis. This precludes territorial acquisition by occupation, which can only legitimately occur on terra nullius. But indulge me for a moment in a half-serious thought experiment. **No provision of outer space law explicitly designates Mars res communis**. The exploration and use of Mars is the “province of mankind” per OST article I (emphasis added), but that language was specifically diluted in negotiations from the originally-proposed “common heritage of mankind”. The Moon is the “common heritage of mankind” ([Moon Agreement](https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/moon-agreement.html), article 5), but only for [18 states](https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XXIV-2&chapter=24&clang=_en). The United States has recently and repeatedly attempted to erode the status of space as res communis, including by [treaty](https://www.nasa.gov/specials/artemis-accords/img/Artemis-Accords-signed-13Oct2020.pdf) and by [Executive Order](https://www.whitehouse.gov/presidential-actions/executive-order-encouraging-international-support-recovery-use-space-resources/), and it is not alone. If current trends continue, Mars nullius may come sooner than we think. **That line between res communis and terra nullius is the principal legal obstacle to acquiring extra-terrestrial land by the legal process of occupation.** In territorial acquisition cases, international law distinguishes between the act of attempting to exercise jurisdiction or sovereignty (called an ‘effectivité‘), and the legal right to do so (sovereign title). The former is a question of fact; the latter is a question of law. Absent other sovereign claims, an effectivité compliant with international law is “as good as title” (Island of Palmas (USA v. Netherlands), [p. 839](https://legal.un.org/riaa/cases/vol_II/829-871.pdf); Frontier Dispute (Burkina Faso v. Mali), [para 63](https://www.icj-cij.org/public/files/case-related/69/069-19861222-JUD-01-00-EN.pdf)). Such an effectivité would contravene international law now, but that law is in flux. What if the current rule proves less-than-robust? As shown above, the elements of successful effectivité, state attribution and a sovereign act with sovereign intention, are satisfied. Slipping this provision on the future Martian legal order into satellite broadband Terms of Service serves little purpose – except as basis for a claim prior to some future critical date. Crucially, SpaceX is not an international actor. It is an American company subject to US law and continuing US supervision. In both [Island of Palmas](https://legal.un.org/riaa/cases/vol_II/829-871.pdf) and the [Pedra Branca Dispute](https://www.icj-cij.org/public/files/case-related/130/130-20080523-JUD-01-00-EN.pdf), corporations acting under national authorisation and regulation established sovereign titles for their respective states. A future attempt by SpaceX to act on its Terms could be received by other states, either legally or politically, as an American colonisation of Mars. Concerns and conclusions Three primary concerns emerge from this picture. First, **non-appropriation is cardinal for a reason – if breached, international peace and security in space hangs in the balance**. Second, **even signalling the implementation of a provision so contrary to US obligations without censure risks the international rule of law.** Finally, and most pragmatically, American vulnerability to future claims by other states should concern American citizens; it is their money, their national reputation on the line. Commercial actors in space present great innovative and developmental potential for all mankind ([Aganaba-Jeanty, 2015](https://www.sciencedirect.com/science/article/abs/pii/S0094576515002842)), but their so-called ‘self-regulatory’ or administrative role should be taken with a healthy scepticism. We already know how that story ends. As Bleddyn Bowen [put](https://spacewatch.global/2020/10/spacewatchgl-column-the-hell-of-humans-in-heaven-debating-the-risks-of-space-technology-and-habitation/) it, “[t]he continuation of the term ‘colonies’ in describing the potential human future in space should raise political and moral alarm bells immediately given the last 500 years of international relations. Will billionaires run their ‘colonies’ the way they run their factory floors, and treat their citizens like they treat their lowest paid employees?” As humanity expands into space, we will need new legal rules and understandings of sovereignty to govern the process ([Leib, 2015](https://www.tandfonline.com/doi/full/10.1080/14777622.2015.1015112)). **The current legal order is a critical framework that, without supplement, will someday prove incomplete. The legal governance of Mars is an excellent example.** However, **those new laws must fit into that framework; they cannot hang suspended in a vacuum**. We have seen previously the dangers of rashly governing the global commons based on aspiration and resource hunger ([Ranganathan, 2016](https://academic.oup.com/ejil/article/27/3/693/2197248) and [2019](https://academic.oup.com/ejil/article/30/2/573/5536726)). Martian soil cannot become the [manganese nodules](https://oxford.universitypressscholarship.com/view/10.1093/oso/9780198798200.001.0001/oso-9780198798200-chapter-23) of this century. If anything, it is imperative on us to recognise and correct the inequities the current rules have created ([Craven, 2019](https://academic.oup.com/ejil/article/30/2/547/5536739)) before proposing new ones. Space law is an established rulebook likely to undergo some high-octane developments in coming decades. While Elon is welcome to the table, he can’t keep sucking the air from the room. It leaves us space lawyers just shouting into the void.

### Red Planet

#### Private ventures directly trade off with NASA’s own– private companies get billions in subsidies to waste on Mars

Pizzigati 18

Sam Pizzigati, (Veteran labor journalist and Institute for Policy Studies associate), 3-21-2018, "Billionaires won’t save the world – just look at Elon Musk," https://www.commondreams.org/views/2018/03/21/billionaires-wont-save-world-just-look-elon-musk, // HW AW

Will Mars save humanity? Or will our savior be billionaire Elon Musk? Musk, the CEO of SpaceX and Tesla, humbly believes we don’t have to choose. Mars will save us, he promises, and Musk himself will engineer this Mars miracle. In 2019, Musk claims, SpaceX will [start making](https://www.cbsnews.com/news/elon-musk-revises-spacex-mars-plans-hopes-for-flights-2022/) short trips to Mars. By the early 2020s, his company will begin colonizing the Red Planet with a human population. Why this feverish haste to set foot on interplanetary terra firma? Musk [sees](https://www.cnet.com/news/elon-musk-wants-to-preserve-humanity-in-space/?ftag=CAD090e536&bhid=21042762719686224048097372147668) a new “dark age” descending on our precious Earth. Another world war — or some environmental collapse — appears likely to threaten us with extinction, he fears. Mars strikes Musk as our ideal refuge, the place where humankind will heroically regroup and eventually “bring human civilization back” to our mother planet. And we can even have some fun in the process. The Mars colony that Musk envisions will have everything from iron foundries to “pizza joints and nightclubs.” “Mars,” he [quips](https://www.cnet.com/news/elon-musk-wants-to-preserve-humanity-in-space/?ftag=CAD090e536&bhid=21042762719686224048097372147668), “should really have great bars.” Reporters have become accustomed to this sort of visionary whimsy from Musk. The billionaire, In These Times says, has [crafted](http://inthesetimes.com/working/entry/20899/elon-musk-spacex-tesla-falcon-heavy-launch) his image as “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.” This carefully cultivated image has proven extraordinarily lucrative. Investors now value Tesla, his 15-year-old car company, at around $60 billion — not bad, [note](http://wallstreetonparade.com/2018/03/this-is-not-normal-markets-elon-musk-and-donald-trump/) Wall Street watchdogs Pam and Russ Martens, for a firm that “lost almost $2 billion last year and has never delivered an annual profit to shareholders.” But Musk remains [supremely confident](https://www.cbsnews.com/news/elon-musk-mars-explorers-sxsw-south-by-southwest-austin-texas-today-2018-03-13/) that his enterprise on Mars will take root and prosper. He’s betting a good chunk of his fortune on that. Or rather, **he’s betting a good chunk of taxpayers’ fortune**. Musk owes his billions, as commentator Kate Aronoff [points out](https://www.salon.com/2018/02/12/the-case-for-nationalizing-elon-musk/), to the **billions in direct taxpayer subsidies his companies have received over the years — and the billions more in taxpayer-funded research into rocket technology and other high-tech fields of knowledge**. **So Musk is essentially investing our billions in his own pet projects, everything from the Mars gambit to establishing a** [**mass-market niche**](https://www.theverge.com/tldr/2018/2/1/16954950/elon-musk-flamethrowers-sold-out) **for high-tech flamethrowers.** None of this is going to rescue humanity anytime soon. Indeed, if Musk really wanted to ensure humankind a sustainable future, he wouldn’t be plotting escapes to Mars or marketing flamethrowers to the masses. He’d be challenging the global economic status quo that’s left him phenomenally rich and our world phenomenally unequal. This inequality **may well pose the greatest threat to our well-being as a species.** Stark economic divides invite armed confrontations. Inequality and conflict, Norwegian scholars observed last year in a [major report](https://www.prio.org/Publications/Publication/?x=10538) for the United Nations and the World Bank, remain “inextricably linked.” They found that “**inequality influences the outbreak and dynamics of violent conflict,”** going all the way back to the ancient Greeks. In more recent years, researchers have made great strides in understanding the actual pathways in unequal societies that turn conflict violent. But huge gaps in the research are still frustrating our understanding. What we do know: Hawking high-tech flamethrowers is never going to save humanity. Neither will bar-hopping on Mars.

#### Musk’s vision epitomizes technocracy over democracy, making sustainable mars colonization structurally impossible

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)

\*\*bracketed for gendered language in text

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. “[Hu]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!

#### Fantasies of Mars colonization are a diversion to continue domination of the capitalist class

Stirone 21

Shannon Stirone, (freelance science writer based in the Bay Area.), 2-26-21, "Mars Is a Hellhole," Atlantic, https://www.theatlantic.com/ideas/archive/2021/02/mars-is-no-earth/618133/, // HW AW

\*bracketed for gendered language

Musk reads from Sagan’s book: “Our planet is a lonely speck in the great enveloping cosmic dark. In our obscurity, in all this vastness, there is no hint that help will come from elsewhere to save us from ourselves. The Earth is the only world known so far to harbor life. There is nowhere else, at least in the near future, to which our species could migrate.” But there Musk cuts himself off and begins to laugh. He says with incredulity, “This is not true. This is false––Mars.” He couldn’t be more wrong. Mars? Mars is a hellhole. The central thing about Mars is that it is not Earth, not even close. In fact, the only things our planet and Mars really have in common is that both are rocky planets with some water ice and [both have robots](https://www.theatlantic.com/science/archive/2020/08/mars-solar-system-exploration/615163/) (and Mars doesn’t even have that many). Mars has a very thin atmosphere; it has no magnetic field to help protect its surface from radiation from the sun or galactic cosmic rays; it has no breathable air and the average surface temperature is a deadly 80 degrees below zero. Musk thinks that Mars is like Earth? For humans to live there in any capacity they would need to build tunnels and live underground, and what is not enticing about living in a tunnel lined with SAD lamps and trying to grow lettuce with UV lights? So long to deep breaths outside and walks without the security of a bulky spacesuit, knowing that if you’re out on an extravehicular activity and something happens, you’ve got an excruciatingly painful 60-second death waiting for you. Granted, walking around on Mars would be a life-changing, amazing, profound experience. But visiting as a [proof of technology](https://www.theatlantic.com/science/archive/2020/10/mars-pandemic-future-nasa-spacex/616566/) or to expand the frontier of human possibility is very different from living there. It is not in the realm of hospitable to humans. Mars will kill you. Musk is not from Mars, but he and Sagan do seem to come from different worlds. Like Sagan, Musk exhibits a religious-like devotion to space, a fervent desire to go there, but their purposes are entirely divergent. Sagan inspired generations of writers, scientists, and engineers who felt compelled to chase the awe that he dug up from the depths of their heart. Everyone who references Sagan as a reason they are in their field connects to the wonder of being human, and marvels at the luck of having grown up and evolved on such a beautiful, rare planet. The [influence Musk is having](https://www.theatlantic.com/culture/archive/2021/05/elon-musk-snl-host-obscured/618840/) on a generation of people could not be more different. **Musk has used the medium of dreaming and exploration to wrap up a package of entitlement, greed, and ego**. He has no longing for scientific discovery, no desire to understand what makes Earth so different from Mars, how we all fit together and relate. **Musk is no explorer; he is a flag planter.** He seems to have missed one of the other lines from Pale Blue Dot: “There is perhaps no better demonstration of the folly of human conceits than this distant image of our tiny world.” Sagan did believe in sending humans to Mars to first explore and eventually live there, to ensure humanity’s very long-term survival, but he also said this: “What shall we do with Mars? There are so many examples of human misuse of the Earth that even phrasing the question chills me. If there is life on Mars, I believe we should do nothing with Mars. Mars then belongs to the Martians, even if [they] are only microbes.” Musk, by contrast, is encouraging a feeling of entitlement to the cosmos—that we can and must colonize space, regardless of who or what might be there, all for a long-shot chance at security. Legitimate reasons exist to feel concerned for long-term human survival, and, yes, having the ability to travel more efficiently throughout the solar system would be good. But I **question anyone among the richest people in the world who sells a story of caring so much for human survival that [they]he must send rockets into space**. Someone in his position could do so many things on our little blue dot itself to help those in need. To laugh at Sagan’s words is to miss the point entirely: There really is only one true home for us—and we’re already here.

#### Private mars colonization *requires* massive inequality-it’s viewed as a *spatial fix* that allows infinite expansion of colonialism

Penny 20

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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.

#### Fantasy of Mars colonization trades off with actions to improve earth- we don’t need to colonize to capture the benefits of space

Risen 17

(Tom covers breaking news and writes features. He has reported for U.S. News & World Report, Slate and Atlantic Media. <https://aerospaceamerica.aiaa.org/features/selling-mars-as-planet-b/>, June)

Musk has long favored Mars colonization as a means to survive what he calls an “inevitable” extinction event on Earth. On its website, SpaceX says that the company was founded in 2002 “with the ultimate goal of enabling people to live on other planets.” The tech entrepreneur reiterated that survivalist message in September at the International Astronautical Congress in Mexico, saying humans have to become “a multiplanetary species” and build complete cities on Mars with all the amenities, including “iron foundries, pizza joints, you name it.” Voices in popular culture and social media have echoed this argument for why NASA and its presumed international partners should spend years of work and billions of dollars sending humans to Mars. Interviews with a broad range of scientists and futurists, however, reveal skepticism about the wisdom and feasibility of selling Mars as “Planet B.” The implication that Mars colonization should be prioritized over fixing Earth’s problems, such as climate change, unsettles Katharine Hayhoe, director of the Climate Science Center at Texas Tech University. “Mars is not an escape hatch for planet Earth,” Hayhoe says. “If we do not take action to reduce and eventually eliminate our carbon emissions, they will overwhelm human civilization as we know it, long before Mars is ready to be colonized by large numbers of people.” A Mars colony would need a huge investment of supply ships to keep settlers alive in the toxic, freezing Martian environment, but the numerous abandoned bases in Antarctica show that building cities in less hazardous places on Earth is difficult enough. Advocates of a colony tout the potential to mine water and rare minerals on the red planet, but searching for resources or avoiding a potential asteroid strike on Earth are not immediate enough motivations to inspire a Mars settlement, says Andy Weir, author of “The Martian,” which depicts an astronaut stranded on Mars. “I don’t believe there will ever be a permanent settlement on Mars or the moon or anywhere else off Earth until there’s an economic reason for it,” Weir says. “Whatever Earth’s problems are, it’s considerably easier to fix Earth than it is to colonize Mars.” Weir and others consider Mars an inhospitable place where the first goal should be research rather than settlement, at least for the near future. Pascal Lee, a planetary scientist at NASA’s Ames Research Center in California, points to exploration of Antarctica as a realistic model for how Mars might be studied. International research stations on Antarctica host rotating scientific teams, and this strategy has kept a sustained but limited human presence there. “There is an escapism to wanting to go to Mars and start anew,” Lee says of the appeal of colonization. “The issue with that particular enticing concept is — ‘to go to what?’ You would need an entire infrastructure set up in advance to support people there.” Missions to Mars don’t need to result in colonization to improve humanity’s chances of survival, says Robert Zubrin, president of the nonprofit Mars Society, which advocates for research to explore and study the red planet. The Mars Society is training people at research stations in the Canadian Arctic and the Utah desert to simulate life on Mars. “A culture which is going to Mars is going to be much more adept at furthering its prospects on Earth,” Zubrin says. Zubrin is bullish on exploration, but says he “doesn’t see merit” in the concept of colonizing Mars to ensure that at least some humans would live on after a catastrophe on Earth like a massive asteroid strike. That said, Zubrin expects “Mars will be a pressure cooker for innovation because you have to adapt.” By exploring Mars, scientists and engineers could uncover new technologies to deflect asteroids and also improve medicine or grow more productive crops on Earth. “By becoming a spacefaring species we will gain greater control over our environment, which is essential to our long-term survival,” he says. If colonization were to be attempted, how might that work? A future where millions of humans live on Mars is central to the story of “The Expanse,” a TV show on the Syfy Channel inspired by novels written by Daniel Abraham and Ty Franck. Abraham says logistics would be a challenge to making this fantasy a reality. “Moving large populations from one planet to another with present or foreseeable technology is like drinking a lake through a coffee straw,” he says. “The more likely scenario to me is that we make Mars, Venus, Europa or wherever we’re aiming for a habitable, sustainable environment and then build up the population in the traditional way.” Humanity’s need to explore and expand has not always been a positive instinct, Franck says. On the show, the vision of colonization is far from utopian, as an independent Mars government and a crowded Earth are on the brink of war. He and Abraham caution against looking at Mars as an escape from the side of human nature that Hawking fears could threaten life on Earth. “Humanity isn’t likely to change much, whatever context you put us in,” Abraham says. “If the barrier to space exploration is that we have to change human nature first, we’re kind of sabotaging the project at the start, right?”

#### Heavily discount optimism about space colonization- its much easier to solve problems on earth

Prell 18

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In an interview with the American astrophysicist Neil deGrasse Tyson in 2010, Stephen Colbert called astronauts “the supermodels of science.” The bit was satirical, but Colbert had a point: for many, spaceflight is sexy. The serious question is: do we actually need to send people into space—supermodels or not? In recent years, buzz has surrounded the partnership between NASA and SpaceX, a company whose founder, Elon Musk, has famously stated that he will launch the first manned mission to Mars in 2024. On February 6, SpaceX ran its first test launch of the Falcon Heavy, a rocket system with three reusable boosters that Musk says is the precursor to the BFR, or Big Falcon Rocket, that he intends to build in order to carry the first colonists to Mars. For Musk, an independent colony on Mars would function as a way to "back up the biosphere." If anything were to happen on Earth that could cause an extinction event, such as nuclear war or a meteor strike, Musk sees Mars as a way to ensure that humanity survives. This existential reasoning for traveling to the red planet does come with a problem. We have barely developed the technology to consistently launch these rockets. Musk is confident in the tech behind his reusable boosters, but experts like Dan Dumbacher—a former NASA employee—remain skeptical. “We tried to make [the space shuttle] reusable for 55 flights,” he told SpaceNews in 2014. “Look how long and how much money it took for us to do that, and we still weren’t completely successful for all the parts. I want to be realistic: We are not as smart as we think we are and we don’t understand the environment as well as we think we do.” The cost of each launch during the space shuttle program, with refurbishment costs taken into account, ran between $450 million and $1.5 billion. SpaceX’s account of their costs have been well below those figures, averaging between $61.2 million and $42.8 million per launch. However, the private company does not have 30 years’ worth of data on refurbishment costs at this point, so it is too early to celebrate its success. And that’s just getting off the ground. It would cost between $121 and $48 billion per person per year to sustain a Martian colony according to data from Popular Science Magazine in 2013, but the real cost is impossible to know without actually going. Why should we spend time and resources trying to survive on Mars when we could be working to understand how to survive on earth in the event of the kind of catastrophe that set Musk’s eye on Mars in the first place? If some group were to attempt the journey today, they would need access to technologies that would make them as self-sufficient as possible. After all, Earth would be nearly 33.9 million miles away during its closest pass to the red planet. Water recovery systems that reclaim vapor, wastewater, and urine — like the ones currently installed on the International Space Station — would have to be used on the journey, and sent ahead to Mars along with habitats ready for assembly upon the astronauts’ arrival. According to NASA such a system would have to have an efficiency much higher than the current 74% in order to be viable for deep space missions. The same goes for oxygen regeneration and carbon dioxide removal, which, as of today stands at around 40% efficiency and “must increase significantly” before anyone attempts the journey to Mars. As for food, astronauts would have to rely on a one-time supply of food sent ahead, or attempt to grow it themselves along the way. Since self-sustainability is key, a mission hoping to survive on the dead surface of Mars would likely rely on greenhouses, such as the inflatable ones in development under Dr. Ray Wheeler at NASA. These greenhouses use hydroponic farming techniques to grow crops and “sustain astronauts on a vegetable diet,” with the added benefit of helping carbon dioxide, oxygen, and wastewater management. While all of these systems might be ready for use by a small crew within a few years, a colony of a size large enough to safeguard humanity from extinction would push them to the breaking point. It would take, optimistically, decades before Mars was truly self-sufficient, and that time and money could be spent working to prevent the kind of disasters that threaten our existence on Earth, such as natural disasters related to climate change. On its best day, Mars still barely has an atmosphere. Its core is inactive, which means that it lacks any kind of magnetic field to block out the most intense solar radiation. It is a dead planet that would take efforts only dreamed about in science fiction to colonize. Even Earth after total nuclear war would be easier to live on. There is scientific value in the exploration of other planets, but discoveries can be achieved without the steep added cost of having to keep an astronaut alive during the trip. Compared to the projected cost of a Martian base, NASA’s Curiosity rover cost a fraction of that, coming in at $2.5 billion. Curiosity has far exceeded its life expectancy of two years and continues to operate today, with the added benefit of not needing to eat, breath, or worry about dying from radiation exposure.

#### Justifications for mars colonization are delusions of grandeur- Colonization fantasies directly tradeoff with solving earth problems in better ways that save more lives. Colonization results in eugenics

Leguichard 21

(Stephanie Writer, editor, leftist activist. Completing my MA in Anthropology. [https://aninjusticemag.com/sorry-elon-musk-colonizing-mars-could-never-save-humanity-d2858cc486b9 9-13](https://aninjusticemag.com/sorry-elon-musk-colonizing-mars-could-never-save-humanity-d2858cc486b9%209-13))

For someone with absolutely no expertise in astrophysics, Elon Musk’s plans to colonize space are — to put it nicely — ambitious. I’ve heard people describe them as admirable or even inspirational. But others like me (such as astrophysicist Neil deGrasse Tyson) are rightfully skeptical of his delusions of grandeur. In his grandiloquent descriptions of humanity’s SpaceX-enabled future in space, Musk has outlined some concrete visions. By 2026, only five years from now, he envisions that humanity will have created real infrastructure and a permanent habitable society on Mars that is dependent on consistently receiving resources from Earth. By 2050, he predicts that, thanks to his largesse, humanity will have established a permanent self-sustaining city on Mars. In total, he wants to bring at least 1 million people to the red planet. He claims that his efforts could save humanity from our impending disaster on earth. He also wants to replace commercial airline travel with rocket travel, which could supposedly get people to any destination on earth in only 30 minutes, at the same price as an economy plane ticket. And he’s said that within his lifetime, there’s a 70% chance he’ll visit the red planet himself. At first glance, that all sounds cool, I guess. What could be bad about exploring space and “becoming a multi-planetary species”? The false promise of an “insurance policy” for humanity My greatest problem with Musk’s plan is not simply that it’s unrealistic (which it is, within the timeline he’s laid out). After all, Stephen Hawking, who actually has expertise in this area, has said that only several thousand people could feasibly live on Mars within the next century. Even worse, Musk’s space plans are also deeply unjust and dishonest. Even if SpaceX succeeded in rescuing 1 million people from the global destruction wrought by climate change, where would that leave the rest of us 7.8 billion people? We’d be left to burn in the rubble? Conveniently, the vast majority of humanity is clearly excluded from his vision. Michio Kaku, one of Elon Musk’s most ardent defenders, said this in an interview when discussing the “necessity” of Musk’s space plans: Dinosaurs didn’t have a plan B. That’s why they’re no longer here. But we do have a plan B. We need to use space travel, Mars and moon colonization as an insurance policy in case something goes wrong. The “something” he’s referring to includes climate change, nuclear war, or perhaps an asteroid hitting earth. But there’s an elephant in the room — who would this “insurance policy” actually protect? Musk projects that tickets to Mars could cost around $500,000. He’s said that at that cost, people could “sell their house and start their life anew on Mars.” $500,000 is an absurdly low estimate, but even if that were true, the vast majority of people don’t have nearly that amount of money lying around. Musk’s optimism about this only reveals how ridiculously out of touch with reality he is. Based on the exorbitant costs that escaping to Mars would require, it’s clear that only the wealthiest elites, the top 1% of the 1%, would be able to afford it. That doesn’t sound like much of a “plan B” to me. Martian salvation as a eugenics project Throughout history, the question of “who gets to reproduce and propagate their genes” has been a highly contentious and politically charged one. Historically, people in power have gone out of their way to prevent certain types of people from having offspring — most often poor people, people of color, disabled people, mentally ill people, and various other marginalized groups have been targeted. Bringing humanity to Mars to evade disaster on earth would be the final iteration of that. The disadvantaged masses who would be left behind, overwhelmingly people of color from the Global South, would be extinguished from the evolutionary chain. As Neil deGrasse Tyson has said, if the purpose of expanding to Mars is to ensure that humanity evades disaster on earth, then it would be much more prudent to simply solve our problems on earth so that our solution could save everyone. A solution that only saves the most obscenely privileged people on the planet isn’t a solution at all. For instance, as Tyson elaborates, if we want to prevent extinction from an asteroid, it would be much easier to deflect the asteroid than to use Mars as a solution. Colonizing Mars would only save a small fraction of humanity, whereas deflecting the asteroid would save all of humanity. The same applies to climate change. Estimates suggest that Elon Musks’s Mars project could cost well into the tens of trillions of dollars. That same amount of money (or whatever amount he ends up devoting to SpaceX) could go a long way toward combating climate change and helping billions of earthlings who could never even entertain the idea of becoming Martians.

#### Reject discourse valorizing Mars colonization- it’s a form of capitalist realism that legitimates status quo inequality

Leguichard 21

(Stephanie Writer, editor, leftist activist. Completing my MA in Anthropology. [https://aninjusticemag.com/sorry-elon-musk-colonizing-mars-could-never-save-humanity-d2858cc486b9 9-13](https://aninjusticemag.com/sorry-elon-musk-colonizing-mars-could-never-save-humanity-d2858cc486b9%209-13))

How Musk’s strategically blind optimism reinforces capitalist realism Musk has admitted that his space endeavors might not be profitable. So when asked about his motive, he’s said that his goal is to make people excited about the future in a world where we’re constantly barraged with depressing news and pessimism about the future. That might sound philanthropic or noble to some people. But there’s a convenient agenda lurking beneath this rosy rhetoric. This kind of optimism about providing an easy solution to save humanity reinforces a sinister form of capitalist realism. In case you’re not familiar with the concept, capitalist realism is “the widespread sense that not only is capitalism the only viable political and economic system, but also that it is now impossible even to imagine a coherent alternative to it.” Musk’s agenda is to present a supposed alternative to addressing climate change. He wants to drum up optimism around the prospect of saving a portion of humanity to diminish the urgency to salvage our current planet. Billionaires like Musk know that fully combatting climate change would require dismantling capitalism. And that would require him to relinquish his godlike power in this system that he’s profiting so immensely from. It’s in billionaires’ best interest to dupe us into thinking there’s a “plan B” that can allow us to escape the culmination of late capitalism’s devastation of the planet. The more optimistic we become about Mars as a “solution,” the more we resign ourselves to the fate of letting capitalism continue unabated. In other words, Musk is perpetuating capitalist realism by promoting the idea that a billionaire, and the capitalist system as a whole, can save us from environmental destruction, and no radical change is necessary. The honest way to give people optimism about the future should involve developing plans to tackle climate change — not turning a blind eye to the problem. Merely distracting us with shiny new-fangled toys is dangerously irresponsible. It’s convenient that billionaires present themselves as the optimists while portraying anti-capitalist environmentalists as pessimistic naysayers. But it’s actually the opposite. They’re the true doomsday prophets, prematurely deciding that we’re not capable of divesting from our current capitalist system to save our planet. They want us to think it’s a lost cause. If we don’t challenge their fatalistic worldview, it could become a self-fulfilling prophecy. So let’s not let them win.

#### Solvency is reverse causal-fantasies of space legitimize terrestrial inequality

Kern 21

(Sim, <https://www.independent.co.uk/voices/bezos-musk-branson-space-billionaires-b1886741.html>, 7-19\_

Last weekend, Richard Branson described his bounce up to low-earth orbit as making space “more accessible to all.” It’s laughably ironic for a billionaire to co-opt the language of inclusivity to describe the privatization of space flight. However, mainstream media shared the speech far and wide, largely uncritically, with few journalists pointing out that this carnival ride for the uber-rich was funded with over $200 million dollars in taxpayer subsidies. None that I saw credited Chanda Prescod-Weinstein, the Black feminist astrophysicist whose line Branson reflected, and whose idea of making space accessible to all starts with social justice on earth. With this speech, Branson added to the chorus of billionaires using science fiction fantasies to sell us on their vanity space programs. Jeff Bezos will likely treat us to more high-minded speechifying in advance of his launch on Tuesday. He has described Blue Origin’s mission as necessary to avoid putting a limit on energy usage per capita on Earth. Basically, in order to avoid learning to live sustainably here, we must go up to space so we can keep exploiting the hell out of whatever we find up there. As SpaceX’s Elon Musk has said, “We don’t want to be one of those single planet species, we want to be a multi-planet species”. Never mind that we’ve found zero evidence of any kind of life on other planets, let alone intelligent life, let alone intelligent life spread across multiple planets; Musk’s rhetoric echoes a commonly-held belief that space colonization is an inevitability, that it’s our destiny. We should be wary when rich people say that colonization is our destiny. That rhetoric sounds awfully similar to Manifest Destiny, which provided greedy men a moral pretense to commit a lot of atrocities. I recently wrote a viral Twitter-thread-turned-essay about the enormous challenges of sustaining life in space, and why we’re not going to see lunar colonies anytime soon. But just because these billionaires won’t succeed in establishing exoplanetary colonies in their lifetimes doesn’t mean their pursuit of them isn’t harmful. Bezos, Branson, and Musk have sold the public on their space programs, and as a result, we’re giving them a lot of our wealth – billions of dollars of taxpayer money and billions in personal investments. What’s more, the global economic system is rigged so that a guy like Bezos can become a hundred-billionaire while profiting off the labor of over a million employees, some working for poverty wages, who piss in bottles to meet quotas and sometimes die at work. Meanwhile, the activities of the corporations that create these billionaires are ravaging the only habitable planet we’ve got. But because our neo-feudal lords have sold us on a science-fiction fantasy, many look up to them as heroes rather than decrying their obscene and ill-gotten wealth. Look, I love science fiction. I’m a sci-fi writer and a lifelong Trekkie. But I’m starting to realize that a public which consumes so much science fiction and so little science fact is dangerous. Just because you watched Matt Damon live on Mars for a year in a movie with convincing graphics doesn’t mean that Elon Musk is on the verge of building a colony there. But when he says he’s going to Mars in six years, there are legions of Musk stans on Twitter who believe him – and his stock soars. One reason we find the fantasy of outer space colonization so irresistible is the prospect of starting afresh. Our global society is enormously complicated, with baked-in bigotries and illogical ways of doing things that seem impossible to untangle here on earth. But on another planet, so we assume, we could start over and get it right this time. Realistically, though, there’s no leaving our messiness behind, no matter how many light-years away we travel. I can’t think of a better illustration for this than the fact that the moon is already a toilet. When people think of what astronauts left behind on the moon, they might picture Buzz Aldrin planting an American flag. But I picture all the literal shit we left up there. NASA, unlike any respectable hiker, didn’t value “packing out waste”. The pooping protocol for Apollo astronauts involved wearing adhesive bags stuck to their asses, which notoriously tore out pubic hairs when removed. They sealed the bag – hoping nothing escaped to float around the lunar module – and crushed an antibacterial capsule inside, mushing it around with their poop to prevent a future biohazard. Then they chucked the bag out the airlock. Over the course of the Apollo missions, we planted five flags on the moon and ninety-six bags of human excrement. We also left a plaque on the Lunar Lander reading, “We came in peace for all mankind” – never mind that at the time, the US was carpet-bombing Vietnam and hitting the kids who lived there with napalm. Anywhere we travel, we’ll be bringing all our shit – literal and figurative – with us. And as any Apollo astronaut can tell you, shit is much easier to deal with on Earth than in space. If you care deeply, as I do, about the long-term goals of space science, it’s imperative to put a stop to the world-eating overconsumption that creates billionaires, rather than indulging their pet projects. For now, the best thing we could do to ensure humanity’s long-term survival in space is to figure out living sustainably here on earth. If you’re a sci-fi lover like me, think of it this way: we are already living on a magnificent spaceship uniquely suited to our needs. It is enormous, big enough to bring all our friends and family along. It has excellent gravity and radiation shielding in the form of a breathable atmosphere. It comes with a nearly-unlimited renewable energy source – the Sun – which should last us another billion years before it gets too hot and burns us up.

### FW

#### 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 of capitalism isn’t just *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.

#### Capitalism necessitates large-scale violence and destruction

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First, the system is fast reaching **the ecological limits of its reproduction**. **We have already passed tipping points** in climate change, the nitrogen cycle, and diversity loss. For the first time ever, human conduct is intersecting with and fundamentally altering the earth system in such a way that threatens to bring about a sixth mass extinction (see, e.g., Foster et al., 2011; Moore, 2015). These ecological dimensions of global crisis have been brought to the forefront of the global agenda by the worldwide environmental justice movement. Communities around the world have come under escalating repression as they face off against transnational corporate plunder of their environment. While capitalism cannot be held solely responsible for the ecological crisis, **it is difficult to imagine that the environmental catastrophe can be resolved within the capitalist system** given capital’s implacable impulse to accumulate and its accelerated commodification of nature. Second, **the level of global social polarization and inequality is unprecedented.** The richest one percent of humanity in 2016 controlled over half of the world’s wealth and 20 percent controlled 95 percent of that wealth, while the remaining 80 percent had to make do with just five percent (Oxfam, 2017). These escalating inequalities fuel capitalism’s chronic problem of overaccumulation: the TCC cannot find productive outlets to unload the enormous amounts of surplus it has accumulated, leading to chronic stagnation in the world economy (see next section). Such extreme levels of social polarization present a challenge of social control to dominant groups. As Trumpism in the United States as well as the rise of far-right and neo-fascist movements in Europe so well illustrate, cooptation also involves the manipulation of fear and insecurity among the downwardly mobile so that social anxiety is channeled towards scapegoated communities. This psychosocial mechanism of displacing mass anxieties is not new, but it appears to be increasing around the world in the face of the structural destabilization of capitalist globalization. **Extreme inequality requires extreme violence and repression** that lend themselves to projects of 21st century fascism. Third, the sheer magnitude of the means of violence and social control is unprecedented, as well as the magnitude and concentrated control over the means of global communication and the production and circulation of symbols, images, and knowledge. **Computerized wars, drone warfare, robot soldiers,** bunker-buster bombs, a new generation of nuclear weapons, **satellite surveillance, cyberwar, spatial control technology**, and so forth, have changed the face of warfare, and more generally, of systems of social control and repression. We have arrived at the panoptical surveillance society, a point brought home by Edward Snowden’s revelations in 2013, and the age of thought control by those who control global flows of communication and symbolic production. **If global capitalist crisis leads to a new world war the destruction would simply be unprecedented.** Fourth, **we are reaching limits to the extensive expansion of capitalism**, in the sense that there are no longer any new territories of significance to integrate into world capitalism and new spaces to commodify are drying up. The capitalist system is by its nature expansionary. In each earlier structural crisis, the system went through a new round of extensive expansion – from waves of colonial conquest in earlier centuries, to the integration in the late 20th and early 21st centuries of the former socialist countries, China, India and other areas that had been marginally outside the system. There are no longer any new territories to integrate into world capitalism. At the same time, the privatization of education, health, utilities, basic services, and public lands is turning those spaces in global society that were outside of capital’s control into “spaces of capital,” so that intensive expansion is reaching depths never before seen. What is there left to commodify? Where can the system now expand? **New spaces have to be violently cracked open and the peoples in these spaces must be repressed by the global police state**.