**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 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.

**Capitalism is the root cause of warming**

**Schutz 19** (Professor of Economics at Rollins College from 1987-2015, and author of Markets and Power: The Twentieth Century Command Economy and Inequality and Power: The Economics of Class, as well as articles in the Review of Radical Political Economics, the Forum for Social Economics, the Journal of Economic Issues, and the Encyclopedia of Political Economy. Eric A., “Planetary Eco-Collapse and Capitalism: A Contemporary Marxist Perspective,” Forum for Social Economics, Vol. 49, Issue 3, Taylor & Francis Online) //gordon

Of course, anything like the revolution needed appears pretty unlikely from the vantage point of the present moment. Perhaps contrary to his reputation, Marx was sympathetic and hopeful of more peaceful and gradual approaches to achieving progress, but in this case he would probably be impatient, to say the least. A “**reformist” approach**, as is now being ostensibly attempted by most of the world’s nations today in, for example, the United Nations Framework Convention on Climate Change (the “Paris Agreement”), appears not only **ineffective** in getting major nations’ compliance (the U.S. is about to withdraw) but inadequate even in its intent. The Intergovernmental Panel on Climate Change’s most recent report [IPCC (2018)] suggests that holding global warming to even its current level would require that global greenhouse gas emissions be cut by half within 12 years and down to zero by 2050. In order to stay below the 2 °C felt by the IPCC to be the limit short of total global catastrophe, emissions would need to be cut to zero within 75 years. In either case billions of tons of CO2 per year must also be removed from the atmosphere by means of technologies as yet undeveloped. The Paris Agreement’s aims seem lame at best. The march of planetary eco-collapse and the impending rise of worldwide social upheaval and worse continue on. As the conclusion to this essay is being written, three record-breaking tropical cyclones have just hit North America and Asia, with serious losses of lives and staggering damages—and scientists expect that increasing cyclone strength will continue with ocean waters warming. Major drought continues throughout the western U.S., but summer rainfall this year in the eastern U.S. has been up by as much as 200% above normal. Farmers in the U.S. midwest are now “terrified,” according to one news report, at the near and long term prospects for soybeans, corn and livestock.11 As **events such as these** all across the globe **make clearer** the threat for people everywhere, so too is **the role of the world capitalist socio-economic system** in all of this becoming clearer as well. Business-as-usual capitalism directs the flow of human development only in response to private monetary inducements manifest in markets. Such things as **pollution and resource over-use** on the one hand, **or clean, healthful and ecologically sustainable environments** on the other, simply **do not** generally **register in the capitalist accounting of things**. The system is based primarily on the interests of private owners (that is, capitalists), not a broader public interest such as would be expressed in a fully democratic system—the electoral democracy of capitalist history does not well resist the power of money.12 Thus, for example, **attempts to “internalize externalities”** (such as the full costs of atmospheric heat-trapping gases released from fossil fuel burning) **seldom succeed** very well when **a major sector of the capitalist class has a great interest in the industries involved** (e.g., in this case, oil, coal and gas producers, the auto industry, road-building, plastics, etc.). Moreover, capitalism has a compulsive expansionism deep within its roots. Firms in both its competitive markets and in the more concentrated markets of its leading industries either expand, die, or get bought out, and utilize every means available—private and public—to accomplish survival and growth. Thus the system, now after two centuries of growth a worldwide system, knows no inherent limits to growth. This was apparent to Karl Marx, and later theorists following his tradition have stressed the critical importance of these insights for the human dilemma of planetary eco-collapse. Contemporary marxists, having also witnessed firsthand the booming of an entire sector of the capitalist socio-economy devoted to the sales effort, have highlighted as well how the associated commercial culture permeates all of capitalist society and functions to stimulate a nearly unbounded consumerism in people. Commercial culture is itself a primary alienating element in the life world of capitalism, as contemporary marxists have emphasized, and compounds the estrangement already built into the most basic owner–employee relationship of the capitalist firm and the capitalist society’s class structure. **Commercialized consumerism thus becomes** the substance of a true addiction: a false “cure” for a deep life deprivation, the source of the only “fulfillment” to be found in this system, it is now **the opium poppy that would deplete the very earth itself**. Lastly and perhaps most significantly among the critical insights of marxists on the present planetary dilemma, the capitalist system is a class system. The colossal social effort that will be required to avert the worst of the growing global eco-catastrophe is well appreciated by now—the cutting of fossil fuel use and of consumption by the world’s affluent, the massive investments in sustainable energy and environmental clean-up, including in technologies not even yet developed (e.g., CO2 removal and sequestration), the total reordering of daily life worldwide that will be implied, not to mention the mitigation of the suffering that is already certain to come with the developing environmental catastrophe itself. But at the top of the capitalist system presides a ruling elite not really much concerned with nor responsible to the rest of the people. **Their monetary interests being the** private **interests in which the system** mostly **operates**, their powers consisting of nothing less than the system’s powers, their ideas and attitudes being by and large the ruling ideas and attitudes, and their life-styles being those to which most of the rest of the people aspire, they must be dealt with in order for real progress on this issue to occur. As Karl Marx and Friedrich Engels put it, in words that certainly ring true a 170 years later, here it becomes evident, that the bourgeoisie is unfit any longer to be the ruling class in society, and to impose its conditions of existence upon society as an over-riding law. It is unfit to rule because it is incompetent to assure an existence to its [people]… Society can no longer live under this bourgeoisie, in other words, its existence is no longer compatible with society. (Marx & Engels, 1848 in MER, 1978, p. 483.) **What is needed is** what can only be called “**a revolution.”** Whether that revolution, if there be one, entails great tumult and spectacle, or more hopefully proceeds more gradually and equably through the impending planetary upheaval, Marx’s thinking not only will endure but may well resound loudly as among the guiding ideas of the coming struggles.

#### Capitalism causes extinction through environmental degradation. Rejecting market fundamentalism is crucial to avoid total expenditure of finite resources

Monbiot 10-30-21

(George, MA Zoology https://www.theguardian.com/environment/2021/oct/30/capitalism-is-killing-the-planet-its-time-to-stop-buying-into-our-own-destruction)

There is a myth about human beings that withstands all evidence. It’s that we always put our survival first. This is true of other species. When confronted by an impending threat, such as winter, they invest great resources into avoiding or withstanding it: migrating or hibernating, for example. Humans are a different matter. When faced with an impending or chronic threat, such as climate or ecological breakdown, we seem to go out of our way to compromise our survival. We convince ourselves that it’s not so serious, or even that it isn’t happening. We double down on destruction, swapping our ordinary cars for SUVs, jetting to Oblivia on a long-haul flight, burning it all up in a final frenzy. In the back of our minds, there’s a voice whispering, “If it were really so serious, someone would stop us.” If we attend to these issues at all, we do so in ways that are petty, tokenistic, comically ill-matched to the scale of our predicament. It is impossible to discern, in our response to what we know, the primacy of our survival instinct. Here is what we know. We know that our lives are entirely dependent on complex natural systems: the atmosphere, ocean currents, the soil, the planet’s webs of life. People who study complex systems have discovered that they behave in consistent ways. It doesn’t matter whether the system is a banking network, a nation state, a rainforest or an Antarctic ice shelf; its behaviour follows certain mathematical rules. In normal conditions, the system regulates itself, maintaining a state of equilibrium. It can absorb stress up to a certain point. But then it suddenly flips. It passes a tipping point, then falls into a new state of equilibrium, which is often impossible to reverse. Here’s one of the many ways in which it could occur. A belt of savannah, known as the Cerrado, covers central Brazil. Its vegetation depends on dew forming, which depends in turn on deep-rooted trees drawing up groundwater, then releasing it into the air through their leaves. But over the past few years, vast tracts of the Cerrado have been cleared to plant crops – mostly soya to feed the world’s chickens and pigs. As the trees are felled, the air becomes drier. This means smaller plants die, ensuring that even less water is circulated. In combination with global heating, some scientists warn, this vicious cycle could – soon and suddenly – flip the entire system into desert. The Cerrado is the source of some of South America’s great rivers, including those flowing north into the Amazon basin. As less water feeds the rivers, this could exacerbate the stress afflicting the rainforests. They are being hammered by a deadly combination of clearing, burning and heating, and are already threatened with possible systemic collapse. The Cerrado and the rainforest both create “rivers in the sky” – streams of wet air – that distribute rainfall around the world and help to drive global circulation: the movement of air and ocean currents. Global circulation is already looking vulnerable. For example, the Atlantic meridional overturning circulation (AMOC), which delivers heat from the tropics towards the poles, is being disrupted by the melting of Arctic ice, and has begun to weaken. Without it, the UK would have a climate similar to Siberia’s. AMOC has two equilibrium states: on and off. It has been on for almost 12,000 years, following a devastating, thousand-year off state called the Younger Dryas (12,900 to 11,700 years ago), which caused a global spiral of environmental change. Everything we know and love depends on AMOC remaining in the on state. Regardless of which complex system is being studied, there’s a way of telling whether it is approaching a tipping point. Its outputs begin to flicker. The closer to its critical threshold it comes, the wilder the fluctuations. What we’ve seen this year is a great global flickering, as Earth systems begin to break down. The heat domes over the western seaboard of North America; the massive fires there, in Siberia and around the Mediterranean; the lethal floods in Germany, Belgium, China, Sierra Leone – these are the signals that, in climatic morse code, spell “mayday”. You might expect an intelligent species to respond to these signals swiftly and conclusively, by radically altering its relationship with the living world. But this is not how we function. Our great intelligence, our highly evolved consciousness that once took us so far, now works against us. An analysis by the media sustainability group Albert found that “cake” was mentioned 10 times as often as “climate change” on UK TV programmes in 2020. “Scotch egg” received double the mentions of “biodiversity”. “Banana bread” beat “wind power” and “solar power” put together. I recognise that the media are not society, and that television stations have an interest in promoting banana bread and circuses. We could argue about the extent to which the media are either reflecting or generating an appetite for cake over climate. But I suspect that, of all the ways in which we might measure our progress on preventing systemic environmental collapse, the cake-to-climate ratio is the decisive index. The current ratio reflects a determined commitment to irrelevance in the face of global catastrophe. Tune in to almost any radio station, at any time, and you can hear the frenetic distraction at work. While around the world wildfires rage, floods sweep cars from the streets and crops shrivel, you will hear a debate about whether to sit down or stand up while pulling on your socks, or a discussion about charcuterie boards for dogs. I’m not making up these examples: I stumbled across them while flicking between channels on days of climate disaster. If an asteroid were heading towards Earth, and we turned on the radio, we’d probably hear: “So the hot topic today is – what’s the funniest thing that’s ever happened to you while eating a kebab?” This is the way the world ends, not with a bang but with banter. Faced with crises on an unprecedented scale, our heads are filled with insistent babble. The trivialisation of public life creates a loop: it becomes socially impossible to talk about anything else. I’m not suggesting that we should discuss only the impending catastrophe. I’m not against bants. What I’m against is nothing but bants. It’s not just on the music and entertainment channels that this deadly flippancy prevails. Most political news is nothing but court gossip: who’s in, who’s out, who said what to whom. It studiously avoids what lies beneath: the dark money, the corruption, the shift of power away from the democratic sphere, the gathering environmental collapse that makes a nonsense of its obsessions. I’m sure it’s not deliberate. I don’t think anyone, faced with the prospect of systemic environmental collapse, is telling themselves: “Quick, let’s change the subject to charcuterie boards for dogs.” It works at a deeper level than this. It’s a subconscious reflex that tells us more about ourselves than our conscious actions do. The chatter on the radio sounds like the distant signals from a dying star. There are some species of caddisfly whose survival depends on breaking the surface film of the water in a river. The female pushes through it – no mean feat for such a small and delicate creature – then swims down the water column to lay her eggs on the riverbed. If she cannot puncture the surface, she cannot close the circle of life, and her progeny die with her. This is also the human story. If we cannot pierce the glassy surface of distraction, and engage with what lies beneath, we will not secure the survival of our children or, perhaps, our species. But we seem unable or unwilling to break the surface film. I think of this strange state as our “surface tension”. It’s the tension between what we know about the crisis we face, and the frivolity with which we distance ourselves from it. Surface tension dominates even when we claim to be addressing the destruction of our life-support systems. We focus on what I call micro-consumerist bollocks (MCB): tiny issues such as plastic straws and coffee cups, rather than the huge structural forces driving us towards catastrophe. We are obsessed with plastic bags. We believe we’re doing the world a favour by buying tote bags instead, though, on one estimate, the environmental impact of producing an organic cotton tote bag is equivalent to that of 20,000 plastic ones. We are rightly horrified by the image of a seahorse with its tail wrapped around a cotton bud, but apparently unconcerned about the elimination of entire marine ecosystems by the fishing industry. We tut and shake our heads, and keep eating our way through the life of the sea. A company called Soletair Power receives wide media coverage for its claim to be “fighting climate change” by catching the carbon dioxide exhaled by office workers. But its carbon-sucking unit – an environmentally costly tower of steel and electronics – extracts just 1kg of carbon dioxide every eight hours. Humanity produces, mostly by burning fossil fuels, roughly 32bn kg of CO2 in the same period. I don’t believe our focus on microscopic solutions is accidental, even if it is unconscious. All of us are expert at using the good things we do to blot out the bad things. Rich people can persuade themselves they’ve gone green because they recycle, while forgetting that they have a second home (arguably the most extravagant of all their assaults on the living world, as another house has to be built to accommodate the family they’ve displaced). And I suspect that, in some deep, unlit recess of the mind, we assure ourselves that if our solutions are so small, the problem can’t be so big. I’m not saying the small things don’t matter. I’m saying they should not matter to the exclusion of things that matter more. Every little counts. But not for very much. Our focus on MCB aligns with the corporate agenda. The deliberate effort to stop us seeing the bigger picture began in 1953 with a campaign called Keep America Beautiful. It was founded by packaging manufacturers, motivated by the profits they could make by replacing reusable containers with disposable plastic. Above all, they wanted to sink state laws insisting that glass bottles were returned and reused. Keep America Beautiful shifted the blame for the tsunami of plastic trash the manufacturers caused on to “litter bugs”, a term it invented. The “Love Where You Live” campaign, launched in the UK in 2011 by Keep Britain Tidy, Imperial Tobacco, McDonald’s and the sweet manufacturer Wrigley, seemed to me to play a similar role. It had the added bonus – as it featured strongly in classrooms – of granting Imperial Tobacco exposure to schoolchildren. The corporate focus on litter, amplified by the media, distorts our view of all environmental issues. For example, a recent survey of public beliefs about river pollution found that “litter and plastic” was by far the biggest cause people named. In reality, the biggest source of water pollution is farming, followed by sewage. Litter is way down the list. It’s not that plastic is unimportant. The problem is that it’s almost the only story we know. In 2004, the advertising company Ogilvy & Mather, working for the oil giant BP, took this blame-shifting a step further by inventing the personal carbon footprint. It was a useful innovation, but it also had the effect of diverting political pressure from the producers of fossil fuels to consumers. The oil companies didn’t stop there. The most extreme example I’ve seen was a 2019 speech by the chief executive of the oil company Shell, Ben van Beurden. He instructed us to “eat seasonally and recycle more”, and publicly berated his chauffeur for buying a punnet of strawberries in January. The great political transition of the past 50 years, driven by corporate marketing, has been a shift from addressing our problems collectively to addressing them individually. In other words, it has turned us from citizens into consumers. It’s not hard to see why we have been herded down this path. As citizens, joining together to demand political change, we are powerful. As consumers, we are almost powerless. In his book Life and Fate, Vasily Grossman notes that, when Stalin and Hitler were in power, “one of the most astonishing human traits that came to light at this time was obedience”. The instinct to obey, he observed, was stronger than the instinct to survive. Acting alone, seeing ourselves as consumers, fixating on MCB and mind-numbing trivia, even as systemic environmental collapse looms: these are forms of obedience. We would rather face civilisational death than the social embarrassment caused by raising awkward subjects, and the political trouble involved in resisting powerful forces. The obedience reflex is our greatest flaw, the kink in the human brain that threatens our lives. What do we see if we break the surface tension? The first thing we encounter, looming out of the depths, should scare us almost out of our wits. It’s called growth. Economic growth is universally hailed as a good thing. Governments measure their success on their ability to deliver it. But think for a moment about what it means. Say we achieve the modest aim, promoted by bodies like the IMF and the World Bank, of 3% global growth a year. This means that all the economic activity you see today – and most of the environmental impacts it causes – doubles in 24 years; in other words, by 2045. Then it doubles again by 2069. Then again by 2093. It’s like the Gemino curse in Harry Potter and the Deathly Hallows, which multiplies the treasure in the Lestrange vault until it threatens to crush Harry and his friends to death. All the crises we seek to avert today become twice as hard to address as global economic activity doubles, then twice again, then twice again. Have we reached the bottom yet? By no means. The Gemino curse is just one outcome of a thing we scarcely dare mention. Just as it was once blasphemous to use the name of God, even the word appears, in polite society, to be taboo: capitalism. The main cause of your environmental impact is your money. You persuade yourself you’re a green mega-consumer, but you’re just a mega-consumer Most people struggle to define the system that dominates our lives. But if you press them, they’re likely to mumble something about hard work and enterprise, buying and selling. This is how the beneficiaries of the system want it to be understood. In reality, the great fortunes amassed under capitalism are not obtained this way, but through looting, monopoly and rent grabbing, followed by inheritance. One estimate suggests that, over the course of 200 years, the British extracted from India, at current prices, $45tn. They used this money to fund industrialisation at home and the colonisation of other nations, whose wealth was then looted in turn. The looting takes place not just across geography, but also across time. The apparent health of our economies today depends on seizing natural wealth from future generations. This is what the oil companies, seeking to distract us with MCB and carbon footprints, are doing. Such theft from the future is the motor of economic growth. Capitalism, which sounds so reasonable when explained by a mainstream economist, is in ecological terms nothing but a pyramid scheme. Is this the riverbed? No. Capitalism is just a means by which something even bigger is pursued. Wealth. It scarcely matters how green you think you are. The main cause of your environmental impact isn’t your attitude. It isn’t your mode of consumption. It isn’t the choices you make. It’s your money. If you have surplus money, you spend it. While you might persuade yourself that you are a green mega-consumer, in reality you are just a mega-consumer. This is why the environmental impacts of the very rich, however right-on they may be, are massively greater than those of everyone else. Preventing more than 1.5C of global heating means that our average emissions should be no greater than two tonnes of carbon dioxide per person per year. But the richest 1% of the world’s people produce an average of more than 70 tonnes. Bill Gates, according to one estimate, emits almost 7,500 tonnes of CO2, mostly from flying in his private jets. Roman Abramovich, the same figures suggest, produces almost 34,000 tonnes, largely by running his gigantic yacht. The multiple homes that ultra-rich people own might be fitted with solar panels, their supercars might be electric, their private planes might run on biokerosene, but these tweaks make little difference to the overall impact of their consumption. In some cases, they increase it. The switch to biofuels favoured by Bill Gates is now among the greatest causes of habitat destruction, as forests are felled to produce wood pellets and liquid fuels, and soils are trashed to make biomethane. But more important than the direct impacts of the ultra-wealthy is the political and cultural power with which they block effective change. Their cultural power relies on a hypnotising fairytale. Capitalism persuades us that we are all temporarily embarrassed millionaires. This is why we tolerate it. In reality, some people are extremely rich because others are extremely poor: massive wealth depends on exploitation. And if we did all become millionaires, we would cook the planet in no time at all. But the fairytale of universal wealth, one day, secures our obedience. The difficult truth is that, to prevent climate and ecological catastrophe, we need to level down. We need to pursue what the Belgian philosopher Ingrid Robeyns calls limitarianism. Just as there is a poverty line below which no one should fall, there is a wealth line above which no one should rise. What we need are not carbon taxes, but wealth taxes. It shouldn’t surprise us that ExxonMobil favours a carbon tax. It’s a form of MCB. It addresses only one aspect of the many-headed environmental crisis, while transferring responsibility from the major culprits to everyone. It can be highly regressive, which means that the poor pay more than the rich. But wealth taxes strike at the heart of the issue. They should be high enough to break the spiral of accumulation and redistribute the riches accumulated by a few. They could be used to put us on an entirely different track, one that I call “private sufficiency, public luxury”. While there is not enough ecological or even physical space on Earth for everyone to enjoy private luxury, there is enough to provide everyone with public luxury: magnificent parks, hospitals, swimming pools, art galleries, tennis courts and transport systems, playgrounds and community centres. We should each have our own small domains – private sufficiency – but when we want to spread our wings, we could do so without seizing resources from other people. In consenting to the continued destruction of our life-support systems, we accommodate the desires of the ultra-rich and the powerful corporations they control. By remaining trapped in the surface film, absorbed in frivolity and MCB, we grant them a social licence to operate. We will endure only if we cease to consent. The 19th-century democracy campaigners knew this, the suffragettes knew it, Gandhi knew it, Martin Luther King knew it. The environmental protesters who demand systemic change have also grasped this fundamental truth. In Fridays for Future, Green New Deal Rising, Extinction Rebellion and the other global uprisings against systemic environmental collapse, we see people, mostly young people, refusing to consent. What they understand is history’s most important lesson. Our survival depends on disobedience.

**Contention 2: A New Hope**

**Thus, I affirm that the appropriation of outer space by private entities is unjust. Governments should nationalize space industries per the Aronoff card**

**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**

**and made accessible to all.** The trade-offs between telecommunications infrastructure and preservation of dark skies highlight another core failure of NASA’s past: the **lack of a planetary internationalism**. In 2013, the Bolivian Space Agency and the China National Space Administration collaboratively launched the Túpac Katari 1 satellite (TKSat 1), demonstrating how easy it could be to **close the space infrastructure gap** between the Global North and South. The same year that the United States proposed to desecrate a Hawaiian sacred site for a telescope, Bolivia used space technology to bring internet and cell service for the first time to millions of Andean and Amazonian citizens. Since then, TKSat 1 has boosted education and development initiatives and even helped defend Bolivian democracy by relaying the transmissions of campesinos resisting the US-backed coup government in real time. Satellites can serve many other public interests, such as facilitating research that helps scientists monitor problems like **climate change, deforestation, and forced labor.** While today’s satellite infrastructure is used to commercialize communication and fuel mass surveillance, an international consensus to treat telecommunications and information access as public rights could instead provide free global broadband coverage with minimal infrastructure, **balancing scientific advancement with our collective view of the stars.** Finally, a socialist vision for space exploration could enable us to **reach our full potential** to venture into the unknown. History enshrines the intrepid explorers, but the true heroes of the space age are the **workers at ground control**. Yuri Gagarin made it home safely because of his command crews stationed from Baikonur to Khabarovsk. Apollo 13 famously called on Houston when they had a problem. Today, many of our brightest astrophysicists and aerospace engineers are swept up by military departments and weapons manufacturers. We should **use their talents for science and education instead.** That doesn’t mean, however, colonizing Mars. The Red Planet is a cosmic wonder, but a dreadful place for Earthlings. It has very little carbon dioxide, and no amount of terraforming will reinstate the magnetic dynamo that once deflected the solar winds now stripping away its depleted atmosphere. In fact, everything we have learned from researching Mars has reinforced the importance of protecting the fragile atmosphere of our home planet. While piloted space flights may be useful in some situations, we should place far more emphasis on collaboratively building robots like the ones that have taught us about our planetary neighbors. In today’s space race, these initiatives compete for funding. By **prioritizing cooperation over colonization**, however, **we could pursue them all**. We could attempt to retrieve raw materials for green energy infrastructure from decommissioned satellites and uninhabited asteroids instead of mines in the Global South. We could search the solar system for extraterrestrial life by flying rotorcrafts into the hydrocarbon-rich atmosphere of Titan and boring submarines into the icy subsurface ocean of Europa. We could strive for the first landing on Pluto, Eris, or even beyond — not to plant a flag, but **seed a concept of what we can collectively achieve.** Visions of Hopeful Futures In his final years of reflection on our Pale Blue Dot, astronomer Carl Sagan pondered, “Where are the cartographers of human purpose? Where are the visions of hopeful futures of technology as a tool for human betterment and not a gun on hair trigger pointed at our heads?” Sagan’s legacy — including the world’s first and only interstellar mission — offers a glimpse of this vision. We can choose to collaboratively probe into the depths of the cosmos, conveying collections of human knowledge, or to taxi billionaires to spend four minutes at the edge of space, indulging their fantasy of escaping the planet they’re poisoning with the very fuel propelling them. In either case, the financial, intellectual, and human costs will be borne by the public. Fortunately, if there’s one thing that space exploration has taught us, it’s that **fate isn’t written in the stars.** That happens down here on Earth.

**Theory**

**Reject multiple 1NC shells – they can read one fleshed-out theory argument which promotes clash and sufficiently checks abuse while preserving substance – crowdout o/w on timeframe since we only have a few months to debate the topic – and o/w on education bc research skills are the main portable benefit to debate – six shells in the 1NC makes the 1AR impossible b/c of time skew and makes it impossible for the 1AR to win both theory and substance**

**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**

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**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.**