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Advantage 1: Space Debris

Private companies are cramming satellites into the Earth's orbit which are quickly becoming defunct pieces of "space junk."

Therese **Wood, 20** - ("Who owns our orbit: Just how many satellites are there in space?," World Economic Forum, 10-23-2020, 12-8-2021<https://www.weforum.org/agenda/2020/10/visualizing-earth-satellites-space-spacex/>AW

There are nearly **6,000 satellites circling** the Earth, but **only 40%** are **operational**. Satellites are a **vital part** of our infrastructure, helping us to use **GPS, access the internet and support studies** of the Earth. Out of the 2,666 operational satellites circling the globe in April 2020, 1,007 were for communication services. 446 are used for observing the Earth and 97 for navigation/ GPS purposes. Over half of satellites in space are non-operational. For centuries, humans have looked to space and the stars for answers. The fascination is more than philosophical—it's coupled with the need to solve problems here on Earth. Today, there are seemingly countless benefits and applications of space technology. Satellites, for instance, are becoming critical for everything from internet connectivity and precision agriculture, to border security and archaeological study. Right now, there are nearly 6,000 satellites circling our tiny planet. About **60%** of those **are defunct** satellites—**space junk**—and roughly 40% are operational. As highlighted in the chart above, The Union of Concerned Scientists (UCS), determined that 2,666 operational satellites circled the globe in April of 2020. Over the coming decade, it's estimated by Euroconsult that 990 satellites will be launched every year. This means that **by 2028, there could be 15,000 satellites in orbit**. Nearly 10,000 satellites will be launched from 2019-2028. Image: Visual Capitalist With SpaceX's planned Starlink constellation of 12,000 satellites and Amazon's proposed constellation in the works, the new space race continues its acceleration. Let's take a closer look at who operates those satellites and how they apply their technology. Technology with a purpose Humans have long used space for navigation. While sailors once relied on the stars, today we use satellites for GPS, navigation, and various other applications. **More than half** of Earth's operational satellites are launched **for commercial purposes**. About 61% of those provide communications, including everything from satellite TV and Internet of Things (IoT) connectivity to global internet. Over 1,000 satellites are for communication purposes. Image: Visual Capitalist Second to communications, 27% of commercial satellites have been launched for Earth Observation (EO) purposes, including environmental monitoring and border security. Commercial satellites, however, can serve multiple purposes. One week, a satellite may be 'tasked' to image a contested border. It could later be tasked to monitor the reclamation of a mining site or even the aftermath of a natural disaster. 54% of operational satellites are for commercial use. Image: Visual Capitalist Government and civil purposes make up 21% of all of Earth's operational satellites, and military purposes come in at 13%. Who owns Earth's orbit? Space operators **SpaceX**—founded by Elon Musk—is not only a disruptive launch provider for missions to the International Space Station (saving NASA millions). It's also the largest commercial operator of satellites on the planet. With 358 satellites launched as of April, part of SpaceX's mission is to boost navigation capabilities and supply the world with space-based internet. While the company operated **22% of** the world's **operational satellites** as of April, it went on to launch an additional 175 satellites in the span of one month, from August to September 2020

Increasing space debris levels will inevitably set off a chain of collisions.

Chelsea **Muñoz-Patchen, 19** - ("Regulating the Space Commons: Treating Space Debris as Abandoned Property in Violation of the Outer Space Treaty," University of Chicago, 2019, 12-6-2021, <https://cjl.uchicago.edu/publication/regulating-space-commons-treating-space-debris-abandoned-property-violation-outer-space/>AW

Debris poses a threat to functioning space objects and astronauts in space, and may cause damage to the earth's surface upon re-entry.²⁹ Much of the small **debris cannot be tracked due to** its **size and** the **velocity** at which it travels, **making it impossible to** anticipate and maneuver to **avoid collisions**.³⁰ To remain in orbit, **debris must travel at speeds of up to 17,500 miles per hour**.³¹ At this speed even very small pieces of debris can cause serious damage, threatening a spacecraft and causing expensive damage.³² There are millions of these very small pieces, and thousands of larger ones.³³ The small-to-medium **pieces** of debris "continuously **shed** fragments like lens caps, booster upper stages, **nuts, bolts, paint chips, motor sprays of aluminum particles, glass splinters, waste water, and bits of foil**—**and** may **stay in orbit for** decades or even **centuries**, posing an ongoing risk.³⁴ Debris ten centimeters or larger in diameter creates the likelihood of complete destruction for any functioning satellite with which it collides.³⁵ Large nonfunctional **objects** remaining in orbit **are a collision threat**, capable of creating huge amounts of space debris and **taking up** otherwise **useful orbit space**.³⁶ This issue is of growing importance as more nations and companies gain the ability to launch satellites and other objects into space.³⁷ From February 2009 through the end of 2010, more than thirty-two collision-avoidance maneuvers were reportedly used to avoid debris by various space agencies and satellite companies, and as of March 2012, **the crew of the** International Space Station (ISS) **had to take shelter three times due to close calls** with passing debris.³⁸ These maneuvers require costly fuel usage and place a strain on astronauts.³⁹ Furthermore, the launches of some spacecraft have "been delayed because of the presence of space debris in the planned flight paths."⁴⁰ In 2011, Euroconsult, a satellite consultant, projected that there would be "a 51% increase in satellites launched in the next decade over the number launched in the past decade."⁴¹ In addition to satellites, the rise of **commercial space tourism will** also **increase** the number of **objects launched into space and thus the amount of debris**.⁴² The more objects are sent into space, and the more collisions create cascades of debris, the greater the risk of damage to vital satellites and other devices relied on for "weather forecasting, telecommunications, commerce, and national security."⁴³ The Space Debris Mitigation Guidelines⁴⁴ were created by UNCOPUOS with input from the IADC and adopted in 2007.⁴⁵ The guidelines were developed to address the problem of space debris and were intended to "increase mutual understanding on acceptable activities in space."⁴⁶ These guidelines are nonbinding but suggest best practices to implement at the national level when planning for a launch. Many nations have adopted the guidelines to some degree, and some have gone beyond what the guidelines suggest.⁴⁷ While the guidelines do not address existing debris, they do much to prevent the creation of new debris. The Kessler Syndrome is the biggest concern with space debris. **The Kessler Syndrome is** a

cascade created when debris hits a space object, creating new debris and setting off a chain reaction of collisions that eventually closes off entire orbits.⁴⁸ The concern is that this cascade will occur when a tipping point is reached at which the natural removal rate cannot keep up with the amount of new debris added.⁴⁹ At this point a collision could set off a cascade destroying all space objects within the orbit.⁵⁰ In 2011, The National Research Council predicted that the Kessler Syndrome could happen within ten to twenty years.⁵¹ Donald J. Kessler, the astrophysicist and NASA scientist who theorized the Kessler Syndrome in 1978, believes this cascade may be a century away, meaning that there is still time to develop a solution.⁵²

It cascades with catastrophic results including nuclear war, mass starvation, and economic destruction.

Les Johnson 13, Deputy Manager for NASA's Advanced Concepts Office at the Marshall Space Flight Center, Co-Investigator for the JAXA T-Rex Space Tether Experiment and PI of NASA's ProSEDS Experiment, Master's Degree in Physics from Vanderbilt University, Popular Science Writer, and NASA Technologist, Frequent Contributor to the Journal of the British Interplanetary Society and Member of the American Institute of Aeronautics and Astronautics, National Space Society, the World Future Society, and MENSA, Sky Alert!: When Satellites Fail, p. 9-12 [language modified]

Whatever the initial cause, the result may be the same. A satellite destroyed in orbit will break apart into thousands of pieces, each traveling at over 8 km/sec. This virtual shotgun blast, with pellets traveling 20 times faster than a bullet, will quickly spread out, with each pellet now following its own orbit around the Earth. With over 300,000 other pieces of junk already there, the tipping point is crossed and a runaway series of collisions begins. A few orbits later, two of the new debris pieces strike other satellites, causing them to explode into thousands more pieces of debris. The rate of collisions increases, now with more spacecraft being destroyed. Called the "Kessler Effect", after the NASA scientist who first warned of its dangers, these debris objects, now numbering in the millions, cascade around the Earth, destroying every satellite in low Earth orbit. Without an atmosphere to slow them down, thus allowing debris pieces to bum up, most debris (perhaps numbering in the millions) will remain in space for hundreds or thousands of years. Any new satellite will be threatened by destruction as soon as it enters space, effectively rendering many Earth orbits unusable. But what about us on the ground? How will this affect us? Imagine a world that suddenly loses all of its space technology. If you are like most people, then you would probably have a few fleeting thoughts about the Apollo-era missions to the Moon, perhaps a vision of the Space Shuttle launching astronauts into space for a visit to the International Space Station (ISS), or you might fondly recall the "wow" images taken by the orbiting Hubble Space Telescope. In short, you would know that things important to science would be lost, but you would likely not assume that their loss would have any impact on your daily life. Now imagine a world that suddenly loses network and cable television, accurate weather forecasts, Global Positioning System (GPS) navigation, some cellular phone networks, on-time delivery of food and medical supplies via truck and train to stores and hospitals in virtually every community in America, as well as science useful in monitoring such things as climate change and agricultural sustainability. Add to this the [disabling] crippling of the US military who now depend upon spy satellites, space-based communications systems, and GPS to know where their troops and supplies are located at all times and anywhere in the world. The result is a nightmarish world, one step away from nuclear war, economic disaster, and potential mass starvation. This is the world in which we are now perilously close to living. Space satellites now touch our lives in many ways. And, unfortunately, these satellites are extremely vulnerable to risks arising from a half-century of carelessness regarding protecting the space environment around the Earth as well as from potential adversaries such as China, North Korea, and Iran. No government policy has put us at risk. It has not been the result of a conspiracy. No, we are dependent upon them simply because they offer capabilities that are simply unavailable any other way. Individuals, corporations, and governments found ways to use the unique environment of space to provide services, make money, and better defend the country. In fact, only a few space visionaries and futurists could have foreseen where the advent of rocketry and space technology would take us a mere 50 years since those first satellites orbited the Earth. It was the slow progression of capability followed by dependence that puts us at risk. The exploration and use of space began in 1957 with the launch of Sputnik 1 by the Soviet Union. The United States soon followed with Explorer 1. Since then, the nations of the world have launched over 8,000 spacecraft. Of these, several hundred are still providing information and services to the global economy and the world's governments. Over time, nations, corporations, and individuals have grown accustomed to the services these spacecraft provide and many are dependent upon them. Commercial aviation, shipping, emergency services, vehicle fleet tracking, financial transactions, and agriculture are areas of the economy that are increasingly reliant on space. Telesat 1, launched into space in the year of my birth, 1962, relayed the world's first live transatlantic news feed and showed that space satellites can be used to relay television signals, telephone calls, and data. The modern telecommunications age was born. We've come a long way since Telstar; most television networks now distribute most, if not all, of their programming via satellite. Cable television signals are received by local providers from satellite relays before being sent to our homes and businesses using cables. With 65% of US households relying on cable television and a growing percentage using satellite dishes to receive signals from direct-to-home satellite television providers, a large number of people would be cut off from vital information in an emergency should these satellites be destroyed. And communications satellites relay more than television signals. They serve as hosts to corporate video conferences and convey business, banking, and other commercial information to and from all areas of the planet. The first successful weather satellite was TIROS. Launched in 1960, TIROS operated for only 78 days but it served as the precursor for today's much more long-lived weather satellites, which provide continuous monitoring of weather conditions around the world. Without them, providing accurate weather forecasts for virtually any place on the globe more than a day in advance would be nearly impossible. Figure 1.1 shows a satellite image of Hurricane Ivan approaching the Alabama Gulf coast in 2004. Without this type of information, evacuation warnings would have to be given more generally, resulting in needless evacuations and lost economic activity (from areas that avoid landfall) and potentially increasing loss of life in areas that may be unexpectedly hit. The formerly top-secret Corona spy satellites began operation in 1959 and provided critical information about the Soviet Union's military and industrial capabilities to a nervous West in a time of unprecedented paranoia and nuclear risk. With these

satellites, US military planners were able to understand and assess the real military threat posed by the Soviet Union. They used information provided by spy satellites to help avert potential military confrontations on numerous occasions. Conversely, the Soviet Union's spy satellites were able to observe the United States and its allies, with similar results. It is nearly impossible to move an army and hide it from multiple eyes in the sky. Satellite information is critical to all aspects of US intelligence and military planning. Spy satellites are used to monitor compliance with international arms treaties and to assess the military activities of countries such as China, Russia, Iran, and North Korea. Figure 1.2 shows the capability of modern unclassified space-based imaging. The capability of the classified systems is presumed to be significantly better, providing much more detail. Losing these satellites would place global militaries on high alert and have them operating, literally, in the blind. Our military would suddenly become vulnerable in other areas as well. GPS, a network of 24-32 satellites in medium-Earth orbit, was developed to provide precise position information to the military, and it is now in common use by individuals and industry. The network, which became fully operational in 1993, allows our armed forces to know their exact locations anywhere in the world. It is used to guide bombs to their targets with unprecedented accuracy, requiring that only one bomb be used to destroy a target that would have previously required perhaps hundreds of bombs to destroy in the pre-GPS world (which, incidentally, has resulted in us reducing our stockpile of non-GPS-guided munitions dramatically). It allows soldiers to navigate in the dark or in adverse weather or sandstorms. Without GPS, our military advantage over potential adversaries would be dramatically reduced or eliminated.

Advantage 2: Colonialism

Private expansion into space replicates a colonialist mindset, perpetuating problems on Earth.

Mccormick 21 [Ted McCormick writes about the history of science, empire, and economic thought. He has a Ph.D. in history from Columbia University and teaches at Concordia University in Montreal. “The billionaire space race reflects a colonial mindset that fails to imagine a different world”. 8-15-2021. The Conversation. <https://theconversation.com/the-billionaire-space-race-reflects-a-colonial-mindset-that-fails-to-imagine-a-different-world-165235>. Accessed 12-15-2021; //marlborough JH]

It was a time of political uncertainty, cultural conflict and social change. **Private ventures exploited technological advances and natural resources, generating unprecedented fortunes while wreaking havoc on local communities and environments.** The working poor crowded cities, spurring property-holders to develop increased surveillance and incarceration regimes.

Rural areas lay desolate, buildings vacant, churches empty — the stuff of moralistic elegies. ¶Epidemics raged, forcing quarantines in the ports and lockdowns in the streets. Mortality data was the stuff of weekly news and commentary. ¶Depending on the perspective, mobility — chosen or compelled — was either the cause or the consequence of general disorder. Uncontrolled mobility was associated with political instability, moral degeneracy and social breakdown. However, one form of planned mobility promised to solve these problems: colonization.

¶Europe and its former empires have changed a lot since the 17th century. But the persistence of colonialism as a supposed panacea suggests we are not as far from the early modern period as we think. ¶Colonial promise of limitless growth ¶Seventeenth-century colonial schemes involved plantations around the Atlantic, and motivations that now sound archaic.

Advocates of expansion such as the English writer Richard Hakluyt, whose Discourse of Western Planting (1584) outlined the benefits of empire for Queen Elizabeth: the colonization of the

New World would prevent Spanish Catholic hegemony and provide a chance to claim Indigenous souls for Protestantism. ¶But a key promise was the economic

and social renewal of the mother country through new commodities, trades and territory. Above all, planned mobility would cure the ills of apparent overpopulation. Sending the poor overseas to cut timber, mine gold or farm cane would, according to Hakluyt, turn the “multitudes of loiterers and idle vagabonds” that “swarm(ed)” England’s streets and “pestered and stuffed” its prisons into industrious workers, providing raw materials and a reason to multiply. Colonization would fuel limitless growth. ¶As English plantations took shape in Ulster, Virginia, New England and the Caribbean, “projectors” — individuals (nearly always men) who promised to use new kinds of knowledge to radically and profitably transform society — tied mobility to new sciences and technologies. They were inspired as much by English philosopher Francis Bacon’s vision of a tech-centred state in The New Atlantis as by his advocacy of observation and experiment. ¶Discovery and invention ¶The English agriculturalist Gabriel Plattes cautioned in 1639 that “the finding of new worlds is not like to be a perpetual trade.” But many more saw a supposedly vacant America as an invitation to transplant people, plants and machinery. ¶The inventor Cressy Dymock (from Lincolnshire, where fen-drainage schemes were turning wetlands dry) sought support for a “perpetual motion engine” that would plough fields in England, clear forest in Virginia and drive sugar mills in Barbados. Dymock identified private profit and the public good by speeding plantation and replacing costly draught animals with cheaper enslaved labour. Projects across the empire would employ the idle, create “elbow-room,” heal “unnatural divisions” and make England “the garden of the world.” ¶Extraterrestrial exploration ¶Today, the moon and Mars are in projectors’ sights. And the promises billionaires Elon Musk and Jeff Bezos make for colonization are similar in ambition to those of four centuries ago. ¶As Bezos told an audience at the International Space Development Conference in 2018: “We will have to leave this planet, and we’re going to leave it, and it’s going to make this planet better.” Bezos traces his thinking to Princeton physicist Gerald O’Neill, whose 1974 article “The Colonization of Space” (and 1977 book, The High Frontier) presented orbiting settlements as solutions to nearly every major problem facing the Earth. Bezos echoes O’Neill’s proposal to move heavy industry — and industrial labour — off the planet, rezoning Earth as a mostly residential, green space. A garden, as it were. ¶Musk’s plans for Mars are at once more cynical and more grandiose, in timeline and technical requirements if not in ultimate extent. They center on the dubious possibility of “terraforming” Mars using resources and technologies that don’t yet exist. ¶Musk planned to send the first humans to Mars in 2024, and by 2030, he envisioned breaking ground on a city, launching as many as 100,000 voyages from Earth to Mars within a century. ¶As of 2020, the timeline had been pushed back slightly, in part because terraforming may require

bombarding Mars with 10,000 nuclear missiles to start. **But the vision – a Mars of thriving crops, pizza joints and “entrepreneurial opportunities,” preserving life and paying dividends while Earth becomes increasingly uninhabitable — remains.** Like the colonial company-states of the 17th and 18th centuries, Musk’s SpaceX leans heavily on government backing but will make its own laws on its newly settled planet. ¶A failure of the imagination ¶The techno-utopian visions of Musk and Bezos betray some of the same assumptions as their early modern forebears.

They offer colonialism as a panacea for complex social, political and economic ills, rather than attempting to work towards a better world within the constraints of our environment. ¶And rather than facing the palpably devastating consequences of an ideology of limitless growth on our planet, they seek to export it, unaltered, into space. They imagine themselves capable of **creating liveable environments where none exist.** ¶But for all their futuristic imagery, **they have failed to imagine a different world. And they have ignored the history of colonialism on this one.** Empire never recreated Eden, but it did fuel **centuries of growth based on expropriation, enslavement and environmental transformation** in defiance of all limits. **We are struggling with these consequences today.**

Private space colonization would amplify social inequalities on Earth and contribute little scientific value – Spencer '17

Spencer, Keith A. [senior editor at Salon] "Keep the Red Planet Red." Jacobin, 2 May 2017, <https://www.jacobinmag.com/2017/02/mars-elon-musk-space-exploration-nasa-colonization>. // Accesserd 12/15/2021 // marlborough JH

As the Western liberal order continues to unravel, can you really blame anyone who wants to get off this planet? Since space travel became technologically feasible in the twentieth century, many thinkers — from Arthur C. Clarke to Buckminster Fuller — envisioned the human colonization of other planets as all but inevitable. "Man will not always stay on Earth," wrote Soviet rocket scientist Konstantin Tsiolkovsky, "the pursuit of light and space will lead him to penetrate the bounds of the atmosphere, timidly at first, but in the end to conquer the whole of solar space." In their heydays, both the American and Soviet space programs funded research into Mars colonization, viewing it as the next logical step for humanity. In the past two decades however, people have started to pin their hopes for intergalactic travel on private groups instead of public agencies. While President Obama was privatizing much of the American space program, a flurry of ventures released competing proposals to visit and/or colonize the red planet. These schemes' feasibility and harebrained-ness vary: the Mars Foundation, run by multimillionaire former investor Dennis Tito, is soliciting private donations to send a couple on a flyby of the red planet. Mars One, a Dutch nonprofit, wants to fund a permanent human colony through "merchandise sales, ads on video content, brand partnerships, speaking engagements, [b]roadcasting rights, intellectual property rights, games & apps, and events." The most famous — and perhaps most likely to succeed — comes from entrepreneur and engineer Elon Musk, the multimillionaire CEO of SpaceX and Tesla Motors. Musk's articulation of his Mars mission reveals not only what's wrong with how we think about extraterrestrial colonies and resources, but also how little faith most people have in democracy here on Earth. Interplanetary Technocracy Given his reputation as an engineering genius, Musk's vision for colonization seems the most plausible of the private missions to Mars. After all, SpaceX, which he admitted to founding specifically to colonize the solar system, became the first private company to successfully launch a rocket into orbit in 2008. In September 2016, at the International Astronautical Congress in Guadalajara, Musk laid out a detailed vision for his colonization project, including financial estimates, engineering specs for the reusable "Interplanetary Transit System," and the price of a passenger ticket — around \$200,000. Musk's presentation even included a snazzy computer-animated video of the transit system in action and details about the long trip there, which would offer colonists games, restaurants, and entertainment. "It'll be, like, really fun to go . . . You're gonna have a great time," Musk said. His approach to colonizing Mars comes straight out of Silicon Valley's playbook: Musk has taken a "problem" — how to colonize Mars — and hacked a feasible "solution" that is one part engineering, one part moxie. Just add investors and we'll be building cities on the red planet in no time. Though vague, Musk reiterated that his vision would need funding. His talk of "tickets" implies that colonists will likely pay for much of the mission. Unlike a space agency's astronaut selection process, then, his Mars mission will be limited to those who can afford it. In that sense, Musk's colonization plan looks a lot like joining a country club or gated community — or any other model of private access to space for those who can afford it. Musk's proposal — heavy on the engineering and business details, light on the philosophical or political implications of colonization — epitomizes technocracy. He doesn't seem interested in thinking through Mars's policy or governance, the labor necessitated by building a civilization from scratch, or the problems that will arise from sending rich tourists to self-manage in a place with scant resources demanding communal organization and thinking. The True Value of Mars For some, sending a few rich folks off to Mars seems like a great idea. After all, it's hardly an Eden waiting to be destroyed. Unlike previous colonial projects, there are no natives to exploit; no wildlife to hunt to extinction; no ecosystem to radically alter; no fossil fuels to extract; and no climate in danger of destruction from carbon emission. Mars's atmosphere is already 96 percent carbon dioxide! Why not let Musk and his millionaire buddies take off for a few rounds of golf on the frosted dunes? If they get stuck there, all the better. From a humanistic perspective, however, even a lifeless world like Mars holds incredible scientific, educational, and environmental value. To let private interests colonize, terraform, or populate it without considering this collective value would be short-sighted. Indeed, when it comes to colonization, we should hope humanity has learned from its past mistakes and is ready to set upon a more democratic process. Perhaps Earth can agree to hold a public discussion before we set about strip-mining Mars's glorious dunes, vistas, and mountains, lest the tallest mountain in the solar system become a trash heap like Everest. Government space agencies have gone to great lengths to keep the scientific and social benefits of publicly funded exploration intact. This is why NASA makes all its mission data public, and also why it insists on sterilizing space probes to avoid contaminating other worlds with cellular life from Earth — one stray terrestrial extremophile could confuse the search for microbial life off-planet. The agency, recognizing its work's educational value, has sent elementary school children's experiments into space and hosted public naming competitions for geographic features. Likewise, NASA thinks beyond the engineering challenges: they also consider space travel's psychological and biological effects, surely an important field of study in anticipation of the long space flights required for interplanetary travel. Private industry will be unlikely to follow these collective practices, as its desire for profit or for exclusive property rights — physical and intellectual — will outweigh any public benefit. I Want to Believe The public and media reaction to Musk's presentation — more than the presentation itself — reflects the current state of our politics. "The mood at the

conference was almost as giddy as a rock concert or the launch of a new Apple product, with people lining up for Mr. Musk's presentation a couple of hours in advance," wrote Kenneth Chang in the New York Times, who devoted 1,200 words to it. "Elon Musk finally told the world his vision for colonizing Mars, and it turned out to be one hell of a show," exclaimed Loren Grush in a video article for the Verge. Grush noted that Musk drew an "insane crowd," describing how "people actually stampeded into the hall where his lecture was in order to get a good seat." He began in lofty tones: "I want to . . . make Mars seem possible. Make it seem as though it is something we can do in our lifetimes." This statement implied that we needed some great technological leap forward before embarking on this adventure, but, in fact, travel to Mars has been possible for well over half a century. Given the political will, we can go right now. The subtext of Musk's message, then, was that our democratic governments will never execute big science and engineering projects. People should trust in the private vision for colonization and space travel instead. In Earth politics, this lack of faith in democratic institutions is nothing new. This idea's policy implications — that collectively we can't have big public projects or any sort of real democratic decision-making, and must cede our whims to privately funded foundations and technocratic "experts" — have already taken hold of most countries. As far as I could find, none of the magazines that covered Musk's announcement mentioned this metatheme, namely, that a public and democratically organized colonization of Mars will never happen. No one questioned the premise that we must let billionaires decide how and when to go to Mars — or that it is the only possible way to get there. Musk's tech-industry social circle benefits from branding technology as synonymous with progress. As a result, many tech employees work long hours to achieve this invisible notion of progress, but their work just fattens their employer's profit margins. One can imagine the grueling labor required to make an inhospitable planet habitable. On Mars, employees would exhaust themselves for a corporation under the guise of "survival." After all, regardless of whether a foundation or a corporation spearheads the colonization effort, they will be incentivized, even forty million miles away, to squeeze as much labor out of their workers at the lowest cost. Further, the question of who is allowed to go to Mars will become as important as the question of who isn't. If, as Musk proposes, the trip requires a "ticket" — which, as he claims, will eventually drop to only \$100,000 — it seems probable that those who can afford to go will mostly resemble, ethnically and politically, Earth's ruling class. Imagine: the red planet turned racist country club. These questions matter more than how to engineer a rocket or how to build greenhouses or how to harvest water. In fact, state-funded research has already largely solved these technical problems — or, at the least, led to numerous creative ideas about making a Mars colony self-sufficient. The Martian Commons Any colonization effort on Mars — even if only a small number of humans go — will present huge political challenges in terms of the labor and personal rights of its citizens. To wit: what kinds of reproductive restrictions will exist on a planet of scarce resources? How will colonists ration food and activity? What about personal privacy? If Martian citizens are working in a life-or-death situation, can the workers strike? At least in its early years, Mars would have a scarcity economy — in other words, resources would likely have to be rationed in order for the collective to survive. A private colony would be unlikely to make any kind of egalitarian guarantee — after all, if there's a ticket price, there will certainly be a Martian service economy pampering the space tourists. Inequalities will emerge in terms of labor, housing, food, and access to other resources. In fact, we already know what a privatized Mars might resemble: Mount Everest. At higher elevations, it becomes a barren, lifeless, cold world, where climbers require oxygen tanks to survive. The cost of ascending is as steep as the mountain: between \$30,000 to \$100,000. Climbers' journeys are only made possible by their Sherpas' exploited labor, many of whom die in accidents and are paid as little as \$5,000 a year by Western companies. Now imagine this situation replicated forty million miles off, on a lifeless planet, where two-way Earth communication takes almost an hour, and you can envision how dire things could get. A New Hope Musk spent nearly an hour of his speech detailing the technological aspects of Mars travel: the landers, the rockets, the fuel costs, and so on. Musk takes a technology-first approach and rarely mentions the numerous social aspects. His speech and its collective reactions attest to a naïve, John Galt fantasy about how policy and engineering come to pass: through the mind of the lone genius, who alone holds the key to humanity's future. We saw the same fantasy at work last week when, in the wake of President Trump's executive order banning emigration from seven majority-Muslim countries, Starbucks CEO Howard Schultz announced his plan to hire ten thousand refugees and was immediately hailed as a liberal hero. The message was clear: we can't hope to help refugees ourselves, or on a democratic basis — we must rely on the whims of the rich to push forward progressive causes. Alas, the reaction to Musk's speech also demonstrates how public sentiment has changed: collectively, we no longer believe in public space exploration. Even if we know state agencies can launch a Mars mission, few think it will happen. This doesn't bode well for how we think of the commons. Are rich people and their foundations the only ones who can save us? The plethora of private Mars proposals reflects a lack of faith in democracy on Earth, in particular in our democratic influence over the directions science and engineering research take. And while faith in public institutions sits at an all-time low, we seem more than happy to hear what the rich can make possible and to believe their promises. Musk is just one of many technocrats who think of a Mars voyage as a technological problem. Not only is it not a technological problem, it's not even a problem. Colonization of Mars should be seen as a complex social and political policy, with so much potential to create inequality and oppression that it cannot rationally be undertaken without political consensus and a stratagem for maintaining democracy and egalitarianism. We are ready to colonize Mars, and have been for half a century. Doing so without a democratic plan will present unimaginable dangers for the planet and colonists alike. As socialists, our rallying cry should be this: Keep the red planet red!

Private control of space inevitably leads to exploitation. Spencer '20

Spencer, Keith A. [senior editor at Salon]"Against Mars-a-Lago: Why SpaceX's Mars Colonization Plan Should Terrify You." Salon, Salon.com, 7 Jan. 2020, <https://www.salon.com/2017/10/08/against-mars-a-lago-why-spacexs-mars-colonization-plan-should-terrify-you/>.

When CEO Elon Musk announced last month that his aerospace company SpaceX would be sending cargo missions to Mars by 2022 — the first step in his tourism-driven colonization plan — a small cheer went up among space and science enthusiasts. Writing in the New York Post, Stephen Carter called Musk's vision "inspiring," a salve for politically contentious times. "Our species has turned its vision inward; our image of human possibility has grown cramped and pessimistic," Carter wrote: "We dream less of reaching the stars than of winning the next election; less of maturing as a species than of shunning those who are different; less of the blessings of an advanced technological tomorrow than of an apocalyptic future marked by a desperate struggle to survive. Maybe a focus on the possibility of reaching our nearest planetary neighbor will help change all that." The Post editorial reflected a growing

media consensus that humankind's ultimate destiny is the colonization of the solar system — yet on a private basis. American government leaders generally agree with this vision. Obama egged on the privatization of NASA by legislating a policy shift to private commercial spaceflight, awarding government contracts to private companies like SpaceX to shuttle supplies to the International Space Station. "Governments can develop new technology and do some of the exciting early exploration but in the long run it's the private sector that finds ways to make profit, finds ways to expand humanity," said Dr. S. Pete Worden, the director of the NASA Ames Research lab, in 2012. And in a Wall Street Journal op-ed this week, Vice President Mike Pence wrote of his ambitions to bring American-style capitalism to the stars: "In the years to come, American industry must be the first to maintain a constant commercial human presence in low-Earth orbit, to expand the sphere of the economy beyond this blue marble," Pence wrote. One wonders if these luminaries know their history.

There has been no instance in which a private corporation became a colonizing power that did not end badly for everyone besides the shareholders. The East India Company is perhaps the finest portent of Musk's Martian ambitions. In 1765, the East India Company forced the Mughal emperor to sign a legal agreement that would essentially permit their company to become the de facto rulers of Bengal. The East India Company then collected taxes and used its private army, which was over 200,000 strong by the early 19th century, to repress those who got in the way of its profit margins. "It was not the British government that seized India at the end of the 18th century, but a dangerously unregulated private company headquartered in one small office, five windows wide, in London, and managed in India by an unstable sociopath," writes William Dalrymple in the Guardian. "It almost certainly remains the supreme act of corporate violence in world history." The East India Company came to colonize much of the Indian subcontinent. In the modern era, an era in which the right of corporations to do what they want, unencumbered, has become a sacrosanct right in the eyes of many politicians, the lessons of the East India Company seem to have been all but forgotten. As Dalrymple writes:

Democracy as we know it was considered an advance over feudalism because of the power that it gave the commoners to share in collective governance. **To privately colonize a nation, much less a planet, means ceding governance and control back to corporations whose interest is not ours, and indeed, is always at odds with workers and residents — particularly in a resource-limited environment** like a spaceship or the red planet. Even if, as Musk suggests, a private foundation is put in charge of running the show on Mars, their interests will inherently be at odds with the workers and employees involved. After all, a private foundation is not a democracy; and as major philanthropic organizations like the Bill and Melinda Gates Foundation illustrate, often do the bidding of their rich donors, and take an important role in ripening industries and regions for exploitation by Western corporations. Yet Mars' colonization is a bit different than Bengal, namely in that it is not merely underdeveloped; it is undeveloped. How do you start an entirely new economy on a virgin world with no industry? After all, Martian resource extraction and trade with Earth is not feasible; the cost of transporting material across the solar system is astronomical, and there are no obvious minerals on Mars that we don't already have in abundance on Earth. **The only basis for colonization of Mars that Musk can conceive of is one based on tourism: the rich pay an amount — Musk quotes the ticket price at \$200,000 if he can get 1 million tourists to pay that — that entitles them to a round-trip ticket. And while they're on Mars and traveling to it, they luxuriate: Musk has assured that the trip would be "fun." This is what makes Musk's Mars vision so different than, say, the Apollo missions or the International Space Station. This isn't really exploration for humanity's sake — there's not that much science assumed here, as there was in the Moon missions. Musk wants to build the ultimate luxury package, exclusively for the richest among us. Musk isn't trying to build something akin to Matt Damon's spartan research base in "The Martian." He wants to build Mars-a-Lago. And an economy based on tourism, particularly high-end tourism, needs employees — even if a high degree of automation is assumed. And as I've written about before, that means a lot of labor at the lowest cost possible. Imagine signing away years of your life to be a housekeeper in the Mars-a-Lago hotel, with your communications, water, food, energy usage, even oxygen tightly managed by your employer, and no government to file a grievance to if your employer cuts your wages, harasses you, cuts off your oxygen.** Where would Mars-a-Lago's employees turn if their rights were impinged upon? Oh wait, **this planet is run privately?** You have no rights. **Musk's vision for Mars colonization is inherently authoritarian.** The potential for the existence of the employees of the Martian tourism industry to slip into something resembling indentured servitude, even slavery, cannot be underestimated. We have government regulations for a reason on Earth — to protect us from the fresh horror Musk hopes to export to Mars. If he's considered these questions, he doesn't seem to care; for Musk, the devil's in the technological and financial details. The social and political are pretty uninteresting to him. This is unsurprising; accounts from those who have worked closely with him hint that he, like many CEOs, may be a sociopath. Even as a space enthusiast, I cannot get excited about the private colonization of Mars. You shouldn't be either. This is not a giant leap for mankind; this is the next great leap in plutocracy. The mere notion that global wealth is so unevenly distributed that a small but sufficient sum of rich people could afford this trip is unsettling, indicative of the era of astonishing economic inequality in which we suffer. Thomas Frank, writing in Harpers, once wrote of a popular t-shirt he sighted while picnicking in a small West Virginia coal town: "Mine it union or keep it in the ground." The idea, of course, is that the corporations interested in resource extraction do not care whatsoever about their workers' health, safety, or well-being; the union had their interests at heart, and was able to negotiate for safety, job security, and so on. I'd like to see a similar t-shirt or bumper sticker emerge among scientists and space enthusiasts: "Explore Mars democratically, or keep it in the sky."

Space resources must be distributed democratically—this requires challenging private control of outer space

Levine 15

Nick Levine, MPhil candidate in history of science at the University of Cambridge, 3-21-2015, "Democratize the Universe," Jacobin, <https://jacobinmag.com/2015/03/space-industry-extraction-levine>

The privatization of the Milky Way has begun. Last summer, the bipartisan ASTEROIDS Act was introduced in Congress. The legislation's aim is to grant US corporations property rights over any natural resources — like the platinum-group metals used in electronics — that they extract from asteroids. The bill took advantage of an ambiguity in the United Nations' 1967 Outer Space Treaty. That agreement forbade nations and private organizations from claiming territory on celestial bodies, but was unclear about whether the exploitation of their natural resources would be allowed, and if so, on what terms. The legal framework governing the economic development of outer space will have enormous effects on the distribution of wealth and income in the Milky Way and beyond. We could fight for a galactic democracy, where the proceeds of the space economy are distributed widely. Or we could accept the trickle-down astronautics anticipated by the ASTEROIDS Act, which would allow for the concentration of vast amounts of economic and political power in the hands of a few corporations and the most technologically developed nations. Given the pressing problems of inequality and climate change on Earth, the US left has been understandably uninterested in or largely dismissive of any space pursuits. For this reason, it remains unprepared to organize around extraterrestrial economic justice. The Left's rejection of space has effectively ceded the celestial commons to the business interests who would literally universalize laissez-faire. Organizing around extraterrestrial politics wasn't always treated as an escapist distraction. In the 1970s, fighting for a celestial commons was a pillar of developing countries' struggle to create a more equitable economic order. Starting in the 1960s, a coalition of underdeveloped nations, many recently decolonized, asserted their strength in numbers in the United Nations by forming a caucus known as the Group of 77. In the early 1970s, this bloc announced its intention to establish a "new international economic order," which found its expression in a series of UN treaties governing international regions, like sea beds and outer space, that they hoped would spread the economic benefits of the commons more equitably, with special attention to less developed nations. For these countries — as well as for the nervous US business interests that opposed them — their plan to "socialize the moon," as some put it at the time, was the first step toward a more egalitarian distribution of wealth and power in human society. It will be years before the industrialization of outer space is economically viable, if it ever is. But the legal framework that would shape that transition is being worked out now. The ASTEROIDS Act was submitted on behalf of those who would benefit most from a laissez-faire extraterrestrial system. If we leave the discussion about celestial property rights to the business interests that monopolize it now, any dream of economic democracy in outer space will go the way of jetpacks, flying cars, and the fifteen-hour workweek. As Below, So Above Left critics of space proposals make the same mistakes as the most techno-utopian starry-eyed industrialists. From the point of view of the latter, celestial development will provide ultimate salvation to the human race by making us a multi-planetary species; the former see outer space as an infinite void essentially antagonistic to human life, interest in which is only orchestrated for cynical political ends. Each side misconceives extraterrestrial pursuits as qualitatively different from economic activities on Earth. Venturing into space may be a greater technical challenge; it may cost more, be more dangerous, or be a mistaken use of resources. But to understand these prospects in existential terms rather than as a new episode in the familiar history of industrial development and resource extraction — with all the political-strategic dangers and organizing opportunities that come with them — is to be blinded by the space romanticism that is a peculiar vestige of Cold War geopolitics. Whether and how we should go to space are not profound philosophical questions, at least not primarily. What's at stake is not just the "stature of man," as Hannah Arendt put it, but a political-economic struggle over the future of the celestial commons, which could result in a dramatic intensification of inequality — or a small step for humankind toward a more egalitarian state of affairs on our current plane. Undoubtedly, there are good reasons to be skeptical about going to space. Some have argued that it shifts attention away from solving the difficult problems of economic and environmental justice on Earth — think of Gil Scott-Heron's spoken-word poem "Whitey on the Moon," which juxtaposes the deprivation of the American underclass with the vast resources diverted to space. Scott-Heron's critique is powerful, but it's important to remember that he was denouncing an unjust economic system. He wasn't issuing a timeless condemnation of space pursuits as such. Whether the aims of providing for all and developing outer space are mutually exclusive depends on the political forces on the ground. We might also question whether mining asteroids would be detrimental to our current planet's environment in the medium term. If we don't find a renewable way to blast off into outer space, the exploitation of these resources could lead to an intensification of, not a move away from, the fossil-fuel economy. If the environmental impact of space mining turns out to be large, it would be analogous to fracking — a technological development that gives us access to new resources, but with devastating ecological side effects — and ought to be opposed on similar grounds. On the other hand, some

speculate that mining the Moon's Helium-3 reserves, for example, could provide an abundant source of clean energy. The terrestrial environmental impact of space activity remains an open question that must be explored before we stake our hopes on the economic development of outer space. Philosophers have suggested that we might have ethical duties to preserve the "natural" states of celestial bodies. Others fear that our activities might unknowingly wipe out alien microbial life. We should remain sensitive to the aesthetic and cultural value of outer space, as well as the potential for extinction and the exhaustion of resources misleadingly proclaimed to be limitless. But if the Left rejects space on these grounds we abandon its fate to the will of private interests. These concerns shouldn't cause us to write off space altogether — rather, they should motivate us even more to fight for the careful, democratic use of celestial resources for the benefit of all. There is also reason to be cautiously optimistic about extending economic activity to outer space. For one, the resources there — whether platinum-group metals useful in electronics, or fuels that could be central to the semi-independent functioning of an outer space economy — have the potential to raise our standards of living. Imagine, a superabundance of asteroid metals that are scarce on Earth, like platinum, driving the sort of automation that could expand output and reduce the need to work. Of course, there's nothing inevitable about the benefits of productivity gains being distributed widely, as we've seen in the United States over the past forty years. This is a problem not limited to space, and the myth of the "final frontier" must not distract us from the already existing problems of wealth and income distribution on Earth. While the industrialization of the solar system isn't a panacea for all economic ills, it does offer a significant organizing opportunity, since it will force a confrontation over the future of the vast celestial commons. The democratic possibilities of such a struggle have been recognized before: one conservative American citizens' group in the 1970s called a progressive UN space treaty a "vital component of Third World demands for massive redistribution of wealth so as ultimately to equate the economic positions of the two hemispheres." Many in the 1970s identified the egalitarian potential in the development of outer space, and the Left must not overlook it today. Back to the Future One of the **Group of 77's major goals was to apply some of the redistributive functions of the welfare state on a global scale.** In 1974, that coalition issued a **"Declaration on the Establishment of a New International Economic Order,"** which called for a fairer system of global trade and resource distribution, one that could alleviate historical inequality. One of **the battlegrounds for the Group of 77 was the negotiation over extraterrestrial property rights.** The Outer Space Treaty of 1967, signed by over ninety countries in the heat of the first sprint to the moon, rejected the notion that celestial bodies fell under the legal principle of *res nullius* — meaning that outer space was empty territory that could be claimed for a nation through occupation. It forbade the "national appropriation by claim of sovereignty, by means of use or occupation, or by any other means" of outer space. But the treaty was not just restrictive. It also had a positive requirement for extraterrestrial conduct: "The exploration and use of outer space," it declared, "shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind." However, nobody knew what this would mean in practice: was it a call for egalitarian economics, or an empty proclamation of liberal benevolence? Complicating matters, it was unclear whether the extraction and sale of natural resources from outer space fell under the category of "appropriation," which had been forbidden. And what exactly was this benefit to all countries that our outer space pursuits were supposed to bring? How would its distribution be enforced? Which interpretation would win out was more a question of political power than of esoteric legal maneuvers. The Group of 77 took an activist approach to these issues, proposing amendments to the Outer Space Treaty regime that would spread the economic benefits of the celestial commons to less developed countries that did not have the resources to get to space, let alone mine it. Thus in 1970, the Argentine delegate to the UN Committee on the Peaceful Uses of Outer Space proposed to legally designate outer space and its resources "the common heritage of mankind." First applied in negotiations over maritime law a few years earlier, the "common heritage" concept was intended to give legal grounding to the peaceful international governance of the commons. **As an alternative to the laissez-faire approach advocated by many private interests, the "common heritage" principle also provided a legal framework for the democratic distribution of revenues derived from the international commons.** In 1973, the Indian delegation to the Committee on the Peaceful Uses of Outer Space tried to put this idea into celestial practice, proposing an amendment to the Outer Space Treaty that called for equitable sharing of space benefits, particularly with developing countries. The Brazilian delegate to the committee summarized the group's position: "It does not seem justifiable . . . that space activities . . . should evolve in a climate of total laissez-faire, which would conceal under the cloak of rationality new ways for an abusive exercise of power by those who exert control over technology." Despite opposition from both the Soviet Union and the United States, the final draft of this new outer space agreement included a version of the "common heritage of mankind" doctrine. When the finalized treaty was brought to the US in 1979 for ratification, business groups balked. The vision of egalitarian galactic democracy suggested by the document was rightly seen as contrary to narrow American interests. The United Technologies Corp-oration, a designer and manufacturer of aircrafts and other heavy machinery (including the Black Hawk helicopter) took out a large advertisement in the Washington Post and a number of other newspapers, warning that the treaty would establish an "OPEC-like monopoly, require mandatory transfer of technology, and impose high international taxes on profits as a way of shifting wealth from the developed to the less developed countries." The president of the corporation, Alexander Haig, also testified against the treaty in Congress in 1979, warning that "the common heritage concept expressed in the treaty underlies Third World efforts directed at a fundamental redistribution of global wealth." Haig was hired as Ronald Reagan's secretary of state in 1981, and political opposition to the bill forced NASA's chief counsel to abandon defense of the treaty. In the end, the Moon Treaty, as the 1979 document came to be known, failed to gain more than a few signatories, leaving open the question of how the benefits of outer space were to be shared. In 1988, a different coalition of developing countries added the question of space benefits to the UN outer space committee's agenda. But they failed to gain traction, and by 1993 they had to concede, as two long-time delegates to the outer space committee put it, that "their attempt [at] a redistributive revolution in international space cooperation had failed." The conversation had shifted from the distribution of economic benefits to a narrower emphasis on international scientific coordination and development aid. This retreat culminated in a 1996 declaration that limited the interpretation of the "benefit" clause of the Outer Space Treaty to vague promises to help less developed countries improve their space technologies. The ultimate failure of the Moon Treaty was representative of broader developments in international politics, as the influence of the Group of 77 declined. The fact that the structural adjustment policies of the Washington Consensus won out over the Third World's redistributive goals was the result of contingent factors — the oil shock's exacerbation of debt crises, for instance — but it also indicated the limits of the power the Group of 77 had wielded in the first place. In October 2014, the UN outer space committee issued a press release summarizing its most recent session. Its headline: "Outer Space Benefits Must Not Be Allowed to Widen Global Gap between Economic, Social Inequality, Fourth Committee Told." Despite paying lip service to its past concerns, the outer space committee now emphasizes equal access, voluntary adjustment technology transfers, and modest development aid over the direct redistributive approach it took in the 1970s. This shift from struggling for equality of outcome to equality of opportunity, with no accountability mechanism in place to ensure even the latter, represents a striking regression. The egalitarian dreams of the "revolution of the colonized" in the UN, as it was called at the time, have been forgotten. The Empire Strikes Back Recent US plans for outer space development, shaped overwhelmingly by Silicon Valley's intuitions and capital, stand in stark contrast to the futuristic democratic dreams of the Group of 77. The most prominent of these entrepreneurial visions has been Elon Musk's plan to colonize Mars. For now, international law seems to unequivocally forbid territorial claims on Mars and other celestial bodies. The legal status of resource extraction, on the other hand, remains an open question. **A vocal group of entrepreneurs is hoping to set a precedent for the private**

appropriation of natural resources from asteroids, without internationally redistributive obligations.

Planetary Resources, an asteroid-mining company whose backers include Larry Page, Eric Schmidt, and James Cameron, plans to launch satellites to prospect for valuable asteroids in the next two years. Another US firm, Deep Space Industries, will launch exploratory satellites as soon as next year. These

entrepreneurs hope to extract the valuable platinum-group metals, essential for manufacturing electronics, that are rare on Earth. Sensationalist articles on space mining will tell you about an asteroid worth \$20 trillion.

Investors also believe that asteroids might provide water that could be broken down into oxygen and hydrogen in space, yielding air for astronauts and fuel for their ships. This could facilitate a dramatic acceleration in the economic development of outer space. The CEO of Deep Space Industries said he hopes asteroids near Earth will be “like the Iron Range of Minnesota was for the Detroit car industry last century — a key resource located near where it was needed. In this case, metals and fuel from asteroids can expand the in-space industries of this century. That is our strategy.” Another entrepreneur called the industrialization of outer space the “biggest wealth-creation opportunity in modern history.” Before this value can be generated, however, the legal wrinkles have to be ironed out. And so in the summer of 2014, the ASTEROIDS Act was introduced in the House of Representatives to “promote the right of United States commercial entities to explore and utilize resources from asteroids in outer space, in accordance with the existing international obligations of the United States, free from harmful interference, and to transfer or sell such resources.” The legislation was intended to clarify US interpretations of international space law, explicitly granting American companies the right to extract asteroid resources and bring them to market. The conclusion of Congress’s last session means that the bill will have to be reintroduced for it to move forward, and it is uncertain exactly when and how this will happen. But its appearance marked another

clear attempt to unilaterally push international norms toward the free extraction of outer space resources, with limited democratic responsibilities attached — and it will not be the last. Joanne Gabrynowicz, editor emerita of

the Journal of Space Law, said that an adviser to Planetary Resources had drafted the bill. Deep Space Industries also sent a letter supporting it directly to the space subcommittee of the House of Representatives. Moreover, Congressman Bill Posey, a cosponsor of the act, represents Florida, a state that Gabrynowicz pointed out has recently been forced to try to attract commercial space business — a direct response to the economic hardship caused by the decommissioning NASA’s space shuttle program. Such extraterrestrial special interests will no doubt continue to exert legislative pressure. In addition to asteroids, companies are investing millions in mining the moon, despite legal uncertainties. One such company, Moon Express, has already received a \$10 million data-sharing contract from NASA. One of that company’s founders, a former dot-com billionaire, told the Los Angeles Times: There is strong legal precedent and consensus of “finders, keepers” for resources that are liberated through private investment, and the same will be true on the moon. You don’t have to own land to have ownership of resources you unlock from it. Moon Express will use existing precedents of peaceful presence and exploration set by the US government forty years ago. This redeployment of the finders-keepers principle is anathema to the redistributive regime imagined by the Group of 77. Private companies like Planetary Resources and Moon Express, with support from the federal government, are betting not only on the viability of space industrialization, but also on their ability to push through a legal regime that will validate their property claims on their terms. But the universalization of laissez-faire is not inevitable. Final Frontier Thesis The history of the Moon Treaty serves as a reminder that outer space is not just a screen onto which we project techno-utopian fantasies or existential anxieties about the infinite void. It has been, and will continue to be, a site of concrete struggle over economic power. The politics of the present are undoubtedly different from those of the 1970s. The egalitarian project of the Group of 77 has given way to BRICS-style market liberalism. Global capital has gained power where international labor efforts have stagnated. Domestic inequalities have skyrocketed. The rapid proliferation of information technologies has temporarily masked the reality that the future, to paraphrase William Gibson, is not being very evenly distributed. Without international political organization to challenge galactic market fundamentalism, a twenty-first century space odyssey could mean

the concentration of even more wealth and income in the hands of a few powerful corporations and the most technologically advanced countries. At the

same time, and for the same reasons, the prospect of preserving the final frontier as a celestial

commons presents an opportunity to fight for a more democratic political economy. Sharing the benefits of the

celestial commons is key to expanding democracy to a galactic scale. One time-tested means of distributing the benefits of

natural-resource extraction universally is the sovereign wealth fund, which Alaska uses to deliver oil

revenue to its residents. As an international commons, outer space offers an opportunity to experiment

with such redistributive mechanisms beyond the traditional confines of the nation-state. Organizing

around an issue of such scale may seem utopian, but it’s also necessary. From regulating capital to mitigating climate

change, the problems that confront us are inherently global in scope and require commensurate strategies. At the very least, the global left ought to demand the creation of an independent Galactic Wealth Fund to manage the proceeds of outer space resources on behalf of all human beings. At first, it would amount to little, divided up among all of us. But as the space economy grows relative to the terrestrial one, social dividends from the Galactic Wealth Fund could provide the basis for a truly universal basic income. This is just one component of a broader platform for galactic democracy that must be developed collectively. Extraterrestrial economic justice — not just shiny technological advances — will be central to any truly egalitarian politics in the twenty-first century. It’s time to start building a democratic futurism.

Plan

The appropriation of outer space by private entities is unjust. Thus, the plan.

Plan text: Outer space ought to be recognized as a global commons as per the Goehring card. Goehring describes but does not advocate treating space in this way.

Goehring 6/3 - John S. Goehring [B.A., University of California, Berkeley; J.D., Tulane Law School; LL.M., McGill University, Institute of Air and Space Law) is a space and international law attorney for the Department of Defense and a judge advocate in the United States Air Force Reserve], “Why Isn’t Outer Space a Global Commons?” *Journal of National Security Law and Policy*. Vol. 11:573. (June 3, 2021).<https://jnslp.com/wp-content/uploads/2021/09/Why_Isnt_Outer_Space_a_Global_Commons_2.pdf> AT

B. Global Commons as a Constraining Concept In an economic context, as opposed to a military or geopolitical context, “global commons” is typically used to convey a constraining concept. **The concept of a “commons”** may be thought of as constraining because it **is** often **associated with** notions of **shared ownership, public governance** or limitations on use. Whether these constraints are viewed positively or negatively is a subjective assessment. The constraining concept is more complicated than the enabling concept because it can reflect two distinct meanings. This is likely a function of its history. “The ‘commons,’ of course, has a long historical and intellectual lineage ranging from the enclosure movement in England, to Garret Hardin’s famous Tragedy of the Commons parable, to Elinor Ostrom’s Nobel-prize winning work on governing common pool resources,” observe Professors Foster and Iaione.³⁰ Applying rational-choice theory, Hardin postulated that individual actors “automatically tend to over-exploit and plunder common-pool resources that are freely available to everyone.”³¹ The only possible solution to this dilemma, according to Hardin, was “the enclosure of resources through private property, or, failing that, public regulation.”³² Ostrom’s work later “turned [Hardin’s] conventional wisdom upside down: complex socio-ecological systems (in which goods are extractable and beneficiaries are hard to exclude) can prove to be sustainable resource domains granted that its stakeholders adopt a polycentric and self-regulated mode of governance.”³³ As this brief summary suggests, one meaning of “commons” is simply to describe a category of goods.³⁴ This usage was typical prior to Ostrom’s influence.³⁵ In this meaning, a common is a resource to which access is shared, such as an open hunting ground. Some common resources may offer more than one type of benefit. For example, a hunting ground may offer open space for recreation, game to hunt, and trees for building. Some common resources may be subtractable, meaning that use of the resource subtracts from the ability of others to use the resource, while others remain plentiful. Describing a resource in this manner, as a common resource, does not necessarily imply any particular property regime or use limitations.³⁶ A common hunting ground, for instance, may be publicly owned or privately owned. Ostrom helped popularize the term “common pool resource” to describe this general category of resources.³⁷ As Dr. Tepper argues, “[i]t is crucial to differentiate between resources and the legal regime that governs them.”³⁸ This is because the term “global commons” – or simply “commons” – can also be used in an economic sense to refer to a form of collective ownership and governance rather than to the economic goods themselves.³⁹ As Professors Cogolati and Wouters observe, “[u]nder Ostrom’s influence, the commons have become more closely connected with the collective self-governance and participatory mechanisms they imply, than with the strict category of (rivalrous and non-excludable) economic goods they used to refer to.”⁴⁰ This may account for the notion held by some that “the commons is less a description of the resource and its characteristics and more of a normative claim to the resource” (emphasis original).⁴¹ Used in this way, a commons is a category of property rights based on collective ownership.⁴² Put simply, **“commons” is** sometimes **used to refer to common property, meaning a resource with more than one owner, and which therefore should be governed collectively.** This notion of a commons is sometimes associated with the common heritage of mankind concept, particularly in the context of outer space. As expressed in Article 11(3) of the 1979 Moon Agreement, **the common heritage of mankind concept creates a new type of territorial status in which the moon and celestial bodies “are not only in themselves not subject to national appropriation in a territorial sense, but the fruits and resources of which are also deemed to be the property of mankind at large,”** according to Professor Cheng.⁴³ This principle, as characterized by Professor Christol, not only “protects the proposition what [sic] **given areas and their resources are open to inclusive use and that there may not be exclusive use,**” but also “goes farther: it asserts that **there must be a sharing of the benefits and of the values derived from the indicated commons.**”⁴⁴ In other words, **status as the common heritage of mankind does not permit full private property rights in space resources.** It should be noted that the concept of the common heritage of mankind is not limited to the outer space domain. In 1970, the United Nations (UN) General Assembly passed a non-binding resolution declaring “[t]he seabed and ocean floor, and the subsoil thereof, beyond the limits of national jurisdiction (hereinafter referred to as the area), as well as the resources of the area, are the common heritage of mankind.”⁴⁵ Years later – after the completion of the Moon Agreement – this principle was codified in Article 136 of the 1982 UN Convention on the Law of the Sea (UNCLOS).⁴⁶ Importantly, while the area is the common heritage of mankind according to the Convention, the high seas above the area remains free.⁴⁷ Hence, some may refer to the high seas as a global commons (in the enabling sense), while others may refer to the deep sea bed as a global commons (in the constraining sense) – a clear example of why the term is fraught with misunderstanding. While the concept of common heritage of the seabed and of the Moon and other celestial bodies are linked, the Moon Agreement declares that the content of the common heritage of mankind concept as it applies to States Parties “finds its expression in the provisions of this Agreement” and nowhere else.⁴⁸ In general, the concept “lacks a precise definition” but “basically wishes to convey the idea that management, exploitation and distribution of the natural resources of the area in question are matters to be decided upon by the international community and are not to be left to the initiative and discretion of individual States and their nationals.”⁴⁹ The United States has not signed the Moon Agreement and rejects the notion that outer space resources are the common heritage of mankind, a position clearly reiterated in Executive Order 13914.⁵⁰ The last of the five international space treaties to have been negotiated in the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS), the Moon Agreement is regarded as a failed treaty with only 18 nations having signed on, none of which is China, Russia, or the United States, the three most prominent space-faring States.⁵¹ VISITED STATUS OF INTERNATIONAL AGREEMENTS RELATING TO ACTIVITIES IN OUTER SPACE, UNITED NATIONS OFFICE FOR OUTER SPACE AFFAIRS, <https://perma.cc/8VA5-4UW8> (last July 11, 2020). The 1967 Outer Space Treaty, by contrast, has over 100 States Parties.⁵² Context is essential for discerning the distinction between the constraining concept and the enabling concept. By themselves, “global commons” or “commons” do not necessarily convey one concept or the other. **Describing a resource as a “global commons” in an economic context implies a focus on an**

open access resource and the consumption of that resource; it suggests a resource allocation problem in need of a solution and inevitably invites questions about ownership. In contrast, referring to a global commons in a military or geopolitical context implies a focus on the use of an open access domain and, when used accurately, the lack of ownership is a settled question. Indeed, the distinction between a focus on a thing (res) itself and a focus on the right to use and explore a domain is among the reasons the term “res communis” is not interchangeable with “global commons” when used in a military or geopolitical sense.⁵³

Solvency

Treating space as a commons solves orbital debris. States already agree to a limited regime of this type.

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The **failure to manage** Earth **orbits as a commons undermines safety and predictability, exposing** space **operators to** growing risks such as **collisions with other satellites and debris.** The long-standing debris problem has been building for decades and demands an international solution.¶ Competing **states need to coalesce behind a commons-based understanding of** Earth **orbits to set the table for a governance system to organize space traffic and address rampant debris.** New leadership in the United States can spur progress on space governance by affirming that Earth orbits are a great commons. So far, President Joe Biden and his administration have focused on major space projects, but **a** relatively simple **policy** declaration **that frames** Earth **orbits as a great commons can support efforts to negotiate space governance models for** issues like **debris mitigation and remediation.** The Biden administration can set the stage to pursue broad space policy goals by establishing a consensus among states, particularly those with the most invested in Earth orbits, that space is a great commons.¶ THE PRESSING NEED FOR SPACE GOVERNANCE¶ The Earth orbits that provide the majority of benefits to states and commercial ventures represent only a tiny fraction of outer space as a whole. Competition for the limited volume of these Earth orbits is especially fierce since two satellites cannot be in the same place at the same time and not all orbits are equally useful for all missions. The number of objects residing in Earth orbits is now at an all-time high, with most new objects introduced into orbits at altitudes of between 400 and 700 kilometers above sea level. Millions of pieces of debris in Earth orbits pose a threat to continuing space operations. For instance, the final U.S. space shuttle missions faced 1-in-300 odds of losing a space vehicle or crew member to orbital debris or micrometeoroid impacts.¶ Collisions with fragments of orbital litter as small as a few millimeters across can ruin satellites and end missions. Current technologies cannot track all of these tiny pieces of debris, leaving space assets at the mercy of undetectable, untraceable, and unpredictable pieces of space junk. Some researchers have determined that the debris population in low Earth orbit is already self-sustaining, meaning that collisions between space objects will produce debris more rapidly than natural forces, like atmospheric drag, can remove it from orbit.¶ States—namely the United States, Russia, China, and India—have exacerbated this debris accumulation trend by testing kinetic anti-satellite capabilities or otherwise purposefully fragmenting their satellites in orbit. These states, along with the rest of the multilateral disarmament community, are currently at an impasse on establishing future space governance mechanisms that can address the debris issue. A portion of this impasse may be attributable to disparate views of the nature of outer space in the international context. Establishing a clear view among negotiating parties that Earth orbits should be treated as a great commons would establish a basis for future agreements that reduce debris-related risks.¶ Beyond debris-generating, kinetic anti-satellite weapons tests, revolutionary operating concepts challenge existing space traffic management practices. For instance, commercial ventures are planning networks of thousands of satellites to provide low-latency connectivity on Earth and deploying them by the dozens. States are following this trend. Some are considering transitioning away from using single (or few) exquisite assets in higher orbits and toward using many satellites in low Earth orbits. These new operational concepts could lead to an increase in collision risks.¶ **Without new governance** agreements, problems related to **debris, heavy orbital traffic, and harmful interference will only intensify.** Debris in higher orbits can persist for a century or more. **The costs of adapting to** increasingly **polluted orbits would be immense, and the opportunity costs would be even higher.** For instance, all else being equal, hardening satellites against collisions increases their mass and volume, in turn raising launch costs per satellite. These costs, rooted in a failure to govern space as a commons, will be **borne by all space actors, including emerging states and commercial entities.**¶ EXISTING FORMS OF SPACE GOVERNANCE¶ A well-designed governance system, founded on a widespread understanding of Earth orbits as a great commons, could temper these risks. Currently, space is not wholly unregulated, but **existing regulations are limited** both **in scope and implementation.** Many **operators pledge to follow national regulations and international guidelines, but decentralized accountability mechanisms limit enforcement.** These **guidelines** also **do not cover the full range of** potentially **risky behaviors in space.** For example, while some space operators can maneuver satellites to avoid collisions, there are no compulsory rules or standards on who has the right of way.¶ At the interstate level, seminal multilateral agreements provide some more narrow guidance on what is and is not acceptable in space. Most famously, the Outer Space Treaty affirms that outer space "shall be free for exploration and use by all states without discrimination of any kind" and that "there shall be free access to all areas of celestial bodies." Similar concepts of Earth orbits being a great commons arise in subsequent international texts. Agreements like the Liability Convention impose fault-based liability for debris-related collisions in space, but it is difficult to prove fault in this regime in part because satellite owners and operators have yet to codify a standard of care in space, and thus the regime does not clearly disincentivize debris creation in orbit. Other rules of behavior in Earth orbits have been more successful in reducing harmful interference between satellite operations, but even these efforts are limited in scope.¶ **States have acceded to supranational regulations of the most limited** (and thus most valuable) Earth **orbits.** The International Telecommunication Union (ITU) **coordinates**, but does not authorize **satellite**

deployments and operations in geosynchronous orbits and manages radiofrequency spectrum

assignments in other regions of space

to reduce interference between satellites. These coordination activities are underpinned by the ITU's constitution, which reminds states "that radio frequencies and any associated orbits . . . are limited natural resources," indicating a commons-based approach to governing the radiofrequency spectrum. However, the union's processes are still adapting to new operational realities in low Earth orbit, and these rules were never designed to address issues like debris.

States can extend existing models to govern space, but recognition of space as a commons is key.

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BUILDING ON PRIOR MODELS FOR MANAGING COMMONS¶ The histories of other great commons provide lessons on how to manage shared space resources meaningfully and effectively. Efforts to minimize damage to other great commons—like the Convention on Long-Range Transboundary Air Pollution and subsequent protocols—offer guidance on how to resolve compliance issues. Notably, **the negotiations on the original convention on air pollution** involved, among others, the United States and the Soviet Union. This **suggests that states can pursue mutual benefits in areas considered great commons even under competitive conditions.** More recent negotiations on the convention's accompanying protocols show that these competing states can even agree on financing a monitoring regime to support progress.¶ **Existing convention**s and implementing agreements **indicate that states can reach valuable commitments to manage the Earth's great commons.** These governance models protect state interests and preserve the commons themselves. **These principles apply to space, but progress on establishing more encompassing space governance principles, enforcement mechanisms, and dispute resolution procedures hinges on states sharing the fundamental view that space is a great commons.** Reaching such a consensus is an important first step.¶ New leadership in prominent spacefaring states can revitalize efforts to recognize space as a commons and can build on established legal standards to pursue commons-related principles for governing Earth orbits. Space actors do not have to resolve all their competing interests based on the debris problem. But negligence, mismanagement, or poorly designed rules may spell disaster for Earth orbits. As a more diverse range of actors with space-based interests emerges, no single actor will be able to unilaterally impose universal rules. States can, however, negotiate agreements to manage commons areas to better pursue national objectives. The only way to effectively govern state and commercial space activities is to settle on and abide by common norms or rules.¶ New conventions or regulatory mechanisms for governing Earth orbits will not appear overnight, **but states can build toward these goals by clarifying their commitments to treat space as a commons and pursuing governance arrangements that reflect this commitment.** New policies in the United States should reflect that Earth orbits are a great commons.

Treating space as a commons is key to ethical exploration and human survival.

Fisk N.D. - L. A. Fisk [President of the Committee on Space Research, chartered by the International Council for Scientific Unions], "Space as a Global Commons," UNOOSA (Web). ND. Accessed Dec. 13, 2021. <https://www.unoosa.org/documents/pdf/hlf/1st_hlf_Dubai/Presentations/26.pdf> AT

There is an urgency to consider and act on this issue. • With each passing year, **our technological civilization becomes increasingly dependent on the satellites in orbit.** • **The primal threats to our civilization** – global **climate change and space weather** – **can only be understood, and dealt with** by using the **global perspective of observations from space.** • We need to recognize also that we are extending the human presence, whether through robotic spacecraft or eventually with humans, throughout our solar system. And **we have a commitment as a civilization to behave responsibly** in this endeavor. **To protect the environments we will explore, and to protect ourselves against any contamination of our planet that results from this exploration.**

Space as a Global Commons It follows therefore that, given the centrality of space for the future of our civilization, **we need to have policies** and practices in place, which are **shared by all spacefaring nations**, that will allow and encourage each and every nation that desires to and has the capability to use and to explore space for peaceful purposes, to do so. We thus need to recognize, encourage, and enable space as a global commons. A 'commons' in the English language **is a piece of land owned by and used by all members of a community**, as in a pasture used by all residents of a village. Many nations of the world view space as a global commons, a resource not owned by any one nation but crucial to the future of all humankind.